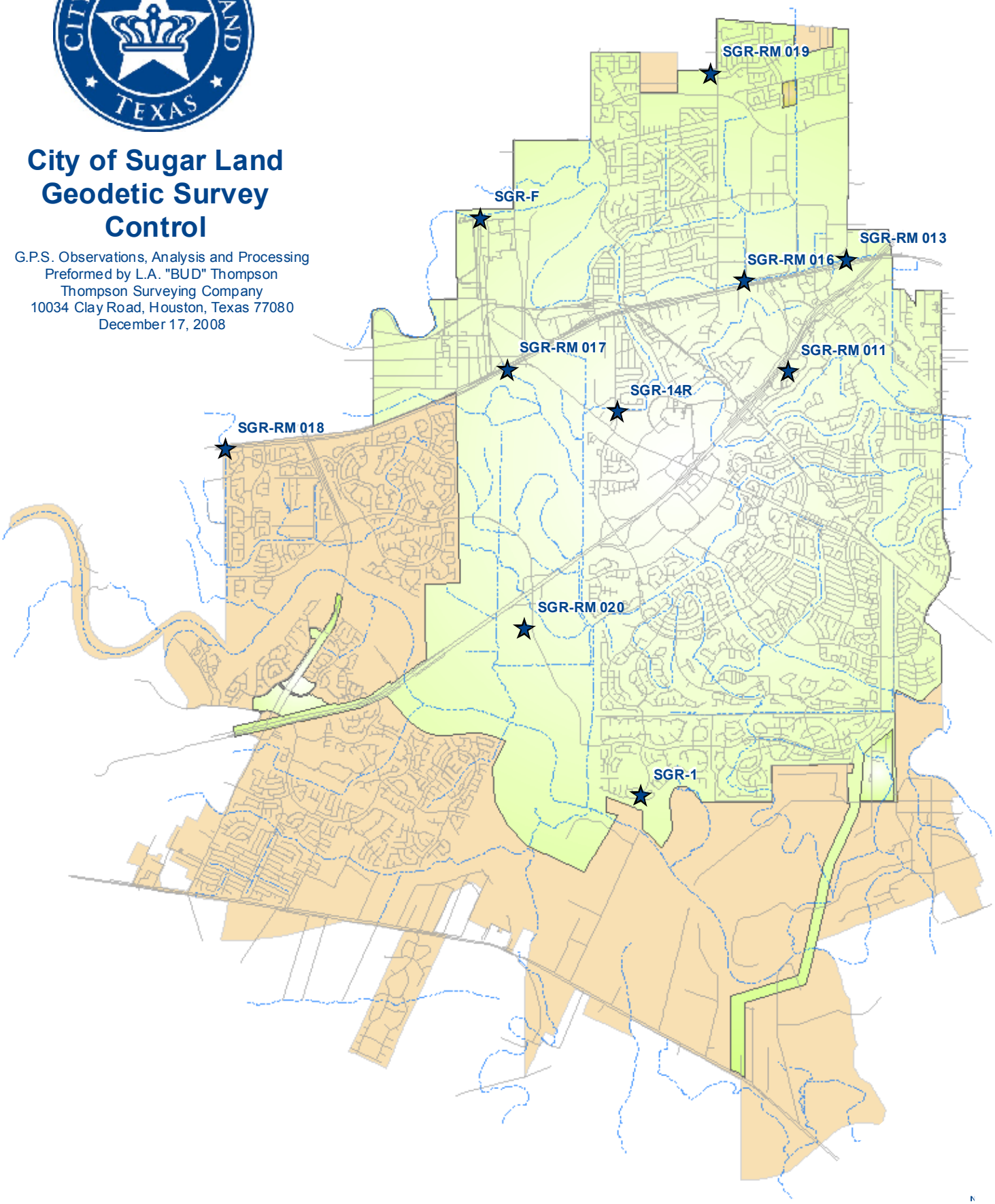
City of Sugar Land Geodetic Survey Control

G.P.S. Observations, Analysis and Processing
Preformed by L.A. "BUD" Thompson
Thompson Surveying Company
10034 Clay Road, Houston, Texas 77080
December 17, 2008



GROUNDS ANDERSON, LLC

Thompson Surveying Company

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-14R (Reset) **Designation Number:** TSC# 080406-SGR-14R
County: Fort Bend **State:** Texas **Key Map No.:** 568S	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: 040460, 040420, 030160 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-14R (RESET)	**Contractor PID:** 14
Marker: S.S. Rod in Logo Cap	**Rod Depth:** 31.5 feet
Stamping: N/A	**Sleeve Depth:** 4 feet
Mark Logo: N/A	**Geoid Height:** -89.1245' -27.1652m
Latitude: 29°36'22.36137"N	**Northing (grid):** 13,783,345.6292'
Longitude: 95°38'04.08950"W	**Easting (grid):** 3,037,776.0486'
Ellipsoid Height: -3.1097m = -10.2025'	**Elevation**(4)**:** 79.1700' 24.0555m
Convergence: 1°38'56"	**Scale Factor:** 0.999874412
Satellite Observable: Yes	**Elevation Factor:** 1.000000510
NGS PID (If applic.):	**Combined Factor:** 0.999870625

General Location

Intersection of Brooks St (Spur 58) & Brooks Lake

To Reach Description

From the intersection of SH 6 and Brooks Spur 58, north Brooks 0.2 miles to the benchmark on the right.

Notes: Positional information shown hereon are the results of GPS observations utilizing the TSARP Monument on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model), totaling 21 solutions.

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation** **Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-14R TSC# 080406-SGR-14R

Station Sketch:

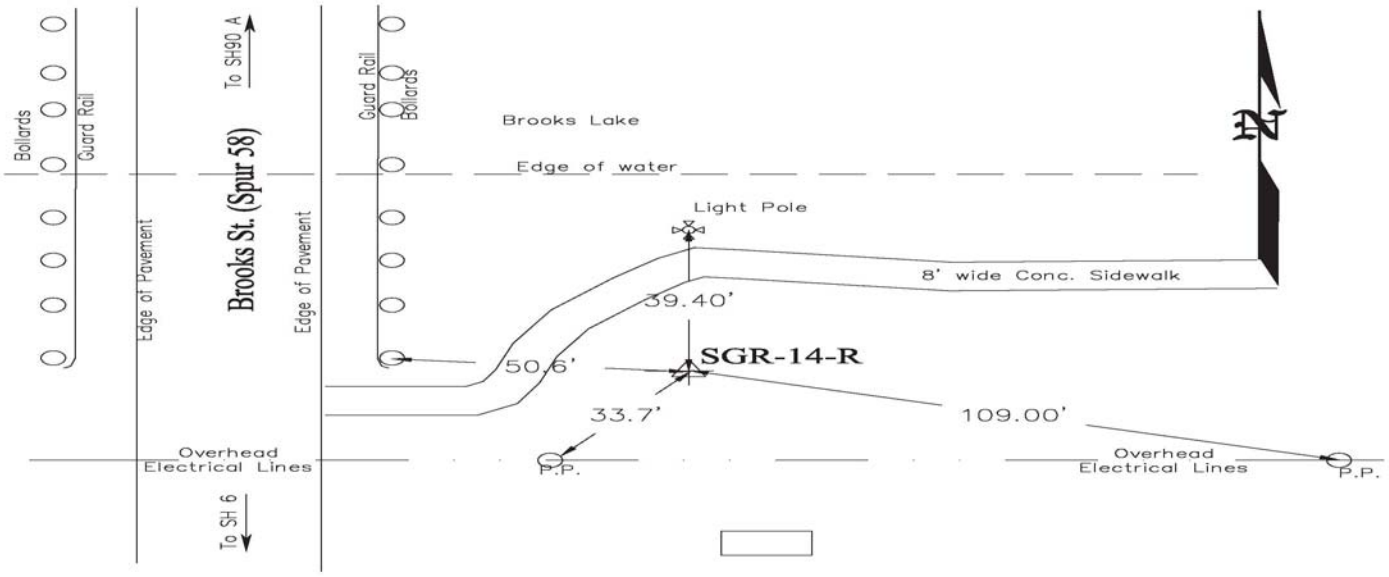


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugar Land 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-1 **Designation Number:** TSC# 080406-SGR-1
County: Fort Bend **State:** Texas **Key Map No.:** 607P	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, Z811, 030160 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-1	**Contractor PID:** 1
Marker: 3″ Brass Disk	**Rod Depth:** SURFACE
Stamping: RM 001	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -88.94′ -27.11m
Latitude: 29°33′07.51313"N	**Northing (grid):** 13,763,714.8162′
Longitude: 95°37'47.67915"W	**Easting (grid):** 3,039,790.9702′
Ellipsoid Height: -5.8091m = -19.0587′	**Elevation**(4)**:** 70.1361′ 21.3775m
Convergence: 1°39'04"	**Scale Factor:** 0.999870400
Satellite Observable: Yes	**Elevation Factor:** 1.000003355446
NGS PID (If applic.):	**Combined Factor:** 0.999867045

General Location

Intersection of Elkins Road and Saber River Road

To Reach Description

From the intersection of Williams Trace Blvd. and Elkins Rd., travel south on Elkins Rd. approximately 2.15 mi. to the south end of the first median, approximately 246' south of the intersection of Saber River Rd and Elkins.

Notes: Positional information shown hereon are the results of GPS observations on two (2) different days with differing satellite geometry, five (5) second epoch five, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 001 TSC# 080406-SGR-RM001

Station Sketch:

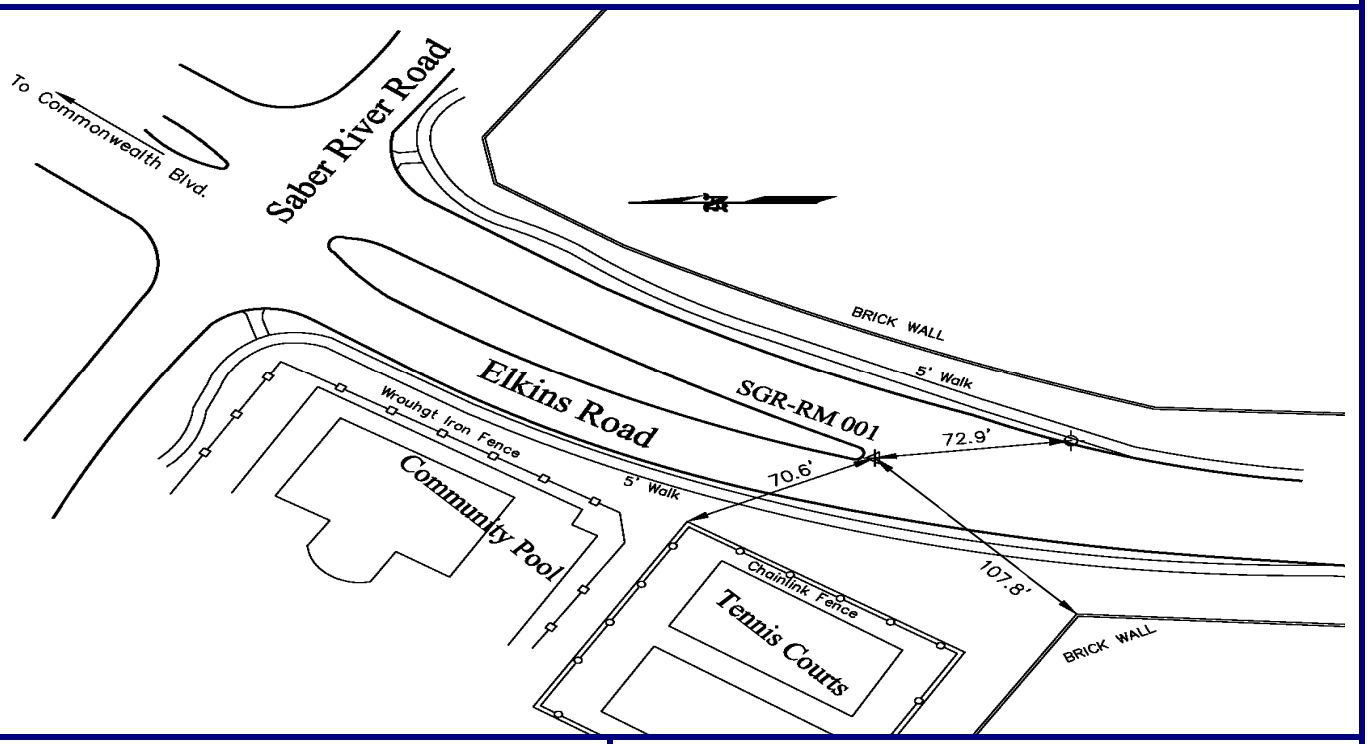


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-3 **Designation Number:** TSC# 080406-SGR-3
County: Fort Bend **State:** Texas **Key Map No.:** 569S	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, 030160 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-3	**Contractor PID:** 3
Marker: 3″ Brass Cap	**Rod Depth:** SURFACE
Stamping: N/A	**Sleeve Depth:** N/A
Mark Logo: N/A	**Geoid Height:** -89.0408′ -27.1397m
Latitude: 29°36'22.13786"N	**Northing (grid):** 13,783,801.4584′
Longitude: 95°34'57.16443"W	**Easting (grid):** 3,054,268.9098′
Ellipsoid Height: -2.6307m = -8.6307m′	**Elevation**(4)**:** 80.6632′ 24.5862m
Convergence: 1°40'27"	**Scale Factor:** 0.999874407
Satellite Observable: Yes	**Elevation Factor:** 1.000003858499
NGS PID (If applic.):	**Combined Factor:** 0.999870549

General Location

Intersection of Dulles Avenue & Avenue E

To Reach Description

From the intersection of Hwy 59 and Dulles Avenue, travel south on Dulles approx. 2.28 mi. to the intersection of Dulles and Avenue E, continue south approx. 102 ft. to the station on the right.

Notes: Positional information shown hereon are the results of GPS observations on two (2) different days with differing satellite geometry, five (5) second epoch five, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

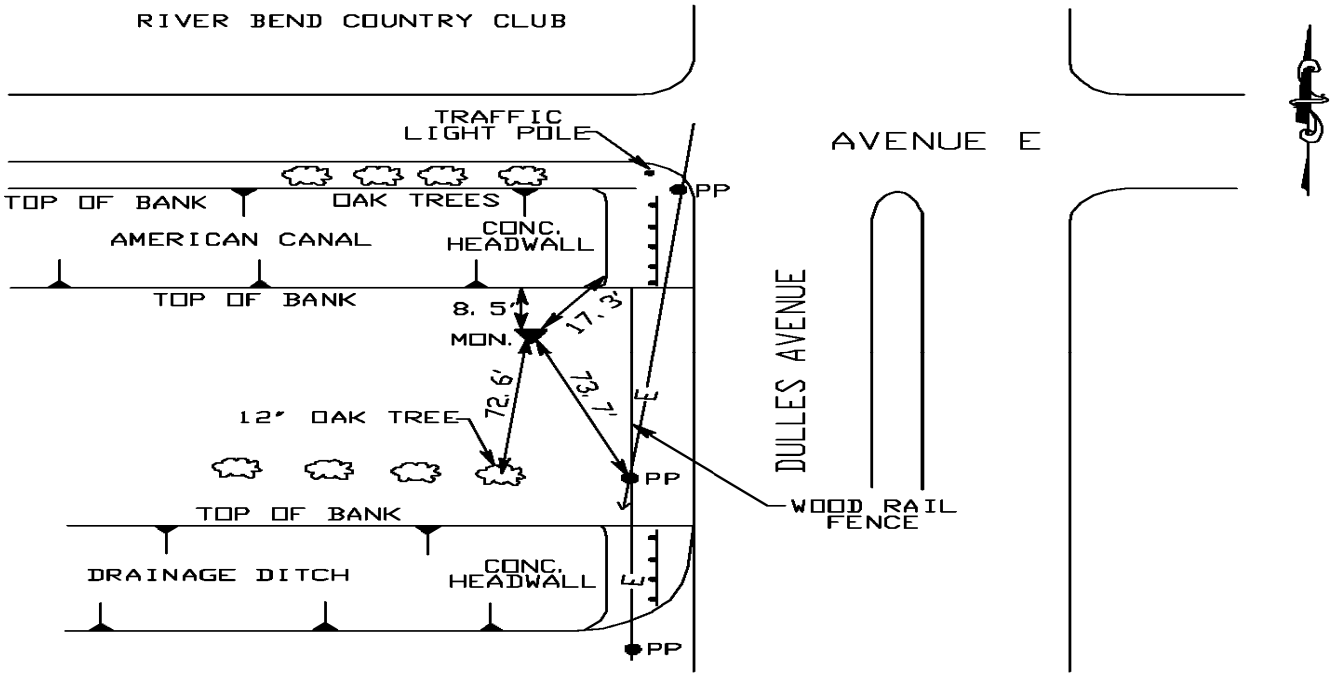
Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 003 TSC# 080406-SGR-RM 003

Station Sketch:



MARKER RM 003

Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM 004 **Designation Number:** TSC# 080406-SGR-RM004
County: Fort Bend **State:** Texas **Key Map No.:** 609E	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, Z811, 030160 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM 004	**Contractor PID:** 4
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: RM 004	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -88.9457′ -27.1107m
Latitude: 29°34'20.28665"N	**Northing (grid):** 13,771,435.6434′
Longitude: 95°35'21.77694"W	**Easting (grid):** 3,052,456.2592′
Ellipsoid Height: -4.5851m = -15.0431′	**Elevation**(4)**:** 74.1556′ 22.6027m
Convergence: 1°40'15"	**Scale Factor:** 0.999871794
Satellite Observable: Yes	**Elevation Factor:** 1.000003547467
NGS PID (If applic.):	**Combined Factor:** 0.999868247

General Location

Intersection of Austin Parkway & Lakefield Boulevard

To Reach Description

From the intersection of SH 6 and Austin Parkway, travel southwest on Austin Parkway approx. 0.8 mi. to the station on the right. Station is approx. 852 ft. west of Lakefield Boulevard.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 004 TSC# 080406-SGR-RM 004

Station Sketch:

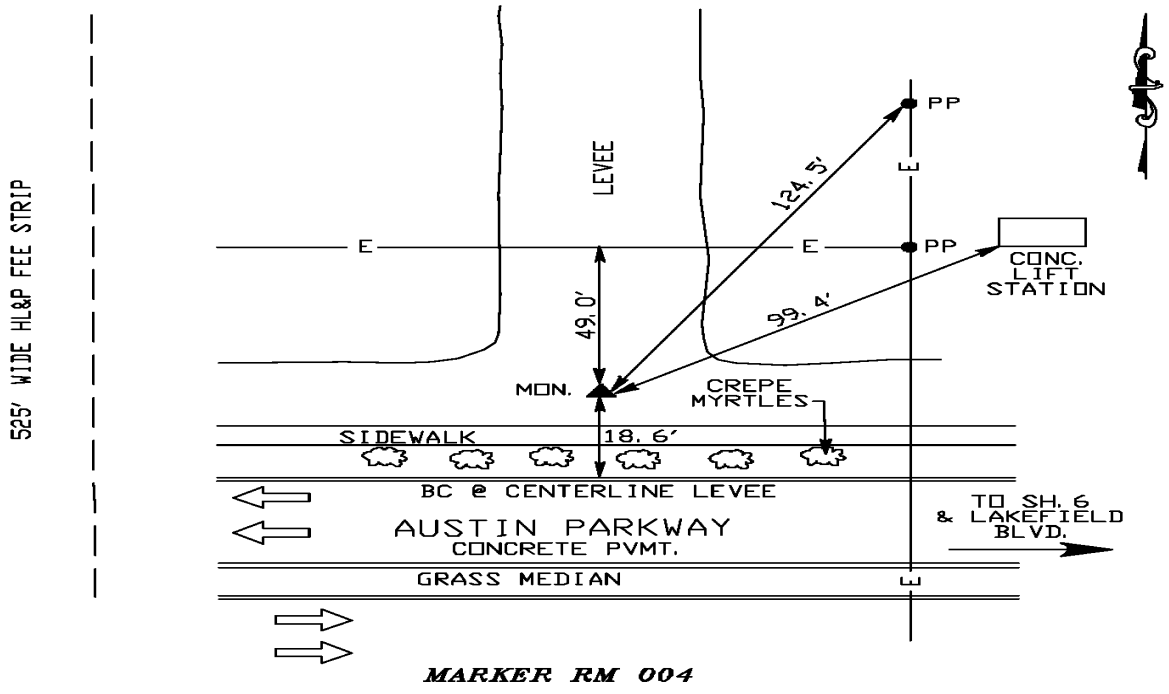


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM 006 **Designation Number:** TSC# 080406-SGR-RM 006
County: Fort Bend **State:** Texas **Key Map No.:** 608B	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, SGR-1 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM 006	**Contractor PID:** 6
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: RM 006	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -89.0438′ -27.1406m
Latitude: 29°35'13.90244"N	**Northing (grid):** 13,776,520.3660′
Longitude: 95°37'30.04101"W	**Easting (grid):** 3,040,979.6452′
Ellipsoid Height: -6.5356m = -21.4423′	**Elevation**(4)**:** 67.8545′ 20.6821m
Convergence: 1°39'12"	**Scale Factor:** 0.999872901
Satellite Observable: Yes	**Elevation Factor:** 1.000004246558
NGS PID (If applic.):	**Combined Factor:** 0.999869655

General Location

Intersection of Austin Parkway & Lexington Boulevard

To Reach Description

From the intersection of SH 6 and Lexington Boulevard, travel southwest on Lexington, approx. 0.82 mi. to the station on the left, approx. 0.16 mi. southwest of Austin Parkway.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 006 TSC# 080406-SGR-RM 006

Station Sketch:

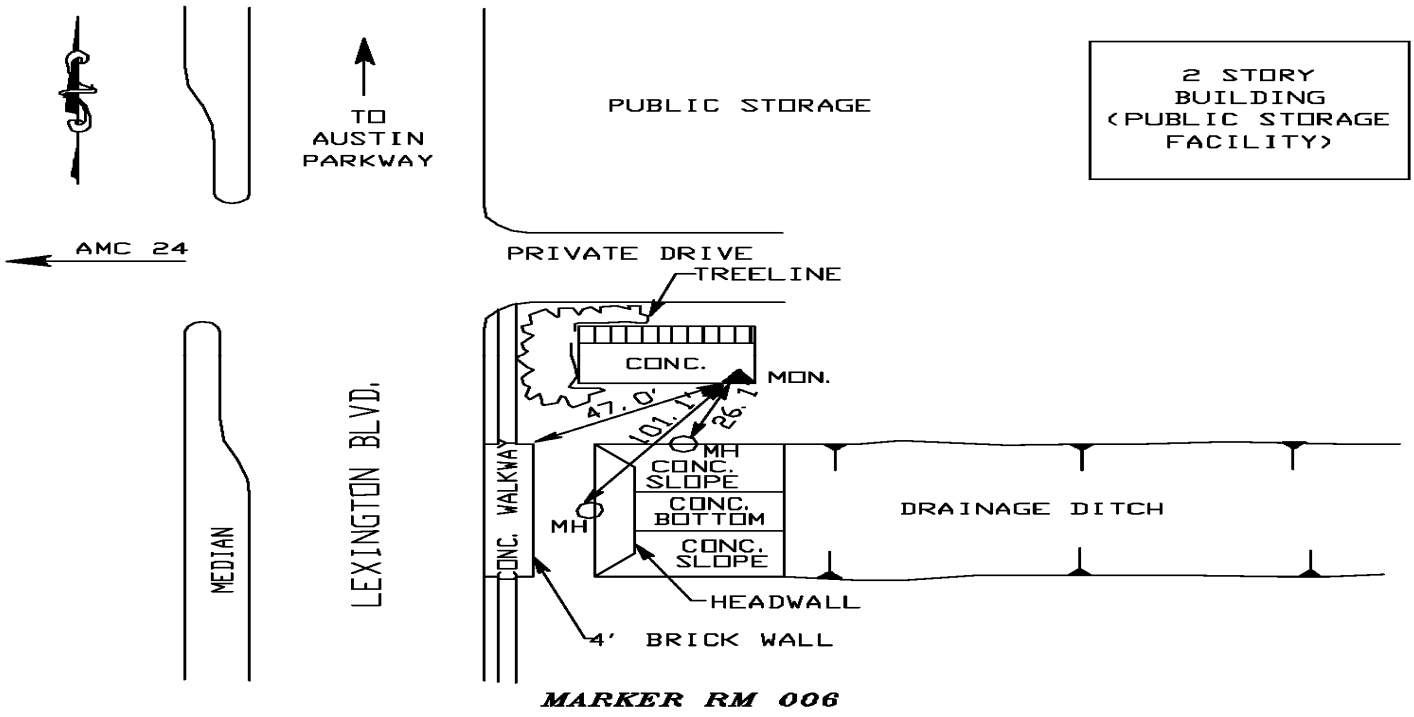


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM 007 **Designation Number:** TSC# 080406-SGR-RM 007
County: Fort Bend **State:** Texas **Key Map No.:** 609A	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, 030160, **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM 007	**Contractor PID:** 7
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: RM 007	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -88.9975′ -27.1265m
Latitude: 29°35'16.72199"N	**Northing (grid):** 13,777,104.2940′
Longitude: 95°35'33.12307"W	**Easting (grid):** 3,051,288.8160′
Ellipsoid Height: -7.0406m = -23.0991′	**Elevation**(4)**:** 66.1515′ 20.1630m
Convergence: 1°40'10"	**Scale Factor:** 0.999872961
Satellite Observable: Yes	**Elevation Factor:** 1.000003164412
NGS PID (If applic.):	**Combined Factor:** 0.999869797

General Location

Parking Lot of Oyster Creek Park

To Reach Description

From the intersection of SH 6 and Hwy 59, travel approx. 2.0 mi. southeast on SH 6 to the entrance of Oyster Creek Park. Station is approx. 245 ft, northwest of entrance.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

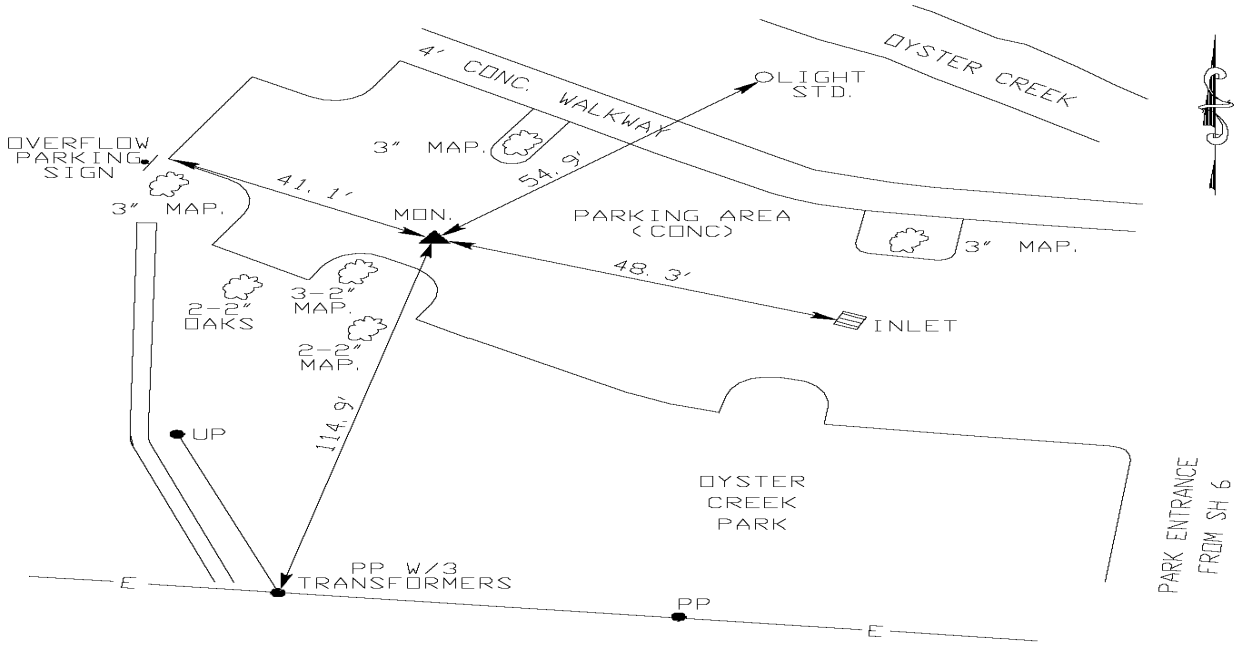
Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 007 TSC# 080406-SGR-RM 007

Station Sketch:



MARKER RM 007

Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM 009 **Designation Number:** TSC# 080406-SGR-RM 009
County: Fort Bend **State:** Texas **Key Map No.:** 567Y	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, SGR -18 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM 009	**Contractor PID:** 9
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: RM 009	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -89.1127′ -27.1616m
Latitude: 29°35'27.52836"N	**Northing (grid):** 13,777,572.2889
Longitude: 95°39'37.83050"W	**Easting (grid):** 3,029,663.4266′
Ellipsoid Height: -3.9218m = -12.8669′	**Elevation**(4)**:** 76.4988′ 23.3169m
Convergence: 1°38'10"	**Scale Factor:** 0.999873193
Satellite Observable: Yes	**Elevation Factor:** 1.000003659477
NGS PID (If applic.):	**Combined Factor:** 0.999869534

General Location

Intersection of New Territory Boulevard & W. Chatam Avenue

To Reach Description

From the intersection of Hwy 59 and New Territory Boulevard, travel northeast and continue along New Territory Blvd. approx. 1.7 mi. to the station located at the west end of the median nose approx. 0.17 mi. west of the intersection of New Territory Blvd. and W. Chatam Avenue.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 009 TSC# 080406-SGR-RM 009

Station Sketch:

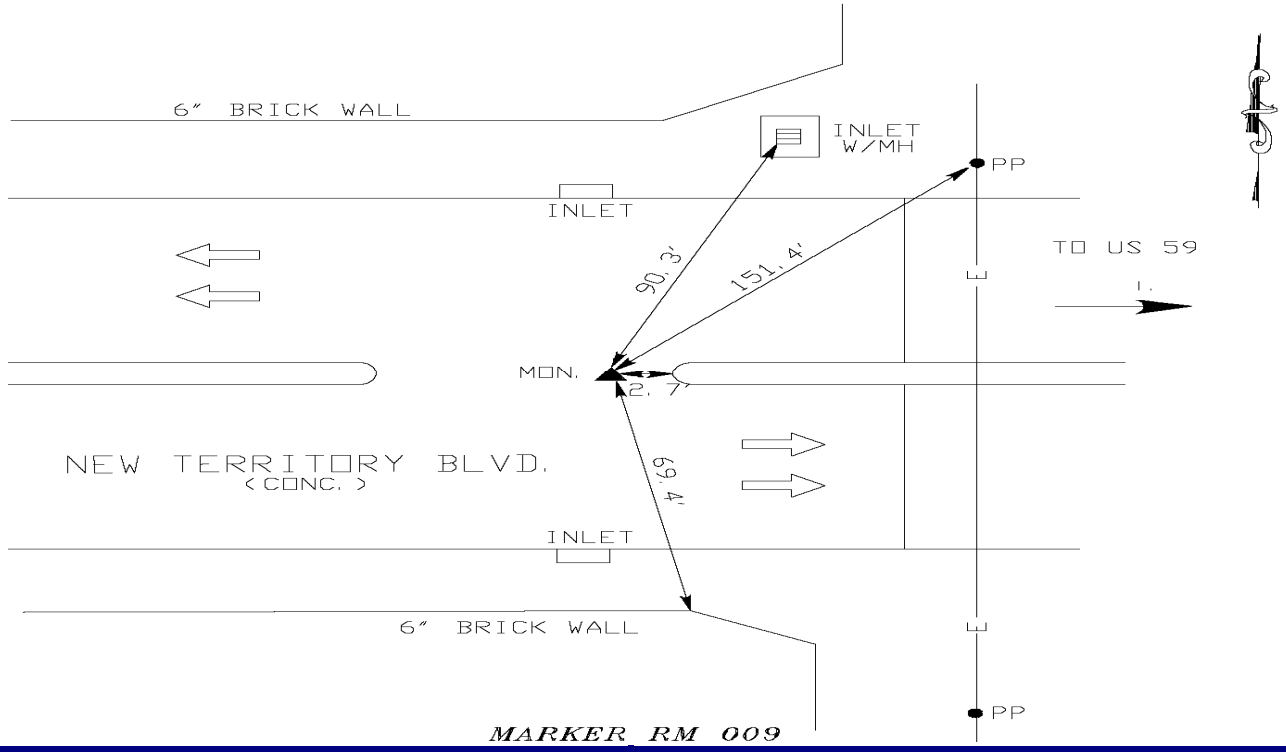


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM 010 **Designation Number:** TSC# 080406-SGR-RM 010
County: Fort Bend **State:** Texas **Key Map No.:** 607J	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, E1212, 040460 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM 010	**Contractor PID:** 10
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: RM 010	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -89.0556′ -27.1442m
Latitude: 29°33'49.79913"N	**Northing (grid):** 13,767,516.9390′
Longitude: 95°40'52.71965"W	**Easting (grid):** 3,023,335.0233′
Ellipsoid Height: -4.9805m = -16.3402′	**Elevation**(4)**:** 72.9684′ 22.2408m
Convergence: 1°37'33"	**Scale Factor:** 0.999871195
Satellite Observable: Yes	**Elevation Factor:** 1.000003490462
NGS PID (If applic.):	**Combined Factor:** 0.999867705

General Location

Intersection of Highway 59 & The Grand Parkway (SH 99)

To Reach Description

From the intersection of Hwy 59 and New Territory Blvd., travel southwest along the Hwy 59 feeder approx. 2.4 mi. to the station on the right, located between the feeder road and the Star Furniture Store parking lot, approx. 0.56 mi. east of the intersection of the Grand Parkway and Hwy 59 southbound.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

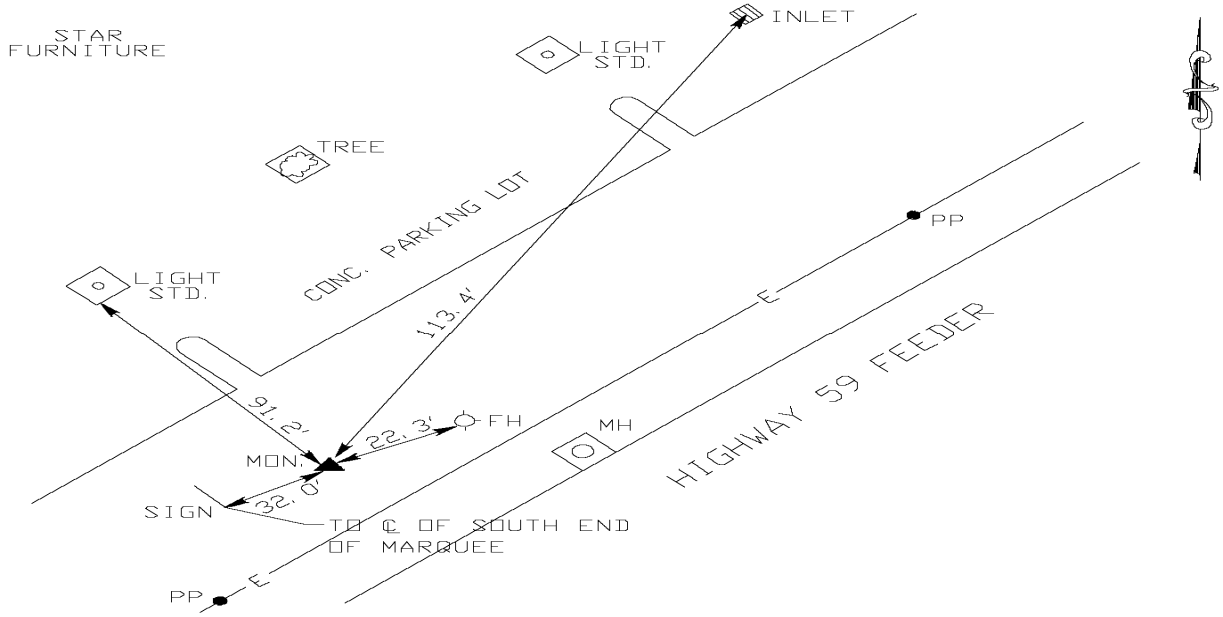
Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 010 TSC# 080406-SGR-RM 010

Station Sketch:



MARKER RM 010

Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM 011 **Designation Number:** TSC# 080406-SGR-RM 011
County: Fort Bend **State:** Texas **Key Map No.:** 568V	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14, SGR-13 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM 011	**Contractor PID:** 11
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: RM 011	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -89.1012′ -27.1581m
Latitude: 29°36'44.03749"N	**Northing (grid):** 13,785,785.9807′
Longitude: 95°36'25.32440"W	**Easting (grid):** 3,046,426.5060′
Ellipsoid Height: -5.1447m = -16.8787′	**Elevation**(4)**:** 72.4755′ 22.0906m
Convergence: 1°39'44"	**Scale Factor:** 0.999874913
Satellite Observable: Yes	**Elevation Factor:** 1.000003466446
NGS PID (If applic.):	**Combined Factor:** 0.999871447

General Location

Intersection of Central Drive & S. Parkway Boulevard

To Reach Description

From the intersection of Hwy 59 and Williams Trace, travel northeast along the Hwy 59 feeder approx. 0.53 mi. to Central Drive, then go approx. 310 ft. southeast along Central Drive to the station on the right.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

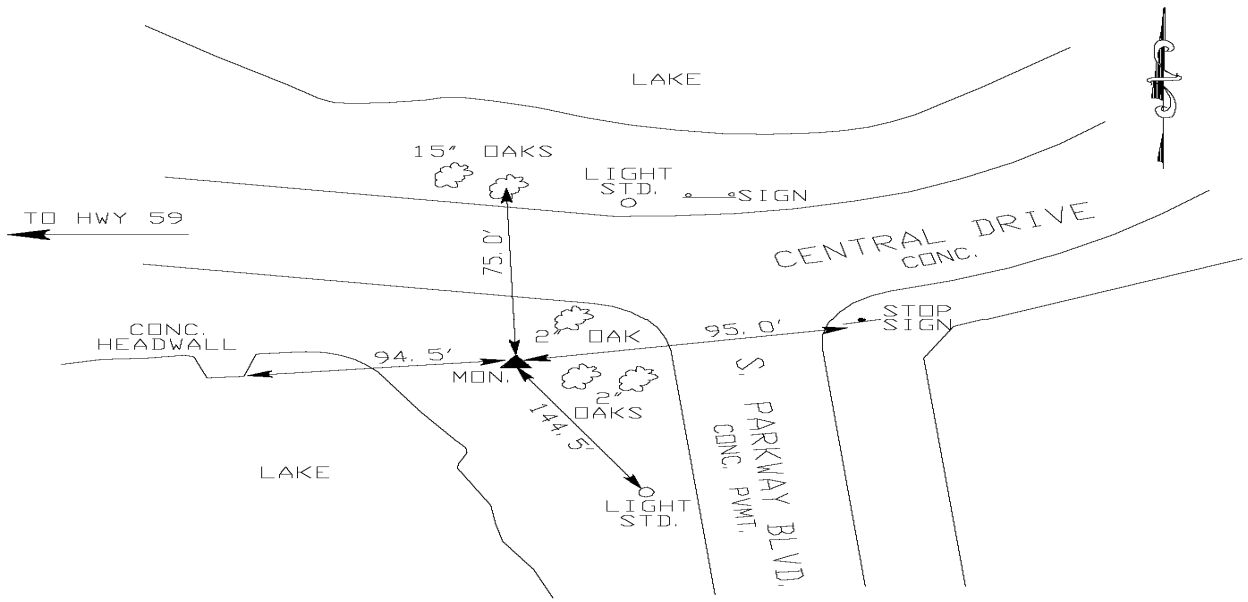
Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM 011 TSC# 080406-SGR-RM 011

Station Sketch:



MARKER RM 011

Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM013 **Designation Number:** TSC# 080406-SGR-RM013
County: Fort Bend **State:** Texas **Key Map No.:** 568M	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, 030160, **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM013	**Contractor PID:** 13
Marker: 3″ Brass Disk	**Rod Depth:** Surface
Stamping: RM013	**Sleeve Depth:** N/A
Mark Logo: N/A	**Geoid Height:** -89.1406′ -27.1701m
Latitude: 29°37'41.02815"N	**Northing (grid):** 13,791,625.9140′
Longitude: 95°35'51.79543"W	**Easting (grid):** 3,049,217.1132′
Ellipsoid Height: -3.6736m = -12.0523	**Elevation**(4)**:** 77.3412′ 23.5736m
Convergence: 1°40'01"	**Scale Factor:** 0.999876284
Satellite Observable: Yes	**Elevation Factor:** 1.000003699471
NGS PID (If applic.):	**Combined Factor:** 0.999872585

General Location

Intersection of Stiles Road and Dairy Ashford

To Reach Description

From the intersection of 90A and Dairy Ashford, north on Dairy Ashford 0.4 miles to Stiles Road turn right continue 0.1 miles to bench mark on the left.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

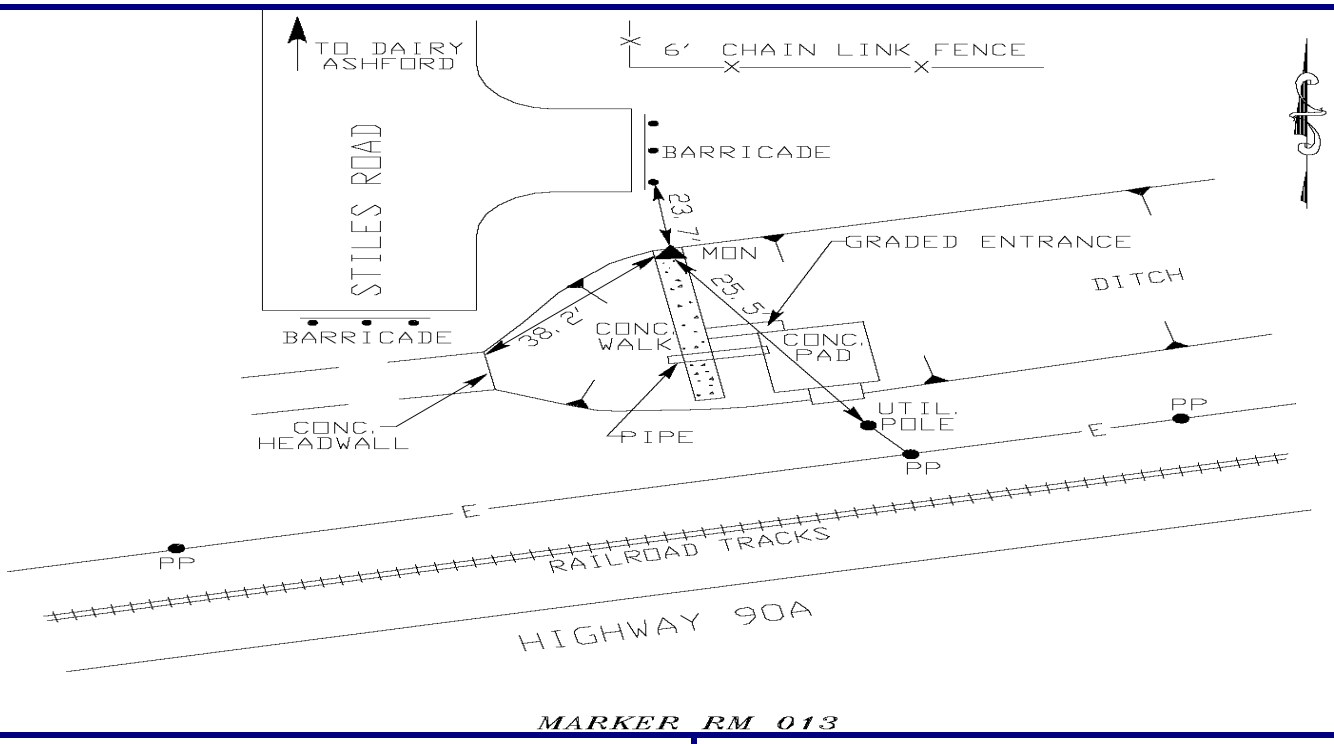
Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM013 TSC# 080406-SGR- RM013

Station Sketch:



MARKER RM 013

Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM016 **Designation Number:** TSC# 080406-SGR-RM016
County: Fort Bend **State:** Texas **Key Map No.:** 568L	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, SGR-13 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM016	**Contractor PID:** 16
Marker: 3″ Brass Disk	**Rod Depth:** Surface
Stamping: RM016	**Sleeve Depth:** N/A
Mark Logo: N/A	**Geoid Height:** -89.1576′ -27.1753m
Latitude: 29°37'29.41030"N	**Northing (grid):** 13,790,301.3716′
Longitude: 95°36'50.98197"W	**Easting (grid):** 3,044,030.2357′
Ellipsoid Height: -3.5005m = -11.4844′	**Elevation**(4)**:** 77.9262′ 23.7520m
Convergence: 1°39'32"	**Scale Factor:** 0.999875998
Satellite Observable: Yes	**Elevation Factor:** 1.000003727476
NGS PID (If applic.):	**Combined Factor:** 0.999872271

General Location

Intersection of HWY 90A & Gillingham lane

To Reach Description

From the intersection of HWY 90A and Gillingham Lane, north on Gillingham Lane 184' feet to the benchmark on the left.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM016 TSC# 080406-SGR-RM016

Station Sketch:

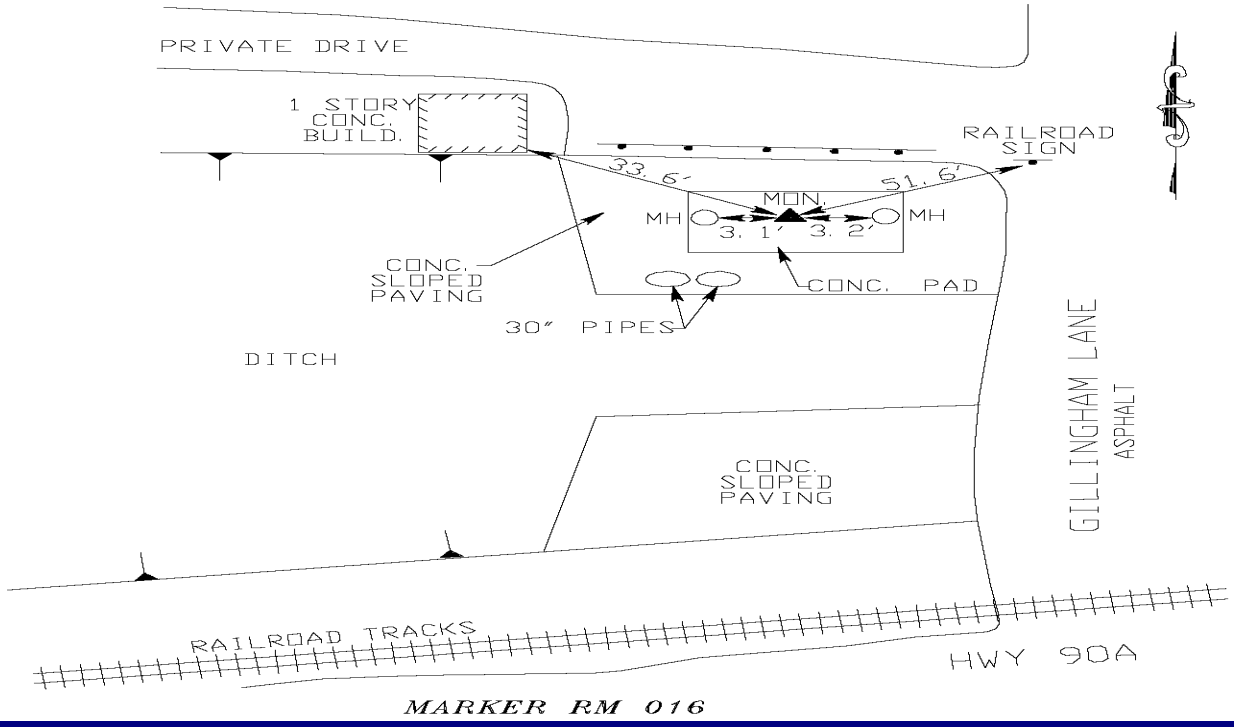


Photo 1-Station Detail:

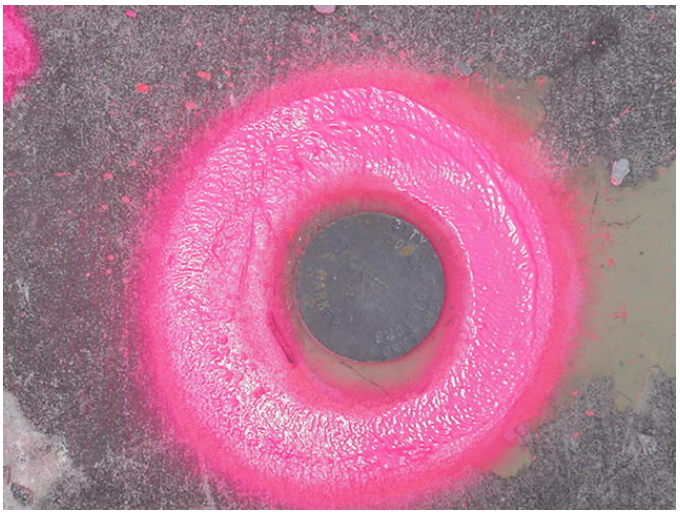


Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM017 **Designation Number:** TSC# 080406-SGR-RM017
County: Fort Bend **State:** Texas **Key Map No.:** 567V	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, SGR-18 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM017	**Contractor PID:** 17
Marker: 3″ Brass Disk	**Rod Depth:** Surface
Stamping: A-805 1948	**Sleeve Depth:** N/A
Mark Logo: C&GS	**Geoid Height:** -89.1724′ -27.1798m
Latitude: 29°36'43.08071"N	**Northing (grid):** 13,785,274.7921′
Longitude: 95°39'8.34404"W	**Easting (grid):** 3,032,046.9930′
Ellipsoid Height: -3.7672m = -12.3595	**Elevation**(4)**:** 77.0660′ 23.4898m
Convergence: 1°38'24"	**Scale Factor:** 0.999874891
Satellite Observable: Yes	**Elevation Factor:** 1.000003686475
NGS PID (If applic.):	**Combined Factor:** 0.999871205

General Location

Intersection of SH 6 & Hwy 90A

To Reach Description

From the intersection of SH 6 and Hwy 90A, west on Hwy 90A 0.2 miles to the benchmark on the left. On top at the east side of a concrete retaining wall for prison under pass.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM017 TSC# 080406-SGR-RMO17

Station Sketch:

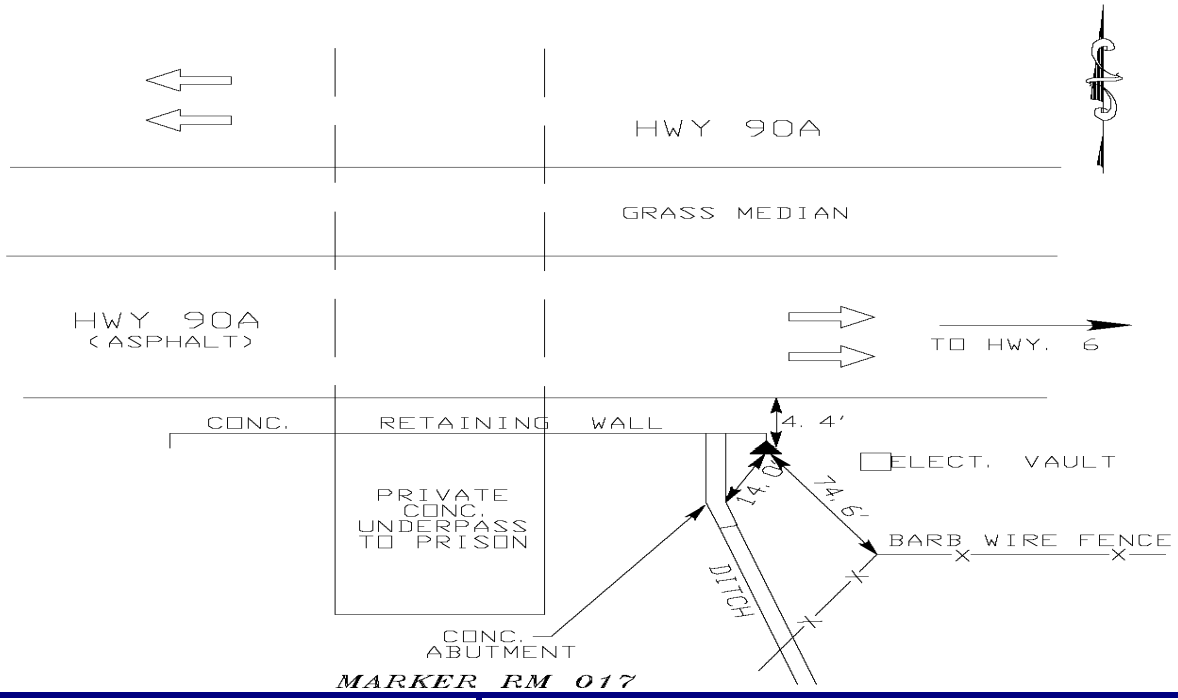


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM018 **Designation Number:** TSC# 080406-SGR-RM018
County: Fort Bend **State:** Texas **Key Map No.:** 566Z	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, E1212, 040460 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM018	**Contractor PID:** 18
Marker: 3' Brass Disk	**Rod Depth:** Surface
Stamping: RM018	**Sleeve Depth:** N/A
Mark Logo: N/A	**Geoid Height:** -89.1960' -27.1870m
Latitude: 29°36'0.75031"N	**Northing (grid):** 13,780,591.5252'
Longitude: 95°41'51.49773"W	**Easting (grid):** 3,017,773.4011'
Ellipsoid Height: -3.2087m = -10.5068'	**Elevation**(4)**:** 78.9422' 24.0616m
Convergence: 1°37'04"	**Scale Factor:** 0.999873923
Satellite Observable: Yes	**Elevation Factor:** 1.00000377649
NGS PID (If applic.):	**Combined Factor:** 0.999870147

General Location

Intersection of Hwy 90A & High Meadow Dr. (west of SH99)

To Reach Description

From the intersection of Hwy 90A and High Meadows Dr, west on Hwy 90A 890' feet to the benchmark on the right. On top of a concrete box culvert.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

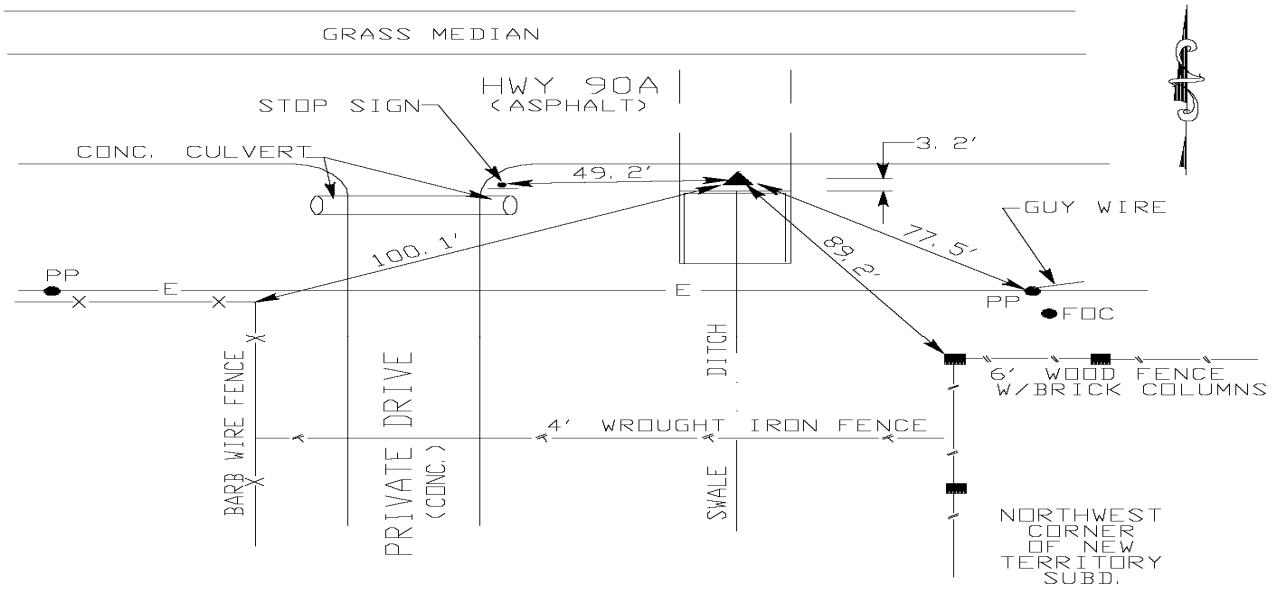
Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM018 TSC# 080406-SGR-RM018

Station Sketch:



MARKER RM 018

Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM019 **Designation Number:** TSC# 080406-SGR-RM019
County: Fort Bend **State:** Texas **Key Map No.:** 568B	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, 040460, **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM019	**Contractor PID:** 19
Marker: 3″ Brass Disk	**Rod Depth:** Surface
Stamping: RM019	**Sleeve Depth:** N/A
Mark Logo: N/A	**Geoid Height:** -89.2715′ -27.2100m
Latitude: 29°39'14.69719"N	**Northing (grid):** 13,800,876.6406′
Longitude: 95°37'12.51747"W	**Easting (grid):** 3,041,823.2264′
Ellipsoid Height: -1.2664 = -4.1549m	**Elevation**(4)**:** 85.3695′ 26.0207m
Convergence: 1°39'21"	**Scale Factor:** 0.999878702
Satellite Observable: Yes	**Elevation Factor:** 1.000004083512
NGS PID (If applic.):	**Combined Factor:** 0.999874619

General Location

Intersection of Eldridge Park entrance & Eldrigde Rd. (F.M. 1876)

To Reach Description

From the intersection of Eldridge Park entrance and Eldridge Rd. (F.M. 1876), west on Eldridge Park entrance drive 0.1 miles to the benchmark on the left. At the north end in the center of the esplanade.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM019 TSC# 080406-SGR-RM019

Station Sketch:

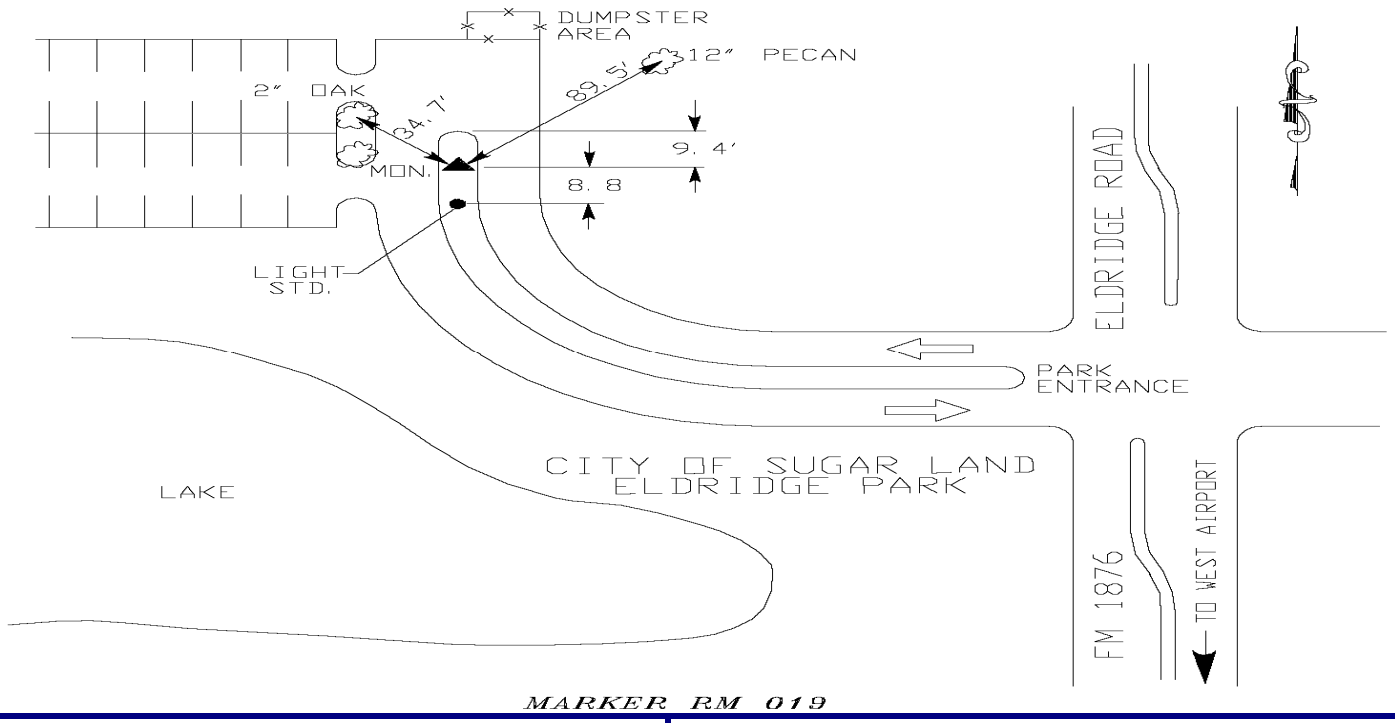


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-RM020 **Designation Number:** TSC# 080406-SGR-RM020
County: Fort Bend **State:** Texas **Key Map No.:** 607H	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, SGR-1 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-RM020	**Contractor PID:** 20
Marker: 3″ Brass Disk	**Rod Depth:** Surface
Stamping: RM020	**Sleeve Depth:** N/A
Mark Logo: N/A	**Geoid Height:** -89.0431′ -27.1404m
Latitude: 29°34'31.59222"N	**Northing (grid):** 13,772,030.2307′
Longitude: 95°38'56.05718"W	**Easting (grid):** 3,033,511.5015′
Ellipsoid Height: -5.4530m = -17.8903′	**Elevation**(4)**:** 71.4059′ 21.7646m
Convergence: 1°38'30"	**Scale Factor:** 0.999872022
Satellite Observable: Yes	**Elevation Factor:** 1.000003415449
NGS PID (If applic.):	**Combined Factor:** 0.999868607

General Location

Entrance to University of Houston Sugar Land & University Blvd.

To Reach Description

From the Entrance to University of Houston Sugar Land & University Blvd., west along the Entrance to University of Houston Sugar Land 0.15 miles to a drive, go south 0.05 miles to a drive for the south parking lot then go east 0.05 miles to most N.E. corner of parking lot to the benchmark on top of concrete for a lift station.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-RM020 TSC# 080406-SGR-RM020

Station Sketch:

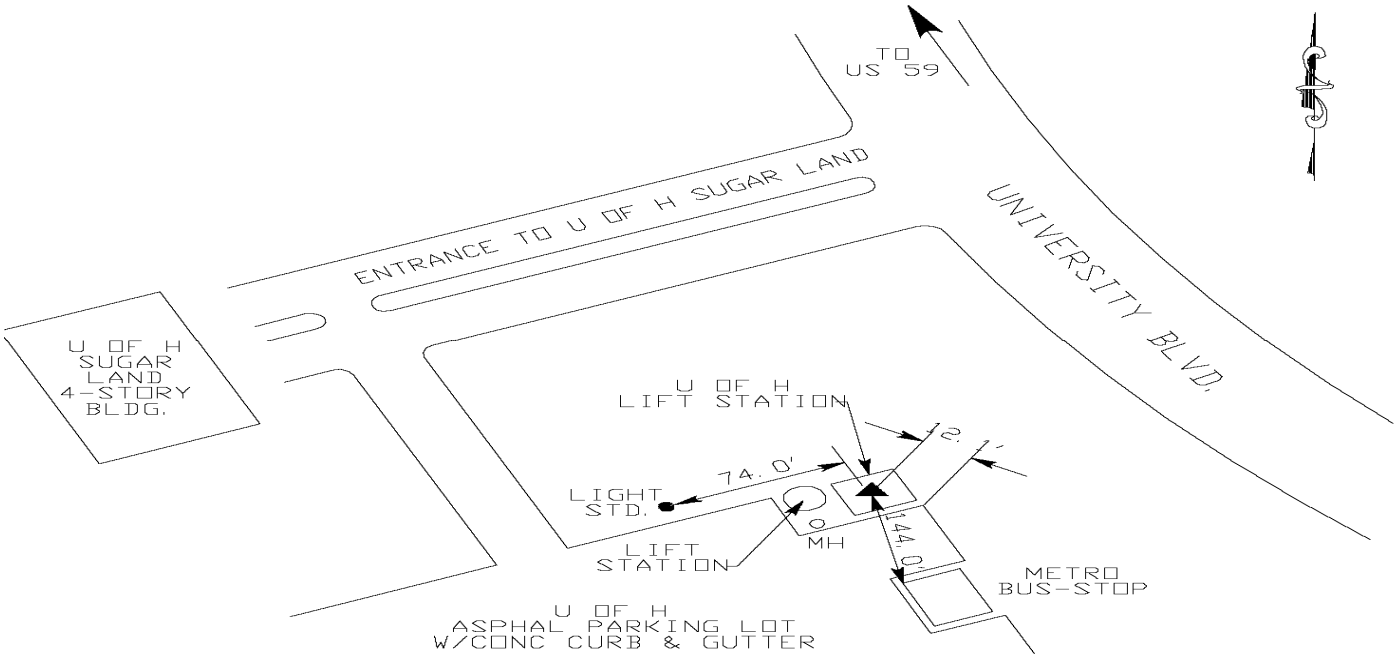


Photo 1-Station Detail:

Photo 2-Station Area Picture:

City of Sugar Land Geodetic Control Station

Project Name: City of Sugarland 2008 Elevation Reference Resurvey	**Floodplain RM No.:** SGR-F **Designation Number:** TSC# 080406-SGR-F
County: Fort Bend **State:** Texas **Key Map No.:** 567M	**Established By:** Thompson Surveying Co. **Date Established:** 10/21/2008
NGS Classification (1)**:** RANGE VI	**Watershed:** Oyster Creek
RM's Directly Tied: SGR-14R, 040460 **Units of Measure:** U.S. Survey Foot	**Survey Method Hor.:** GPSOBS-STATIC (NOS 58) **Survey Method Vert.:** GPSOBS-STATIC (NOS 58)
Horizontal Datum: NAD83 **Horizontal Adj.** (2)**:** Adjusted 2001 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Vertical Adjustment** (3)**:** Adjusted 2001 **Geoid Model Used:** GEOID 99

Station Name: SGR-F	**Contractor PID:** F
Marker: 3″ Brass Cap	**Rod Depth:** Surface
Stamping: SGR- F 1992	**Sleeve Depth:** N/A
Mark Logo: City of Sugar Land	**Geoid Height:** -89.2528′ -27.2043m
Latitude: 29°37'59.75057"N	**Northing (grid):** 13,792,974.3250′
Longitude: 95°39'24.75193"W	**Easting (grid):** 3,030,378.0911′
Ellipsoid Height: -2.8630m = -9.3898′	**Elevation**(4)**:** 80.1160′ 24.4194m
Convergence: 1°38'16"	**Scale Factor:** 0.999876750
Satellite Observable: Yes	**Elevation Factor:** 1.000003831487
NGS PID (If applic.):	**Combined Factor:** 0.999872919

General Location

Sugar Land Regional Airport

To Reach Description

From the intersection of SH 6 and Hwy 59, travel northwest and continue along SH 6 approx. 2.5 mi. to Hull Lane, then approx. 0.33 mi. west along Hull Lane to the station on the left.

Notes: Positional information shown hereon are the results of GPS observations utilizing the NGS OPUS system on three (3) different days with differing satellite geometry, five (5) second epoch five (5) hours continuous data, fifteen (15) degree mask angle, HOPFIELD (Ionospheric Model).

Notes:

(1) This is NGS' new classification system. Range VI indicates that this position meets the 0.02m-0.05m Accuracy Standard for Horizontal Position, Ellipsoidal Height, and Orthometric Height (elevation) at the 95% confidence level (m = meters).
(2) Horizontal Adjustment – This survey is constrained to the NGS Published Horizontal positions of the geodetic stations adjusted by NGS in 2001.
(3) Vertical Adjustment – This survey is constrained to the NGS Published Elevation for Northeast 2250 CORS ARP adjusted by NGS in 2001 and as published in PID AJ6430. Epoch Date 1997.00.
(4) The elevation shown equals the Ellipsoid Height minus Geoid Height (from GEOID99) plus a constant of 0.253 feet.

City of Sugar Land Geodetic Control Station

Project Name **City of Sugarland** **2008 Elevation Reference Resurvey**	GPS Control Station 10-01-2008	RM No. Number:	SGR-F TSC# 080406-SGR-F

Station Sketch:

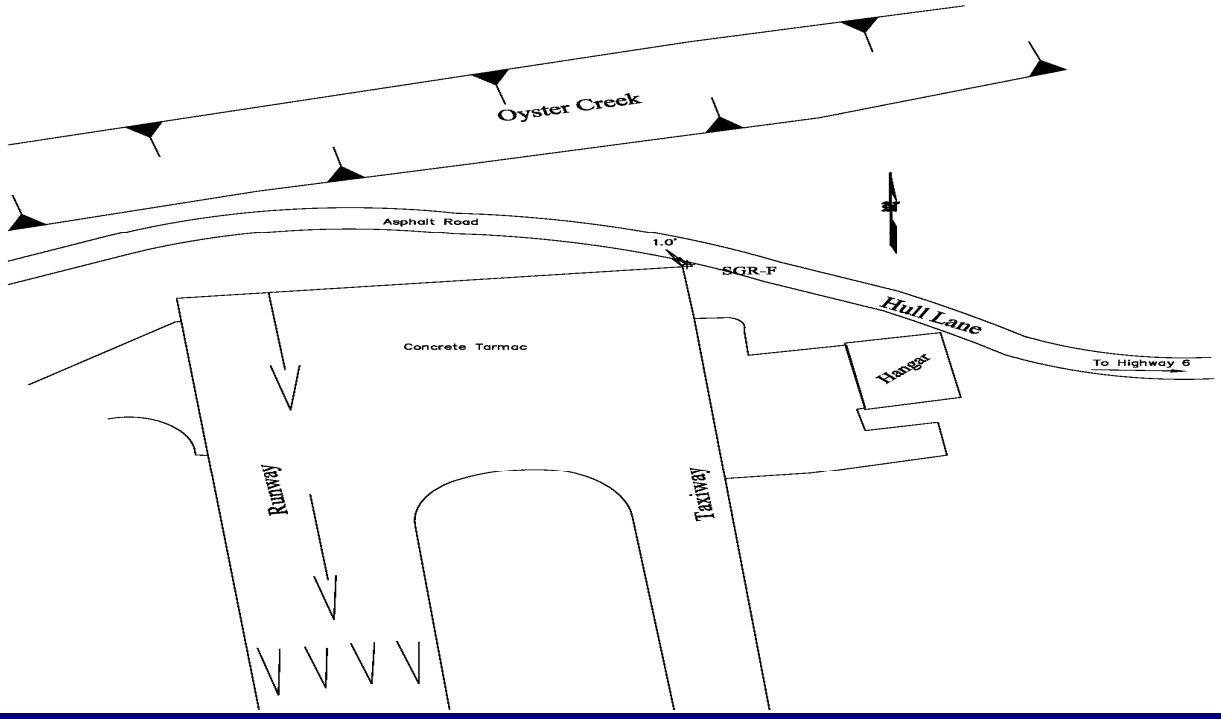


Photo 1-Station Detail:

Photo 2-Station Area Picture: