HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: A 1281 **4-Char ID/PID:** A281/BL1869	**General Location:** Magnolia

Benchmark Description:
THE MONUMENT IS A NATIONAL GEODETIC SURVEY VERTICAL CONTROL DISK STAMPED "A 1281 1978", SET LEVEL WITH THE GROUND.

County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 662S	**Date Observed:** October 14, 2022
USGS Quad Map: Magnolia West (2019)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: A 1281 1978	**Monument Depth:** 3.1m
Northing: 10065188.72 (usft) **Easting:** 3743210.93 (usft) **Orthometric Height[1]:** 231.27 (usft) **Geoid Height:** -90.43 (usft)	**Latitude:** 30 11 49.36585(N) **Longitude:** 095 45 10.68792(W) **Ellipsoid Height:** 140.81 (usft) **Convergence Angle:** 02 21 32.97

Scale Factor: 0.99997951 **Elevation Scale Factor:** 0.99999326 **Combined Scale Factor:** 0.99997277

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF MAGNOLIA BOULEVARD (FM 1774) COMMENCE APPROXIMATELY 4300 FT (1310.6 M) TO THE SOUTH. THE MONUMENT IS LOCATED WEST 100 FT (30.5 M) FROM THE FRONT OF MAGNOLIA ISD AND 2 FT (0.6 M) NORTH OF A POWER POLE AND 29.6 FT (9.0 M) SOUTH OF THE MAGNOLIA ISD BILLBOARD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203 **Northing:** 10065188.72 **Easting:** 3743210.93 **Orthometric Height:** 231.27

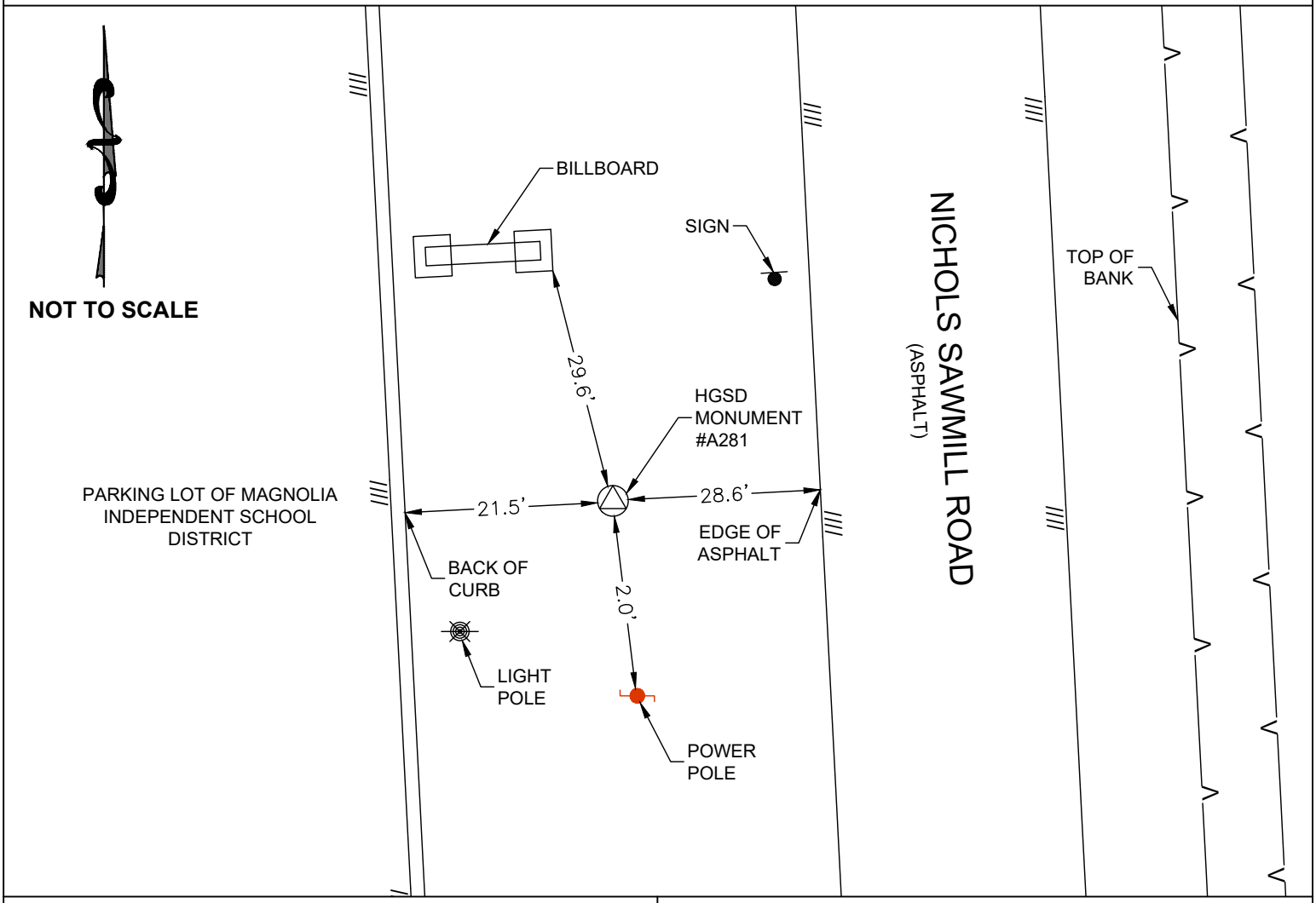


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: B 1021 RESET **4-Char ID/PID:** B21R/BL0358	**General Location:** Dayton

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "B 1021 RESET 1970" AND ISSET ON TOP OF THE WING WALL AT THE EAST CORNER OF A 24-FOOT CONCRETE BOX CULVERT WITH TWO DIVIDING PIERS AND UNDER BOTH LANES OF THE HIGHWAY, ABOUT 2 1/2 FEET BELOW THE LEVEL OF THE HIGHWAY.

County: Liberty **State:** Texas	**Observed by:** HGSD
Key Map Page No: 342M	**Date Observed:** November 15, 2022
USGS Quad Map: Dayton (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: B 1021 RESET 1970	**Monument Depth:** N/A
Northing: 10017472.07 (usft) **Easting:** 4013238.32 (usft) **Orthometric Height[1]:** 71.98 (usft) **Geoid Height:** -89.80 (usft)	**Latitude:** 30 01 57.33889(N) **Longitude:** 094 54 23.81014(W) **Ellipsoid Height:** -17.75 (usft) **Convergence Angle:** 02 47 42.29

Scale Factor: 1.0000235 **Elevation Scale Factor:** 1.00000085 **Combined Scale Factor:** 1.00002435

To Reach Monument

TO REACH THE MONUMENT, TRAVEL APPROXIMATELY 1.4 MILES SOUTHWEST ALONG U. S. HIGHWAY 90 FROM THE HIGH SCHOOL AT DAYTON, AND 42.5 FEET SOUTHEAST OF THE CENTERLINE OF THE EASTBOUND LANE OF THE HIGHWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203	Northing: 10017472.07	Easting: 4013238.32	Orthometric Height: 71.98

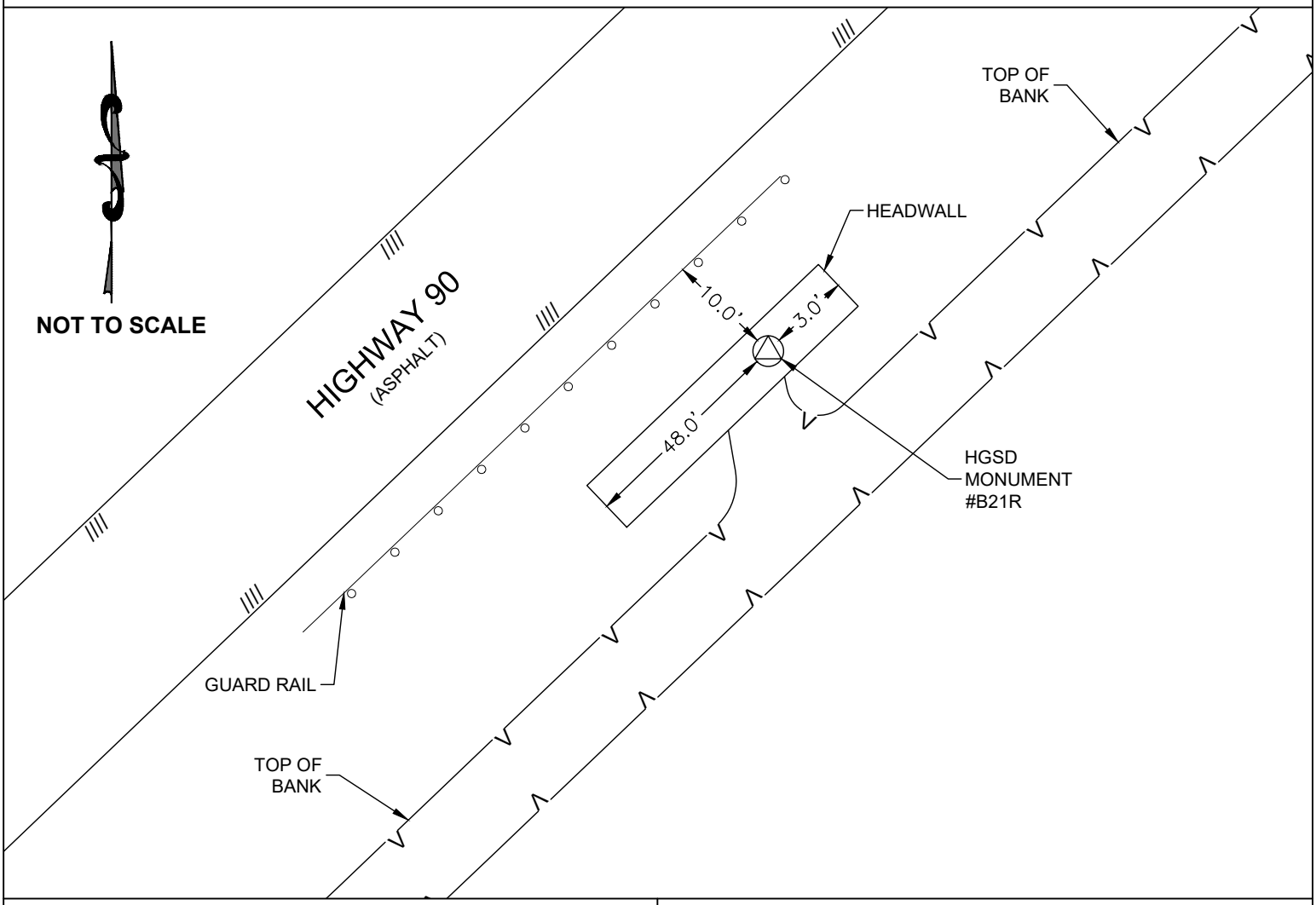


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: TXCN REF MON 1 **4-Char ID/PID:** CNRM/DR7613	**General Location:** Conroe
Benchmark Description: THE MONUMENT IS A STAINLESS-STEEL ROD WITH SLEEVE AND ACCESS COVER DRIVEN TO A DEPTH OF 28 FEET.	
County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 158K	**Date Observed:** October 14, 2022
USGS Quad Map: Conroe (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: TXDOT	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: TXCN-RM1	**Monument Depth:** 8.5m
Northing: 10124518.85 (usft) **Easting:** 3839115.23 (usft) **Orthometric Height[1]:** 234.09 (usft) **Geoid Height:** -90.23 (usft)	**Latitude:** 30 20 55.71103(N) **Longitude:** 095 26 29.17002(W) **Ellipsoid Height:** 143.84 (usft) **Convergence Angle:** 02 31 10.61
Scale Factor: 0.99994613 **Elevation Scale Factor:** 0.99999312 **Combined Scale Factor:** 0.99993925	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF STATE HIGHWAY 75 AND NORTH FM 3083 RD EAST, GO EAST ON NORTH FM 3083 RD EAST FOR 1.84 MILES TO THE TEXAS DEPARTMENT OF TRANSPORTATION MONTGOMERY AREA OFFICE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203	Northing: 10124518.85	Easting: 3839115.23	Orthometric Height: 234.09

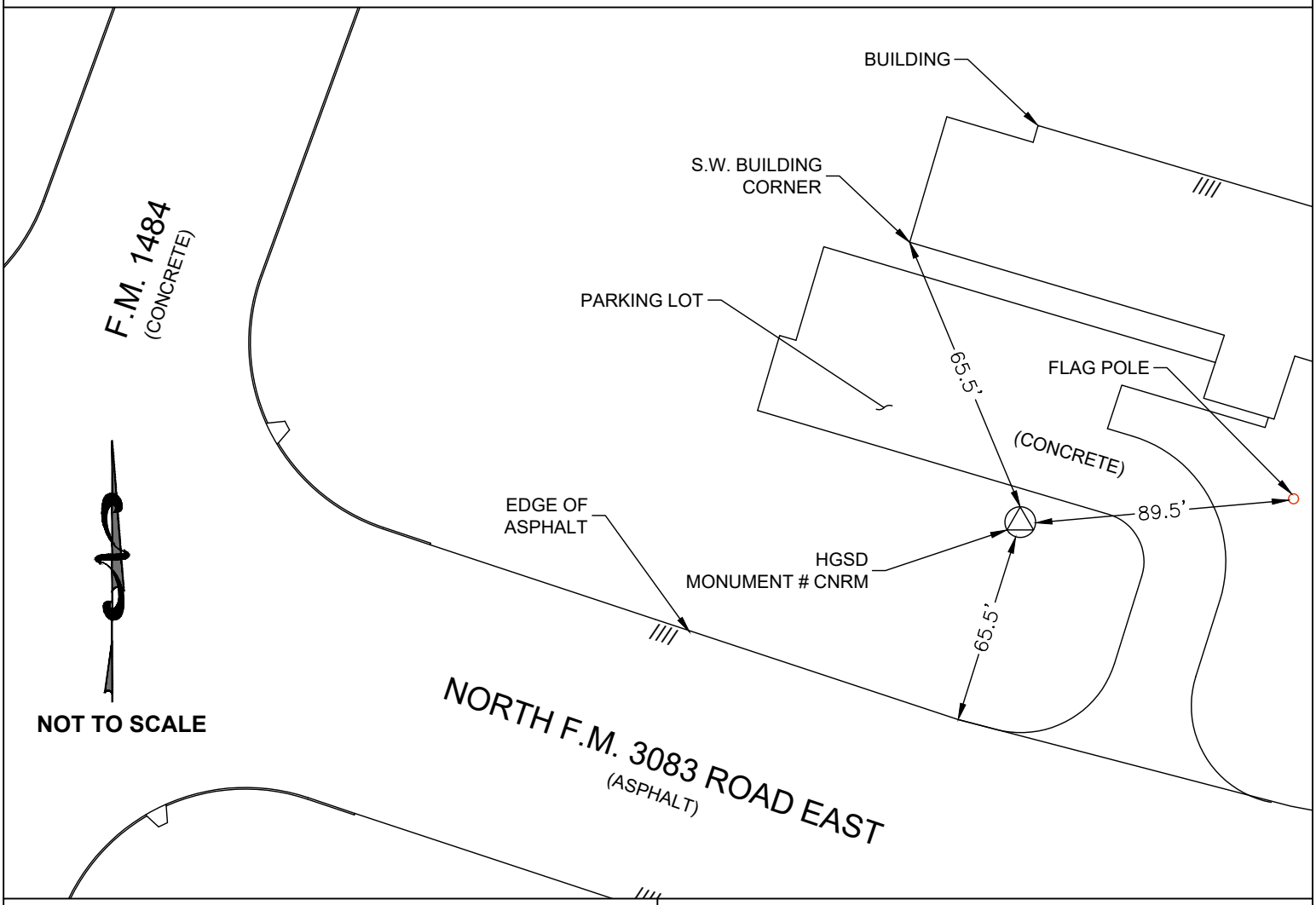


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 80 **4-Char ID/PID:** HG80/BL2006	**General Location:** Riverside

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL DISK COUNTERSUNK INTO THE MIDDLE OF THE NORTHWEST SIDE OF A SANDSTONE OUTCROP.

County: Walker **State:** Texas	**Observed by:** HGSD
Key Map Page No:	**Date Observed:** December 9, 2022
USGS Quad Map: Riverside (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: A 1006 1953	**Monument Depth:** N/A
Northing: 10304069.56 (usft) **Easting:** 3845798.98 (usft) **Orthometric Height[1]:** 178.78 (usft) **Geoid Height:** -89.22 (usft)	**Latitude:** 30 50 28.35053(N) **Longitude:** 095 23 42.02056(W) **Ellipsoid Height:** 89.56 (usft) **Convergence Angle:** 02 32 36.71

Scale Factor: 0.99988563 **Elevation Scale Factor:** 0.99999571 **Combined Scale Factor:** 0.99988134

To Reach Monument

TO REACH THE MONUMENT FROM THE NORTHWEST SIDE OF HUNTSVILLE AT THE JUNCTION OF COMBINED INTERSTATE HIGHWAY 45 (EXIT 118) AND US HIGHWAY 190 AT STATE HIGHWAY 75, GO SOUTH ON STATE HIGHWAY 75 FOR 1.15 KM (0.70 MI) TO A CROSSROAD. TURN LEFT AND GO SOUTHEAST ON FARM ROAD 2821 FOR 4.8 KM (3.00 MI) TO A HIGHWAY INTERCHANGE. TURN LEFT AND GO NORTHEAST ON STATE HIGHWAY 19 FOR 18.0 KM (11.20 MI) TO A CROSSROAD BEFORE CROSSING THE TRINITY RIVER. TURN RIGHT AND GO SOUTHEAST ON FARM ROAD 980 FOR A TOTAL OF 1.8 KM (1.10 MI) PASSING A RAILROAD CROSSING AT 0.4 KM (0.25 MI) TO THE MONUMENT ON LEFT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4203 **Northing:** 10304069.56 **Easting:** 3845798.98 **Orthometric Height:**178.78

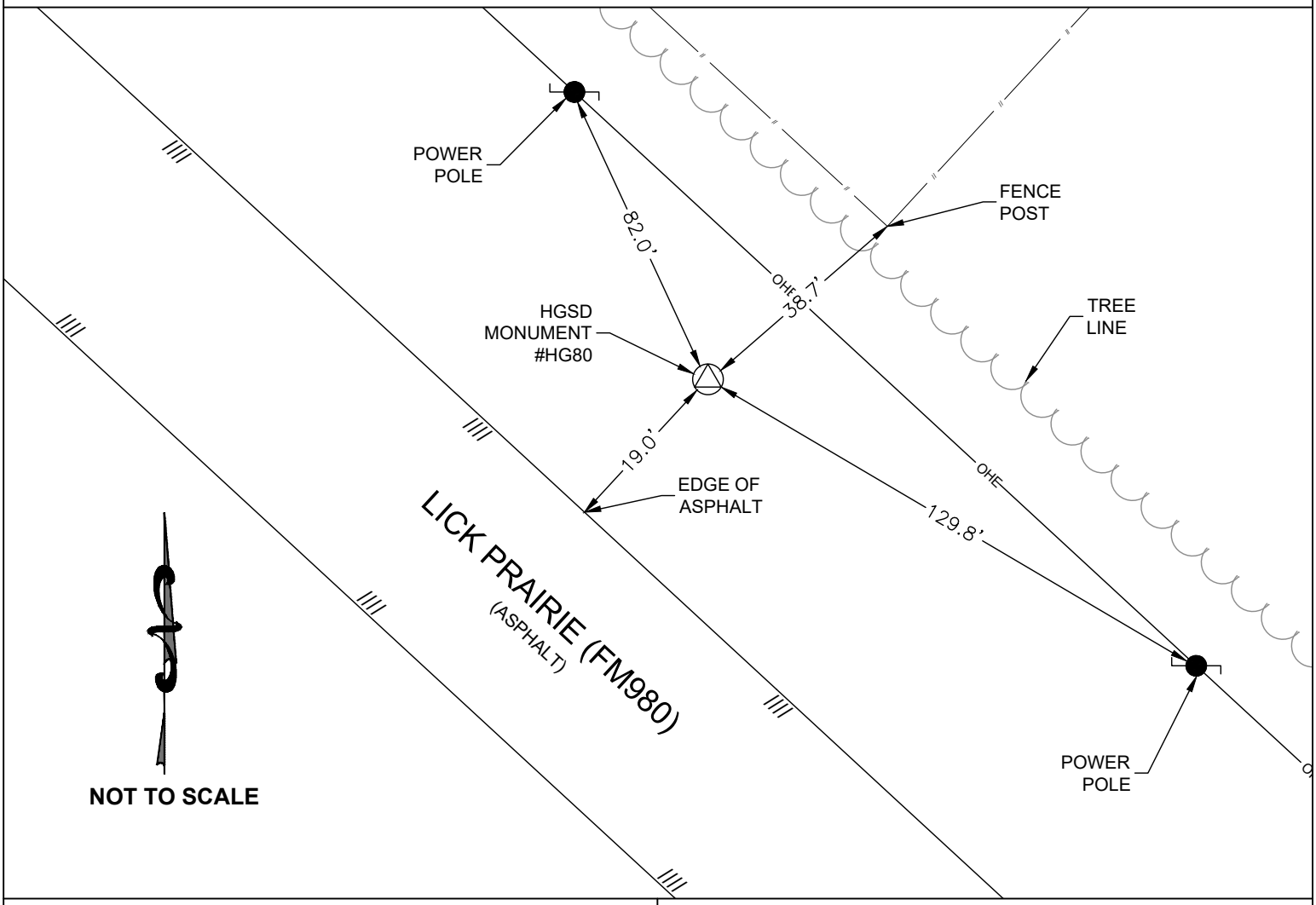


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 81 **4-Char ID/PID:** HG81/AJ6405	**General Location:** Conroe

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 81---.

County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 155L	**Date Observed:** October 17, 2022
USGS Quad Map: Cowl Spur (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 81	**Monument Depth:** 7.3m
Northing: 10124325.62 (usft) **Easting:** 3795637.87 (usft) **Orthometric Height[1]:** 212.40 (usft) **Geoid Height:** -90.23 (usft)	**Latitude:** 30 21 12.45336(N) **Longitude:** 095 34 45.02509(W) **Ellipsoid Height:** 122.23 (usft) **Convergence Angle:** 02 26 55.22

Scale Factor: 0.99994522 **Elevation Scale Factor:** 0.99999415 **Combined Scale Factor:** 0.99993937

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF INTERSTATE 45 AND HIGHWAY 105 IN CONROE, GO WEASTERLY ALONG 105 APROXIMATLY 7 MILES (11.3 KM) TO DIRT DRIVE AT END OF THE CONROE DAM. THIS IS JUST BEFOR REACHING SANDY BEACH ROAD. TURN RIGHT GO .1 MILE (0.2 KM) NORTH TO HISTORICAL MARKER FOR SAN JACINTO RIVER.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203	Northing: 10124325.62	Easting: 3795637.87	Orthometric Height: 212.40

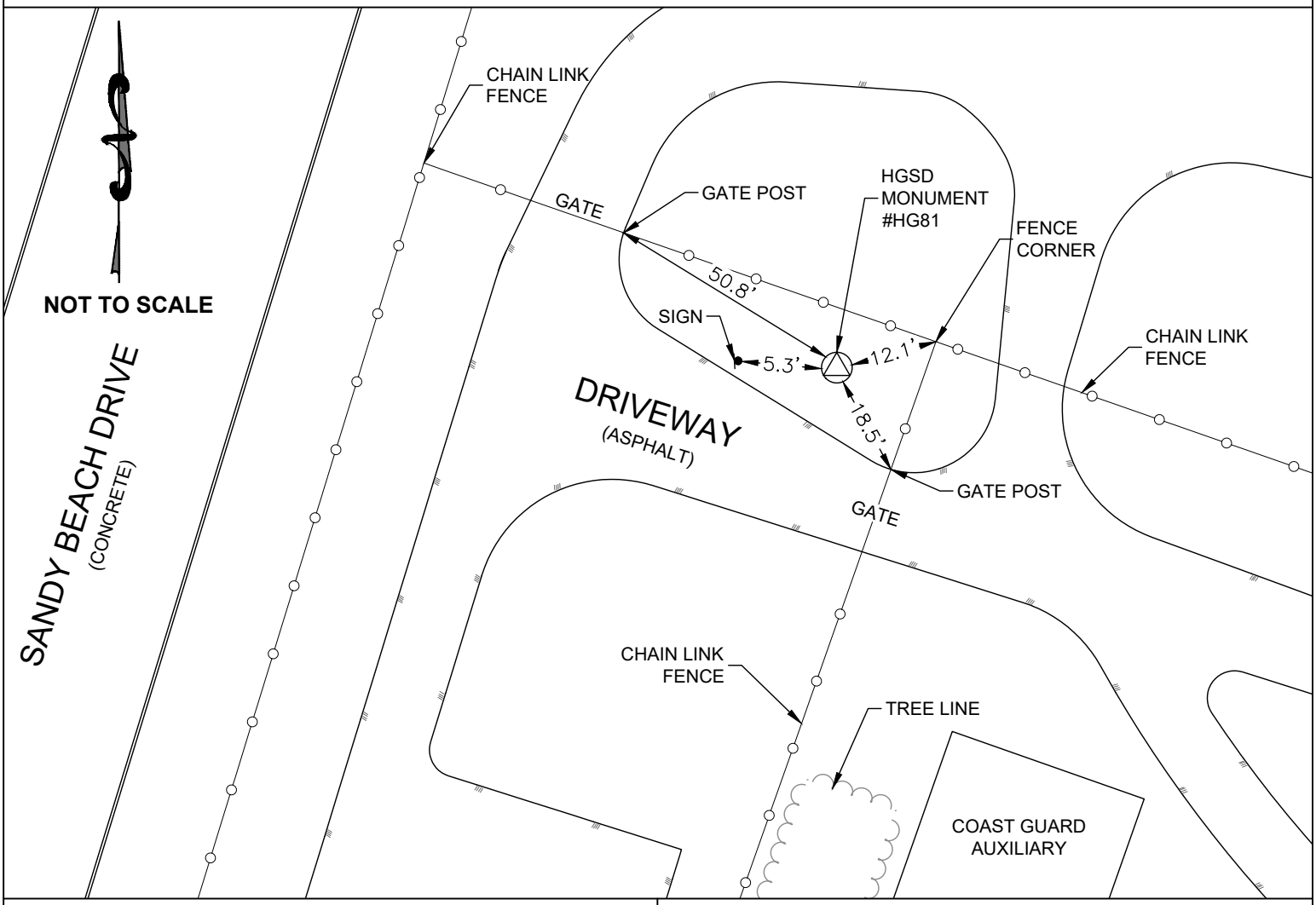


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 82 **4-Char ID/PID:** HG82/AJ6404	**General Location:** Cleveland

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 82---.

County: Liberty **State:** Texas	**Observed by:** HGSD
Key Map Page No:	**Date Observed:** October 17, 2022
USGS Quad Map: Cleveland (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 82	**Monument Depth:** 8.5m
Northing: 10125798.02 (usft) **Easting:** 3950844.54 (usft) **Orthometric Height[1]:** 158.60 (usft) **Geoid Height:** -89.99 (usft)	**Latitude:** 30 20 17.98211(N) **Longitude:** 095 05 14.71348(W) **Ellipsoid Height:** 68.63 (usft) **Convergence Angle:** 02 42 07.03

Scale Factor: 0.99994822 **Elevation Scale Factor:** 0.99999671 **Combined Scale Factor:** 0.99994493

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF HIGHWAY 59 AND SOUTH WASHINGTON AVE. (OLD 59) HEAD NORTH ON WASHINGTON AVE. APROX 1.5 MILES (2.4 KM) TO DALLAS STREET. HEAD EAST ON DALLAS ST FOR APROX .3 MILES (0.5 KM) TO THE MONUMENT ON THE RIGHT. AT THE SOUTHSIDE PRIMARY SCHOOL.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4203 **Northing:** 10125798.02 **Easting:** 3950844.54 **Orthometric Height:**158.60

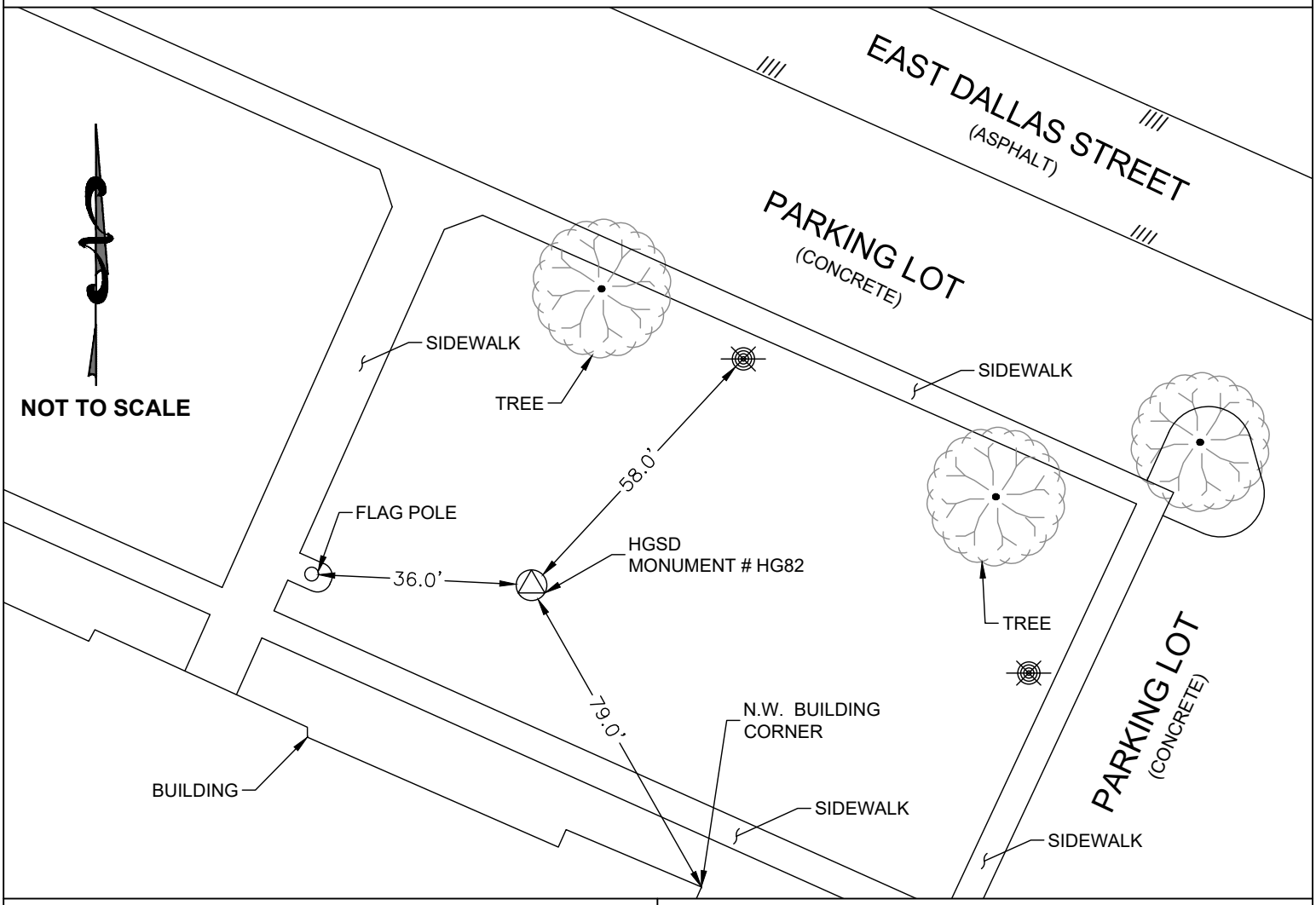


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: KEEFER **4-Char ID/PID:** KEFR/BL2200	**General Location:** Woodbranch

Benchmark Description:
THE MONUMENT IS A BRONZE U.S COAST & GEODETIC SURVEY BENCH MARK DISK, THE MONUMENT PROJECTS 6 INCHES AND THE DISK IS STAMPED "KEEFER 1942".

County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 223X	**Date Observed:** December 9, 2022
USGS Quad Map: Splendora (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: Keefer 1942	**Monument Depth:** N/A
Northing: 10070304.17 (usft) **Easting:** 3920649.88 (usft) **Orthometric Height[1]:** 112.53 (usft) **Geoid Height:** -89.97 (usft)	**Latitude:** 30 11 23.22292(N) **Longitude:** 095 11 28.18806(W) **Ellipsoid Height:** 22.63 (usft) **Convergence Angle:** 02 38 54.67

Scale Factor: 0.99998129 **Elevation Scale Factor:** 0.99999892 **Combined Scale Factor:** 0.99998021

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF ROMAN FOREST BLVD. AND THE NORTH BOUND SERVICE RD. FOR U.S. HWY 59, GO NORTH ALONG THE N.BOUND SERVICE RD. FOR 1.2 MILES (1.9KM) TO WOODBRANCH DR., TURN RT. (EAST) ACROSS THE RAILROAD TRACKS, THEN IMMEDIATELY LT. (NORTH) ONTO RAILROAD AVE., GO NORTH ALONG RAILROAD AVENUE 0.15 MILES (0.2KM) TO A ASPHALT DRIVEWAY FOR SOUTHWESTERN BELL COMPANY ON THE RIGHT 17521 RAIL ROAD AVENUE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203 **Northing:** 10070304.17 **Easting:** 3920649.88 **Orthometric Height:**112.53

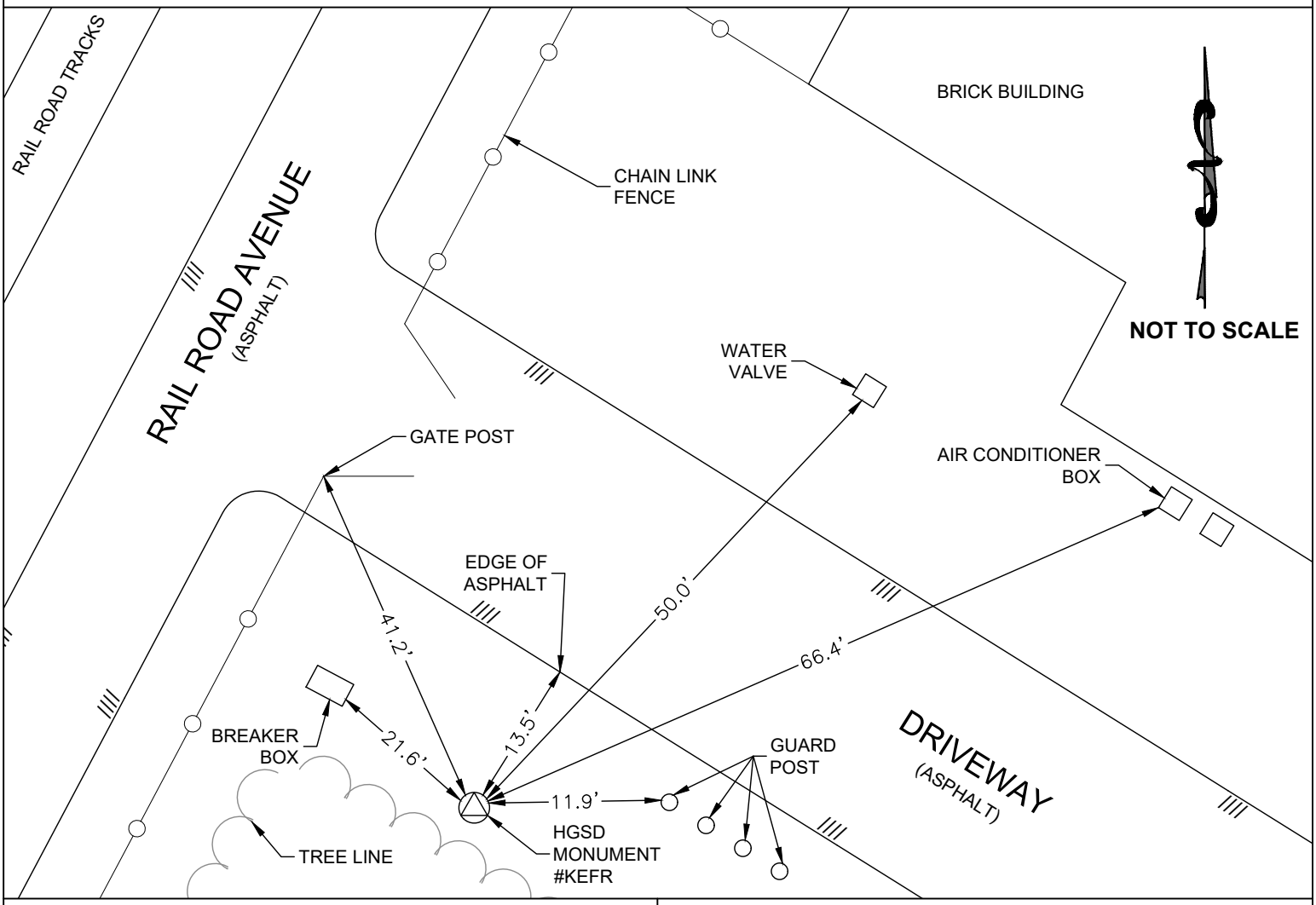


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: L 1149 **4-Char ID/PID:** L149/BL1164	**General Location:** Conroe

Benchmark Description:
THE MONUMENT IS A BRONZE U.S COAST & GEODETIC SURVEY BENCH MARK DISK, STAMPED "L1149". SET IN THE TOP OF A CONCRETE POST FLUSH WITH THE GROUND.

County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 188J	**Date Observed:** October 14, 2022
USGS Quad Map: Conroe (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: L 1149 1959	**Monument Depth:** N/A
Northing: 10102717.58 (usft) **Easting:** 3835531.80 (usft) **Orthometric Height[1]:** 166.73 (usft) **Geoid Height:** -90.33 (usft)	**Latitude:** 30 17 21.67465(N) **Longitude:** 095 27 20.93534(W) **Ellipsoid Height:** 76.43 (usft) **Convergence Angle:** 02 30 43.95

Scale Factor: 0.99995839 **Elevation Scale Factor:** 0.99999634 **Combined Scale Factor:** 0.99995473

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF S LOOP 336 E AND S FRAZIER ST, TRAVEL 0.62 MILE TO THE T AT S FRAZIER ST AND FOSTER DR. FOLLOW FOSTER DR TO THE FIRST GRAVEL RD ON THE RIGHT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4203	Northing: 10102717.58	Easting: 3835531.80	Orthometric Height:166.73

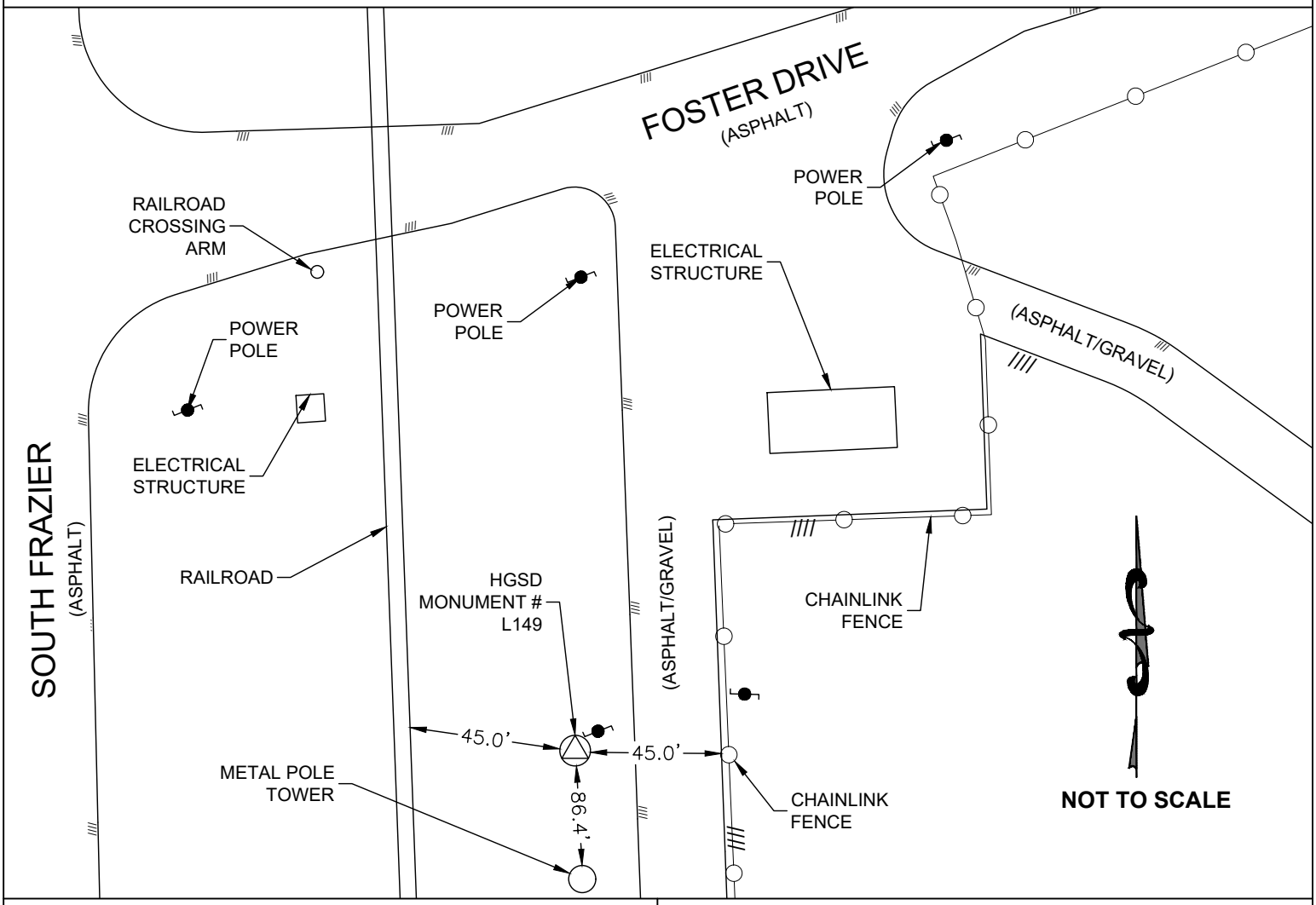


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 12 ARP **4-Char ID/PID:** P12A/AJ6403	**General Location:** Porter

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 295Z	**Date Observed:** December 8, 2022
USGS Quad Map: Maedan (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 10021997.72 (usft) **Easting:** 3900112.41 (usft) **Orthometric Height[1]:** 85.40 (usft) **Geoid Height:** -90.03 (usft)	**Latitude:** 30 03 34.89739(N) **Longitude:** 095 15 47.03562(W) **Ellipsoid Height:** -4.56 (usft) **Convergence Angle:** 02 36 41.35

Scale Factor: 1.0000157 **Elevation Scale Factor:** 1.00000022 **Combined Scale Factor:** 1.00001592

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF HIGHWAY 59 AND KINGWOOD DRIVE. HEAD WEST ON KINGWOOD DRIVE FOR 0.75 MILES (1.21 KM) TO THE INTERSECTION WITH SORTERS RD. HEAD NORTH ON SORTERS RD FOR .5 MILES (0.8 KM) TO THE STATION ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203 **Northing:** 10021997.72 **Easting:** 3900112.41 **Orthometric Height:** 85.40

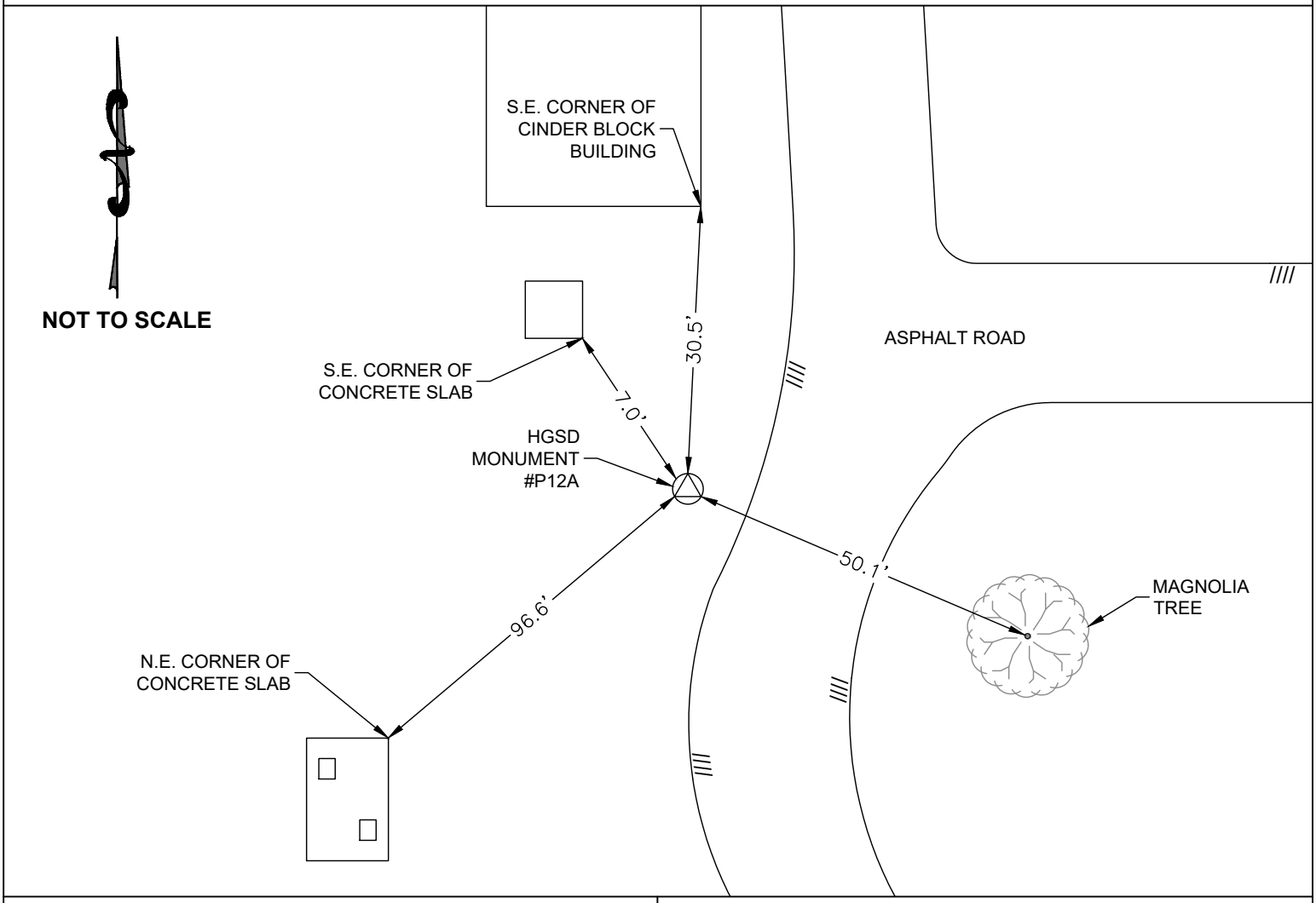


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 13 ARP **4-Char ID/PID:** P13A/AJ6419	**General Location:** The Woodlands

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Montgomery **State:** Texas	**Observed by:** HGSD
Key Map Page No: 217T	**Date Observed:** October 14, 2022
USGS Quad Map: Tamina (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 10067891.82 (usft) **Easting:** 3826254.65 (usft) **Orthometric Height[1]:** 151.18 (usft) **Geoid Height:** -90.38 (usft)	**Latitude:** 30 11 41.29094(N) **Longitude:** 095 29 23.94091(W) **Ellipsoid Height:** 60.84 (usft) **Convergence Angle:** 02 29 40.60

Scale Factor: 0.99998006 **Elevation Scale Factor:** 0.99999709 **Combined Scale Factor:** 0.99997715

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF INTERSTATE 45 AND RESEARCH FOREST DRIVE, THEN TRAVEL WESTERLY FOR APPROXIMATELY 2.8 MILES (4.5 KM) TO A ROAD ON THE RIGHT LEADING TO A SEWER PLANT AND THE STATION. 5402 RESEARCH FOREST DRIVE. DRIVE THROUGH THE GATE TO THE END AND TURN RIGHT. DRIVE TO THE END AND THE STATION WILL BE AHEAD OF YOU.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4203	Northing: 10067891.82	Easting: 3826254.65	Orthometric Height:151.18

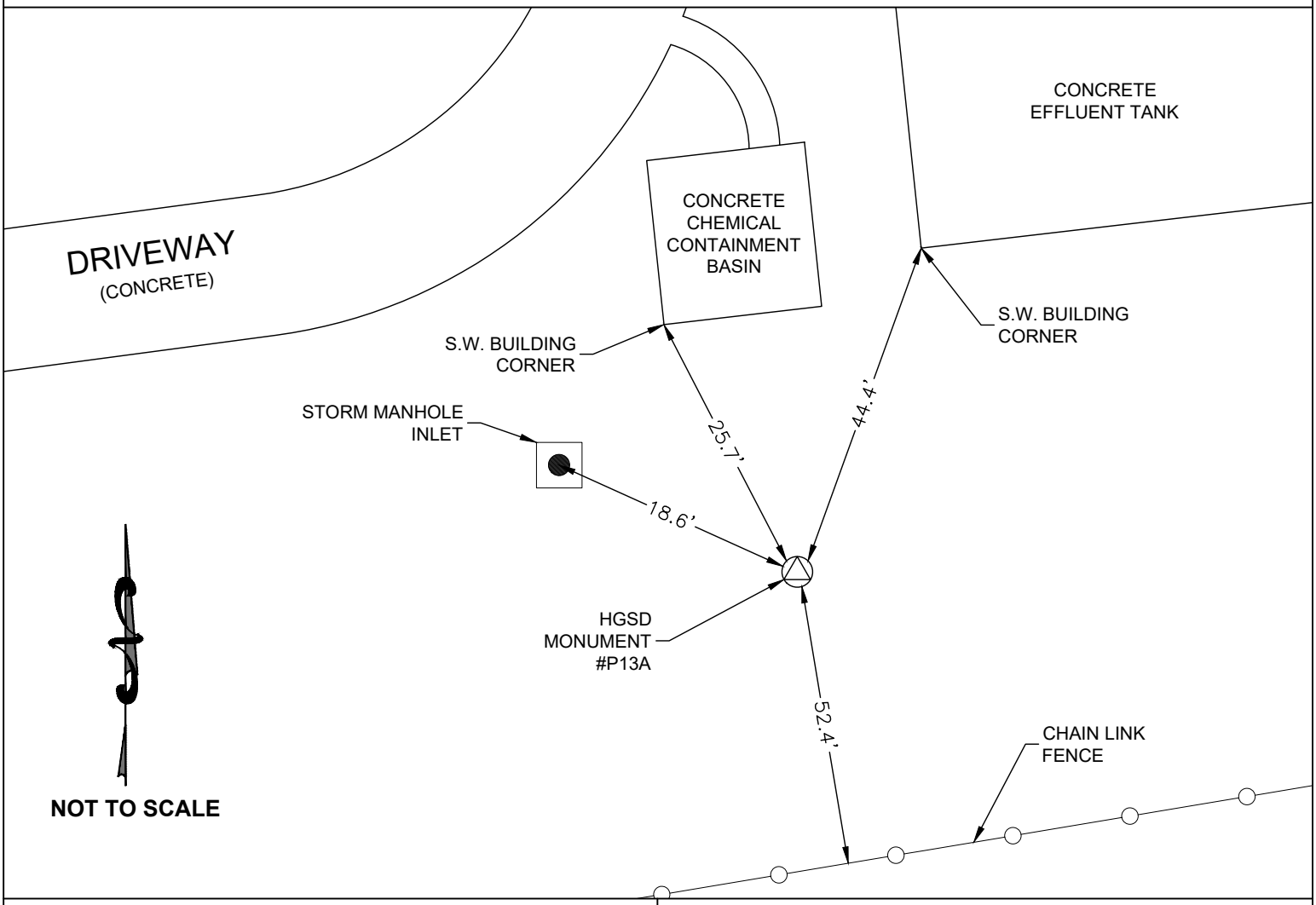


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: R 664 RESET **4-Char ID/PID:** R64R/AW0695	**General Location:** Dayton

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "R 664 RESET 1970", SET IN THE TOP OF THE WING WALL AT THE SOUTH CORNER OF A 20-FOOT CONCRETE BOX CULVERT WITH ONE DIVIDING PIER FOR A LARGE DRAINAGE DITCH AND UNDER BOTH LANES OF THE HIGHWAY.

County: Liberty **State:** Texas	**Observed by:** HGSD
Key Map Page No: 341Z	**Date Observed:** November 15, 2022
USGS Quad Map: Sheeks (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas Central 4203	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: R 664 RESET 1970	**Monument Depth:** N/A
Northing: 10003768.03 (usft) **Easting:** 3999057.91 (usft) **Orthometric Height[1]:** 63.87 (usft) **Geoid Height:** -89.78 (usft)	**Latitude:** 29 59 48.66765(N) **Longitude:** 094 57 12.47252(W) **Ellipsoid Height:** -25.92 (usft) **Convergence Angle:** 02 46 15.42

Scale Factor: 1.00003414 **Elevation Scale Factor:** 1.00000124 **Combined Scale Factor:** 1.00003538

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF US 90 AND MC CLUSKY (603), HEAD 0.40 MILES NORTHEAST ON US 90 TO THE FIRST DITCH THAT CROSSES US 90 AND TO THE MONUMENT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4203 **Northing:** 10003768.03 **Easting:** 3999057.91 **Orthometric Height:**63.87

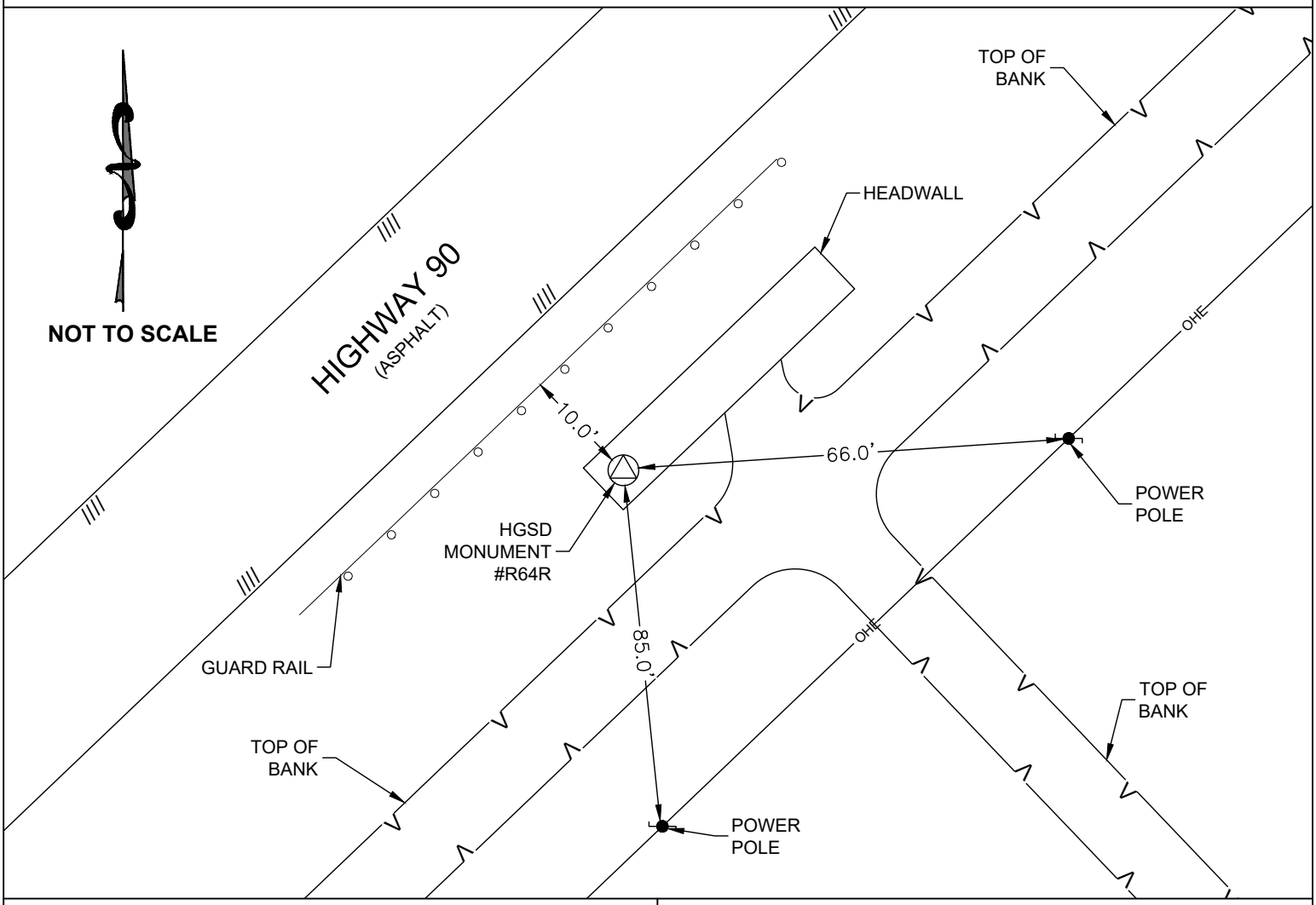


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: A 1006 **4-Char ID/PID:** A006/AW1607	**General Location:** San Leon

Benchmark Description:
THE MONUMENT IS A BRONZE U.S COAST & GEODETIC SURVEY BENCHMARK DISK, STAMPED "A 1006 1953", SET IN THE TOP OF A 12 INCH DIAMETER CONCRETE POST PROJECTING ABOVE THE GROUND.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 662S	**Date Observed:** November 7, 2022
USGS Quad Map: Texas City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: A 1006 1953	**Monument Depth:** N/A
Northing: 13745878.74 (usft) **Easting:** 3261708.79 (usft) **Orthometric Height[1]:** 3.87 (usft) **Geoid Height:** -88.32 (usft)	**Latitude:** 29 29 01.17772(N) **Longitude:** 094 56 03.34127(W) **Ellipsoid Height:** -84.48 (usft) **Convergence Angle:** 01 59 30.68

Scale Factor: 0.9998666 **Elevation Scale Factor:** 1.000004041 **Combined Scale Factor:** 0.99987064

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM RD 517 EAST AND 20TH ST GO SOUTH 0.13 MILES ON 20TH ST TO THE MONUMENT AT THE SE CORNER OF 20TH ST AND AVENUE J.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13745878.74 **Easting:** 3261708.79 **Orthometric Height:** 3.87

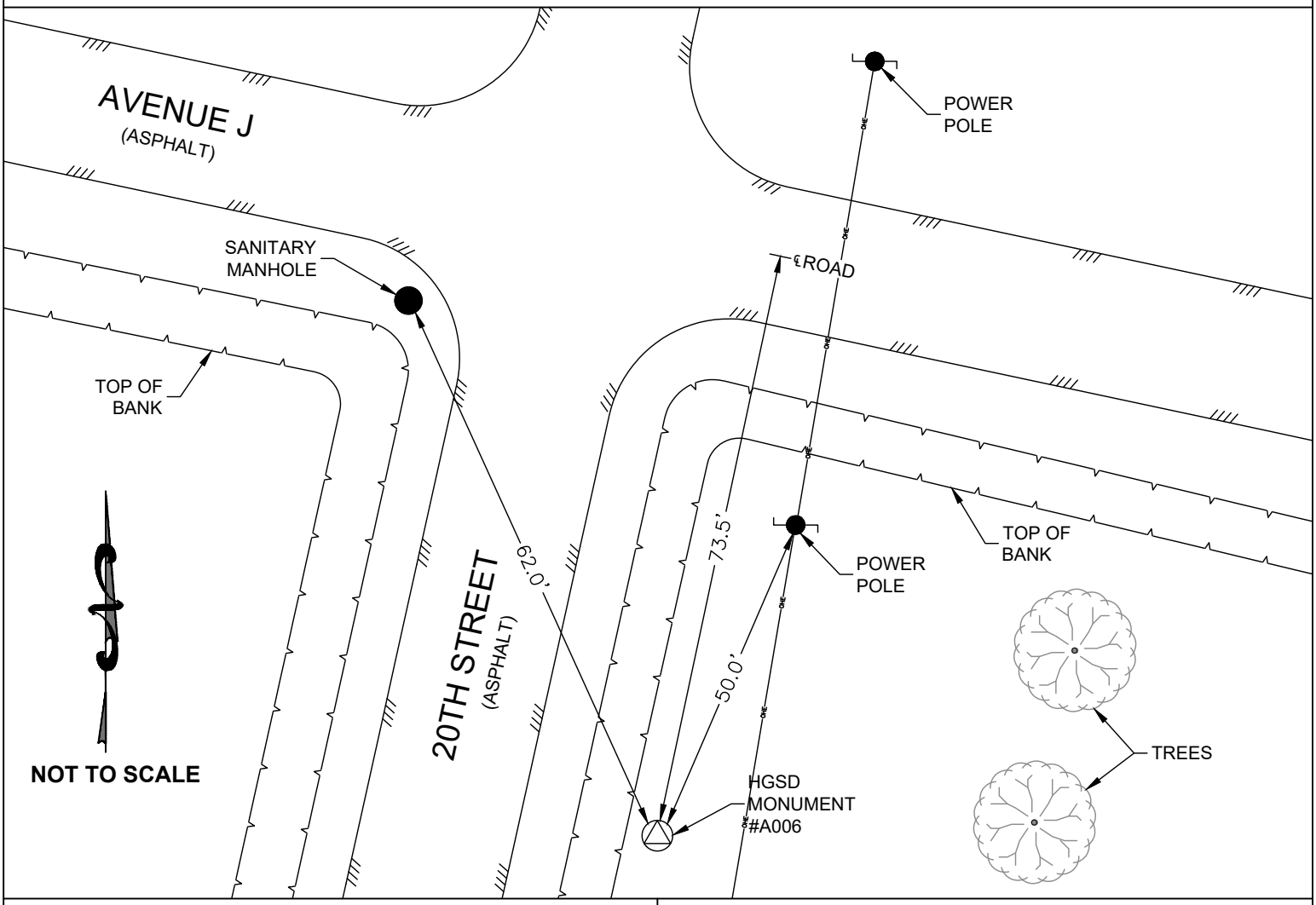


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: A 1026 **4-Char ID/PID:** A026/AW2192	**General Location:** Monaville

Benchmark Description:
THE MONUMENT IS A BRONZE U.S COAST & GEODETIC SURVEY BENCHMARK DISK, STAMPED "A 1026 1954", SET IN THE TOP OF A 12 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND.

County: Waller **State:** Texas	**Observed by:** HGSD
Key Map Page No: 361Z	**Date Observed:** October 17, 2022
USGS Quad Map: Hockley Mound (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: USCGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: A 1026 1954	**Monument Depth:** N/A
Northing: 13893546.98 (usft) **Easting:** 2932056.76 (usft) **Orthometric Height[1]:** 203.61 (usft) **Geoid Height:** -90.43 (usft)	**Latitude:** 29 55 01.61501(N) **Longitude:** 095 57 28.94933(W) **Ellipsoid Height:** 113.20 (usft) **Convergence Angle:** 01 29 25.06

Scale Factor: 0.99991472 **Elevation Scale Factor:** 0.99999458 **Combined Scale Factor:** 0.9999093

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF US 290 AND FM 326, HEAD SOUTH APPROXIMATELY 11.80 MI (18.99 KM) TO FM 362 AND FM 529 AND THE MONUMENT IS ON THE SOUTHWEST CORNER OF THE INTERSECTION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13893546.98 **Easting:** 2932056.76 **Orthometric Height:** 203.61

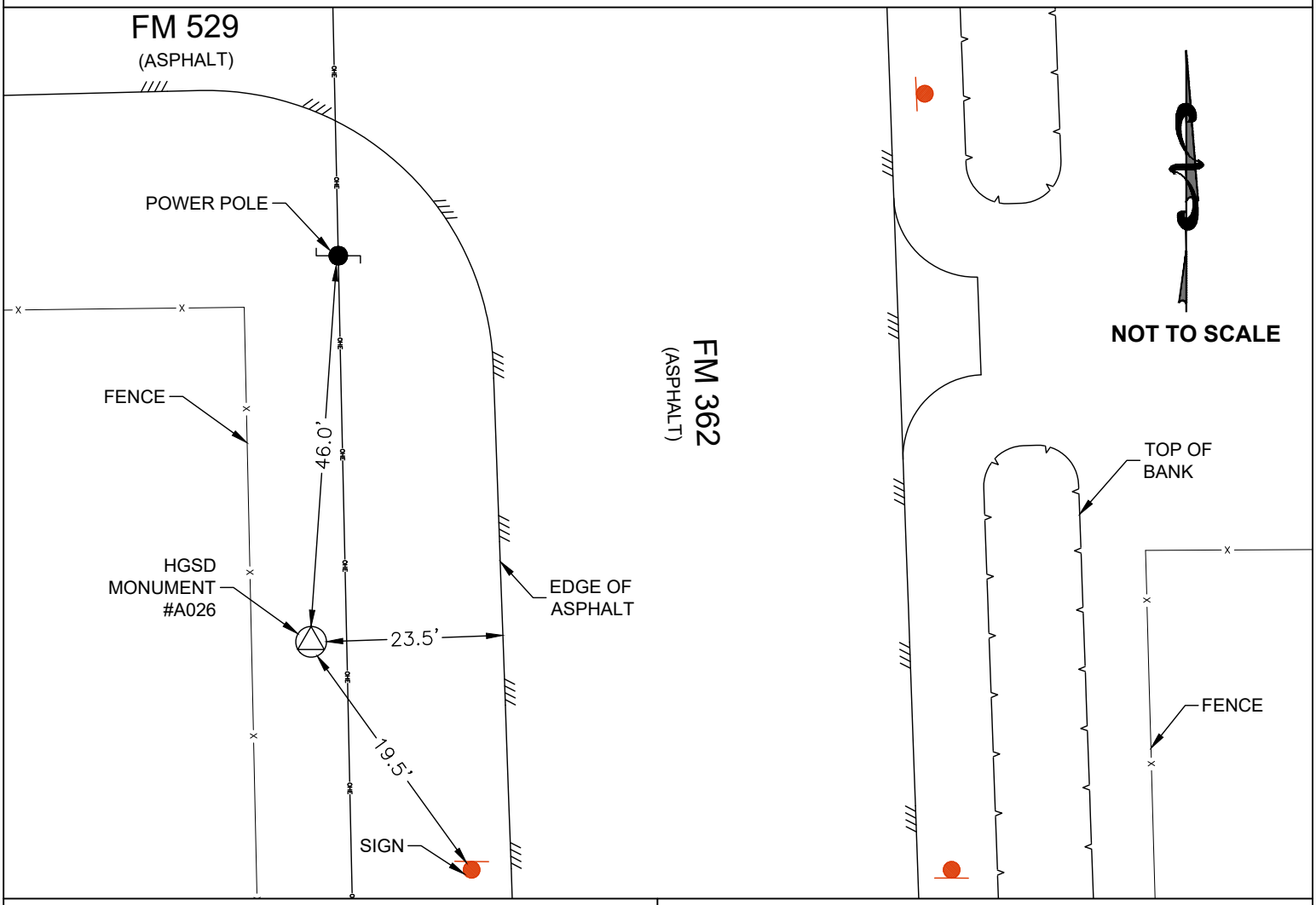


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: A 1219 **4-Char ID/PID:** A219/AW4180	**General Location:** Needville

Benchmark Description:
THE MONUMENT IS A NATIONAL GEODETIC SURVEY VERTICAL CONTROL MARK DISK STAMPED "A 1219 1973", SET IN THE FOOTINGS OF SMALL/MEDIUM STRUCTURES CULVERT HEADWALL.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 684W	**Date Observed:** October 27, 2022
USGS Quad Map: Needville (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: A 1219 1973	**Monument Depth:** N/A
Northing: 13705084.83 (usft) **Easting:** 2976616.88 (usft) **Orthometric Height[1]:** 90.52 (usft) **Geoid Height:** -89.28 (usft)	**Latitude:** 29 23 44.73894(N) **Longitude:** 095 50 00.73470(W) **Ellipsoid Height:** 1.29 (usft) **Convergence Angle:** 01 33 04.64

Scale Factor: 0.99986381 **Elevation Scale Factor:** 0.99999994 **Combined Scale Factor:** 0.99986375

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF HIGHWAY 36 AND FM 360. HEAD NORTHWEST APPROXIMATELY 235 FT (71.6 M) ON FM 360 TO THE GUARD RAIL ON THE NORTHEAST SIDE OF THE ROAD, WHERE THE MONUMENT IS ON THE HEADWALL.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13705084.83	Easting: 2976616.88	Orthometric Height: 90.52

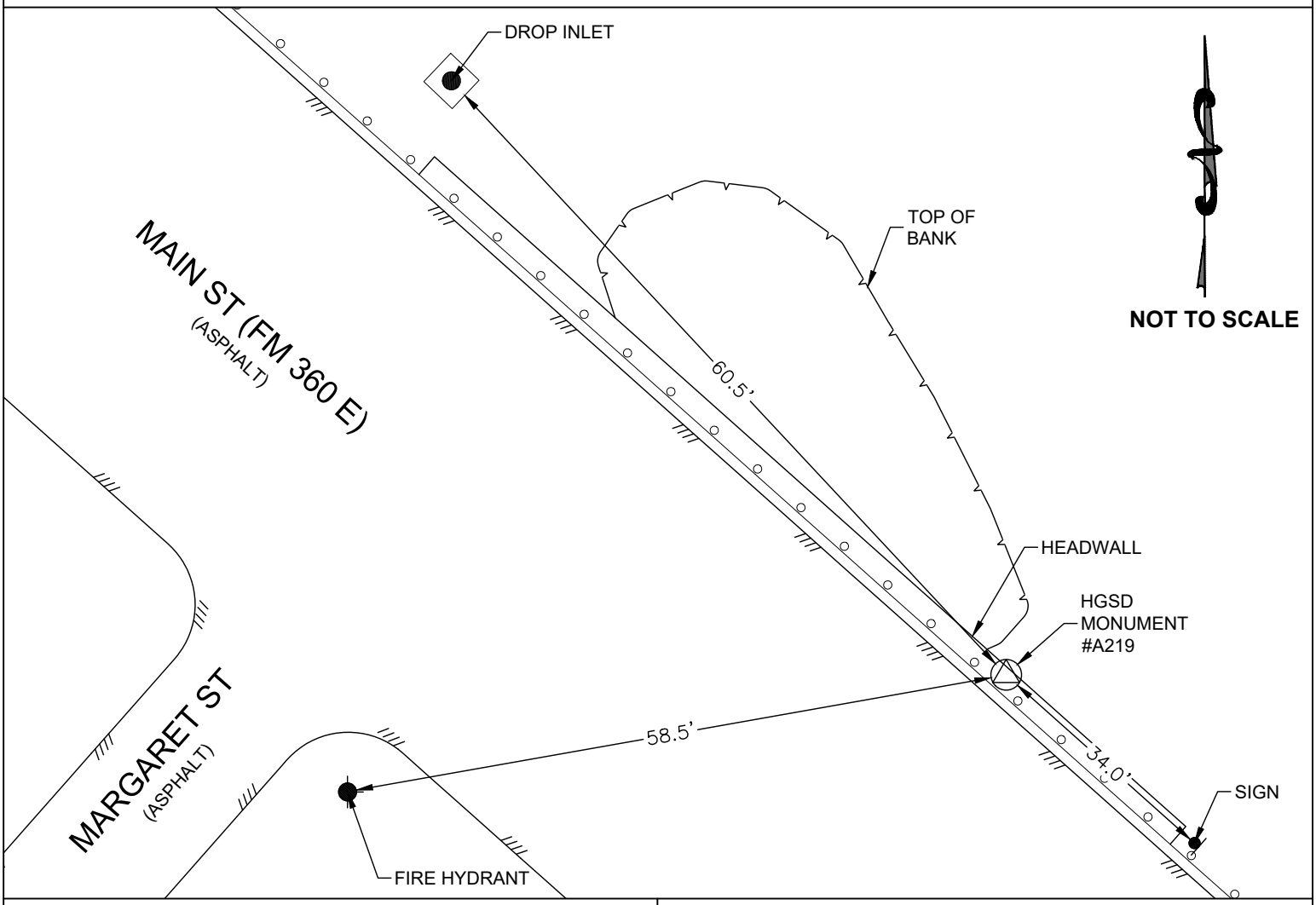


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: A 640 RESET **4-Char ID/PID:** A40R/AW1112	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "A 040 RESET 1962", SET ON THE TOP OF THE NORTHEAST CONCRETE HEADWALL OF A DOUBLE PIPE CULVERT, SOUTHEAST OF THE NORTHWEST END OF THE HEADWALL.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 576B	**Date Observed:** November 9, 2022
USGS Quad Map: Pasadena (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: A 640 RESET 1962	**Monument Depth:** N/A
Northing: 13806234.88 (usft) **Easting:** 3165264.33 (usft) **Orthometric Height[1]:** 26.44 (usft) **Geoid Height:** -89.29 (usft)	**Latitude:** 29 39 30.37540(N) **Longitude:** 095 13 52.11755(W) **Ellipsoid Height:** -62.80 (usft) **Convergence Angle:** 01 50 47.08

Scale Factor: 0.99987913 **Elevation Scale Factor:** 1.00000301 **Combined Scale Factor:** 0.99988214

To Reach Monument

TO REACH THE MONUMENT FROM GALVESTON RD (SH 3) AND COLLEGE AVE. TRAVEL EAST ON GALVESTON RD (SH 3) APPROXIMATELY 0.42 MILES TO THE "T" INTERSECTION OF GALVESTON RD (SH 3) AND MINNESOTA ST.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13806234.88 **Easting:** 3165264.33 **Orthometric Height:** 26.44

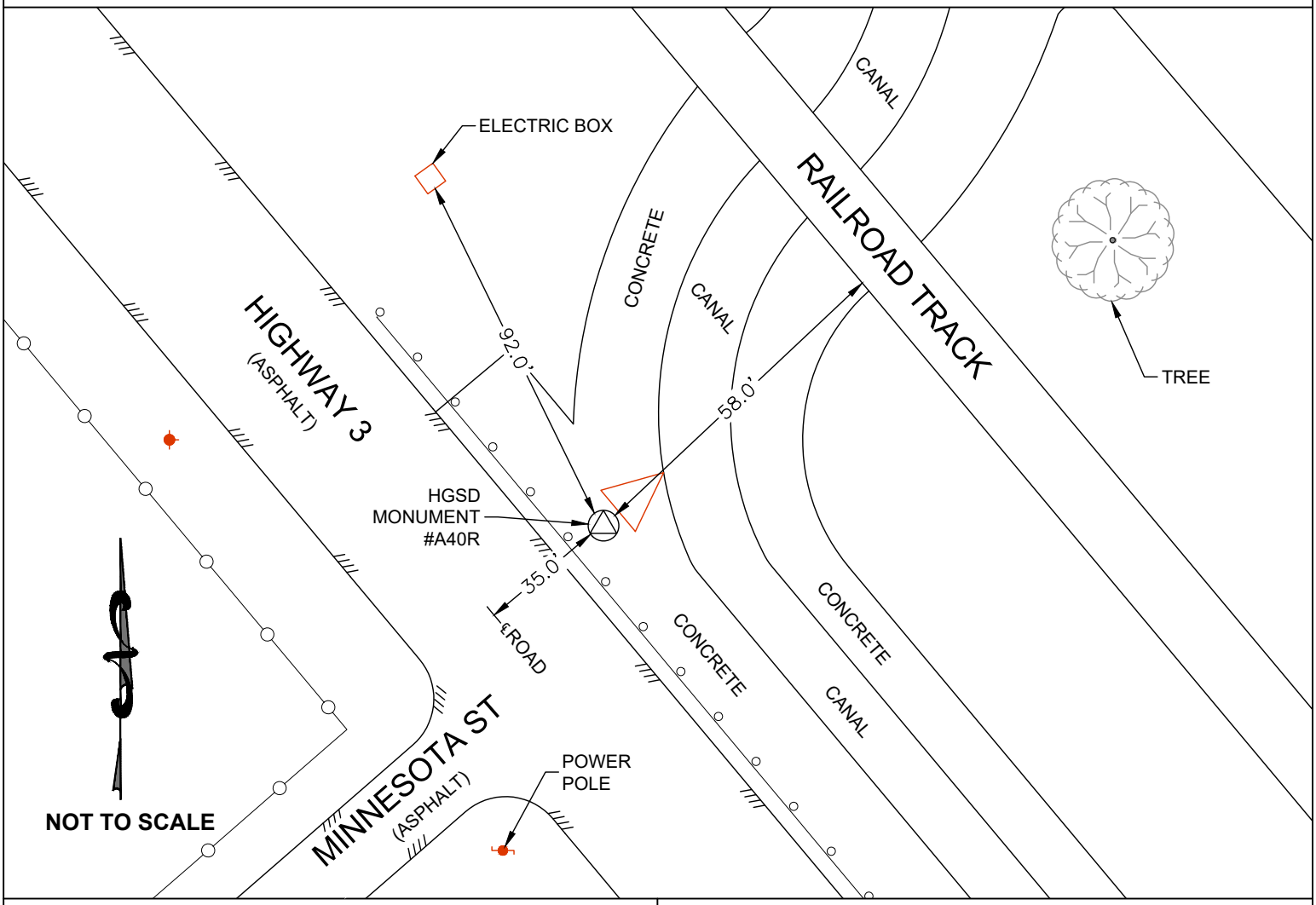


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: A 662 RESET **4-Char ID/PID:** A62R/AW0846	**General Location:** Crosby

Benchmark Description:
THE MONUMENT IS A U.S COAST AND GEODETIC SURVEY DISK STAMPED "A 662 RESET 1956", ABOUT 1 FOOT BELOW THE LEVEL OF THE HIGHWAY AND IN THE TOP OF A 12 INCH DIAMETER CONCRETE POST PROJECTING ABOUT 1 INCH.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 379P	**Date Observed:** November 16, 2022
USGS Quad Map: Crosby (2019)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: A 662 RESET 1956	**Monument Depth:** N/A
Northing: 13915478.71 (usft) **Easting:** 3209283.02 (usft) **Orthometric Height[1]:** 55.81 (usft) **Geoid Height:** -89.74 (usft)	**Latitude:** 29 57 16.97226(N) **Longitude:** 095 04 51.95164(W) **Ellipsoid Height:** -33.89 (usft) **Convergence Angle:** 01 55 11.71

Scale Factor: 0.99992159 **Elevation Scale Factor:** 1.00000162 **Combined Scale Factor:** 0.99992321

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM 2100 (CROSBY HUFFMAN RD) AND TALL CEDARS DR GO 0.13 MILE SOUTH TO THE MONUMENT ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13915478.71 **Easting:** 3209283.02 **Orthometric Height:** 55.81

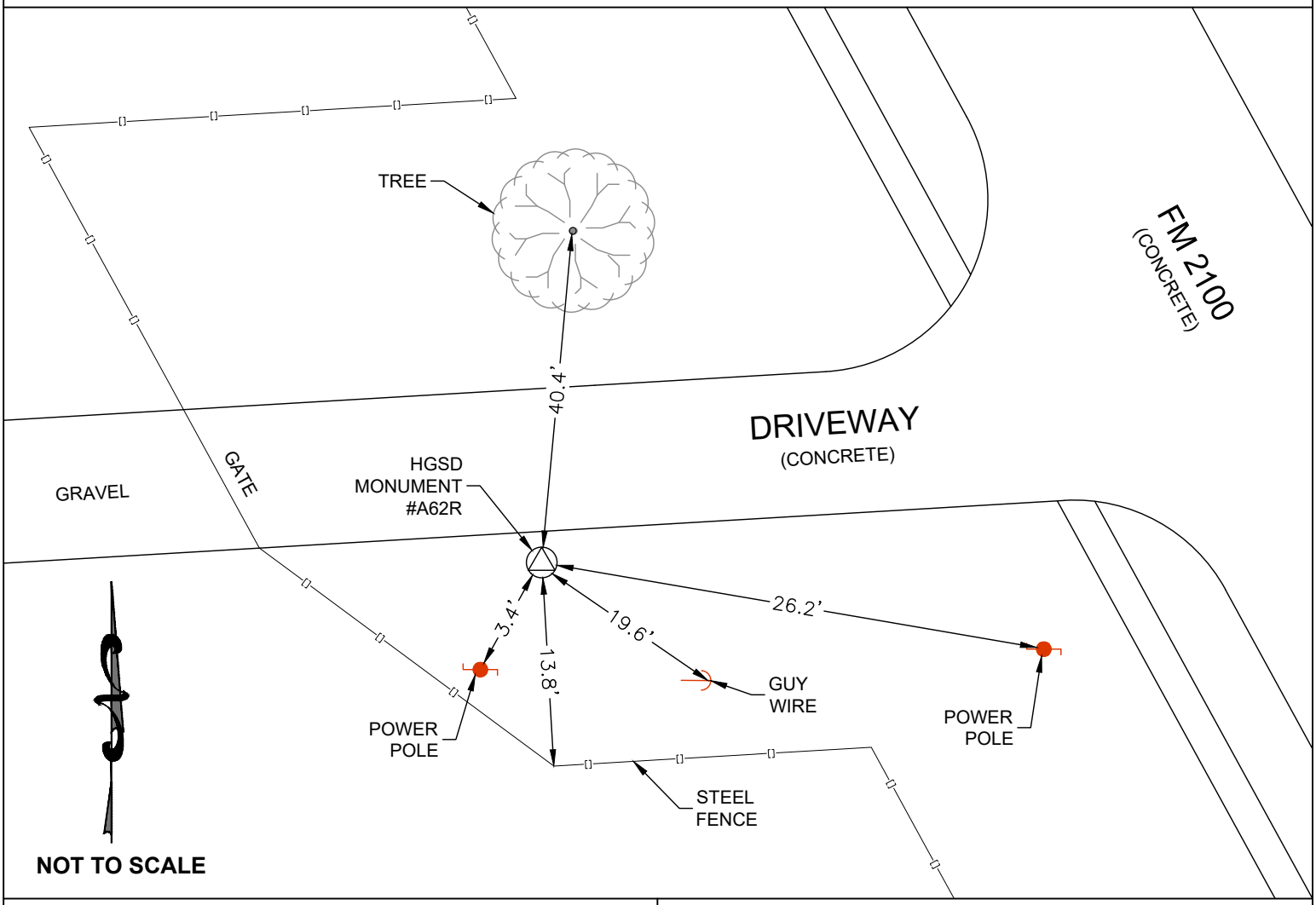


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: TXAG REF MON 1 **4-Char ID/PID:** AGRM/DR8248	**General Location:** Angleton

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD DRIVEN TO REFUSAL DEPTH OF 18.7 M (61.3 FT). THE LOGO CAP IS MOUNTED ON A PVC PIPE ENCASED IN CONCRETE 12 INCH DIAMETER.

County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 827D	**Date Observed:** October 31, 2022
USGS Quad Map: Angleton (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: TXDOT	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: TXAG-RM1 2022	**Monument Depth:** 18.7m
Northing: 13636434.50 (usft) **Easting:** 3103401.49 (usft) **Orthometric Height[1]:** 32.02 (usft) **Geoid Height:** -87.60 (usft)	**Latitude:** 29 11 49.23012(N) **Longitude:** 095 26 31.56461(W) **Ellipsoid Height:** -55.52 (usft) **Convergence Angle:** 01 44 35.01

Scale Factor: 0.99986612 **Elevation Scale Factor:** 1.00000266 **Combined Scale Factor:** 0.99986878

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF TEXAS STATE HIGHWAY 288 AND TEXAS FARM TO MARKET ROAD 523, GO EAST ON TEXAS FARM TO MARKET ROAD FM 523 FOR 1 KM (0.6 MI) TO THE TEXAS DEPARTMENT OF TRANSPORTATION AREA OFFICE ON THE SOUTH SIDE OF TEXAS FARM TO MARKET ROAD 523. THE MONUMENT IS IN A GRASSY AREA IN FRONT OF THE OFFICE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13636434.50 **Easting:** 3103401.49 **Orthometric Height:** 32.02

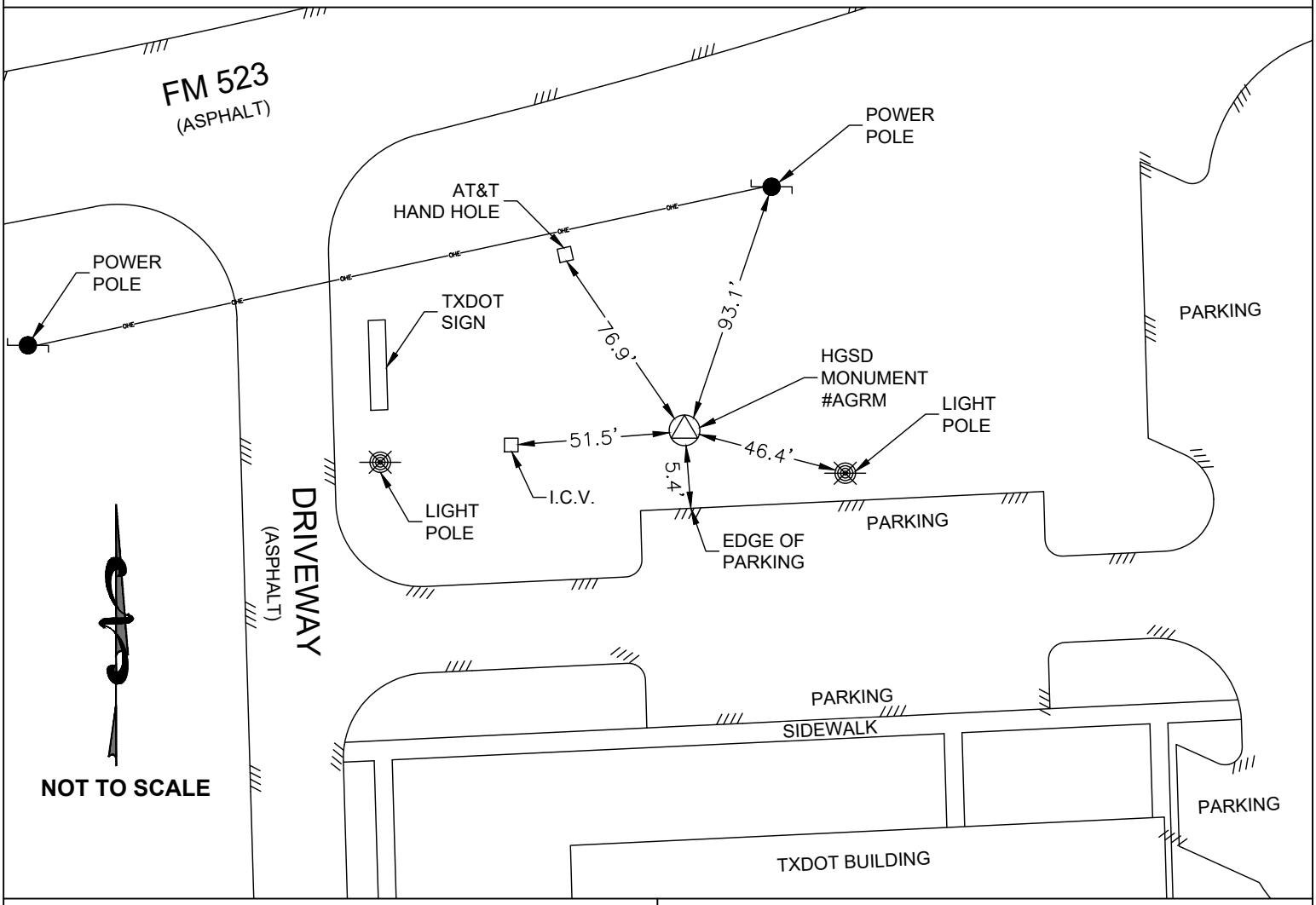


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: ALTA LOMA RM 1 **4-Char ID/PID:** ALRM/AW0499	**General Location:** Santa Fe
Benchmark Description: THE MONUMENT IS A BRONZE U.S COAST & GEODETIC SURVEY REFERENCE MARK DISK, STAMPED "ALTA LOMA NO 1 1931" AND IS SET IN THE TOP OF A 12 INCH DIAMETER CONCRETE POST PROJECTING 1.0 FOOT ABOVE THE GROUND.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 735J	**Date Observed:** November 3, 2022
USGS Quad Map: Hitchcock(2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: ALTA LOMA NO 1 1931	**Monument Depth:** N/A
Northing: 13703547.15 (usft) **Easting:** 3213742.81 (usft) **Orthometric Height[1]:** 23.69 (usft) **Geoid Height:** -88.08 (usft)	**Latitude:** 29 22 18.49715(N) **Longitude:** 095 05 21.82644(W) **Ellipsoid Height:** -64.38 (usft) **Convergence Angle:** 01 54 57.07
Scale Factor: 0.99986345 **Elevation Scale Factor:** 1.00000308 **Combined Scale Factor:** 0.99986653	

To Reach Monument

TO REACH THE MONUMENT, TRAVEL 0.007 MILE SOUTH FROM THE INTERSECTION OF SH 6 AND FM 646 IN SANTA FE, TX. THE MONUMENT IS IN THE SE CORNER OF 18TH ST AND AVENUE "M"

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13703547.15 **Easting:** 3213742.81 **Orthometric Height:** 23.69

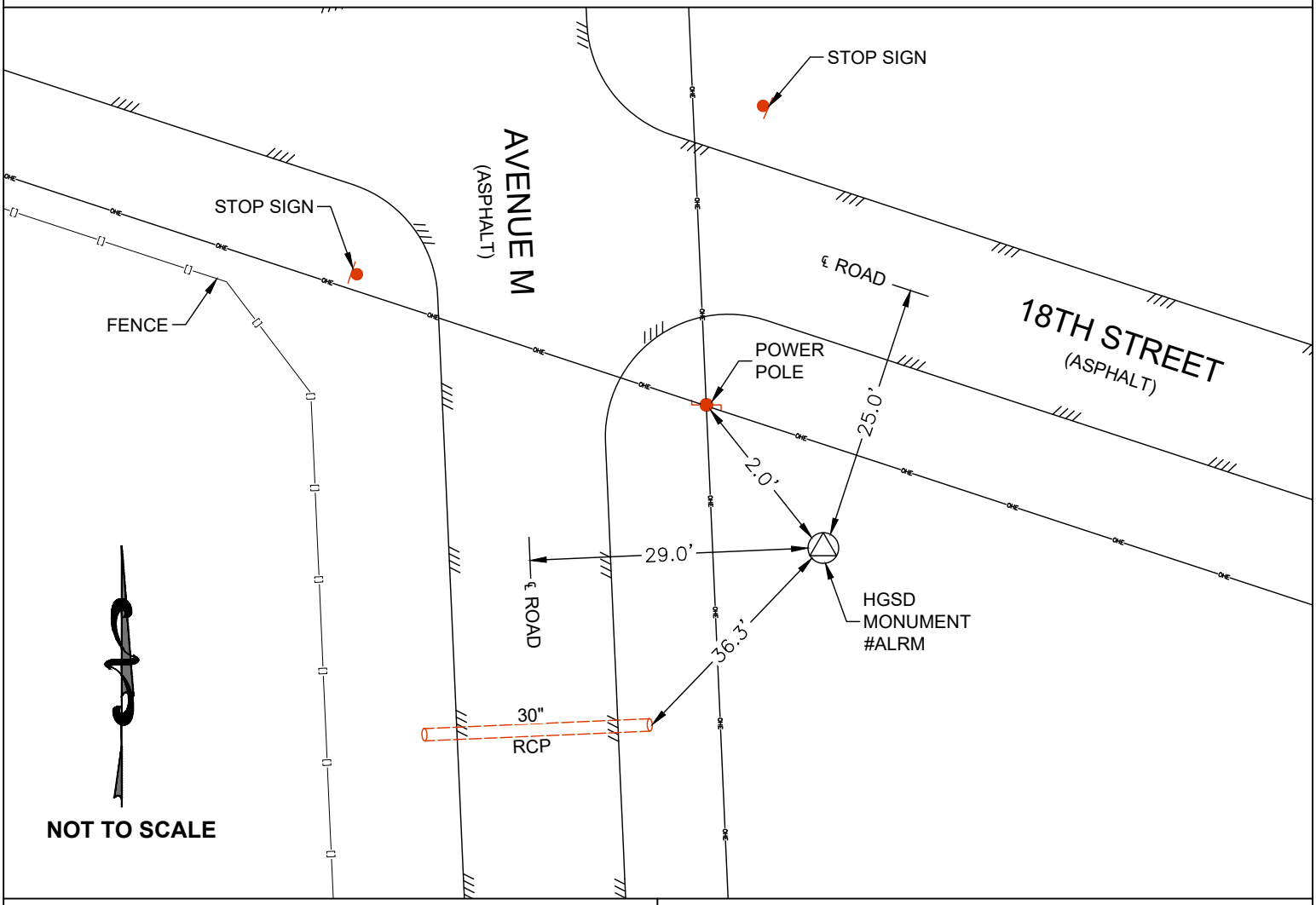


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: 877 1013 A TIDAL **4-Char ID/PID:** ATDL/AJ4424	**General Location:** San Leon
Benchmark Description: THE MONUMENT IS A BRONZE DISK SET 5 CM (0.2 FT) BELOW THE GROUND LEVEL, CRIMPED TO A STAINLESS STEEL ROD DRIVEN 10.7 M (35 FT) TO REFUSAL, AND ENCLOSED IN A 6-INCH PVC PIPE WITH CONCRETE KICKBLOCK.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 662U	**Date Observed:** November 7, 2022
USGS Quad Map: Texas City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: LUB 1013 A 1992	**Monument Depth:** 10.7m
Northing: 13744960.68 (usft) **Easting:** 3266697.53 (usft) **Orthometric Height[1]:** 4.27 (usft) **Geoid Height:** -88.28 (usft)	**Latitude:** 29 28 50.37381(N) **Longitude:** 094 55 07.28644(W) **Ellipsoid Height:** -84.00 (usft) **Convergence Angle:** 01 59 58.15
Scale Factor: 0.99986647 **Elevation Scale Factor:** 1.000004021 **Combined Scale Factor:** 0.99987049	

To Reach Monument

TO REACH THE MONUMENT FROM 6TH ST AND AVENUE J, TRAVEL 0.06 MILES EAST ON AVENUE J. TO THE INTERSECTION OF AVENUE "J" AND 5TH ST IN SAN LEON AND AT THE TOP OF THE ROCK BULWARK ON GALVESTON BAY AND ON THE NORTH SIDE OF A WOODEN PIER.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13744960.68 **Easting:** 3266697.53 **Orthometric Height:** 4.27

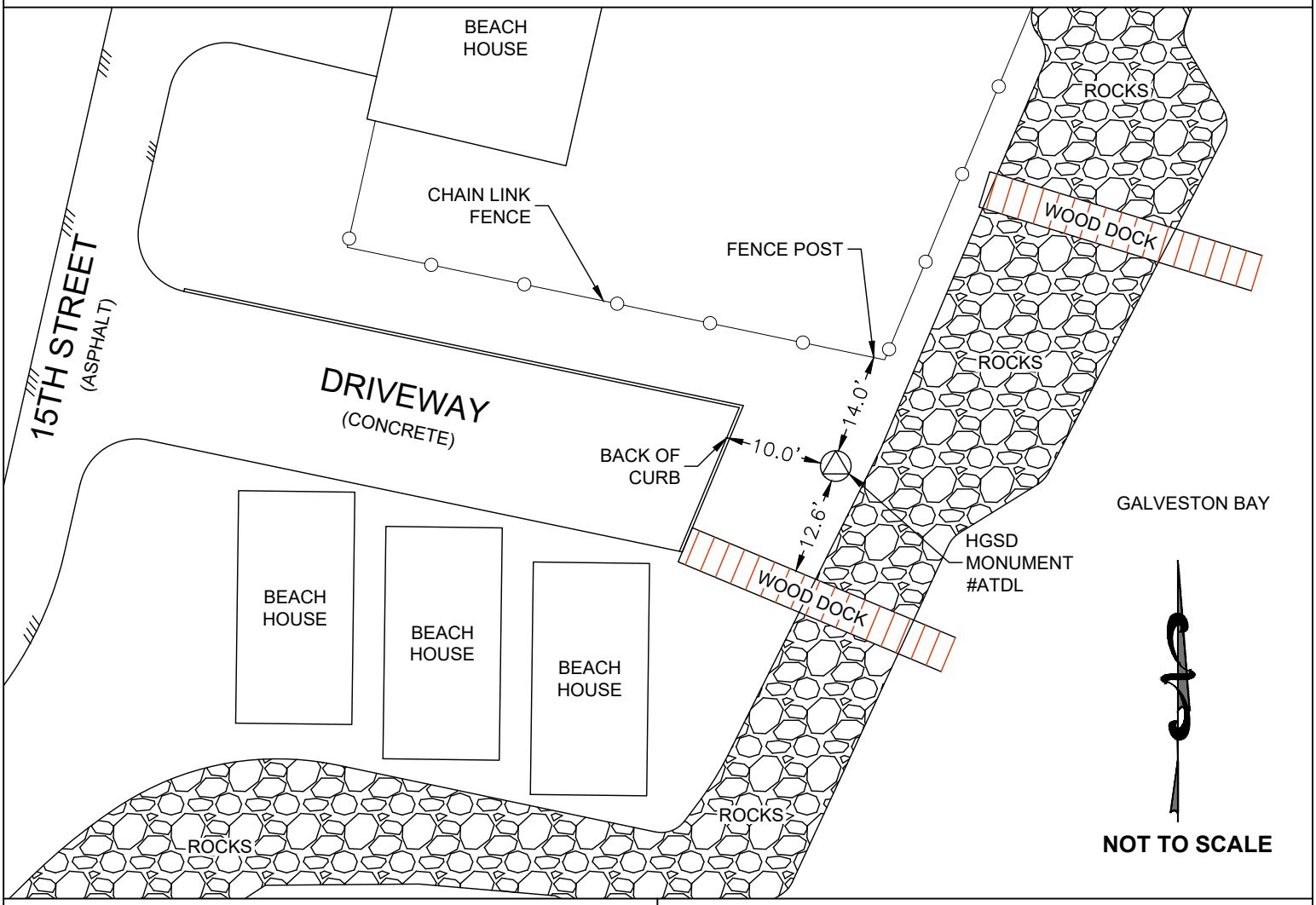


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: B 1148 **4-Char ID/PID:** B148/AW0400	**General Location:** Crosby

Benchmark Description:
THE MONUMENT IS A DISK SET ON TOP OF A 5/8-INCH COPPER COATED STEEL ROD AND PROTECTED BY A 6-INCH METAL PIPE WHICH PROJECTS 0.4 FOOT.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 419L	**Date Observed:** November 15, 2022
USGS Quad Map: Crosby (2019)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** 2
Marker/Stamping: B 1148 1959	**Monument Depth:** 1.2m
Northing: 13893908.93 (usft) **Easting:** 3215568.60 (usft) **Orthometric Height[1]:** 45.47 (usft) **Geoid Height:** -89.68 (usft)	**Latitude:** 29 53 41.47276(N) **Longitude:** 095 03 48.78859(W) **Ellipsoid Height:** -44.15 (usft) **Convergence Angle:** 01 55 42.66

Scale Factor: 0.99991085 **Elevation Scale Factor:** 1.00000211 **Combined Scale Factor:** 0.99991296

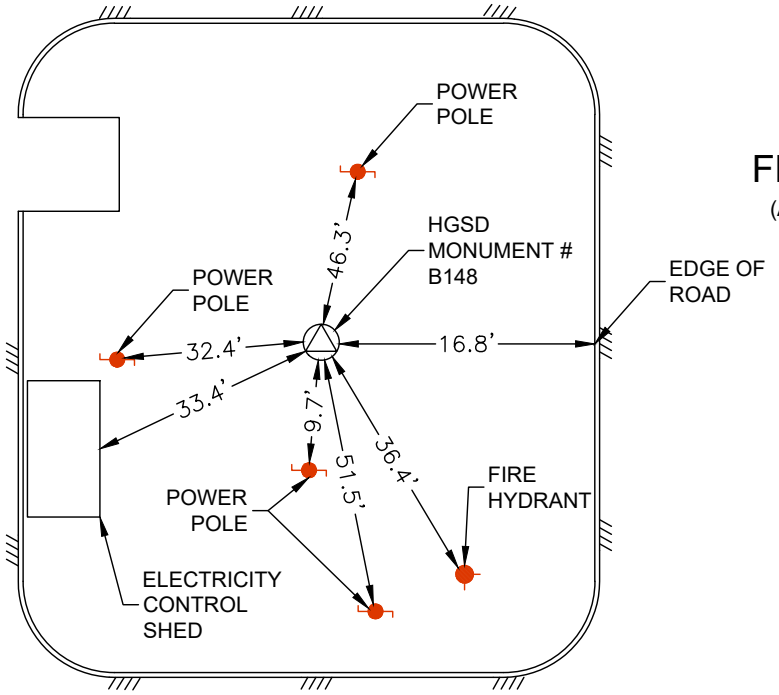
To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF BEAUMONT HIGHWAY (US 90 BUS) AND FM RD NO 2100 GO NORTH ON FM 2100 FOR 0.62 MILE TO THE MONUMENT ON THE LEFT AND NORTH OF THE CENTRAL ENTRANCE TO THE WALMART SUPERCENTER

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13893908.93 **Easting:** 3215568.60 **Orthometric Height:** 45.47



FM 2100
(ASPHALT)

NOT TO SCALE

Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: TXBC REF MON 1 **4-Char ID/PID:** BCRM/DR7618	**General Location:** Bay City
Benchmark Description: THE MOUMENT IS A STAINLESS-STEEL ROD DRIVEN TO A DEPTH OF 36.5 FEET WITH 7.9 FOOT GREASED SLEEVE AND ACCESS COVER.	
County: Matagorda **State:** Texas	**Observed by:** HGSD
Key Map Page No: 873W	**Date Observed:** October 31, 2022
USGS Quad Map: Bay City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: TXDOT	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: TXBC-RM1	**Monument Depth:** 11.1m
Northing: 13559996.03 (usft) **Easting:** 2936140.00 (usft) **Orthometric Height[1]:** 54.66 (usft) **Geoid Height:** -88.08 (usft)	**Latitude:** 28 59 59.31699(N) **Longitude:** 095 58 20.67834(W) **Ellipsoid Height:** -33.44 (usft) **Convergence Angle:** 01 28 59.72

Scale Factor: 0.99988023 **Elevation Scale Factor:** 1.0000016 **Combined Scale Factor:** 0.99988183

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF STATE HIGHWAY 35 AND STATE HIGHWAY 60, TRAVEL NORTH ON STATE HIGHWAY 60 FOR 1.16 MILES TO THE TEXAS DEPARTMENT OF TEXAS DEPARTMENT OF TRANSPORTATION OFFICE ON THE LEFT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13559996.03 **Easting:** 2936140.00 **Orthometric Height:** 54.66

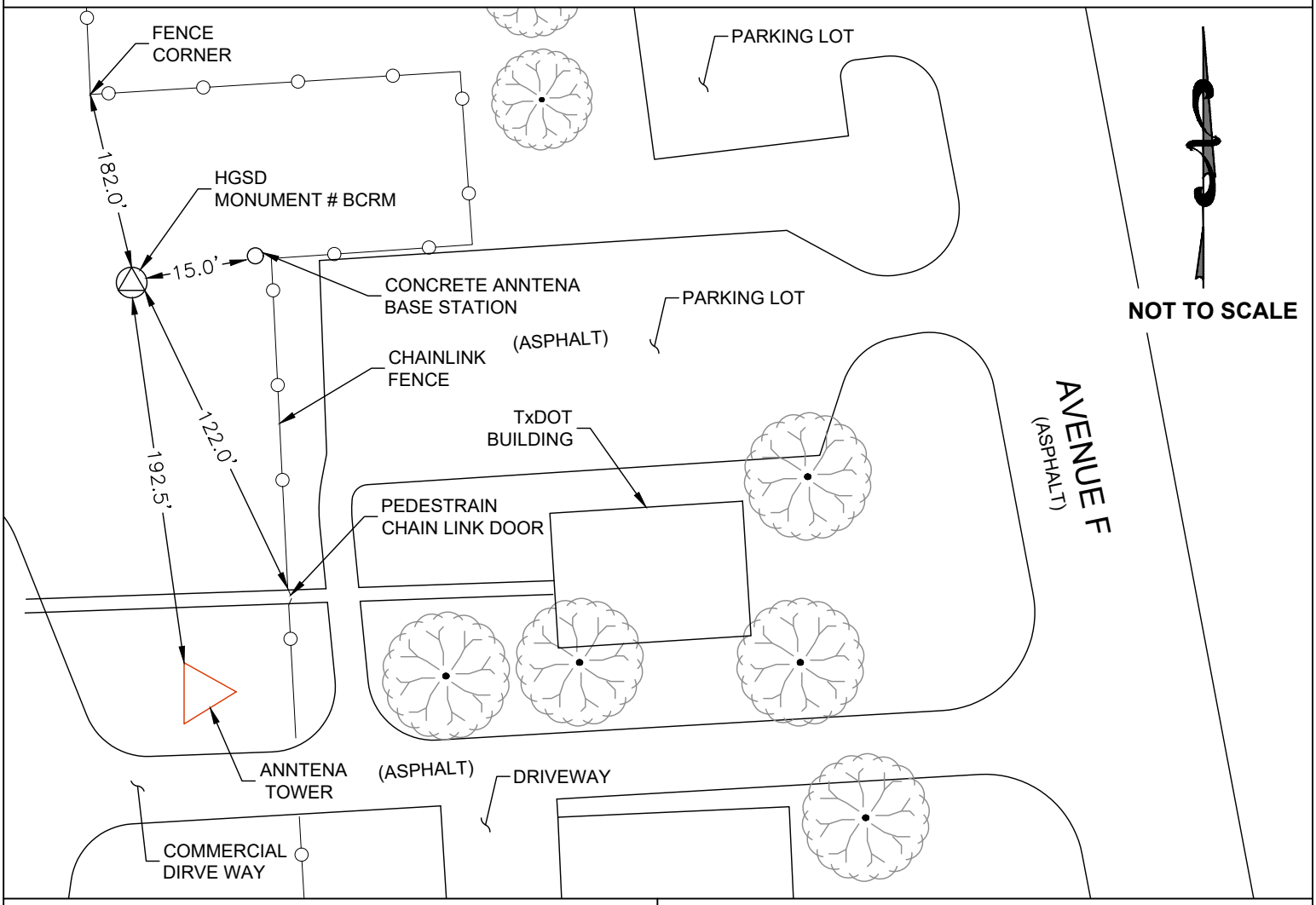


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: BUTLER **4-Char ID/PID:** BTLR/AW6625	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "BUTLER 1968", SET IN THE TOP OF A 12 INCH DIAMETER CONCRETE MONUMENT WHICH IS FLUSH WITH THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 571E	**Date Observed:** October 27, 2022
USGS Quad Map: Bellaire (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: BUTLER 1968	**Monument Depth:** N/A
Northing: 13795868.32 (usft) **Easting:** 3084073.73 (usft) **Orthometric Height[1]:** 64.63 (usft) **Geoid Height:** -89.44 (usft)	**Latitude:** 29 38 12.81092(N) **Longitude:** 095 29 15.54152(W) **Ellipsoid Height:** -24.78 (usft) **Convergence Angle:** 01 43 14.68

Scale Factor: 0.99987708 **Elevation Scale Factor:** 1.00000119 **Combined Scale Factor:** 0.99987827

To Reach Monument

TO REACH THE MONUMENT, IT IS LOCATED IN THE PARKING LOT AT THE NORTHEAST CORNER OF THE JOE K. BUTLER STADIUM FOOTBALL FIELD. THE STADIUM IS LOCATED ON THE SOUTH SIDE OF U.S. 90 ALT AND BETWEEN HILLCROFT AVENUE AND CHIMNEY ROCK RD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13795868.32 **Easting:** 3084073.73 **Orthometric Height:** 64.63

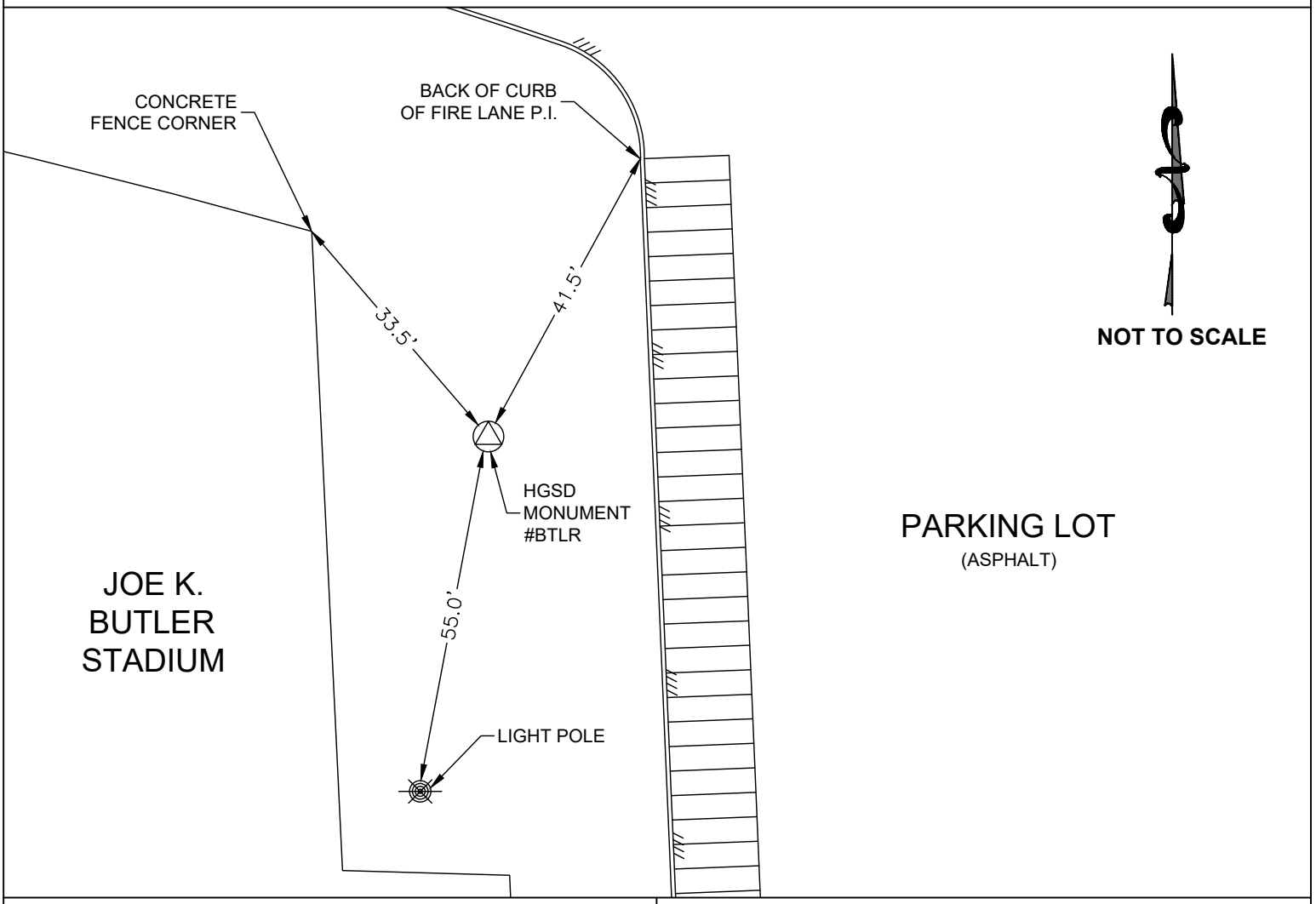


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: C 1221 **4-Char ID/PID:** C221/AW1772	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL DISK STAMPED "C 1221 1973" AND IS SET ON TOP OF A COPPER COATED STEEL ROD, AND PROTECTED BY A 6-INCH METAL PIPE. THE ROD WAS DRIVEN TO A DEPTH OF 24 FEET.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 370P	**Date Observed:** October 24 2022
USGS Quad Map: Satsuma (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: C 1221 1973	**Monument Depth:** 24ft
Northing: 13907502.48 (usft) **Easting:** 3068006.49 (usft) **Orthometric Height[1]:** 114.99 (usft) **Geoid Height:** -90.21 (usft)	**Latitude:** 29 56 42.23745(N) **Longitude:** 095 31 39.99234(W) **Ellipsoid Height:** 24.82 (usft) **Convergence Angle:** 01 42 03.91

Scale Factor: 0.99991978 **Elevation Scale Factor:** 0.99999881 **Combined Scale Factor:** 0.99991859

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF THE SAM HOUSTON TOLLWAY (NORTH BELTWAY 8) AND THE TOMBALL PARKWAY (SH 249) GO NORTH ON THE TOMBALL PARKWAY 0.88 MILE TO THE ENTRANCE OF THE T.H. WHARTON PLANT ON THE SW SIDE OF THE TOMBALL PARKWAY AND ON THE SE SIDE OF THE ELECTRIC PLANT ENTRY DRIVE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13907502.48 **Easting:** 3068006.49 **Orthometric Height:** 114.99

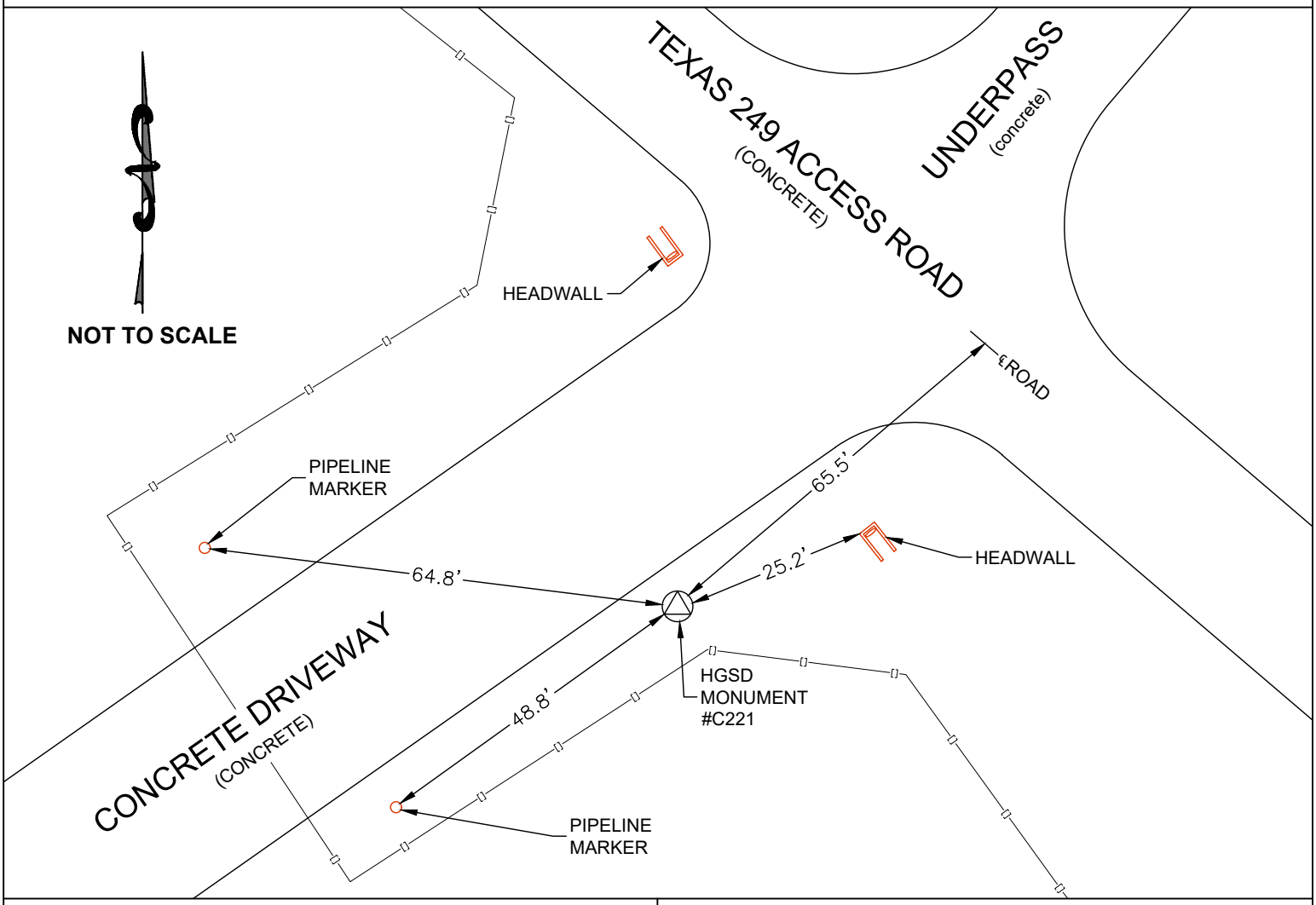


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: D 1219 **4-Char ID/PID:** D219/AW4184	**General Location:** Needville

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL MARK DISK, STAMPED AS "D 1219 1973" SET ON THE FOOTINGS OF SMALL/MEDIUM STRUCTURES CULVERT HEADWALL.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 684S	**Date Observed:** October 24, 2022
USGS Quad Map: Needville (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: D 1219 1973	**Monument Depth:** N/A
Northing: 13710759.19 (usft) **Easting:** 2975988.77 (usft) **Orthometric Height[1]:** 89.73 (usft) **Geoid Height:** -89.32 (usft)	**Latitude:** 29 24 41.06748(N) **Longitude:** 095 50 06.09764(W) **Ellipsoid Height:** 0.44 (usft) **Convergence Angle:** 01 33 02.02

Scale Factor: 0.99986413 **Elevation Scale Factor:** 0.99999998 **Combined Scale Factor:** 0.99986411

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF FARM ROAD 360 AT NEEDVILLE, TRAVEL ABOUT 1.1 MILE NORTH ALONG STATE HIGHWAY 36. THE MONUMENT IS AT THE CROSSING OF A DITCH, DIRECTLY OPPOSITE A SOUTHERN PACIFIC COMPANY RAILROAD BRIDGE, IN THE TOP AND 1.2 FEET SOUTH OF THE NORTH END OF THE EAST CONCRETE HEAD WALL OF A 4-WAY CONCRETE BOX CULVERT, 24 1/2 FEET EAST OF THE CENTER LINE OF THE HIGHWAY, AND ABOUT LEVEL WITH THE HIGHWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13710759.19 **Easting:** 2975988.77 **Orthometric Height:** 89.73

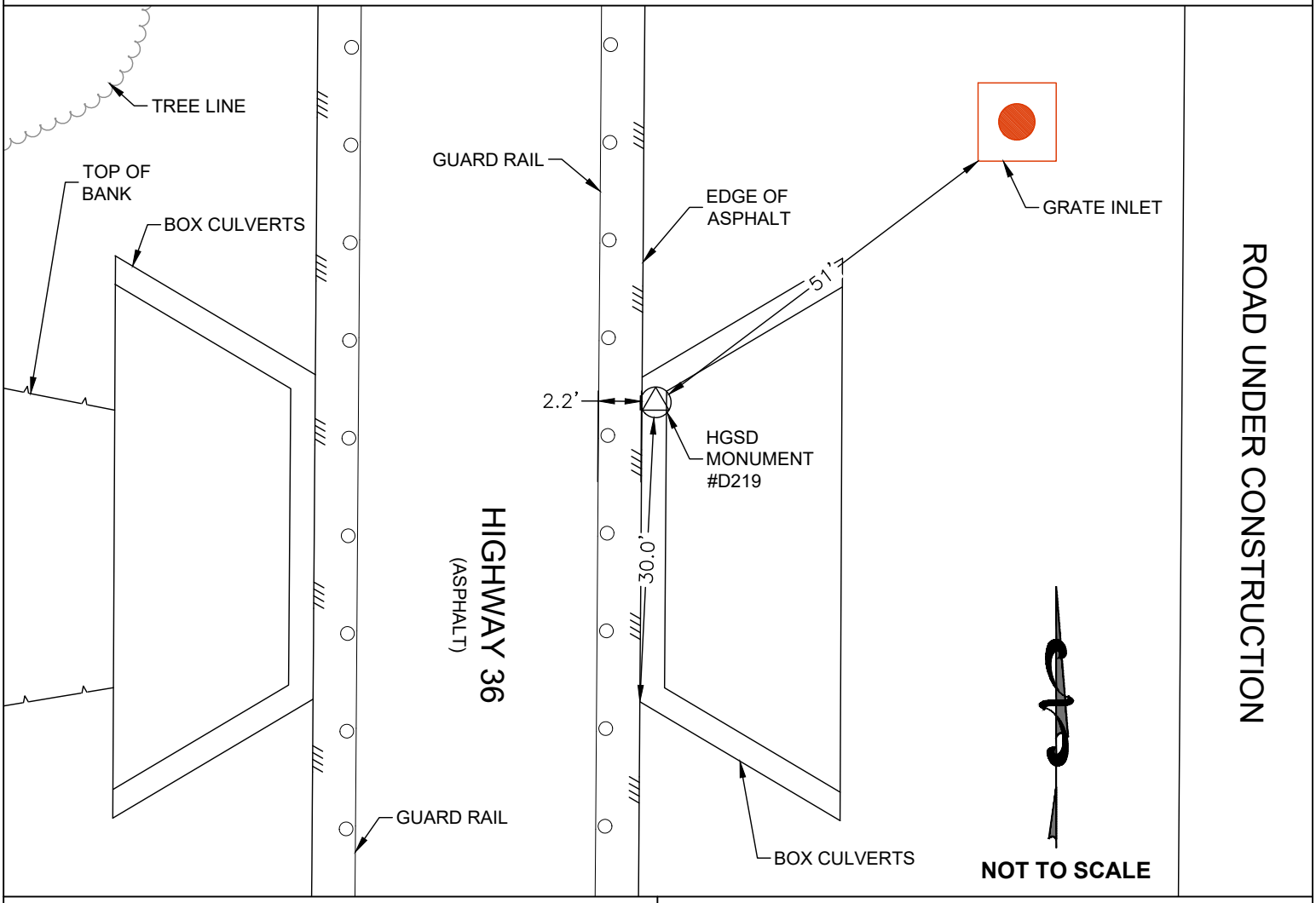


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: E 1212 **4-Char ID/PID:** E212/AW4733	**General Location:** Richmond

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL MARK DISK STAMPED "E 1212 1973" AND IS SET ON 1 OF THE 4 CONCRETE POWER TOWER LEGS.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 605F	**Date Observed:** October 31, 2022
USGS Quad Map: Richmond (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: E 1212 1973	**Monument Depth:** N/A
Northing: 13770499.75 (usft) **Easting:** 2993330.19 (usft) **Orthometric Height[1]:** 99.87 (usft) **Geoid Height:** -89.68 (usft)	**Latitude:** 29 34 27.62799(N) **Longitude:** 095 46 31.45459(W) **Ellipsoid Height:** 10.21 (usft) **Convergence Angle:** 01 34 47.17

Scale Factor: 0.99987194 **Elevation Scale Factor:** 0.99999951 **Combined Scale Factor:** 0.99987145

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF LANE DRIVE AND THE NORTH SIDE OF US HIGHWAY 90 A, RICHMOND, TX. TRAVEL 0.10 MILE NORTHWEST ON LANE DRIVE AND OLD RICHMOND ROAD. THE MONUMENT IS AT THE NORTHWEST CORNER OF A CNP HIGH VOLTAGE TOWER LEG 125' SOUTH FROM THE CENTERLINE OF RAILROAD TRACKS.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13770499.75 **Easting:** 2993330.19 **Orthometric Height:** 99.87

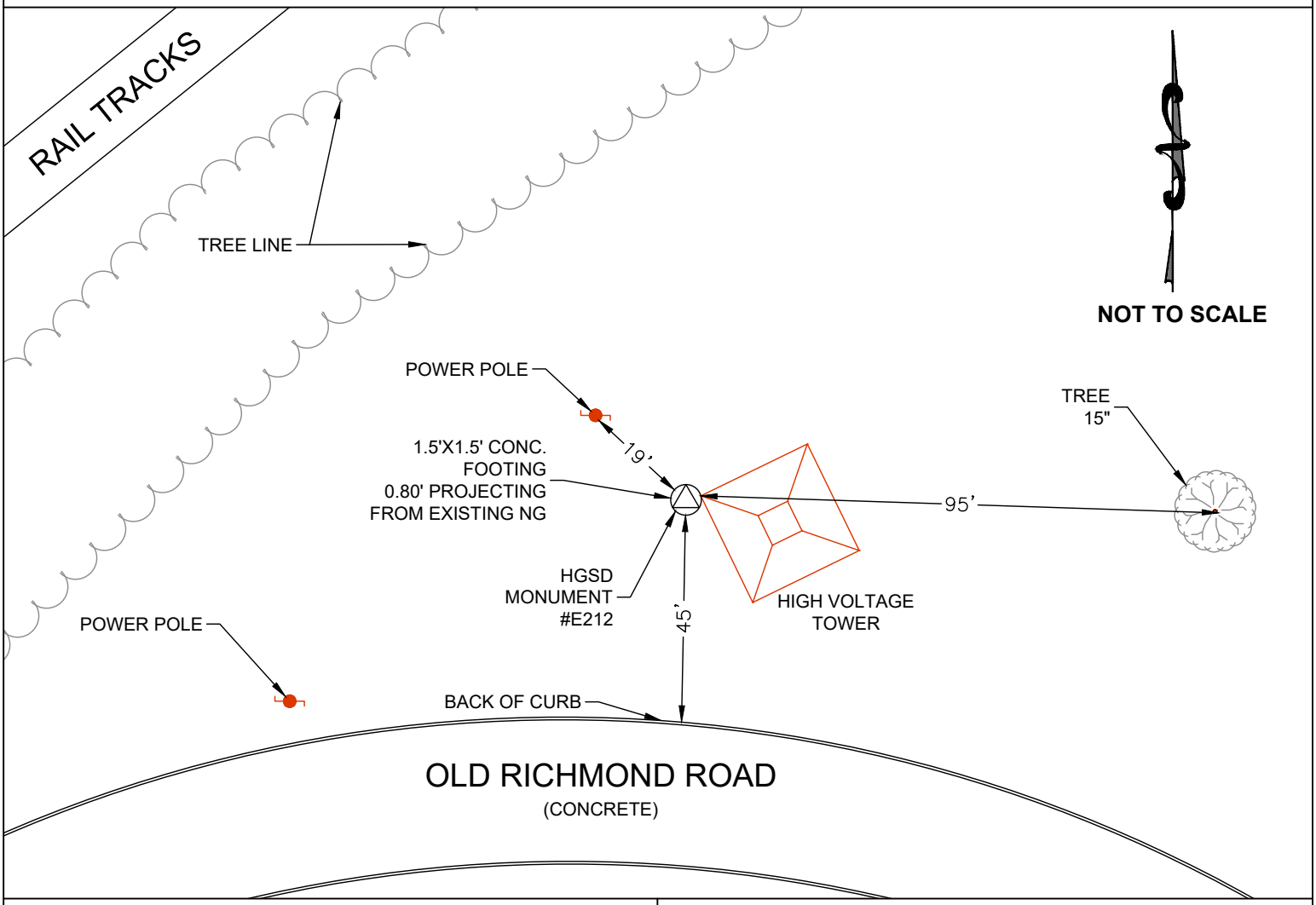


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: EAGLE POINT **4-Char ID/PID:** EGPT/AW1604	**General Location:** San Leon

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY TRIANGULATION DISK STAMPED "EAGLE PT 1932" AND IS SET ON THE TOP OF A CONCRETE POST FLUSH WITH THE GROUND.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 662Q	**Date Observed:** November 7, 2022
USGS Quad Map: Texas City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: EAGLE PT 1932	**Monument Depth:** N/A
Northing: 13750621.08 (usft) **Easting:** 3269120.10 (usft) **Orthometric Height[1]:** 9.65 (usft) **Geoid Height:** -88.33 (usft)	**Latitude:** 29 29 45.54367(N) **Longitude:** 094 54 37.65135(W) **Ellipsoid Height:** -78.66 (usft) **Convergence Angle:** 02 00 12.66

Scale Factor: 0.99986718 **Elevation Scale Factor:** 1.00000376 **Combined Scale Factor:** 0.99987094

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF 1ST STREET AND E BAY SHORE DR, GO 0.18 MILE ON 1ST STREET ALMOST TO END OF THAT STREET.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13750621.08 **Easting:** 3269120.10 **Orthometric Height:** 9.65

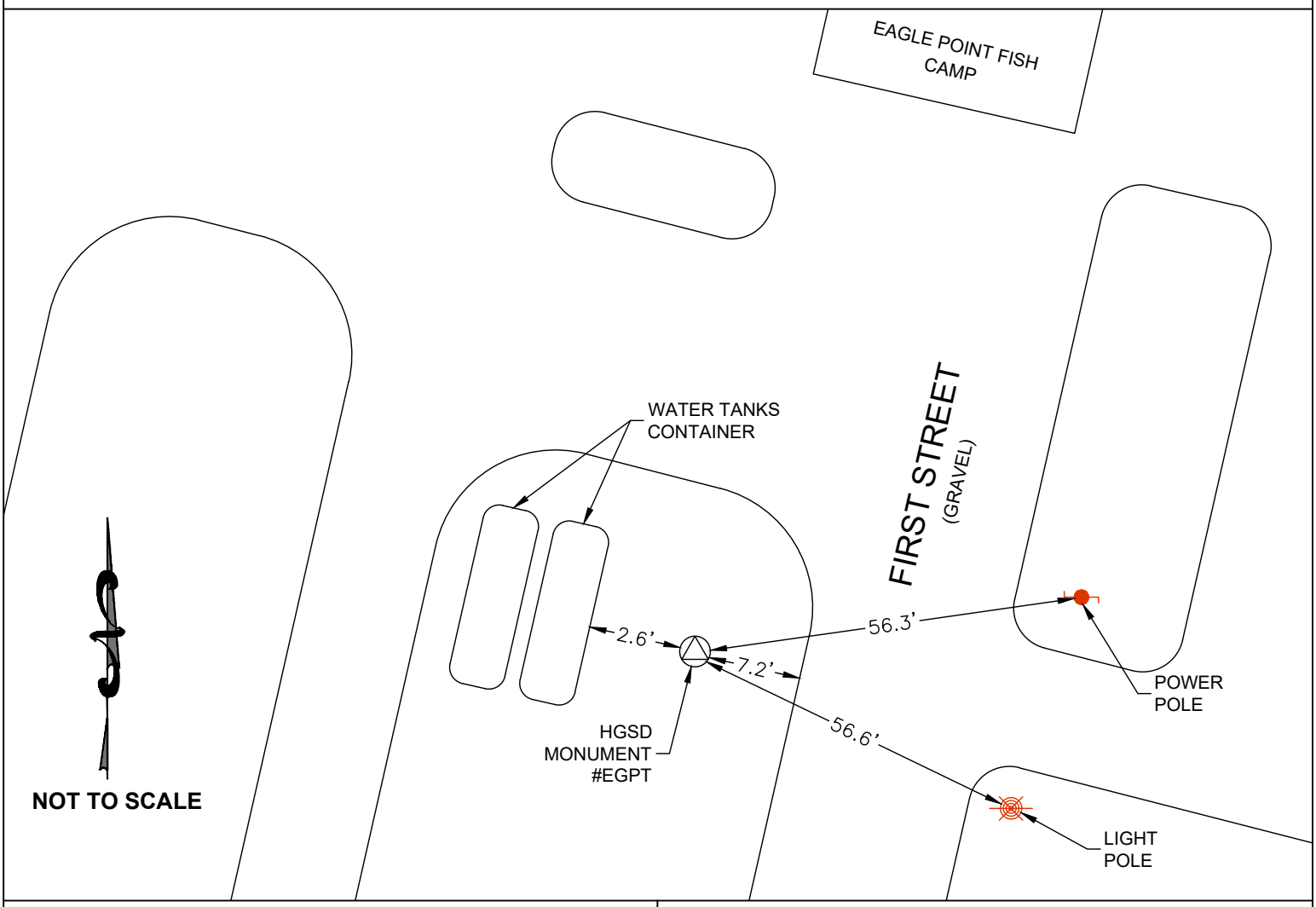


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: F 768 **4-Char ID/PID:** F768/AW0121	**General Location:** Brookshire

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY BENCHMARK DISK STAMPED "F 768 1943" AND IS DRILLED IN A BRIDGE.

County: Waller **State:** Texas	**Observed by:** HGSD
Key Map Page No: 441W	**Date Observed:** November 15, 2022
USGS Quad Map: Brookshire (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: F 768 1943	**Monument Depth:** N/A
Northing: 13844612.70 (usft) **Easting:** 2924274.90 (usft) **Orthometric Height[1]:** 130.54 (usft) **Geoid Height:** -90.26 (usft)	**Latitude:** 29 46 59.33387(N) **Longitude:** 095 59 11.67960(W) **Ellipsoid Height:** 40.27 (usft) **Convergence Angle:** 01 28 34.73

Scale Factor: 0.99989374 **Elevation Scale Factor:** 0.99999807 **Combined Scale Factor:** 0.99989181

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF DONIGAN RD AND US 90 WEST OF BROOKSHIRE, GO WEST 0.27 MILE ON US 90 TO THE MONUMENT ON THE LEFT AND 100' FT EAST OF THE EAST BANK OF BESSIES CREEK

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13844612.70 **Easting:** 2924274.90 **Orthometric Height:** 130.54

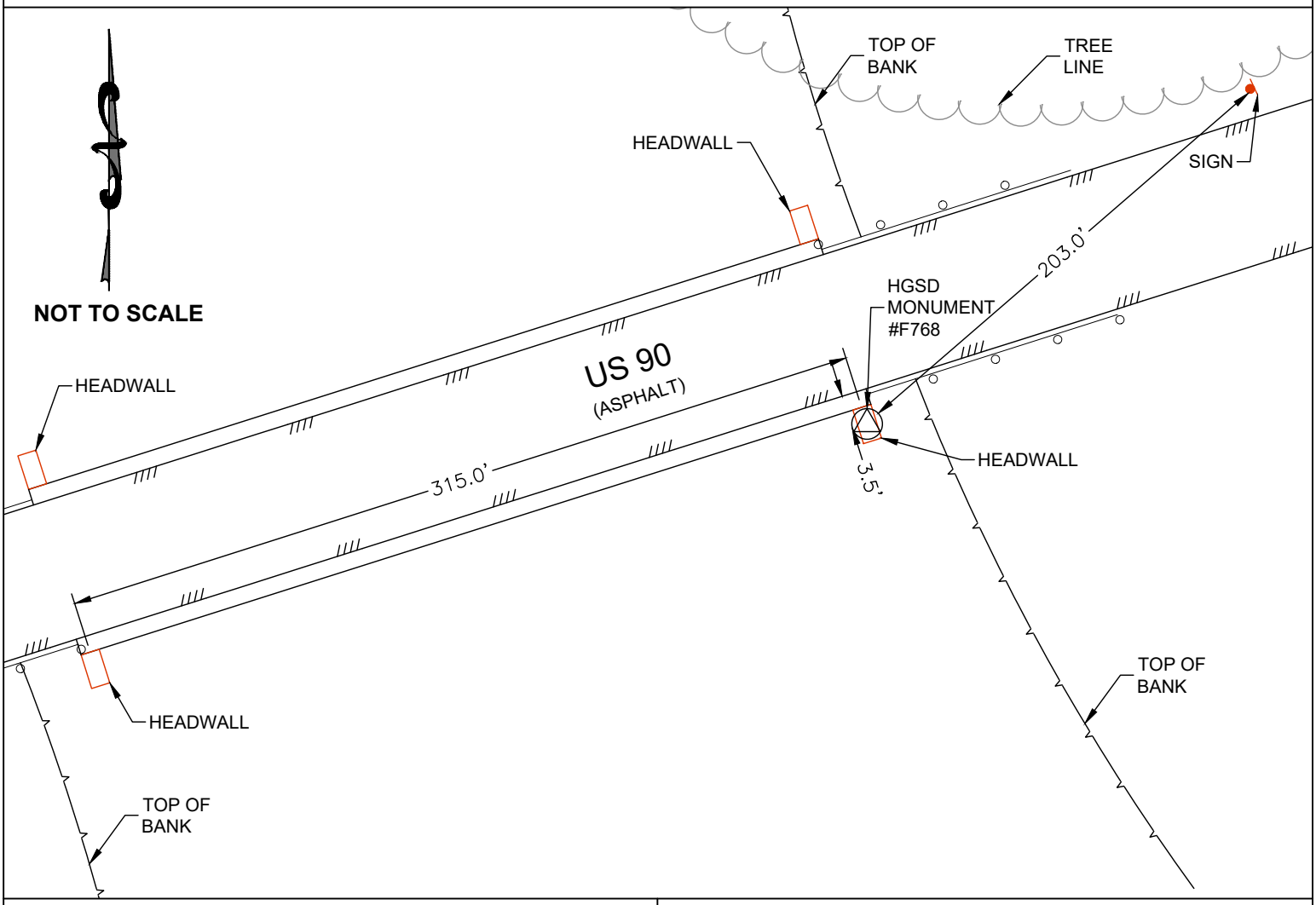


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: FIRE RM 1 **4-Char ID/PID:** FRM1/AW1129	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "FIRE NO 1 1942" AND IS SET ON THE TOP OF A CONCRETE POST PROJECTING 0.3 FOOT ABOVE THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 535B	**Date Observed:** November 10, 2022
USGS Quad Map: Park Place (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: FIRE NO 1 1942	**Monument Depth:** N/A
Northing: 13827409.72 (usft) **Easting:** 3147994.95 (usft) **Orthometric Height[1]:** 33.23 (usft) **Geoid Height:** -89.47 (usft)	**Latitude:** 29 43 05.37419(N) **Longitude:** 095 17 00.14378(W) **Ellipsoid Height:** -56.22 (usft) **Convergence Angle:** 01 49 14.96

Scale Factor: 0.99988553 **Elevation Scale Factor:** 1.00000269 **Combined Scale Factor:** 0.99988822

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF LAWNDALE ST AND SAN ANTONIO ST GO NORTH 0.11 MILE TO THE MONUMENT LOCATED AT THE NE CORNER OF SAN ANTONIO ST AND MANCHESTER ST.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13827409.72 **Easting:** 3147994.95 **Orthometric Height:** 33.23

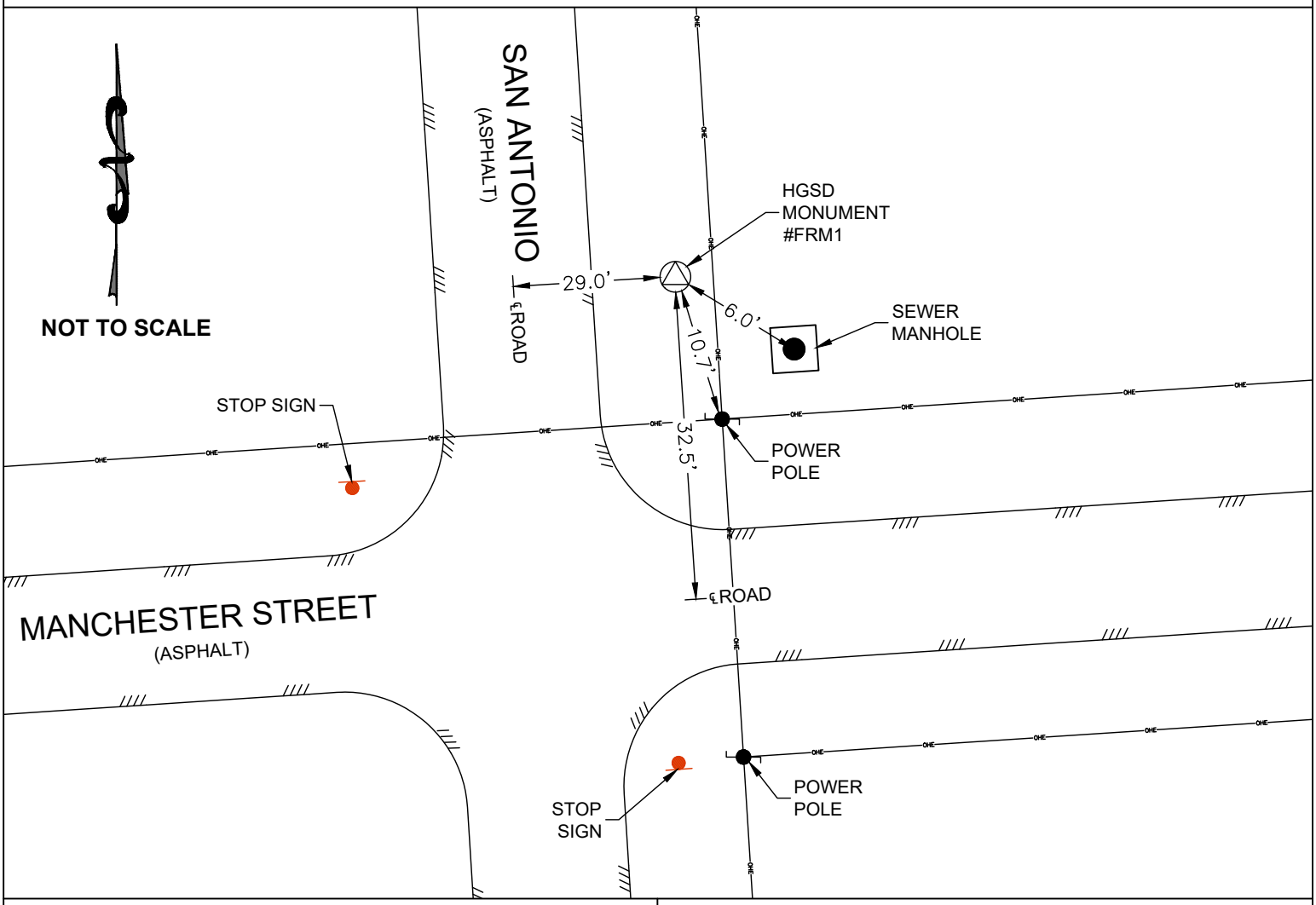


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: G 1215 **4-Char ID/PID:** G215/AW0828	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL DISK STAMPED "G 1215 1973" AND IS (FASTENED TO) A METAL ROD WITH BASE PLATE BURIED/SCREWED INTO GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 415Y	**Date Observed:** November 15, 2022
USGS Quad Map: Settegast (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** D: Questionable or unknown reliability
Marker/Stamping: G 1215 1973	**Monument Depth:** 4ft
Northing: 13882075.00 (usft) **Easting:** 3152834.02 (usft) **Orthometric Height[1]:** 50.43 (usft) **Geoid Height:** -89.77 (usft)	**Latitude:** 29 52 04.75548(N) **Longitude:** 095 15 45.47806(W) **Ellipsoid Height:** -39.30 (usft) **Convergence Angle:** 01 49 51.54

Scale Factor: 0.99990639 **Elevation Scale Factor:** 1.00000188 **Combined Scale Factor:** 0.99990827

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF LITTLE YORK RD. AT MESA DR. GO SOUTH ON MESA DR 0.28 MILE PAST COWART STADIUM TO THE MONUMENT ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13882075.00 **Easting:** 3152834.02 **Orthometric Height:** 50.43

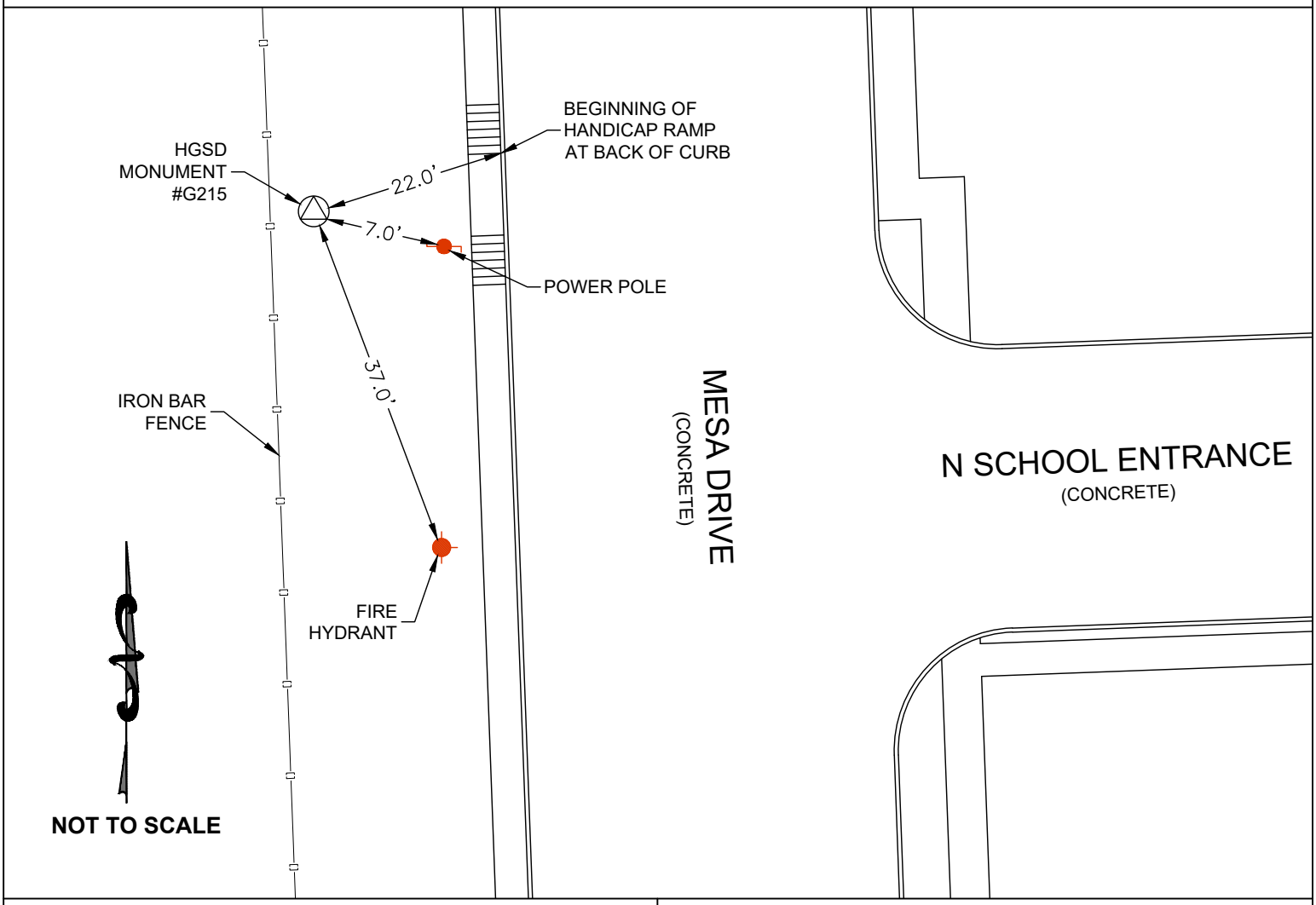


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: G666 **4-Char ID/PID:** G666/BL1236	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "G 666 1942" AND IS SET ON THE WEST END OF THE NORTH HEADWALL OF A 3 X 3 FT. BOX CULVERT.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 333J	**Date Observed:** October 19, 2022
USGS Quad Map: Spring (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: G 666 1942	**Monument Depth:** N/A
Northing: 13936308.51 (usft) **Easting:** 3110034.45 (usft) **Orthometric Height[1]:** 101.71 (usft) **Geoid Height:** -90.10 (usft)	**Latitude:** 30 01 14.67601(N) **Longitude:** 095 23 32.38540(W) **Ellipsoid Height:** 11.61 (usft) **Convergence Angle:** 01 46 02.80

Scale Factor: 0.99993469 **Elevation Scale Factor:** 0.99999944 **Combined Scale Factor:** 0.99993413

To Reach Monument

TO REACH THE MONUMENT FROM THE CHURCH OF CHRIST AT WESTFIELD,TRAVEL ABOUT 0.5 MILE EAST ALONG WESTFIELD LOOP RD TO HUMBLE WESTFIELD RD AND GO 0.05 MILE EAST ALONG HUMBLE WESTFIELD RD.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13936308.51 **Easting:** 3110034.45 **Orthometric Height:** 101.71

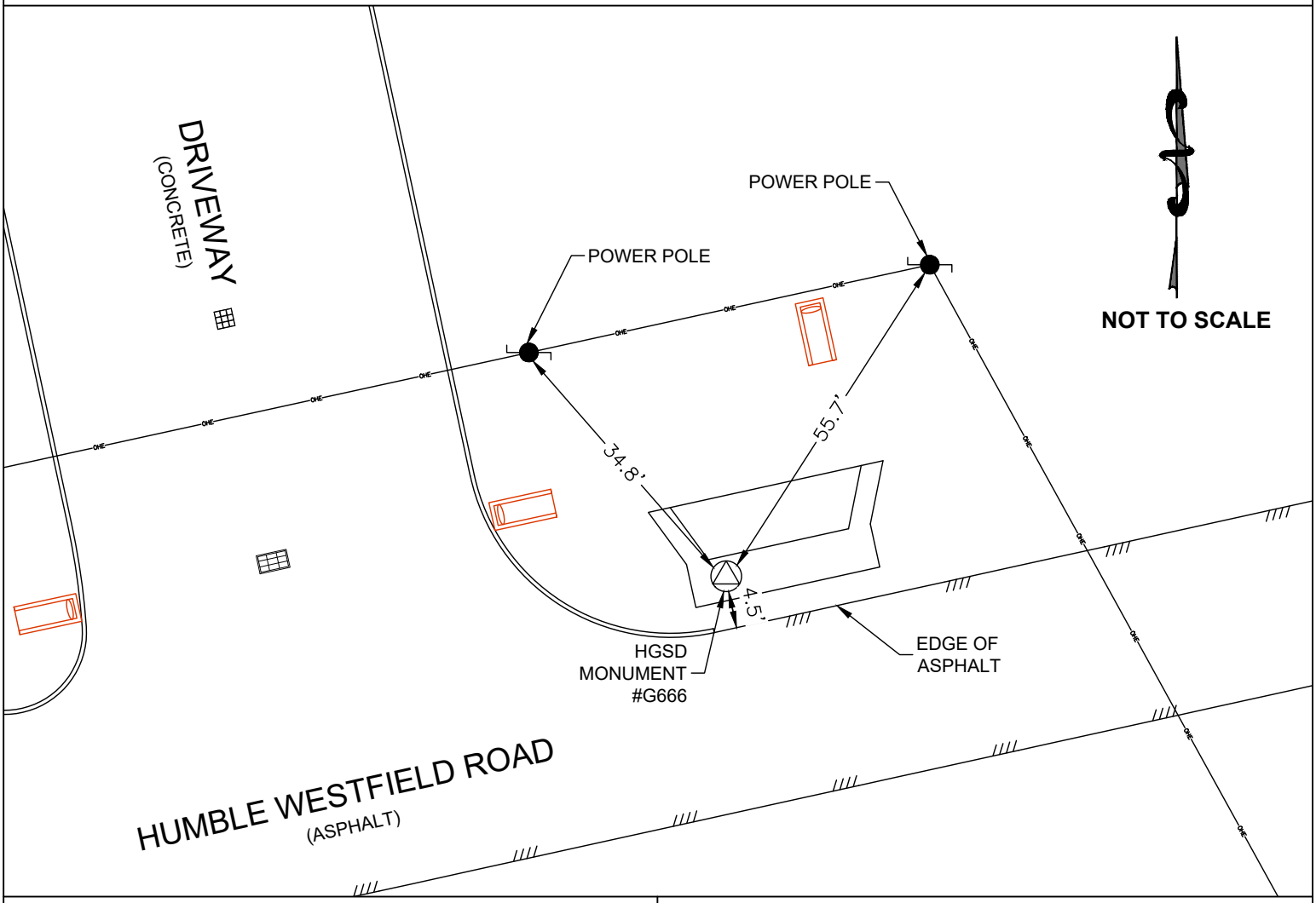


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 12 Reset **4-Char ID/PID:** H12R/AB7497	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD SET IN A PVC SLEEVE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 372T	**Date Observed:** October 20, 2022
USGS Quad Map: Aldine	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 12 RESET 1995	**Monument Depth:** 7m
Northing: 13906615.78 (usft) **Easting:** 3099681.28 (usft) **Orthometric Height[1]:** 89.17 (usft) **Geoid Height:** -90.10 (usft)	**Latitude:** 29 56 24.02150(N) **Longitude:** 095 25 40.41836(W) **Ellipsoid Height:** -0.90 (usft) **Convergence Angle:** 01 45 00.07

Scale Factor: 0.99991885 **Elevation Scale Factor:** 1.00000004 **Combined Scale Factor:** 0.99991889

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM RD 517 EAST AND 20TH ST GO SOUTH 0.13 MILES ON 20TH ST TO THE MONUMENT AT THE SE CORNER OF 20TH ST AND AVENUE J.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13906615.78 **Easting:** 3099681.28 **Orthometric Height:** 89.17

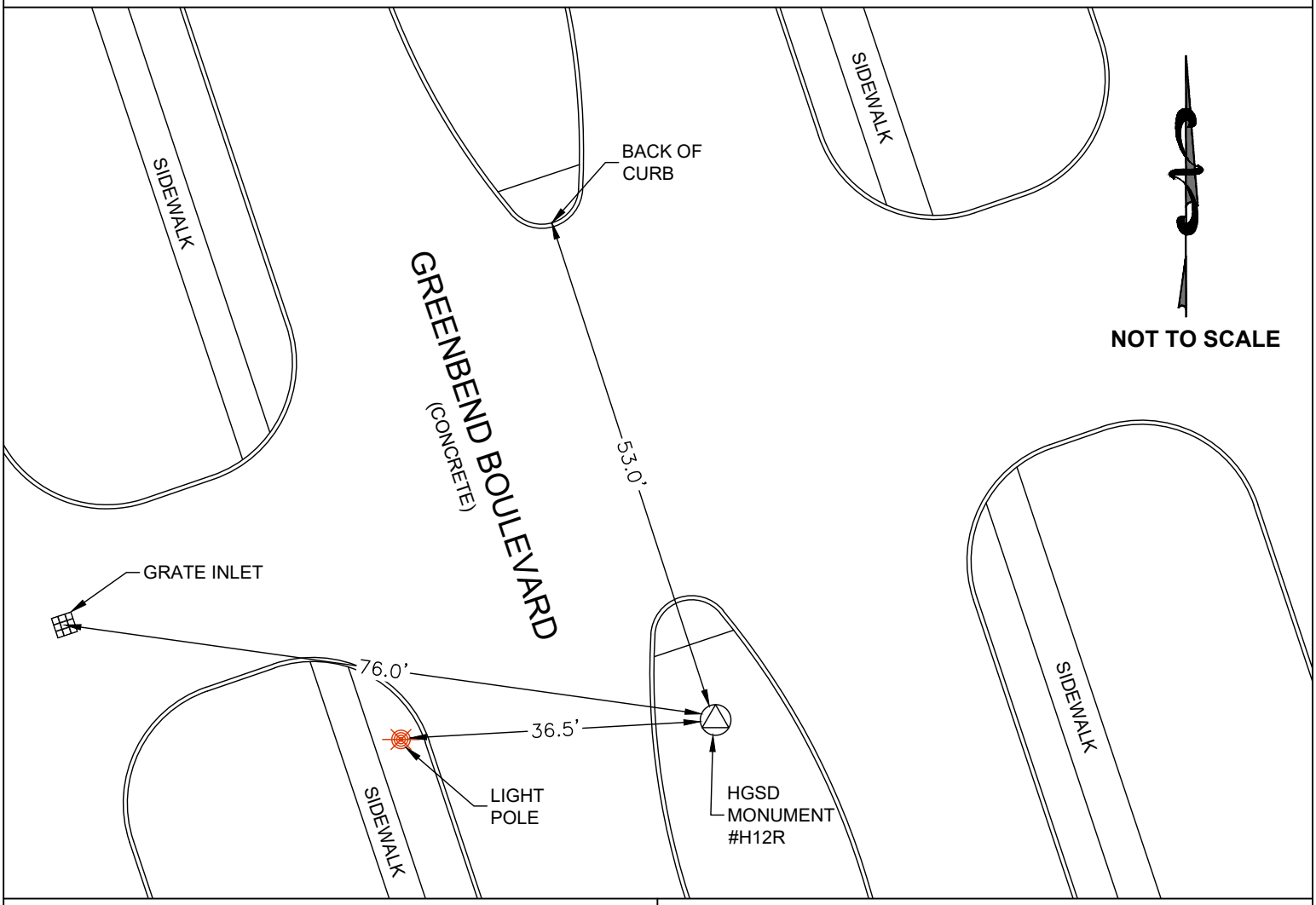


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 14 RESET **4-Char ID/PID:** H14R/AB7498	**General Location:** Houston
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD SET IN A PVC SLEEVE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 376T	**Date Observed:** November 15, 2022
USGS Quad Map: Harmaston (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 14 RESET 1995	**Monument Depth:** 9.1m
Northing: 13906564.29 (usft) **Easting:** 3161155.97 (usft) **Orthometric Height[1]:** 49.90 (usft) **Geoid Height:** -89.88 (usft)	**Latitude:** 29 56 04.42262(N) **Longitude:** 095 14 02.04656(W) **Ellipsoid Height:** -39.97 (usft) **Convergence Angle:** 01 50 42.21
Scale Factor: 0.99991785 **Elevation Scale Factor:** 1.00000191 **Combined Scale Factor:** 0.99991976	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SAM HOUSTON TOLLWAY AND JOHN ROLSTON RD, TRAVEL 0.40 MILE WEST ALONG THE SAM HOUSTON FEEDER TO AN APARTMENT COMPLEX ON THE RIGHT. THE MONUMENT IS LOCATED AT THE SE CORNER OF THE APARMENT COMPLEX AT THE TOP BANK OF GARNERS BAYOU.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13906564.29 **Easting:** 3161155.97 **Orthometric Height:** 49.90

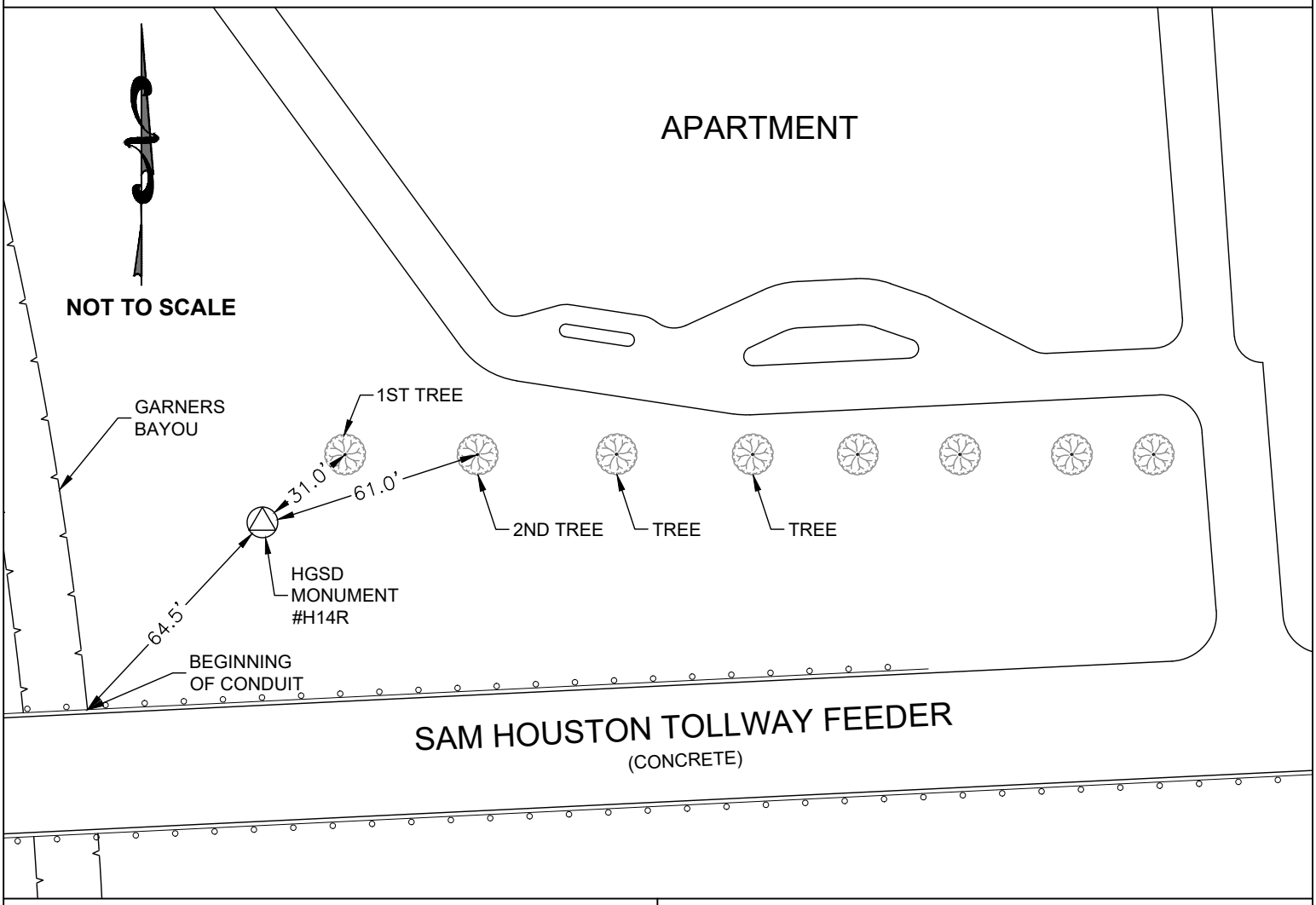


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 19 RESET **4-Char ID/PID:** H19R/AJ6408	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 19 RESET 2000---.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 411S	**Date Observed:** October 24, 2022
USGS Quad Map: Houston Heights (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 19 RESET 2000	**Monument Depth:** 11.5m
Northing: 13879154.51 (usft) **Easting:** 3081492.19 (usft) **Orthometric Height[1]:** 81.66 (usft) **Geoid Height:** -90.08 (usft)	**Latitude:** 29 51 57.74343(N) **Longitude:** 095 29 16.44390(W) **Ellipsoid Height:** -8.37 (usft) **Convergence Angle:** 01 43 14.24

Scale Factor: 0.99990607 **Elevation Scale Factor:** 1.0000004 **Combined Scale Factor:** 0.99990647

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF NORTH HOUSTON ROSSLYN/BINGLE RD AND W. LITTLE YORK RD, GO WEST 0.06 MILE ON W. LITTLE YORK RD TO THE MONUMENT ON THE RIGHT 70 FT. IN GRASS MEDIAN

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13879154.51 **Easting:** 3081492.19 **Orthometric Height:** 81.66

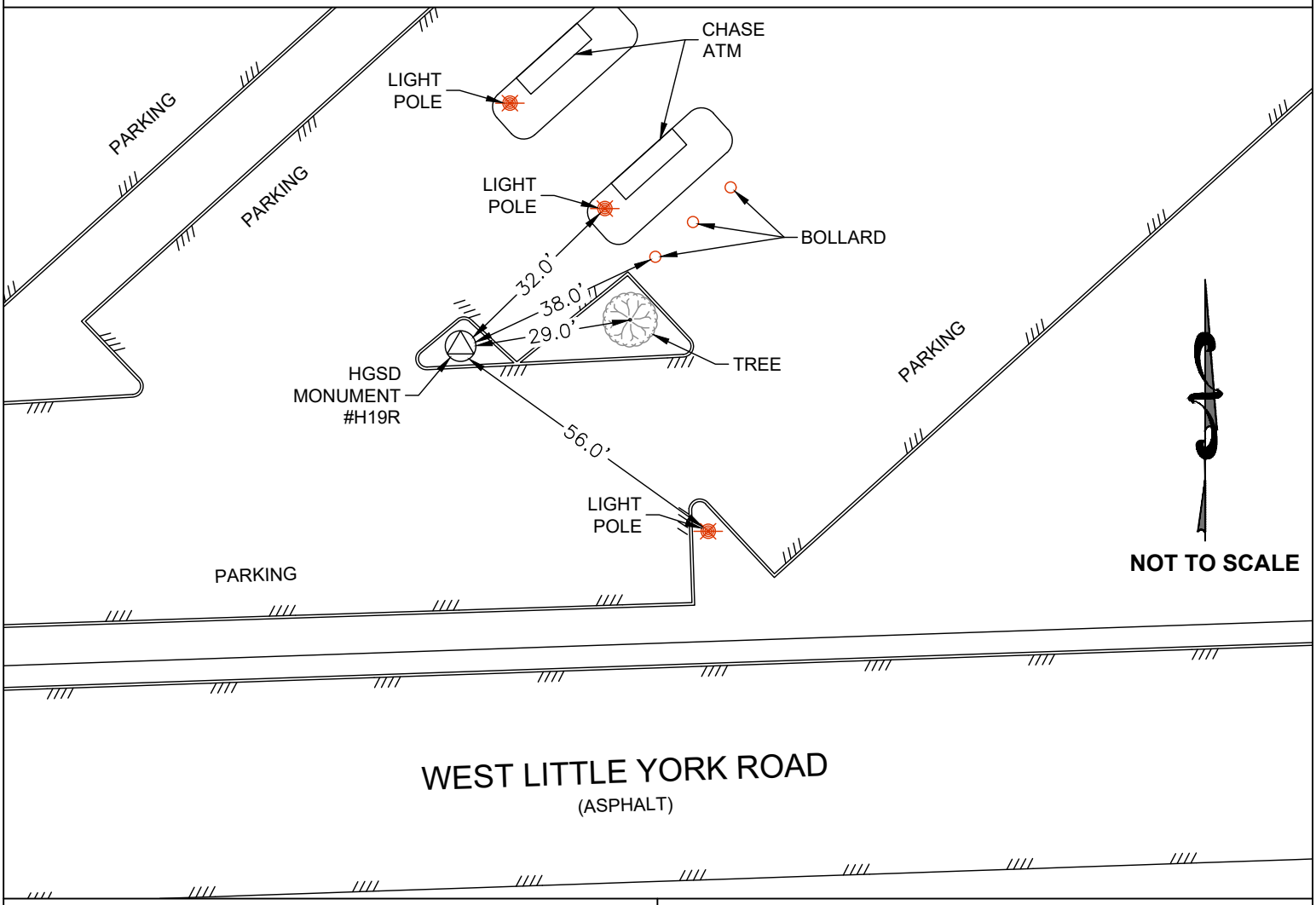


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: H 1205 **4-Char ID/PID:** H205/AW1492	**General Location:** Baytown

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL DISK SET ON TOP OF A COPPER COATED STEEL ROD FLUSH WITH THE GROUND, AND PROTECTED BY AN IRON PIPE WHICH PROJECTS 4 INCHES. THE ROD WAS DRIVEN TO A DEPTH OF 32 FEET.

County: Chambers **State:** Texas	**Observed by:** HGSD
Key Map Page No: 662Q	**Date Observed:** November 8, 2022
USGS Quad Map: Cove (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: H 1205 1973	**Monument Depth:** 9.8m
Northing: 13856732.14 (usft) **Easting:** 3278457.12 (usft) **Orthometric Height[1]:** 34.74 (usft) **Geoid Height:** -89.44 (usft)	**Latitude:** 29 47 12.18088(N) **Longitude:** 094 52 09.64296(W) **Ellipsoid Height:** -54.70 (usft) **Convergence Angle:** 02 01 25.18

Scale Factor: 0.99989423 **Elevation Scale Factor:** 1.00000262 **Combined Scale Factor:** 0.99989685

To Reach Monument

TO REACH THE MONUMENT FROM GRAND PWKY 99 AND FM 565, TRAVEL ABOUT .15 MILE NORTHEAST ALONG FARM ROAD 565 TO S COTTON LAKE RD. THE MONUMENT IS ABOUT 146 FEET SOUTHEAST OF THE T ON THE ROAD.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13856732.14 **Easting:** 3278457.12 **Orthometric Height:** 34.74

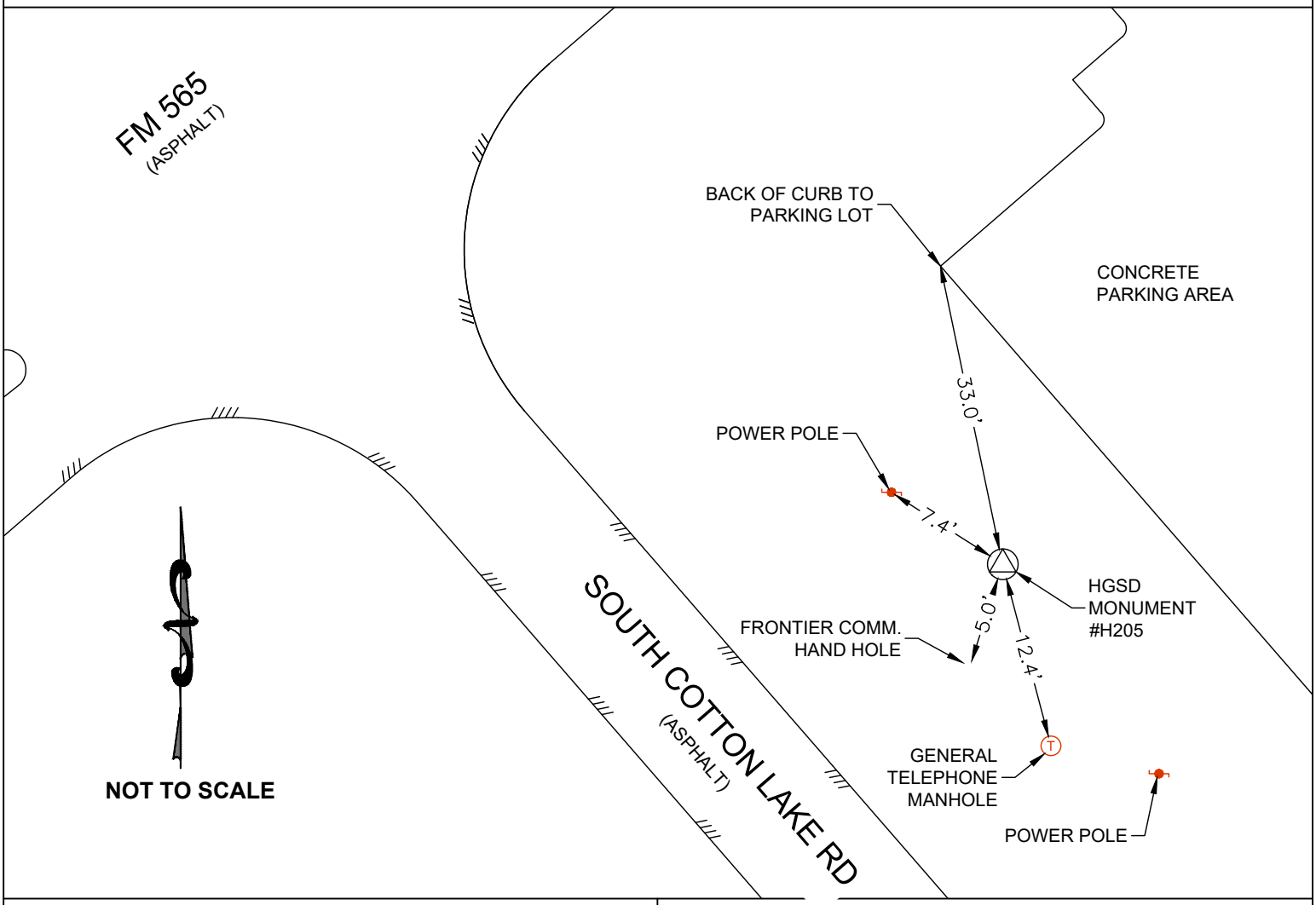


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 34 RESET **4-Char ID/PID:** H34R/AJ6400	**General Location:** Baytown

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 34 RESET 2000---.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 502S	**Date Observed:** November 8, 2022
USGS Quad Map: Morgans Point (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 34 RESET 2000	**Monument Depth:** 34m
Northing: 13842016.23 (usft) **Easting:** 3254699.61 (usft) **Orthometric Height[1]:** 32.51 (usft) **Geoid Height:** -89.38 (usft)	**Latitude:** 29 44 54.81103(N) **Longitude:** 094 56 44.90378(W) **Ellipsoid Height:** -56.86 (usft) **Convergence Angle:** 01 59 10.32

Scale Factor: 0.99988921 **Elevation Scale Factor:** 1.00000272 **Combined Scale Factor:** 0.99989193

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF CEDAR BAYOU RD. AND N. ALEXANDER DR. GO SW ON N. ALEXANDER TO THE FIRST ENTRANCE ON THE LEFT AT BAYCOAST MEDICAL CENTER. GO SE ON THE MEDICAL CENTER DR. 200' TO MONUMENT IN GRASS MEDIAN.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13842016.23 **Easting:** 3254699.61 **Orthometric Height:** 32.51

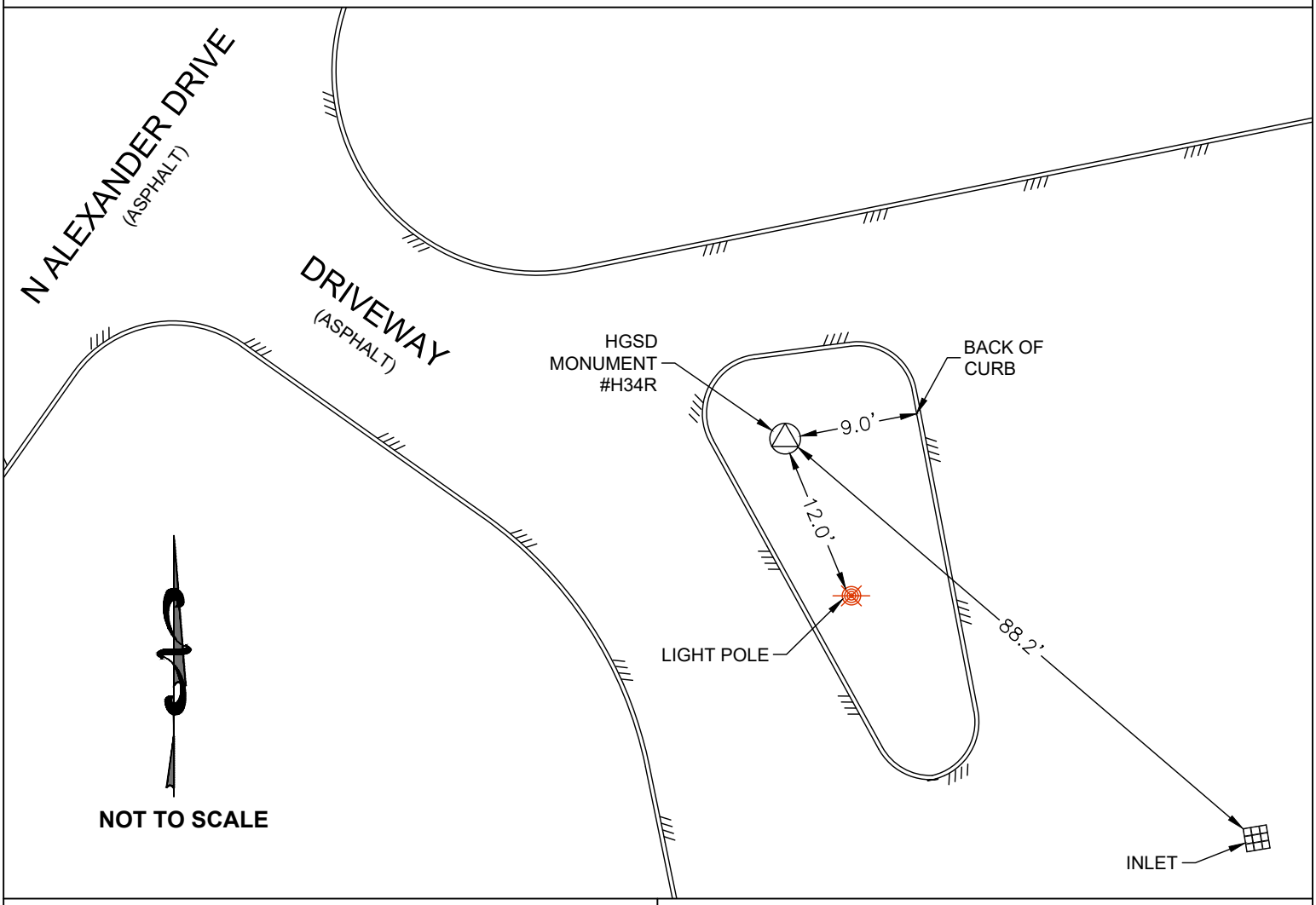


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 35 RESET **4-Char ID/PID:** H35R/AJ6410	**General Location:** Houston

Benchmark Description:
THE MONUEMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 35 RESET 2000---.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 527H	**Date Observed:** October 26, 2022
USGS Quad Map: Clodine (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 35 RESET 2000	**Monument Depth:** 9.7m
Northing: 13820859.53 (usft) **Easting:** 3031220.31 (usft) **Orthometric Height[1]:** 80.71 (usft) **Geoid Height:** -89.94 (usft)	**Latitude:** 29 42 35.46963(N) **Longitude:** 095 39 06.16530(W) **Ellipsoid Height:** -9.27 (usft) **Convergence Angle:** 01 38 25.33

Scale Factor: 0.99988458 **Elevation Scale Factor:** 1.00000044 **Combined Scale Factor:** 0.99988502

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF U.S. HIGHWAY 6 AND ALIEF-CLODINE RD, GO WEST ON ALIEF-CLODINE RD FOR .5 MILE TO THE CHELFORD CITY REGIONALWASTE WATER TREATMENT FACILITY AND THE MONUMENT ON THE LEFT NEAR THE NORTHWEST CORNER OF THE CHAINLINK FENCE AROUND THE FACILITY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13820859.53	Easting: 3031220.31	Orthometric Height: 80.71

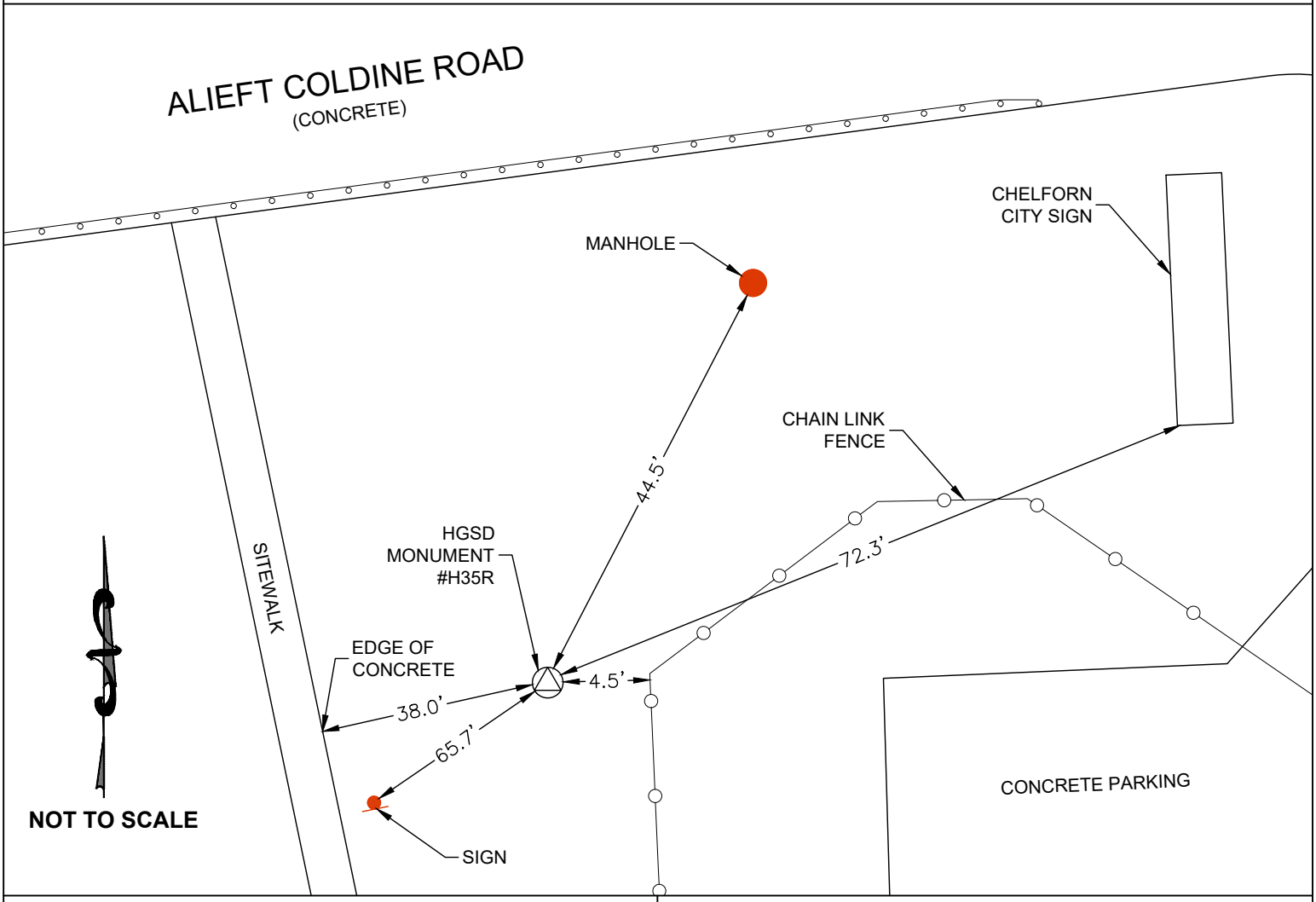


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 58 RESET **4-Char ID/PID:** H58R/AJ6399	**General Location:** Texas City
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 58 RESET 2000---.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 702V	**Date Observed:** November 2, 2022
USGS Quad Map: Texas City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 58 RESET 2000	**Monument Depth:** 20.7m
Northing: 13721799.18 (usft) **Easting:** 3275049.72 (usft) **Orthometric Height[1]:** Not Published (usft) **Geoid Height:** -88.02 (usft)	**Latitude:** 29 24 58.30465(N) **Longitude:** 094 53 42.03284(W) **Ellipsoid Height:** -80.09 (usft) **Convergence Angle:** 02 00 39.91
Scale Factor: 0.99986425 **Elevation Scale Factor:** 1.000003831 **Combined Scale Factor:** 0.99986808	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF 25TH ST AND BAY ST EXT, HEAD NORTH ON BAY ST EXT APPROXIMATELY 0.61 MILE TO THE WALLACE R. KNOW WASTEWATER TREATMENT PLANT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13721799.18	Easting: 3275049.72	Orthometric Height: Not Published

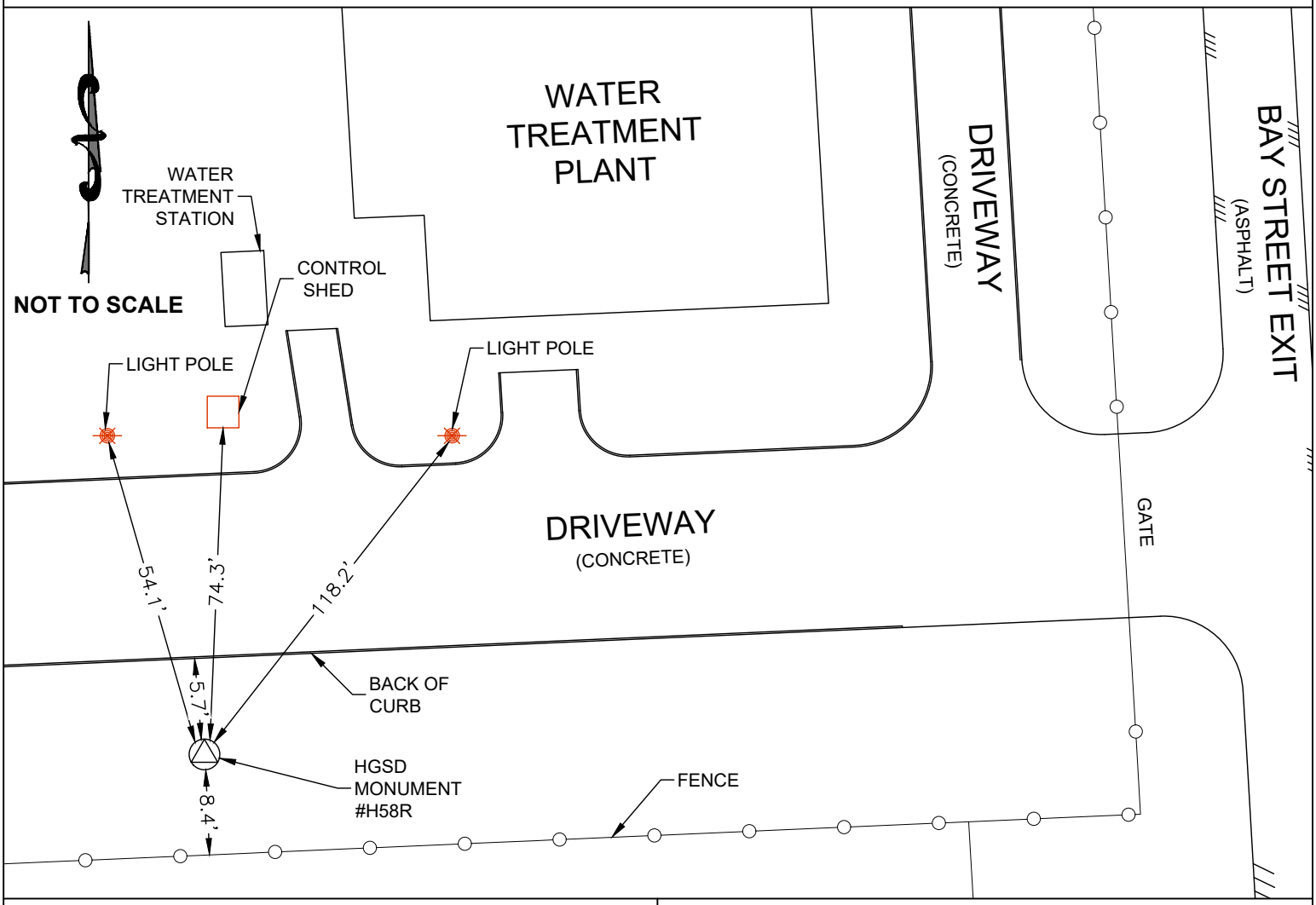


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HCFCD MON 0001 **4-Char ID/PID:** HF01/DR8207	**General Location:** Waller

Benchmark Description:
THE MONUMENT IS AN ALUMINUM ROD W/DATUM TIP IN SLEEVE INSIDE ALUMINUM ACCESS COVER.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 282L	**Date Observed:** October 18, 2022
USGS Quad Map: Waller (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HCFC	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HARRIS COUNTY REFERENCE MARK	**Monument Depth:** 6.1m
Northing: 13953062.17 (usft) **Easting:** 2942011.20 (usft) **Orthometric Height[1]:** 274.11 (usft) **Geoid Height:** -90.41 (usft)	**Latitude:** 30 04 47.99237(N) **Longitude:** 095 55 18.06686(W) **Ellipsoid Height:** 183.72 (usft) **Convergence Angle:** 01 30 29.18

Scale Factor: 0.99994759 **Elevation Scale Factor:** 0.99999121 **Combined Scale Factor:** 0.9999388

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF STATE HIGHWAY 290 AND FIELDS STORE ROAD, GO NORTH ON FIELD STORE ROAD APPROXIMATELY 0.8 MI (1.3 KM) TO THE INTERSECTION OF WALLER SPRING ROAD AND FIELDS STORE ROAD.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204	Northing: 13953062.17	Easting: 2942011.20	Orthometric Height:274.11

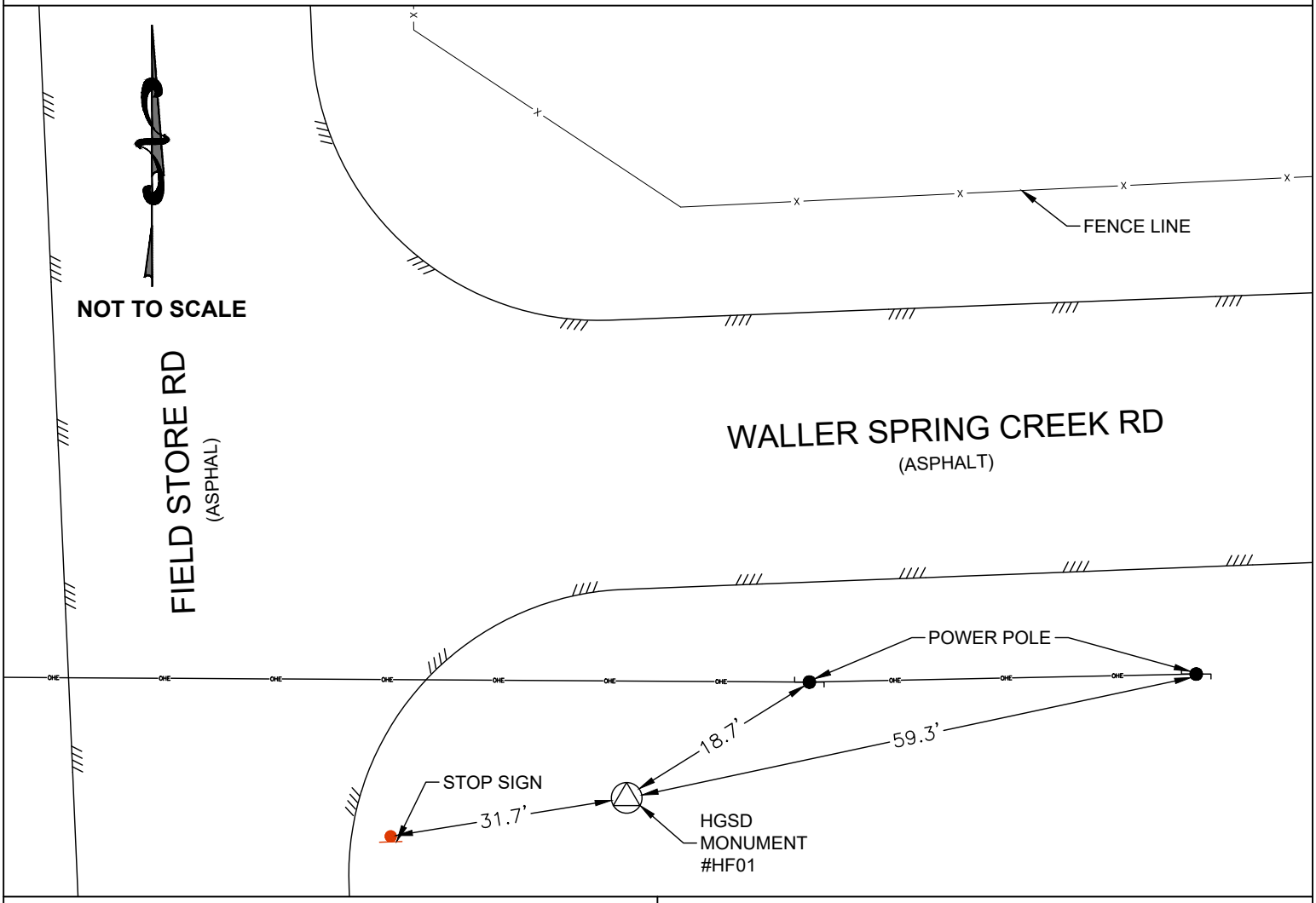


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HCFCD_MON0004 **4-Char ID/PID:** HF04/DR8210	**General Location:** Hufsmith
Benchmark Description: THE MONUMENT IS AN ALUMINUM ROD W/DATUM TIP IN SLEEVE INSIDE ALUMINUM ACCESS COVER.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 249U	**Date Observed:** October 17, 2022
USGS Quad Map: Oklahoma (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HCFC	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HARRIS COUNTY REFERENCE MARK	**Monument Depth:** 4.6m
Northing: 13973576.00 (usft) **Easting:** 3050792.05 (usft) **Orthometric Height[1]:** 179.07 (usft) **Geoid Height:** -90.47 (usft)	**Latitude:** 30 07 41.04757(N) **Longitude:** 095 34 33.60040(W) **Ellipsoid Height:** 88.64 (usft) **Convergence Angle:** 01 40 38.86

Scale Factor: 0.99995884 **Elevation Scale Factor:** 0.99999576 **Combined Scale Factor:** 0.9999546

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF HUFSMITH RD AND BURROUGHS PARK RD GO WEST ON BURROUGHS PARK RD 0.09 MILE TO THE MONUMENT ON THE LEFT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13973576.00 **Easting:** 3050792.05 **Orthometric Height:** 179.07

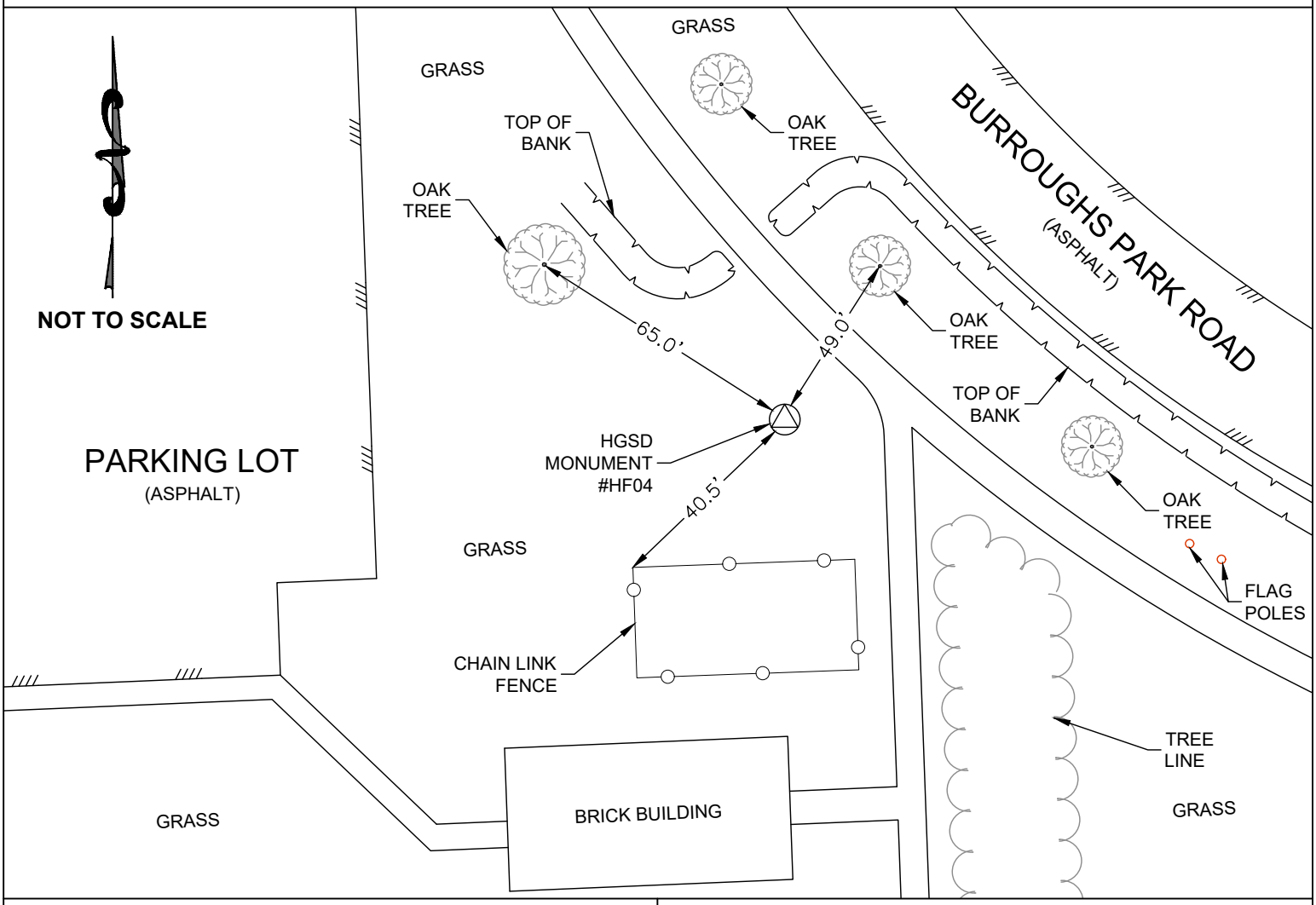


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HCFCD MON 0006 **4-Char ID/PID:** HF06/DR8212	**General Location:** Humble

Benchmark Description:
THE MONUMENT IS AN ALUMINUM ROD W/DATUM TIP IN SLEEVE INSIDE ALUMINUM ACCESS COVER.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 334v	**Date Observed:** October 18, 2022
USGS Quad Map: Maedan (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HCFC	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HARRIS COUNTY REFERENCE MARK	**Monument Depth:** 5.2m
Northing: 13931155.95 (usft) **Easting:** 3135389.17 (usft) **Orthometric Height[1]:** 87.37 (usft) **Geoid Height:** -90.02 (usft)	**Latitude:** 30 00 15.86776(N) **Longitude:** 095 18 45.95306(W) **Ellipsoid Height:** -2.63 (usft) **Convergence Angle:** 01 48 23.12

Scale Factor: 0.99993133 **Elevation Scale Factor:** 1.00000013 **Combined Scale Factor:** 0.99993146

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF INTERSTATE 69 (US-59) AND FARM TO MARKET ROAD 1960 BUSINESS GO WEST ON FM 1960 BUSINESS APPROXIMATELY 2.6 MI (4.2 KM) TO THE INTERSECTION OF FM 1960 BUSINESS AND EAST FARM TO MARKET ROAD 1960.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204	Northing: 13931155.95	Easting: 3135389.17	Orthometric Height: 87.37

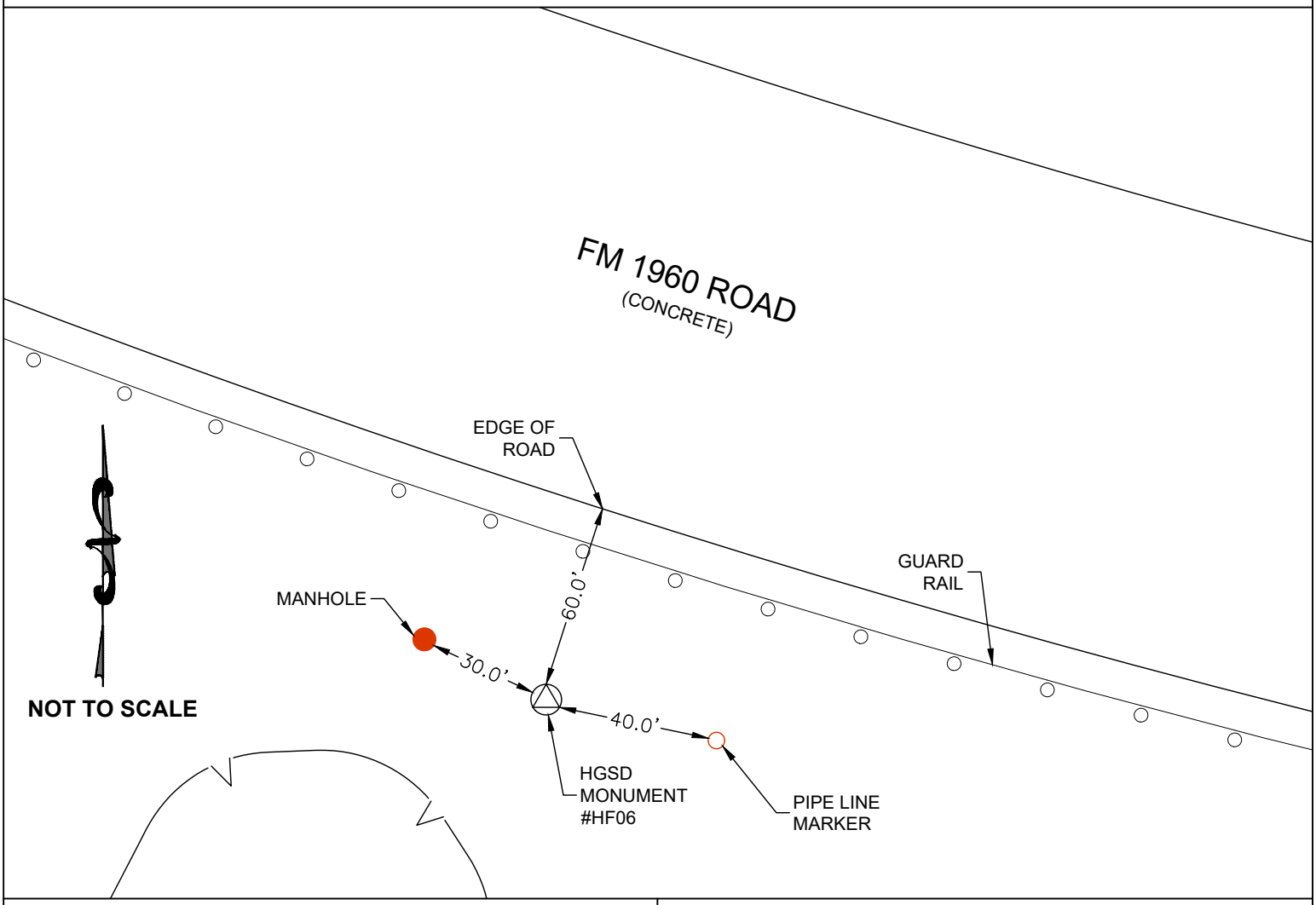


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HCFCD_MON0015 **4-Char ID/PID:** HF15/DR8221	**General Location:** Houston
Benchmark Description: THE MONUMENT IS AN ALUMINUM ROD W/DATUM TIP IN SLEEVE INSIDE ALUMINUM ACCESS COVER.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 451Y	**Date Observed:** October 24, 2022
USGS Quad Map: Houston Heights (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HCFC	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HARRIS COUNTY REFERENCE MARK	**Monument Depth:** 6.4m
Northing: 13854048.23 (usft) **Easting:** 3087571.13 (usft) **Orthometric Height[1]:** 67.03 (usft) **Geoid Height:** -89.91 (usft)	**Latitude:** 29 47 47.49708(N) **Longitude:** 095 28 16.03233(W) **Ellipsoid Height:** -22.89 (usft) **Convergence Angle:** 01 43 43.83
Scale Factor: 0.99989559 **Elevation Scale Factor:** 1.0000011 **Combined Scale Factor:** 0.99989669	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF INTERSTATE-10 AND SILBER ROAD GO NORTH APPROXIMATELY 0.8 MI TO THE INTERSECTION OF SHADYVILLA LANE AND SILBER ROAD, THEN GO WEST ON SHADYVILLA LANE APPROXIMATELY 0.16 MI TO THE ENTRANCE AND PARKING LOT OF FREED PARK ON THE RIGHT

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13854048.23 **Easting:** 3087571.13 **Orthometric Height:** 67.03

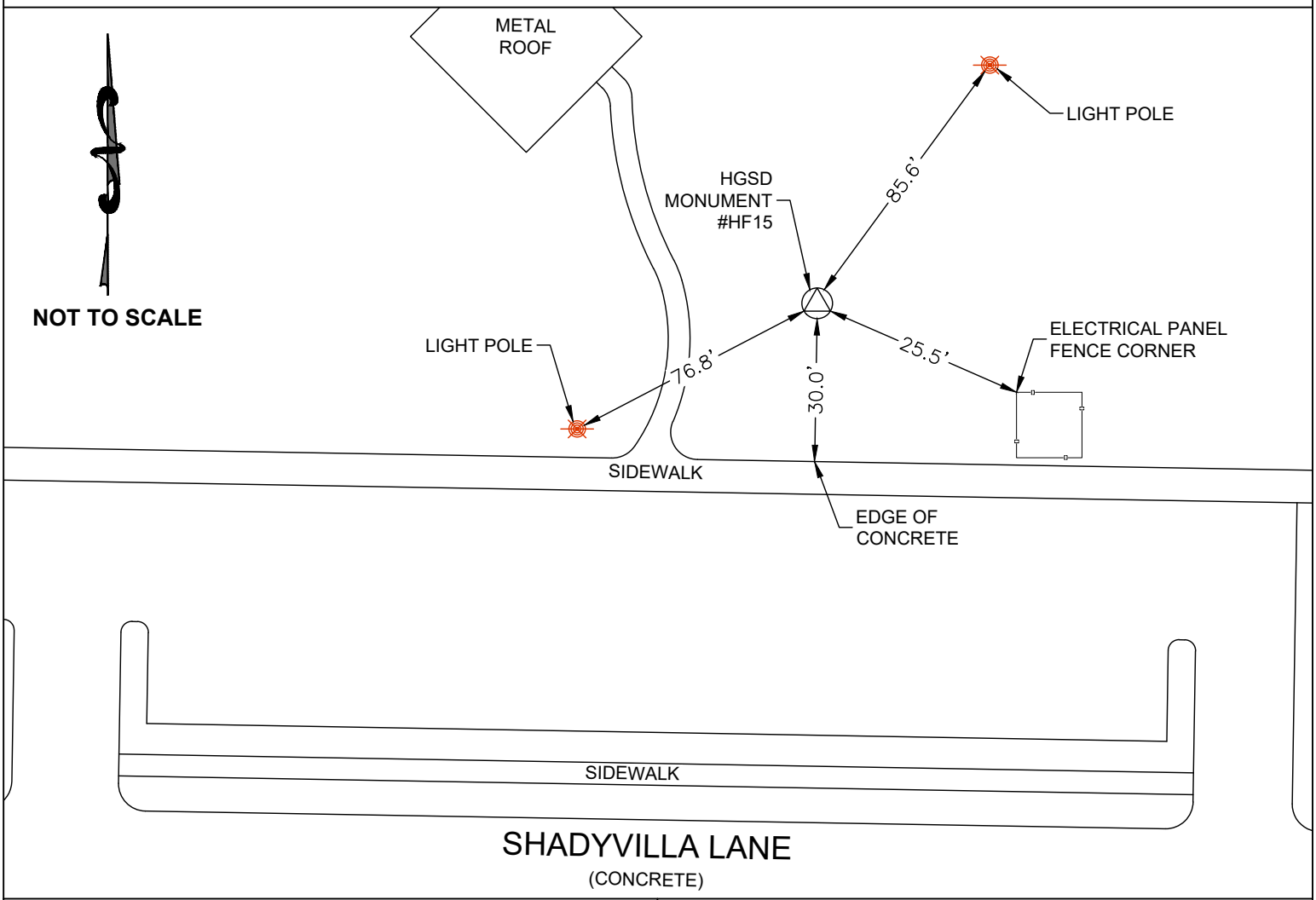


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: MON0030 **4-Char ID/PID:** HF30/DR8235	**General Location:** Huffman
Benchmark Description: THE MONUMENT IS AN ALUMINUM ROD W/DATUM TIP IN SLEEVE INSIDE ALUMINUM ACCESS COVER.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 298R	**Date Observed:** November 16, 2022
USGS Quad Map: Huffman (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HCFC	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HARRIS COUNTY REFERENCE MARK	**Monument Depth:** 7.6m
Northing: 13960480.24 (usft) **Easting:** 3197563.68 (usft) **Orthometric Height[1]:** 76.44 (usft) **Geoid Height:** -89.81 (usft)	**Latitude:** 30 04 46.07457(N) **Longitude:** 095 06 48.10687(W) **Ellipsoid Height:** -13.25 (usft) **Convergence Angle:** 01 54 14.81
Scale Factor: 0.99994747 **Elevation Scale Factor:** 1.00000063 **Combined Scale Factor:** 0.9999481	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF EAST FARM TO MARKET 1960 ROAD AND FARM TO MARKET 2100 ROAD GO NORTH ON FM 2100 APPROXIMATELY 5 MI (8.0 KM) TO THE INTERSECTION OF HUFFMAN CLEVELAND ROAD AND COMMONS VISTA DRIVE, THEN GO WEST ON COMMONS VISTA DRIVE APPROXIMATELY 0.2 MI (0.3 KM) TO THE END OF THE MEDIAN.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13960480.24 **Easting:** 3197563.68 **Orthometric Height:** 76.44

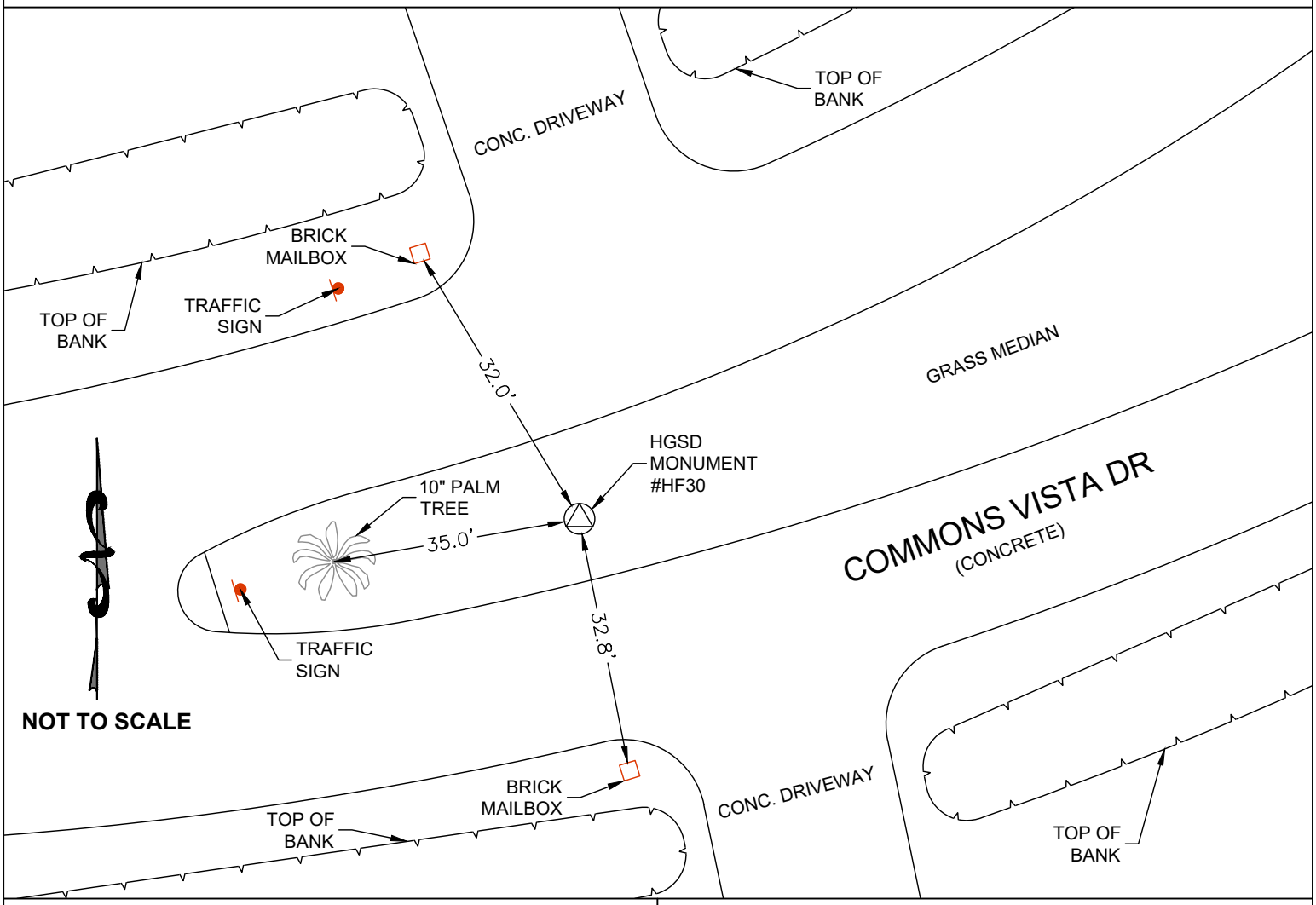


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HCFCD_MON0032 **4-Char ID/PID:** HF32/DR8237	**General Location:** Houston
Benchmark Description: THE MONUMENT IS AN ALUMINUM ROD W/DATUM TIP IN SLEEVE INSIDE ALUMINUM ACCESS COVER.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 453D	**Date Observed:** October 19, 2022
USGS Quad Map: Settegast (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HCFC	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HARRIS COUNTY REFERENCE MARK	**Monument Depth:** 7.3m
Northing: 13873578.41 (usft) **Easting:** 3124009.82 (usft) **Orthometric Height[1]:** 63.12 (usft) **Geoid Height:** -89.86 (usft)	**Latitude:** 29 50 49.68877(N) **Longitude:** 095 21 15.72604(W) **Ellipsoid Height:** -26.68 (usft) **Convergence Angle:** 01 47 09.75
Scale Factor: 0.99990308 **Elevation Scale Factor:** 1.00000128 **Combined Scale Factor:** 0.99990436	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF HARDY TOLL ROAD AND TIDWELL ROAD, GO EAST 0.28 MILE ON TIDWELL ROAD TO THE ENTRANCE OF VETERANS MEMORIAL PARK, THEN TURN RIGHT INTO THE ENTRANCE OF VETERANS MEMORIAL ROAD AND GO SOUTH 110 FT TO THE MONUMENT ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13873578.41 **Easting:** 3124009.82 **Orthometric Height:** 63.12

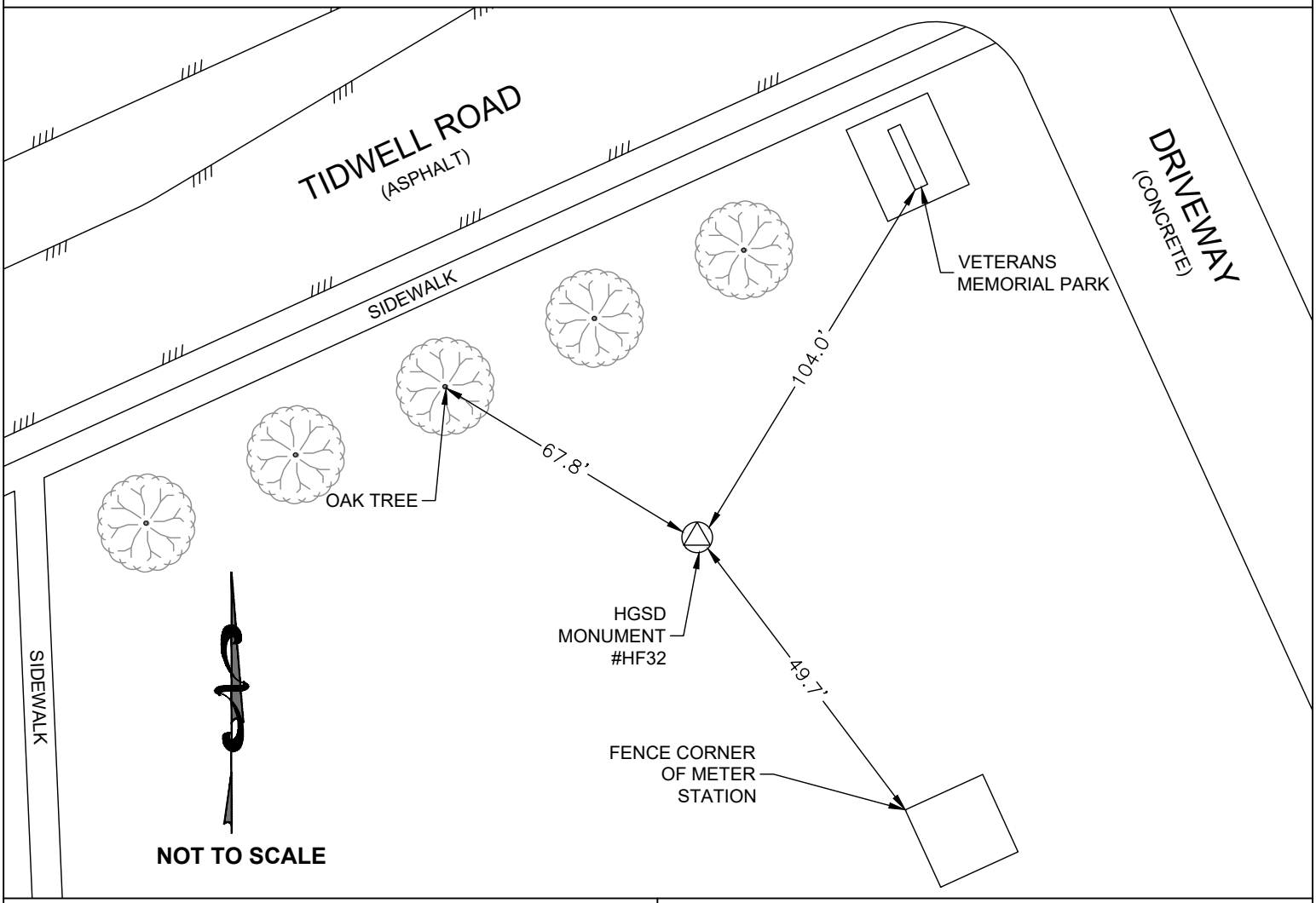


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 15 **4-Char ID/PID:** HG15/AW5659	**General Location:** Houston
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT WITH NGS LOGO CAP SURROUNDED WITH CONCRETE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 418A	**Date Observed:** December 7, 2022
USGS Quad Map: Harmaston (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 15 1986	**Monument Depth:** 11.6m
Northing: 13899813.15 (usft) **Easting:** 3189306.96 (usft) **Orthometric Height[1]:** 52.33 (usft) **Geoid Height:** -89.73 (usft)	**Latitude:** 29 54 48.54737(N) **Longitude:** 095 08 44.78715(W) **Ellipsoid Height:** -37.30 (usft) **Convergence Angle:** 01 53 17.64
Scale Factor: 0.99991408 **Elevation Scale Factor:** 1.00000179 **Combined Scale Factor:** 0.99991587	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF AQUADUCT RD AND LAKE HOUSTON PWKY, TRAVEL 1.04 MILE ALONG AQUADUCT TO THE MONUMENT ON THE LEFT NEAR THE ENTRANCE GATE OF LAKE HOUSTON PUMPING STATION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13899813.15 **Easting:** 3189306.96 **Orthometric Height:** 52.33

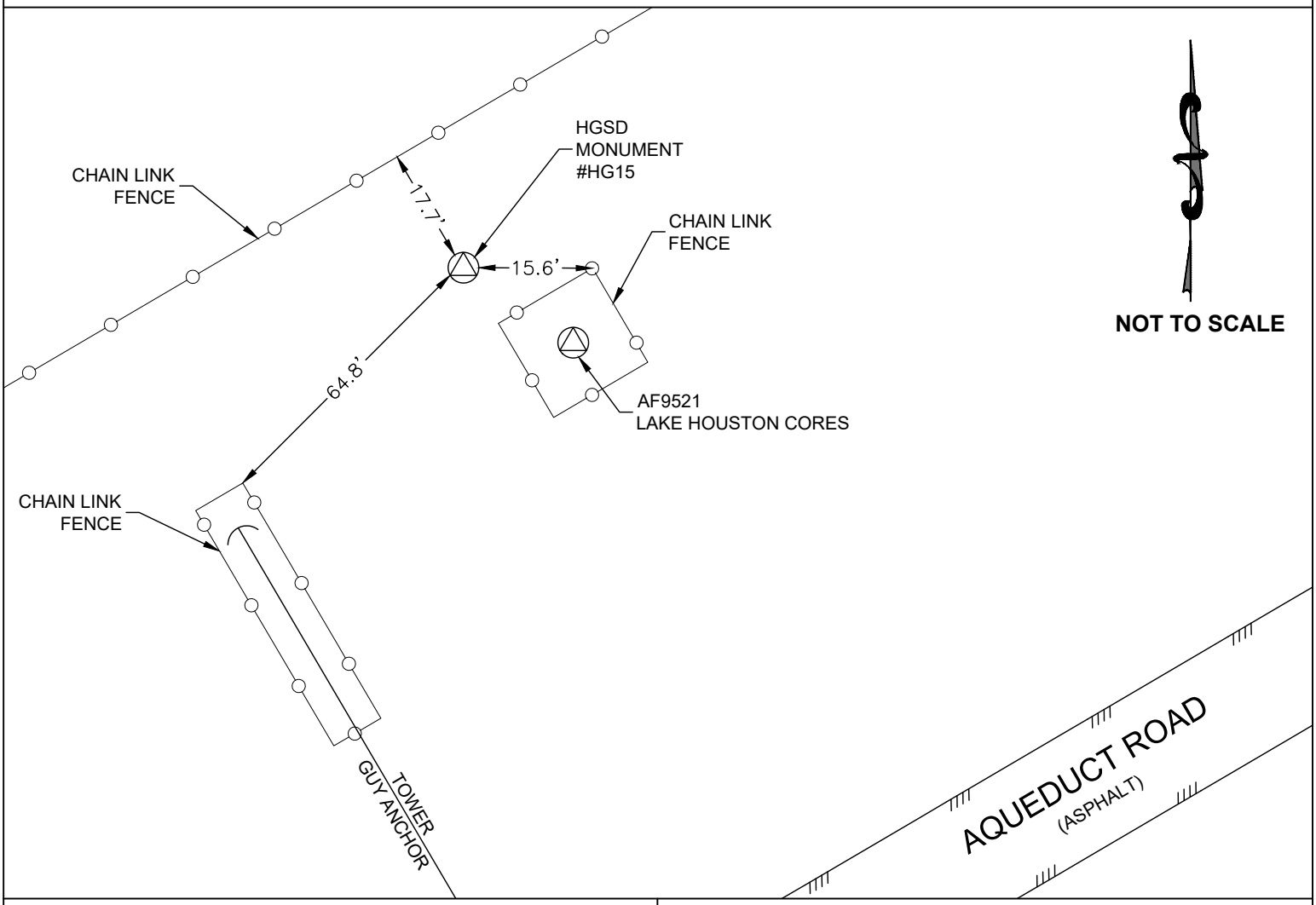


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 16 **4-Char ID/PID:** HG16/AW5416	**General Location:** Katy

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 16 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 404Q	**Date Observed:** October 18, 2022
USGS Quad Map: Katy (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 16 1986	**Monument Depth:** 14.0m
Northing: 13879223.83 (usft) **Easting:** 2974827.46 (usft) **Orthometric Height[1]:** 158.33 (usft) **Geoid Height:** -90.37 (usft)	**Latitude:** 29 52 28.61735(N) **Longitude:** 095 49 27.50334(W) **Ellipsoid Height:** 67.92 (usft) **Convergence Angle:** 01 33 20.92

Scale Factor: 0.99990747 **Elevation Scale Factor:** 0.99999675 **Combined Scale Factor:** 0.99990422

To Reach Monument

TO REACH THE MONUMENT FROM THE OFFICE OF THE HOUSTON LIGHT AND POWER IN KATY, GO EAST ON U.S. HIGHWAY 90 FOR 0.9 KM (0.55 MI) TO KATYLAND DRIVE ON THE LEFT. TURN LEFT AND GO NORTH ON KATYLAND DRIVE FOR 1.3 KM (0.8 MI) TO A 4-WAY STOP. (KATYLAND DRIVE NOW BECOMES KATY-HOCKLEY CUTOFF.) CONTINUE NORTH FOR 2.4 KM (1.5 MI) TO MORTON-RANCH ROAD, TURN LEFT AND GO WEST FOR 1.5 KM (0.95 MI) TO KATY-HOCKLEY ROAD ON THE RIGHT. TURN RIGHT AND GO NORTH FOR 6.4 KM (4.0 MI) TO THE MONUMENT ON THE LEFT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13879223.83 **Easting:** 2974827.46 **Orthometric Height:** 158.33

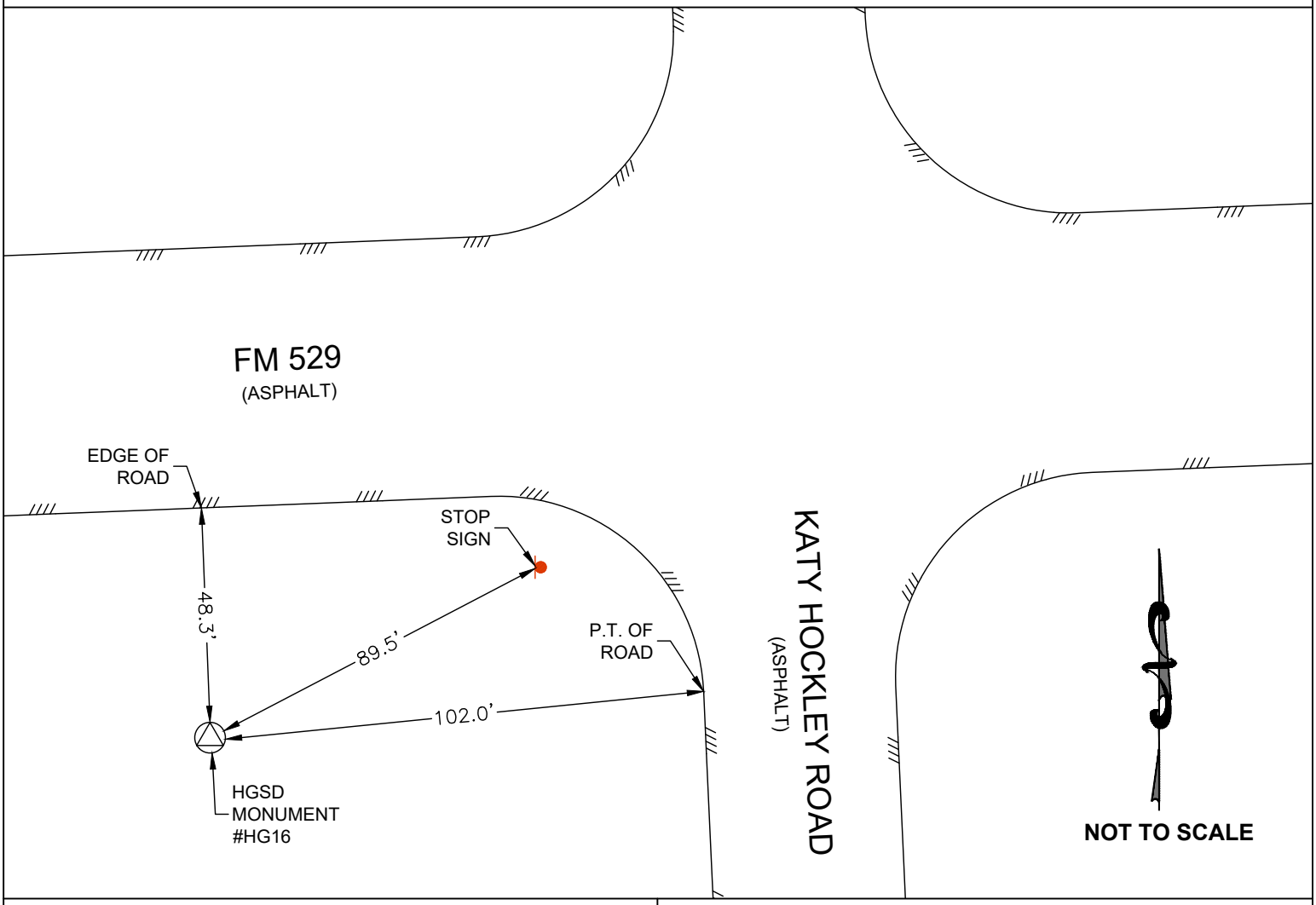


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 18 **4-Char ID/PID:** HG18/AW5439	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED WITH A 5-INCH PVC PIPE WITH A LOGO CAP STAMPED ---HGCSD 18 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 408R	**Date Observed:** October 24, 2022
USGS Quad Map: Satsuma (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 18 1986	**Monument Depth:** 16.8m
Northing: 13882801.41 (usft) **Easting:** 3042170.11 (usft) **Orthometric Height[1]:** 117.09 (usft) **Geoid Height:** -90.21 (usft)	**Latitude:** 29 52 45.31365(N) **Longitude:** 095 36 41.68700(W) **Ellipsoid Height:** 26.90 (usft) **Convergence Angle:** 01 39 36.11

Scale Factor: 0.99990823 **Elevation Scale Factor:** 0.99999871 **Combined Scale Factor:** 0.99990694

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF US 290 AND FM 529, HEAD WEST 2.52 MI (4.05 KM) TO THE NORTH SIDE OF SEATRAX, INCORPORATED ENTER THE PARKING LOT (SOUTH OF FM 529) AND PARK TO THE MOST NORTHWESTERN END OF THE LOT. THE MONUMENT IS 27' SOUTH OF THE MOST NORTHERLY SIDEWALK AND 5' WEST OF SIDEWALK.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13882801.41	Easting: 3042170.11	Orthometric Height: 117.09

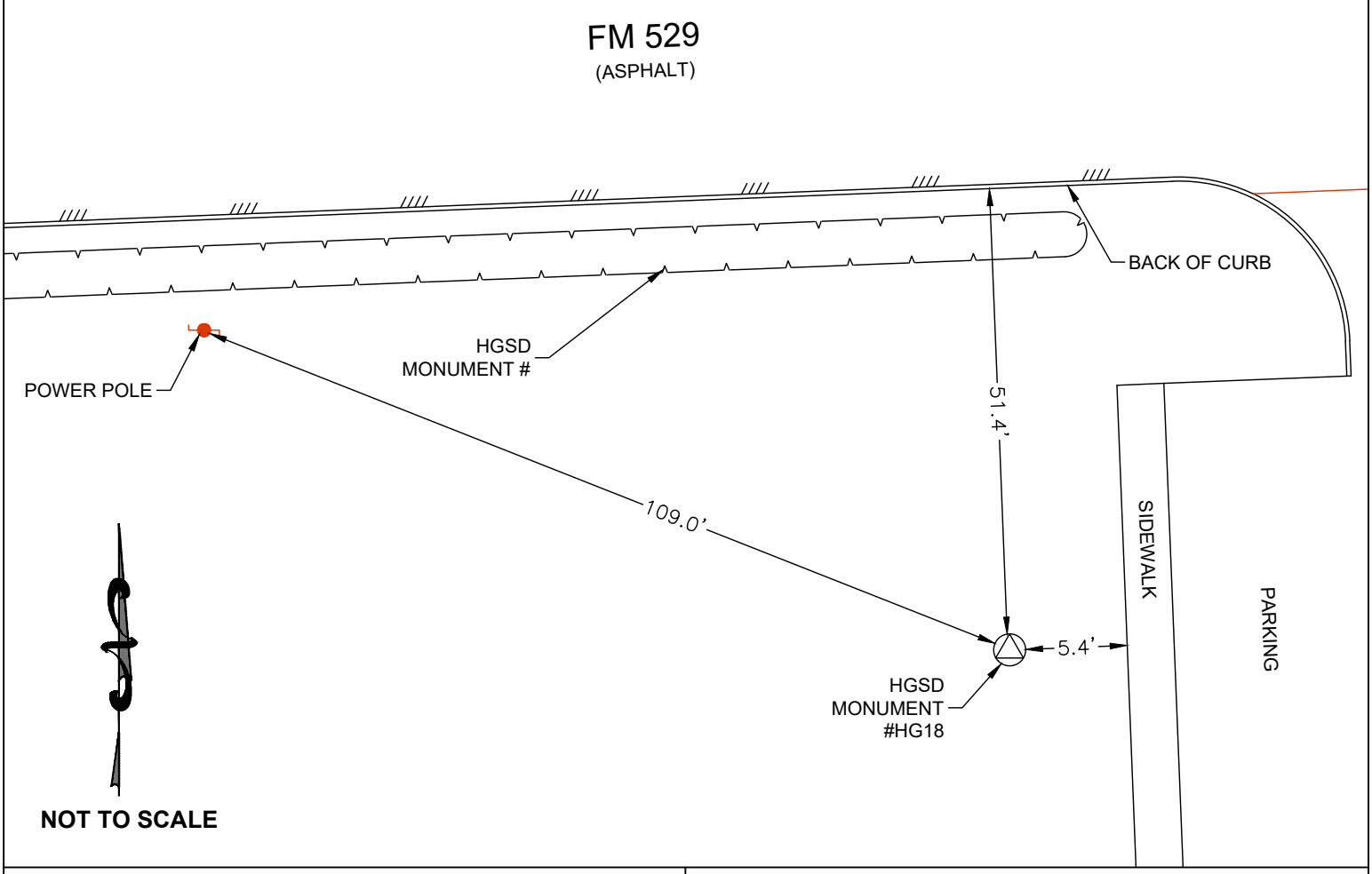


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 21 **4-Char ID/PID:** HG21/AW5655	**General Location:** Houston
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 21 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 457C	**Date Observed:** November 15, 2022
USGS Quad Map: Jacinto City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 21 1986	**Monument Depth:** 10.4m
Northing: 13876201.09 (usft) **Easting:** 3181106.07 (usft) **Orthometric Height[1]:** 40.58 (usft) **Geoid Height:** -89.65 (usft)	**Latitude:** 29 50 57.58702(N) **Longitude:** 095 10 26.70468(W) **Ellipsoid Height:** -49.05 (usft) **Convergence Angle:** 01 52 27.71
Scale Factor: 0.99990342 **Elevation Scale Factor:** 1.00000235 **Combined Scale Factor:** 0.99990577	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF THE SAM HOUSTON TOLLWAY (EAST BELTWAY 8) NORTHBOUND FRONTAGE RD AND U.S. 90 BUSINESS GO 0.74 MILES EAST ON U.S. 90 BUS. TO PINE LAND RD. GO NORTH 0.08 MILE ON PINE LAND TO THE MONUMENT ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13876201.09	Easting: 3181106.07	Orthometric Height: 40.58

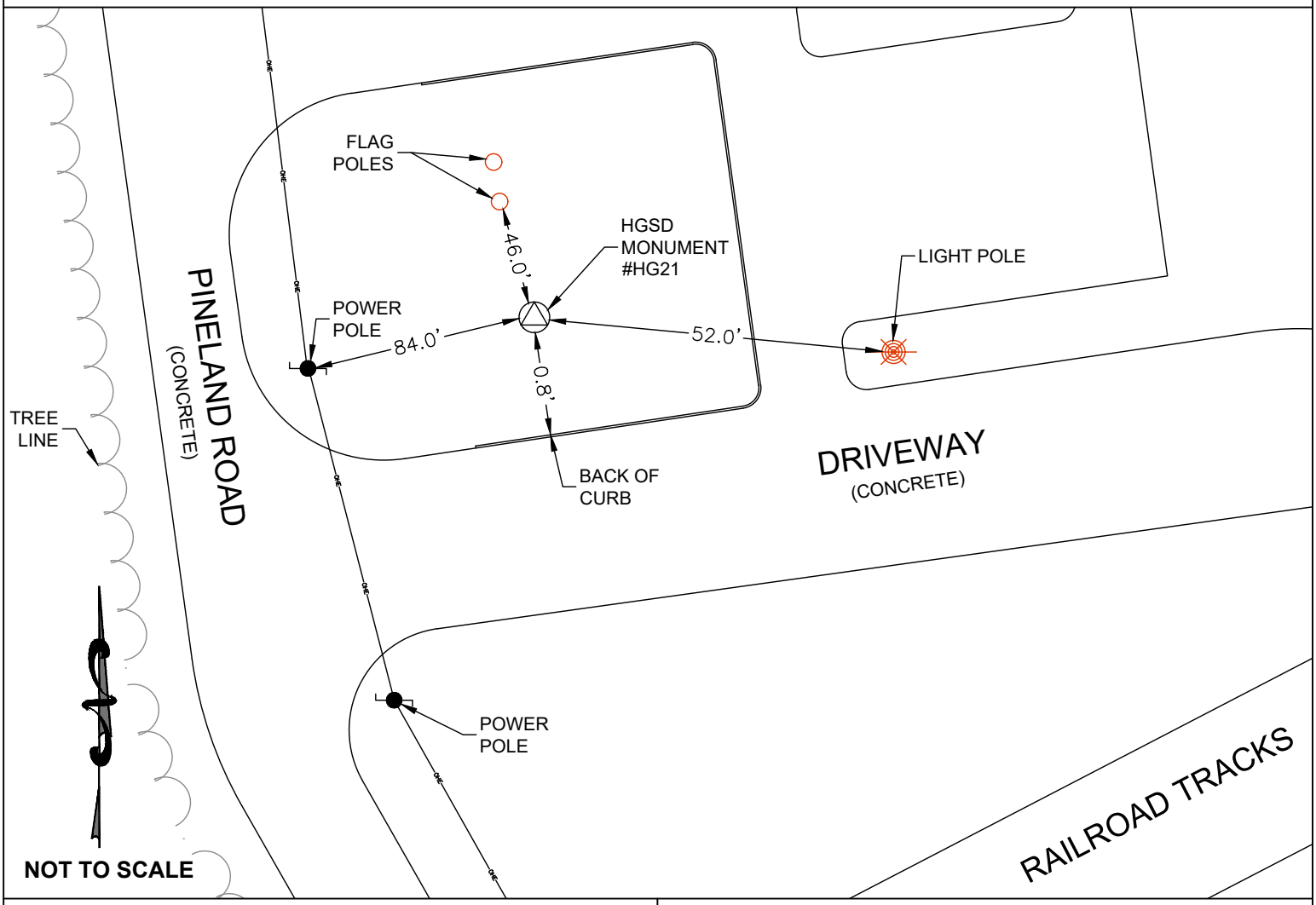


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 22 **4-Char ID/PID:** HG22/AW5657	**General Location:** Highlands

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 22 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 459D	**Date Observed:** November 10, 2022
USGS Quad Map: Highlands (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 22 1986	**Monument Depth:** 11.6m
Northing: 13880356.39 (usft) **Easting:** 3217315.03 (usft) **Orthometric Height[1]:** 43.37 (usft) **Geoid Height:** -89.63 (usft)	**Latitude:** 29 51 26.80081(N) **Longitude:** 095 03 34.14492(W) **Ellipsoid Height:** -46.21 (usft) **Convergence Angle:** 01 55 49.83

Scale Factor: 0.9999047 **Elevation Scale Factor:** 1.00000221 **Combined Scale Factor:** 0.99990691

To Reach Monument

FROM THE INTERSECTION OF STUDEWOOD ST AND WHITE OAK DR GO 0.28 MILE WEST ON WHITE OAK DR TO THE MONUMENT ON THE RIGHT AND NORTHEAST OF A BIKE LANE.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13880356.39 **Easting:** 3217315.03 **Orthometric Height:** 43.37

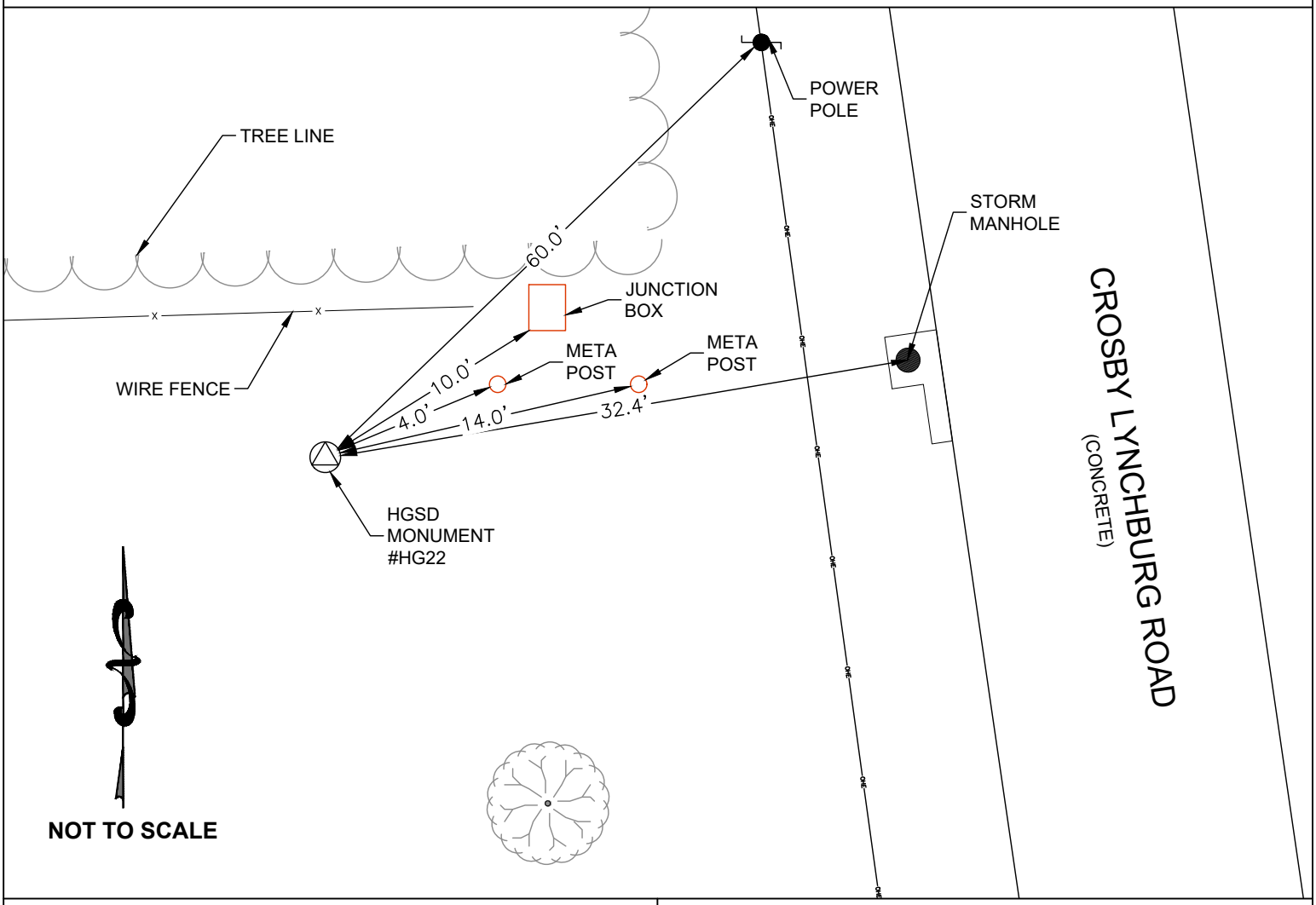


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 23 **4-Char ID/PID:** HG23/AW5658	**General Location:** Crosby
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 23 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 461F	**Date Observed:** November 10, 2022
USGS Quad Map: Mont Belvieu (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 23 1986	**Monument Depth:** 12.2m
Northing: 13876227.39 (usft) **Easting:** 3241591.95 (usft) **Orthometric Height[1]:** 38.58 (usft) **Geoid Height:** -89.62 (usft)	**Latitude:** 29 50 37.77389(N) **Longitude:** 094 59 00.19736(W) **Ellipsoid Height:** -50.94 (usft) **Convergence Angle:** 01 58 04.04
Scale Factor: 0.99990256 **Elevation Scale Factor:** 1.000004041 **Combined Scale Factor:** 0.999905	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF GARTH RD AND BARBERS HILL RD GO 0.26 MILES EAST TO FM 1942. CONTINUE EAST 0.06 MILE ON FM 1942 TO THE MONUMENT AT THE NW CORNER OF FM 1942 AND A CANAL.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13876227.39 **Easting:** 3241591.95 **Orthometric Height:** 38.58

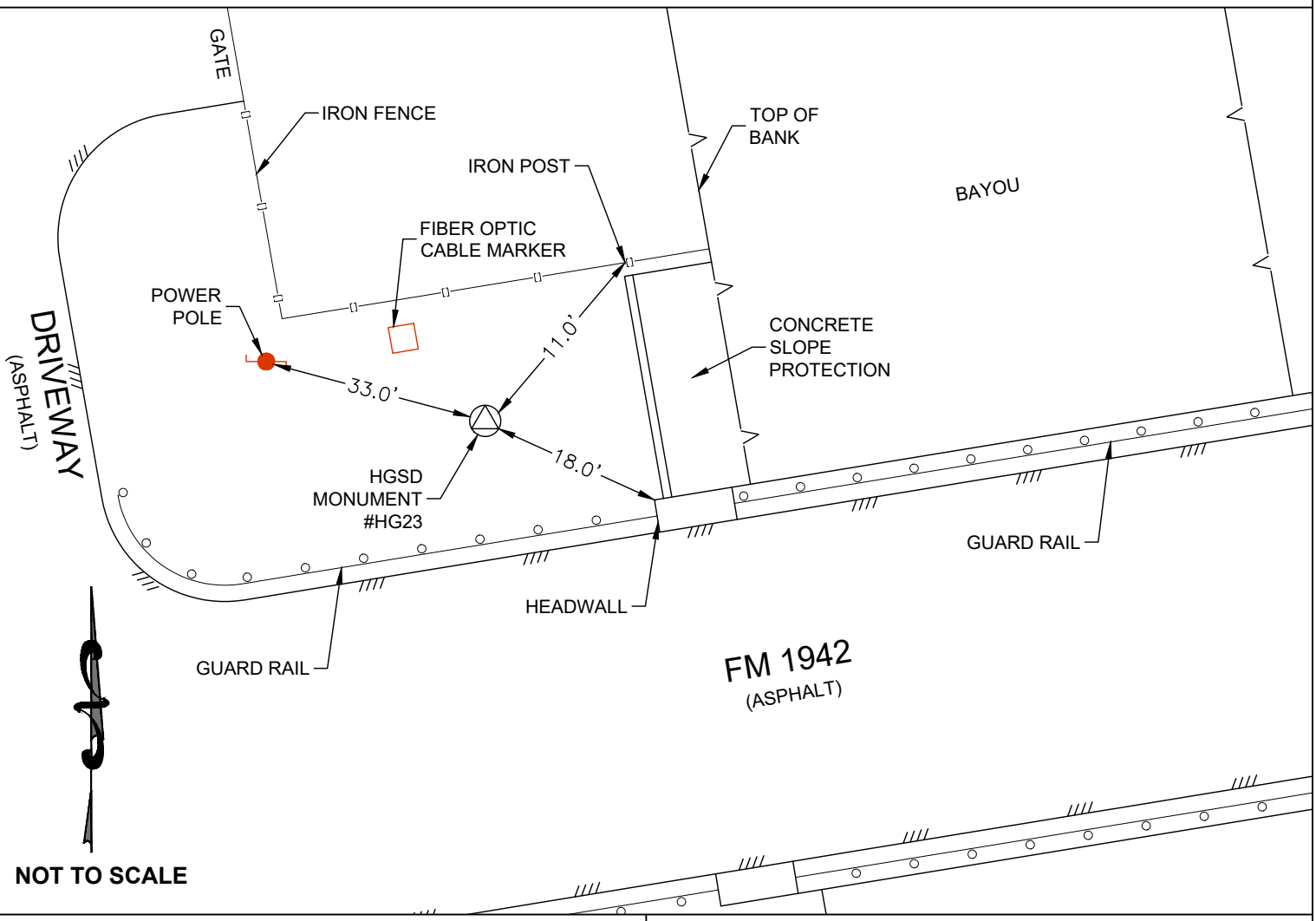


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 28 **4-Char ID/PID:** HG28/AW5609	**General Location:** Houston
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 28 1986---, THE ROD IS RECESSED 4 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 493E	**Date Observed:** October 20, 2022
USGS Quad Map: Houston Heights (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 28 1986	**Monument Depth:** 14.0m
Northing: 13847240.36 (usft) **Easting:** 3113734.71 (usft) **Orthometric Height[1]:** 46.10 (usft) **Geoid Height:** -89.75 (usft)	**Latitude:** 29 46 32.22596(N) **Longitude:** 095 23 21.58886(W) **Ellipsoid Height:** -43.61 (usft) **Convergence Angle:** 01 46 08.09
Scale Factor: 0.99989272 **Elevation Scale Factor:** 1.00000209 **Combined Scale Factor:** 0.99989481	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSTATE HIGHWAY 610 OVERPASS AND INTERSTATE HIGHWAY 10, WHICH IS ABOUT 8.9 KM (5.5 MI) WEST FROM THE CENTER OF HOUSTON, GO EAST ON INTERSTATE HIGHWAY 10 FOR 2.3 KM (1.45 MI) TO THE INTERSECTION OF WASHINGTON STREET, TURN RIGHT AND GO EASTERLY ON WASHINGTON STREET FOR 2.1 KM (1.3 MI) TO A CROSS STREET, CONTINUE EAST ON WASHINGTON STREET FOR 1.9 KM (1.15 MI) TO A CROSSROAD, TURN LEFT AND GO NORTHERLY ON STUDEMONT STREET FOR 0.9 KM (0.55 MI) TO AN ENTRANCE DRIVE AND THE MONUMENT ON THE RIGHT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13847240.36 **Easting:** 3113734.71 **Orthometric Height:** 46.10

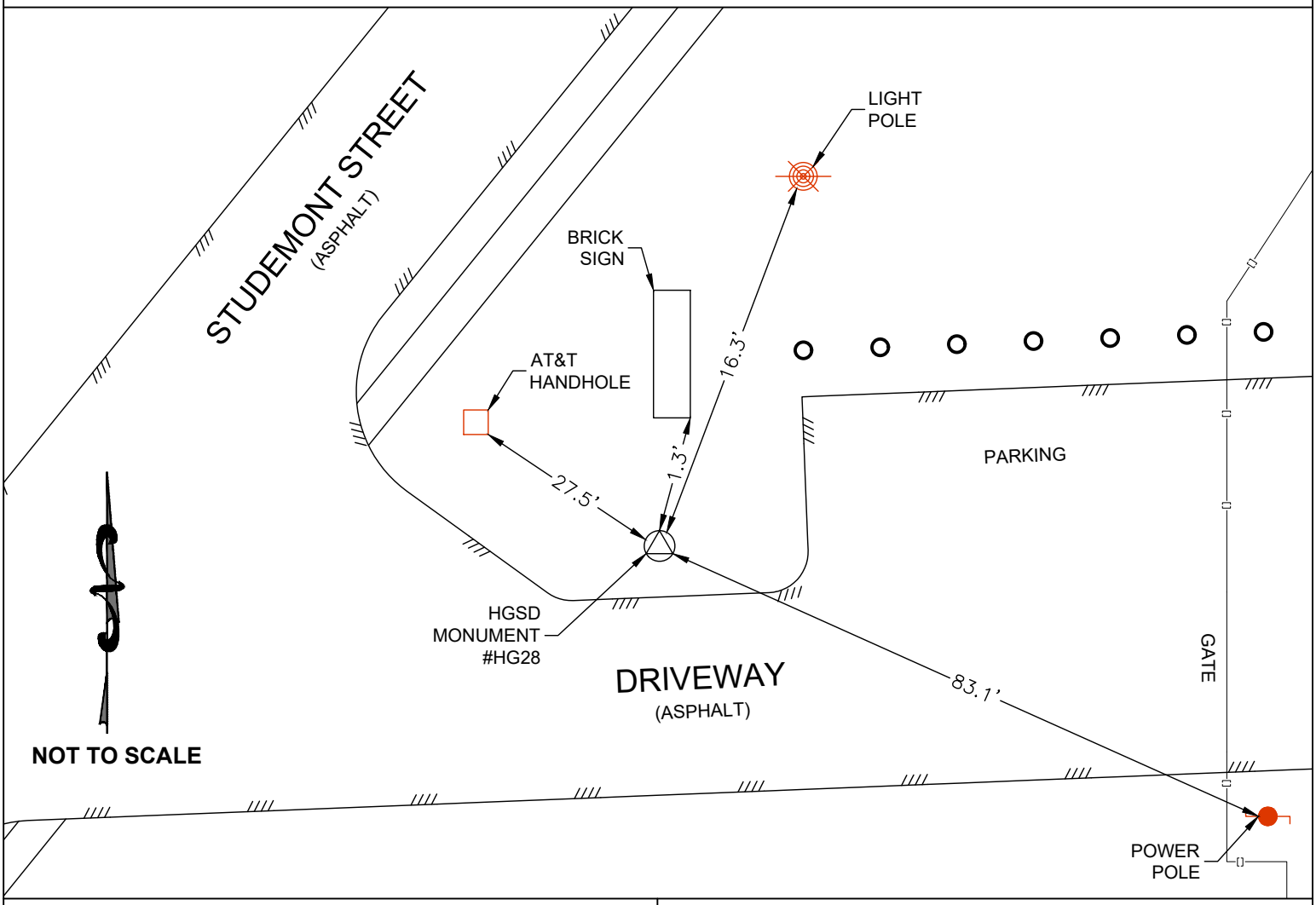


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 30 **4-Char ID/PID:** HG30/AW5529	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 30 1986---, THE ROD IS RECESSED 5 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 496L	**Date Observed:** November 10, 2022
USGS Quad Map: Jacinto City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 30 1986	**Monument Depth:** 12.2m
Northing: 13846886.22 (usft) **Easting:** 3167282.35 (usft) **Orthometric Height[1]:** 25.07 (usft) **Geoid Height:** -89.53 (usft)	**Latitude:** 29 46 11.97563(N) **Longitude:** 095 13 14.36674(W) **Ellipsoid Height:** -64.43 (usft) **Convergence Angle:** 01 51 05.57

Scale Factor: 0.99989198 **Elevation Scale Factor:** 1.00000308 **Combined Scale Factor:** 0.99989506

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF INTERSTATE HIGHWAY 10 AND FEDERAL ROAD, WHICH IS ABOUT 14.5 KM (9.0 MI) EAST FROM THE CENTER OF HOUSTON, GO SOUTH ON FEDERAL ROAD FOR 0.3 KM (0.2 MI) TO A CROSSROAD, TURN RIGHT AND GO WEST ON MARKET STREET FOR 0.6 KM (0.4 MI) TO A SIDE ROAD RIGHT, TURN RIGHT AND GO NORTH ON MAE DRIVE FOR 0.3 KM (0.2 MI) TO THE MONUMENT ON THE LEFT, NEAR THE NORTHEAST CORNER OF A CHAINLINK FENCE AROUND THE ROLAND P. HARRIS ELEMENTARY SCHOOL.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13846886.22	Easting: 3167282.35	Orthometric Height: 25.07

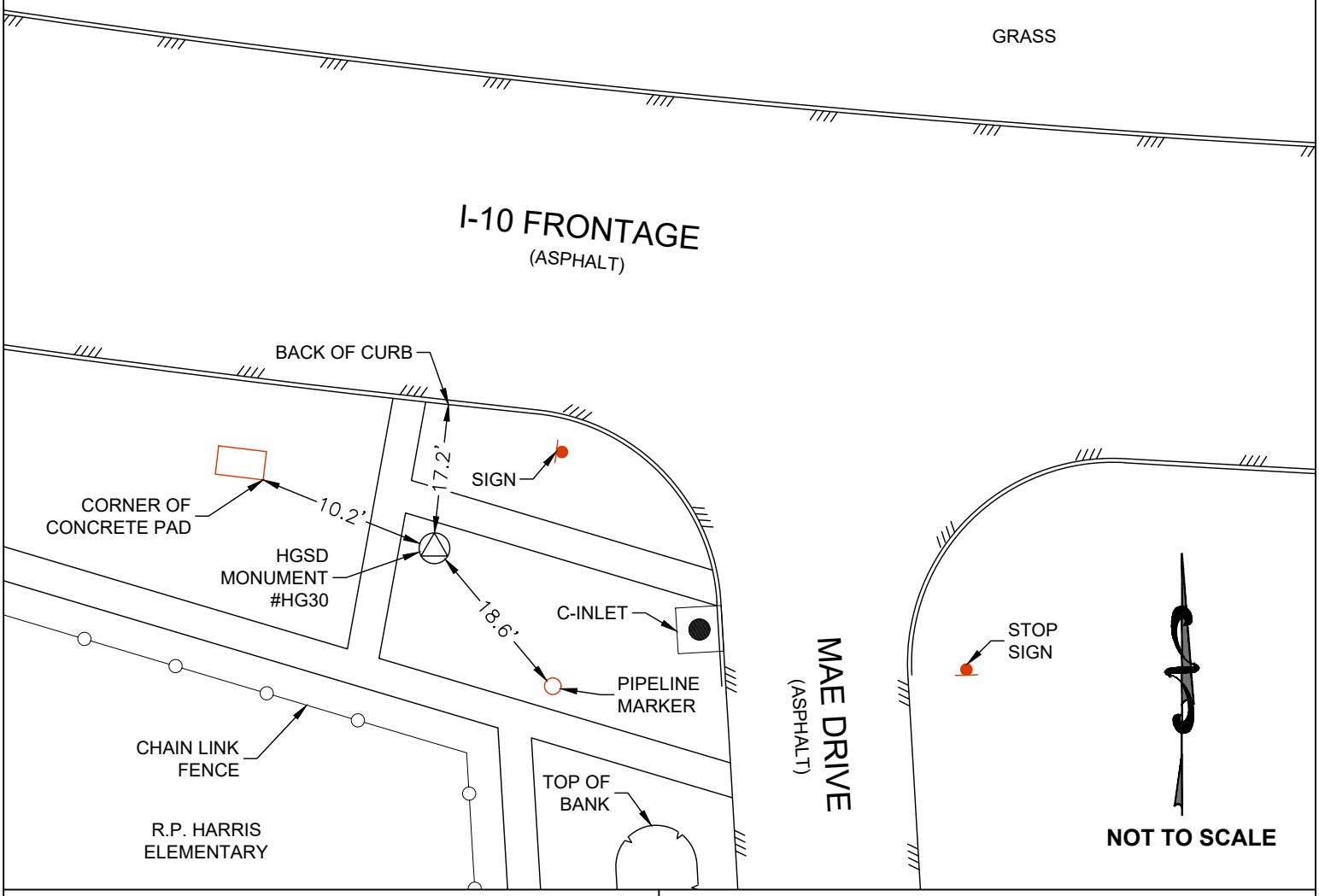


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 31 **4-Char ID/PID:** HG31/AW5532	**General Location:** Channelview
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 31 1986---, THE ROD IS RECESSED 6 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 498H	**Date Observed:** November 9, 2022
USGS Quad Map: Highlands (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 31 1986	**Monument Depth:** 12.0m
Northing: 13852649.36 (usft) **Easting:** 3204626.75 (usft) **Orthometric Height[1]:** 18.86 (usft) **Geoid Height:** -89.50 (usft)	**Latitude:** 29 46 56.86777(N) **Longitude:** 095 06 08.65478(W) **Ellipsoid Height:** -70.60 (usft) **Convergence Angle:** 01 54 34.13
Scale Factor: 0.99989365 **Elevation Scale Factor:** 1.00000338 **Combined Scale Factor:** 0.99989703	

To Reach Monument

TO REACH THE MONUMENT FROM CEDAR LN AND MARKET ST, GO 0.18 MILE NORTHEAST ON MARKET RD TO LAUNCH RD AND TURN RIGHT IN TO THE RIVER TERRACE PARKING LOT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13852649.36 **Easting:** 3204626.75 **Orthometric Height:** 18.86

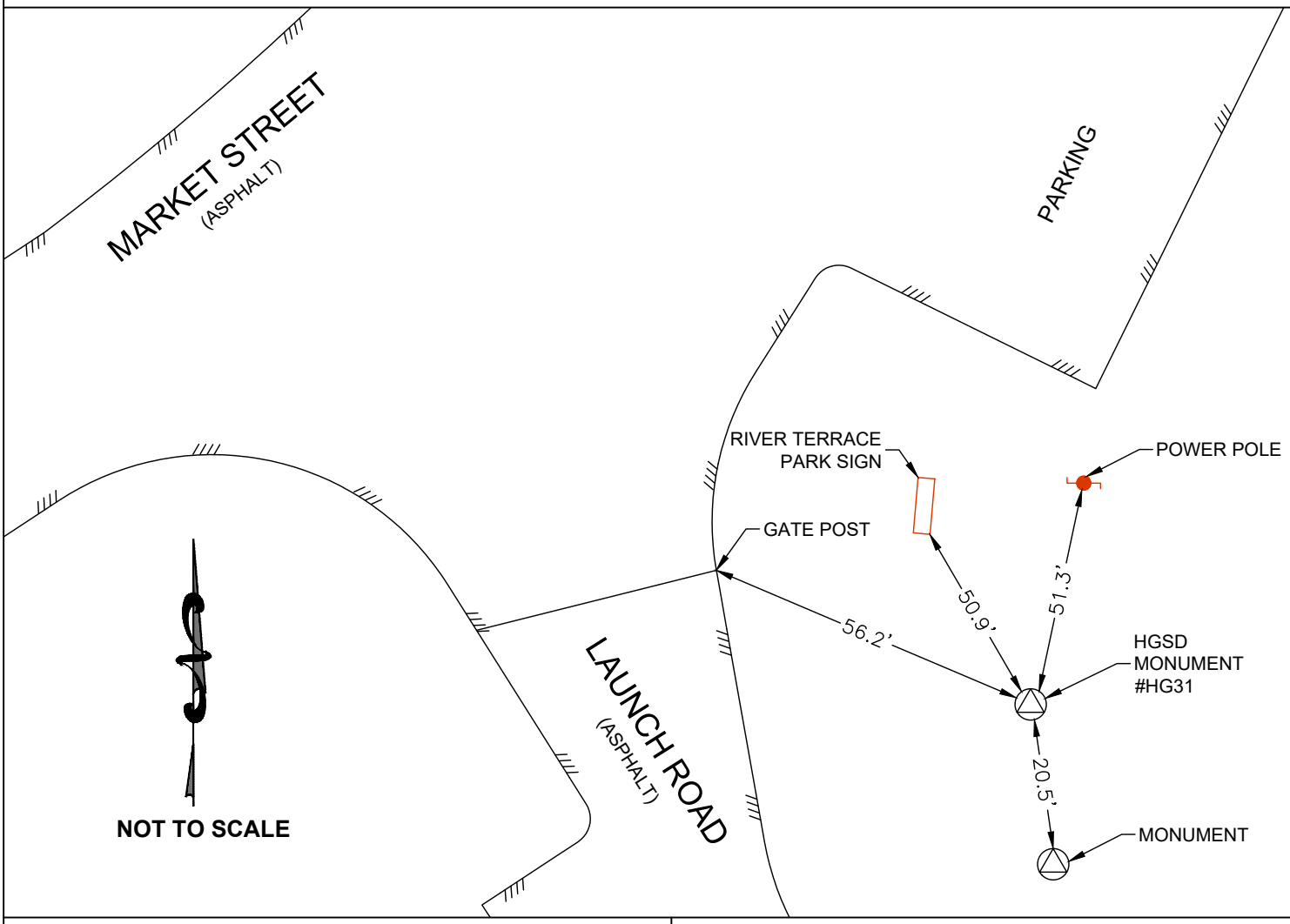


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 33 **4-Char ID/PID:** HG33/AW5537	**General Location:** Baytown

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 33 1986---, THE ROD IS RECESSED 3 CM BELOW GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 500C	**Date Observed:** December 9, 2022
USGS Quad Map: Highlands (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 33 1986	**Monument Depth:** 12.2m
Northing: 13854287.37 (usft) **Easting:** 3231215.43 (usft) **Orthometric Height[1]:** 26.71 (usft) **Geoid Height:** -89.50 (usft)	**Latitude:** 29 47 04.20950(N) **Longitude:** 095 01 06.44301(W) **Ellipsoid Height:** -62.79 (usft) **Convergence Angle:** 01 57 02.19

Scale Factor: 0.99989393 **Elevation Scale Factor:** 1.00000301 **Combined Scale Factor:** 0.99989694

To Reach Monument

TO REACH THRE MONUMENT FROM THE INTERSECTION OF WADE RD AND W CEDAR BAYOU LYNCHBURG RD GO WEST 0.10 MILE TO THE MONUMENT ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13854287.37 **Easting:** 3231215.43 **Orthometric Height:** 26.71

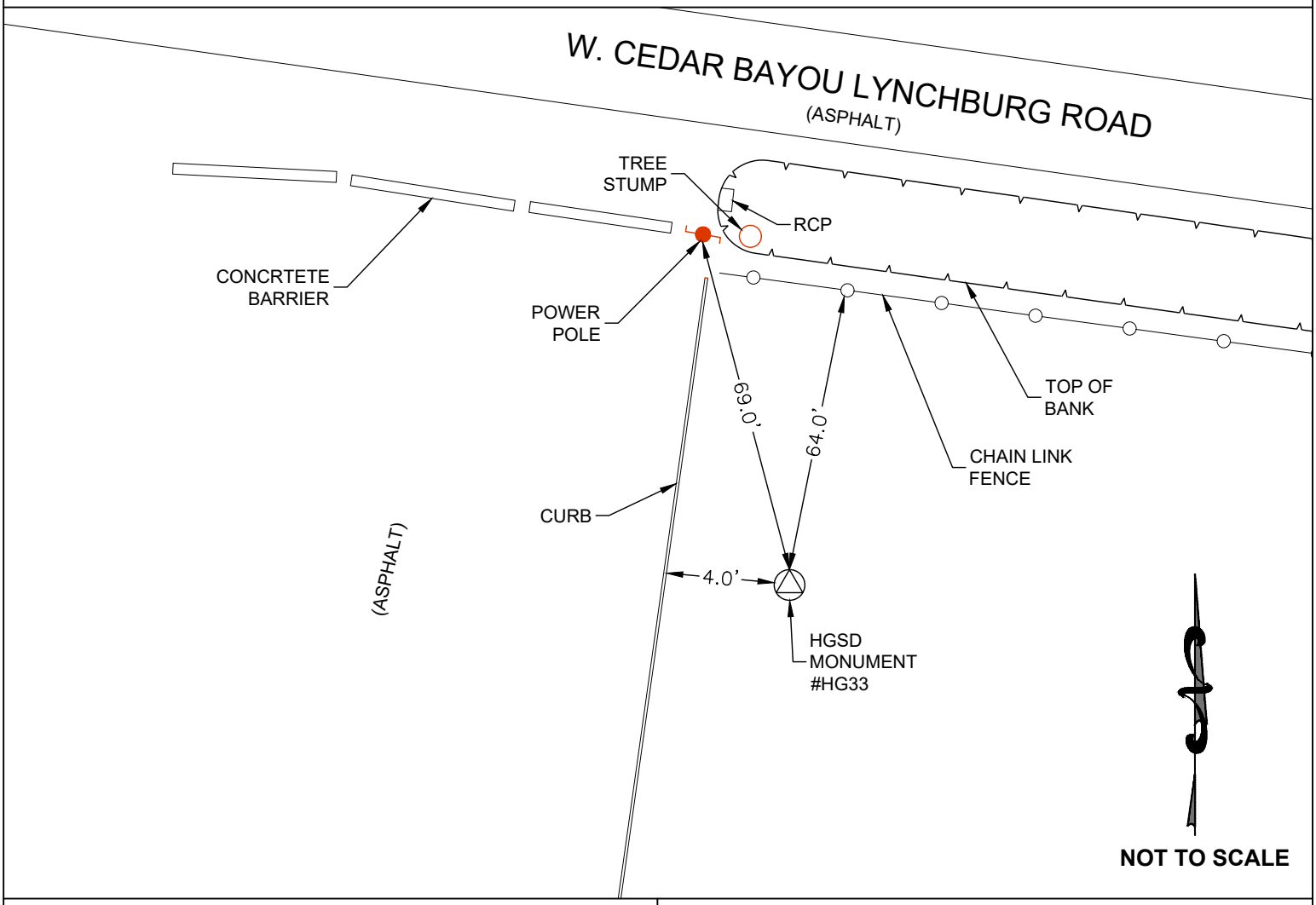


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 38 **4-Char ID/PID:** HG38/AW5558	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 38 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 534K	**Date Observed:** November 10, 2022
USGS Quad Map: Park Place (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 38 1986	**Monument Depth:** 16.8m
Northing: 13819660.55 (usft) **Easting:** 3135464.86 (usft) **Orthometric Height[1]:** 35.79 (usft) **Geoid Height:** -89.45 (usft)	**Latitude:** 29 41 52.61472(N) **Longitude:** 095 19 24.94981(W) **Ellipsoid Height:** -53.63 (usft) **Convergence Angle:** 01 48 04.02

Scale Factor: 0.99988324 **Elevation Scale Factor:** 1.00000257 **Combined Scale Factor:** 0.99988581

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF WAYSIDE DR AND GRIGGS RD GO 0.16 MILE SW ON GRIGGS RD TO THE MONUMENT ON THE RIGHT

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13819660.55 **Easting:** 3135464.86 **Orthometric Height:** 35.79

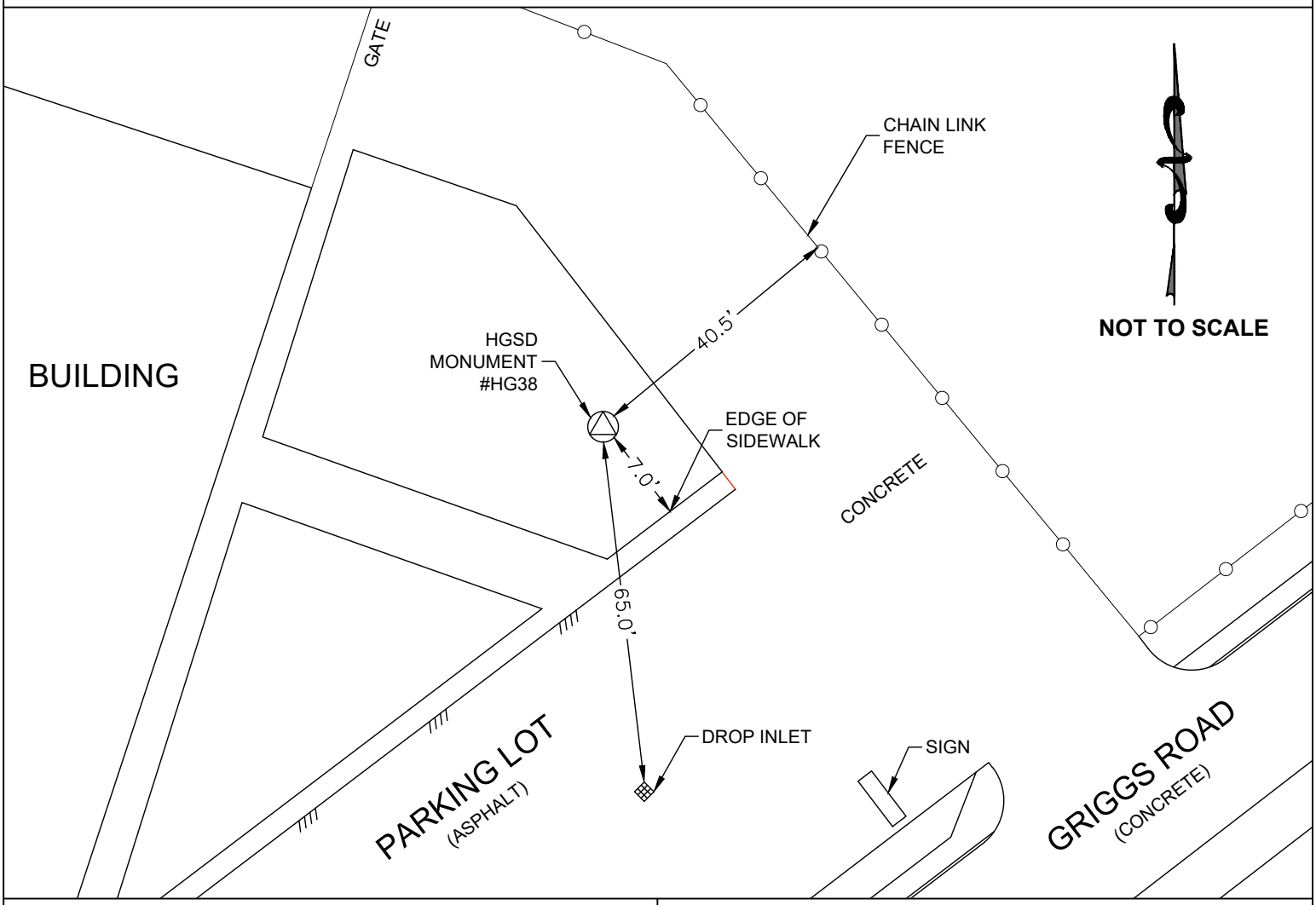


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 40 **4-Char ID/PID:** HG40/AW5670	**General Location:** Pasadena

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL RODWITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUNDWITH A LOGO CAP STAMPED---HGCSD 40 1986---, THE ROD IS RECESSED 5 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 536G	**Date Observed:** November 16, 2022
USGS Quad Map: Pasadena (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 40 1986	**Monument Depth:** 10.4m
Northing: 13825278.66 (usft) **Easting:** 3169710.87 (usft) **Orthometric Height[1]:** 15.09 (usft) **Geoid Height:** -89.39 (usft)	**Latitude:** 29 42 37.39347(N) **Longitude:** 095 12 54.75692(W) **Ellipsoid Height:** -74.28 (usft) **Convergence Angle:** 01 51 15.18

Scale Factor: 0.99988464 **Elevation Scale Factor:** 1.00000356 **Combined Scale Factor:** 0.9998882

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SOUTHMORE AVENUE AND MAIN STREET ON THE WEST SIDE OF PASADENA, GO NORTHERLY ON MAIN STREET FOR 1.9 KM (1.15 MI) TO A CROSSROAD. TURN LEFT AND GO WESTERLY ON BROADWAY STREET FOR 0.2 KM (0.15 MI) TO A T-INTERSECTION. TURN LEFT AND GO SOUTHERLY ON SHAVER STREET FOR 30.5 METERS (100 FT) TO A SIDE ROAD RIGHT. TURN RIGHT AND GO WESTERLY ON WEST BROADWAY STREET FOR 0.3 KM (0.2 MI) TO THE END OF WEST BROADWAY STREET. TURN RIGHT AND GO NORTH ON MEMORIAL PARK DRIVE FOR 0.2 KM (0.15 MI) TO THE NORTHWEST CORNER OF THE PASADENA HIGH SCHOOL AND THE MONUMENT ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13825278.66	Easting: 3169710.87	Orthometric Height: 15.09

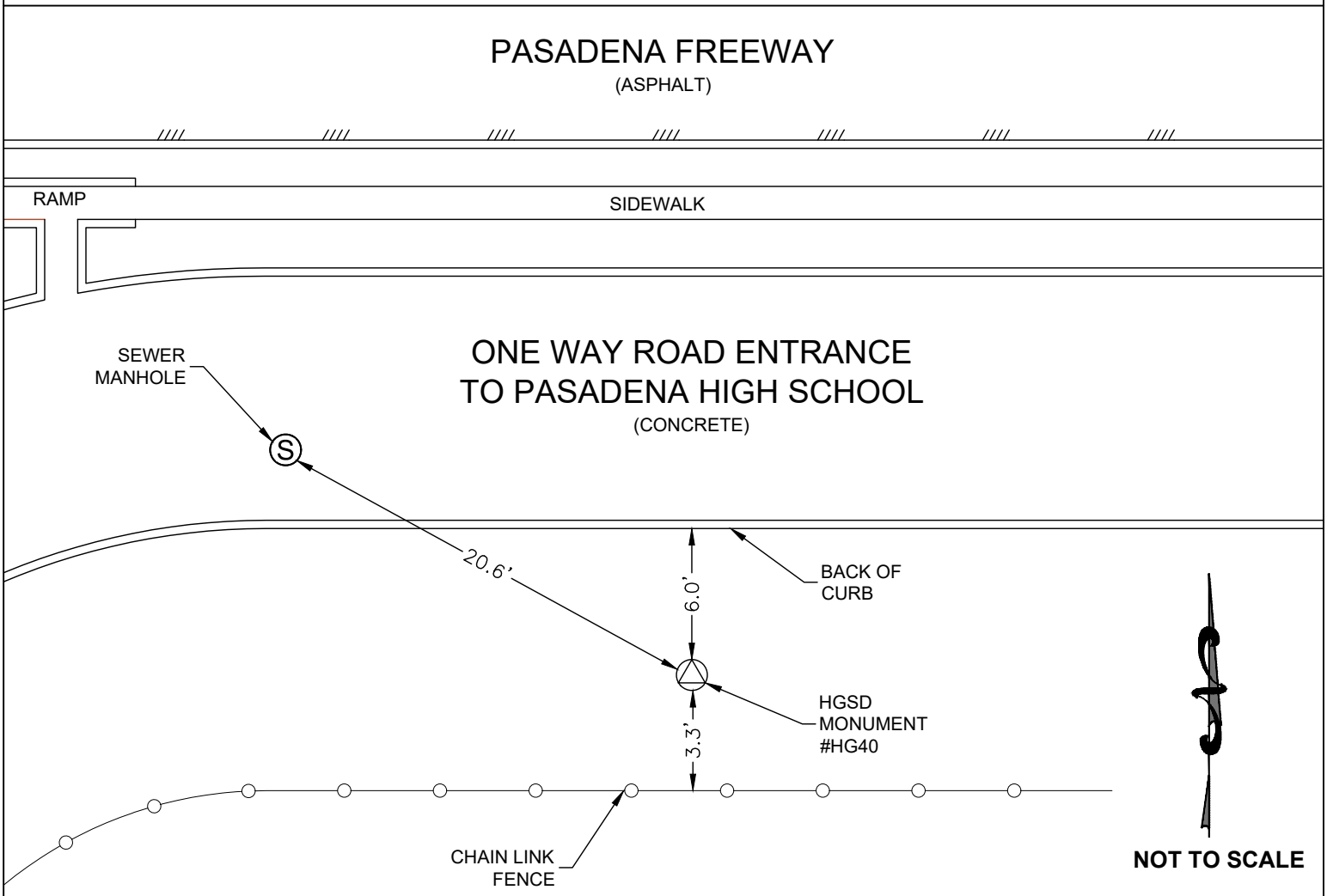


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 41 **4-Char ID/PID:** HG41/AW5671	**General Location:** Pasadena

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 41 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 537H	**Date Observed:** November 9, 2022
USGS Quad Map: Pasadena (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 41 1986	**Monument Depth:** 10.4m
Northing: 13825775.99 (usft) **Easting:** 3187485.86 (usft) **Orthometric Height[1]:** 27.43 (usft) **Geoid Height:** -89.36 (usft)	**Latitude:** 29 42 36.57844(N) **Longitude:** 095 09 33.09532(W) **Ellipsoid Height:** -61.91 (usft) **Convergence Angle:** 01 52 53.98

Scale Factor: 0.99988461 **Elevation Scale Factor:** 1.00000296 **Combined Scale Factor:** 0.99988757

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF PRESTON AVENUE AND SH 225 EASTBOUND FRONTAGE RD GO EAST 0.68 MILE AND TURN INTO THE DRIVEWAY OF MIDWEST HOSE & SPECIALTY. THE MONUMENT IS LOCATED ON THE SOUTH SIDE OF THE BUILDING.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13825775.99 **Easting:** 3187485.86 **Orthometric Height:** 27.43

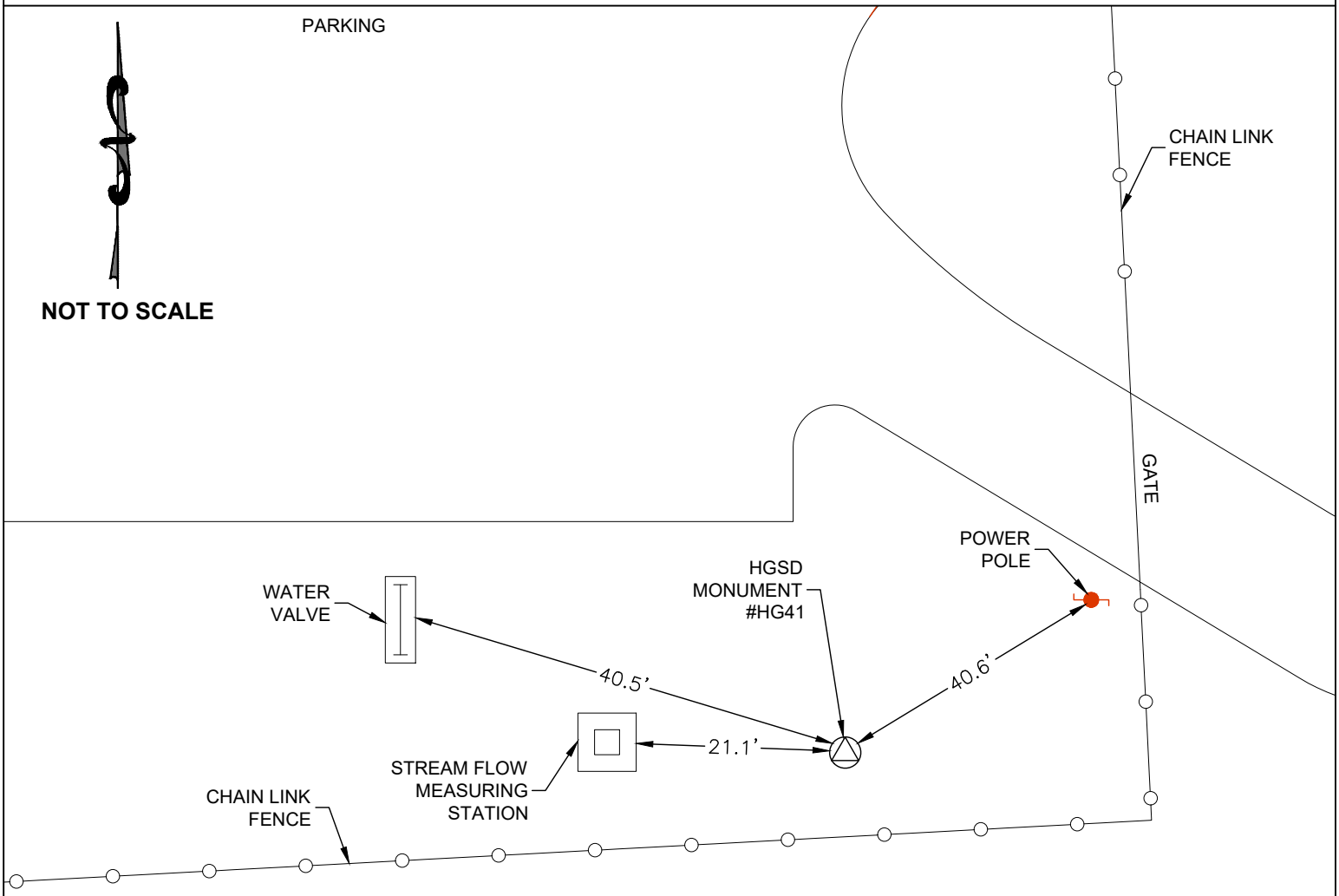


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 43 **4-Char ID/PID:** HG43/AW5662	**General Location:** Baytown

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 45 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 541F	**Date Observed:** November 8, 2022
USGS Quad Map: Morgans Point (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 43 1986	**Monument Depth:** 17.0m
Northing: 13828932.50 (usft) **Easting:** 3242664.24 (usft) **Orthometric Height[1]:** 10.83 (usft) **Geoid Height:** -89.32 (usft)	**Latitude:** 29 42 49.46738(N) **Longitude:** 094 59 06.46161(W) **Ellipsoid Height:** -78.46 (usft) **Convergence Angle:** 01 58 00.97

Scale Factor: 0.99988502 **Elevation Scale Factor:** 1.00000376 **Combined Scale Factor:** 0.99988878

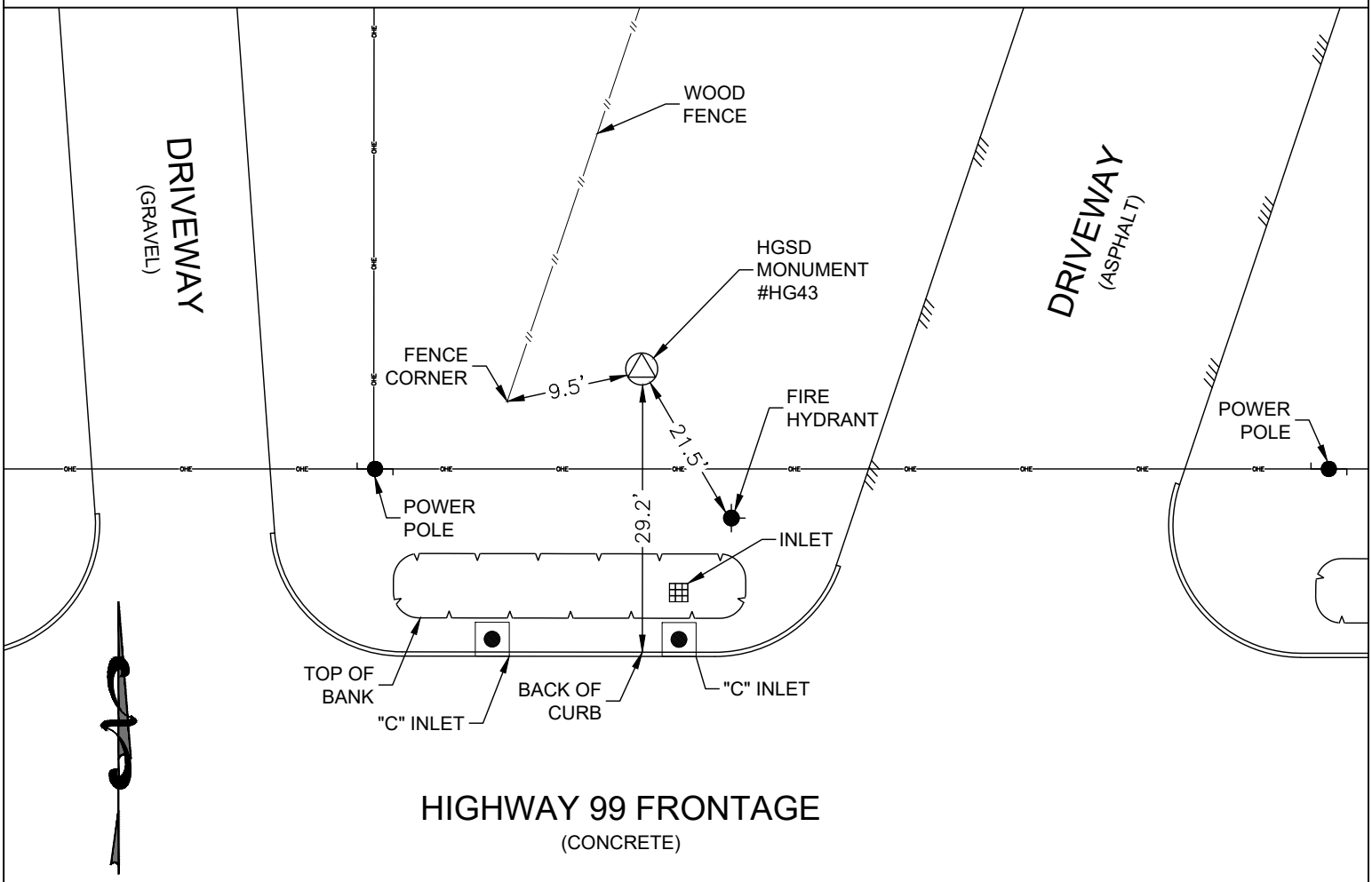
To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF THE WESTBOUND FRONTAGE OF SH99 AT LEE DR. GO 0.27 MILE WEST TO THE MONUMENT ON THE RIGHT PAST DELTA DRIVE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13828932.50 **Easting:** 3242664.24 **Orthometric Height:** 10.83



NOT TO SCALE

Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 47 **4-Char ID/PID:** HG47/AW5556	**General Location:** Houston
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 47 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 575N	**Date Observed:** November 8, 2022
USGS Quad Map: Pearland (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 47 1986	**Monument Depth:** 26.9m
Northing: 13791717.42 (usft) **Easting:** 3146635.55 (usft) **Orthometric Height[1]:** 49.28 (usft) **Geoid Height:** -89.24 (usft)	**Latitude:** 29 37 12.61621(N) **Longitude:** 095 17 28.38945(W) **Ellipsoid Height:** -39.86 (usft) **Convergence Angle:** 01 49 01.12
Scale Factor: 0.99987559 **Elevation Scale Factor:** 1.00000191 **Combined Scale Factor:** 0.9998775	

To Reach Monument

TO REACH THE MONUMENT FROM STATE HIGHWAY 35, (TELEPHONE ROAD) AND ALMEDA-GENOA, GO WEST ON ALMEDA-GENOA ROAD FOR (0.35 MI) TO THE SOUTHWESTERN BELL TELEPHONE COMPANY BUILDING ON THE LEFT AND THE MONUMENT AT THE NORTH SIDE OF THE PARKING AREA.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13791717.42 **Easting:** 3146635.55 **Orthometric Height:** 49.28

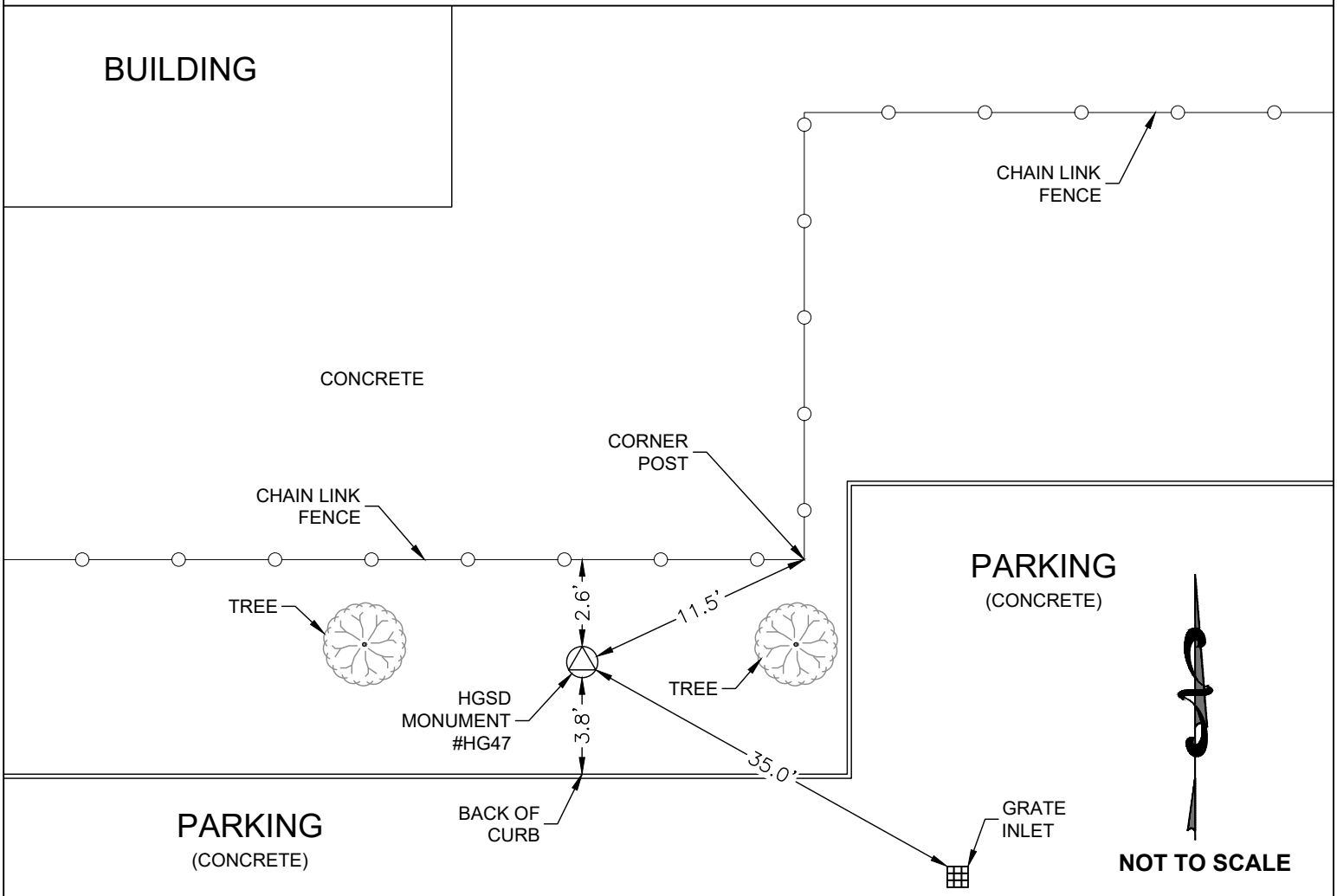


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 49 **4-Char ID/PID:** HG49/AW5699	**General Location:** Pasadena
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 49 1987---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 578L	**Date Observed:** November 8, 2022
USGS Quad Map: La Porte (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 49 1987	**Monument Depth:** 14.6m
Northing: 13798560.45 (usft) **Easting:** 3203638.70 (usft) **Orthometric Height[1]:** 15.72 (usft) **Geoid Height:** -89.14 (usft)	**Latitude:** 29 38 02.00097(N) **Longitude:** 095 06 40.26973(W) **Ellipsoid Height:** -73.42 (usft) **Convergence Angle:** 01 54 18.64
Scale Factor: 0.99987681 **Elevation Scale Factor:** 1.00000351 **Combined Scale Factor:** 0.99988032	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF RED BLUFF RD AND GENOA RED BLUFF RD. GO 0.18 MILE WEST ON GENOA RED BLUFF RD, TO THE MONUMENT ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13798560.45 **Easting:** 3203638.70 **Orthometric Height:** 15.72

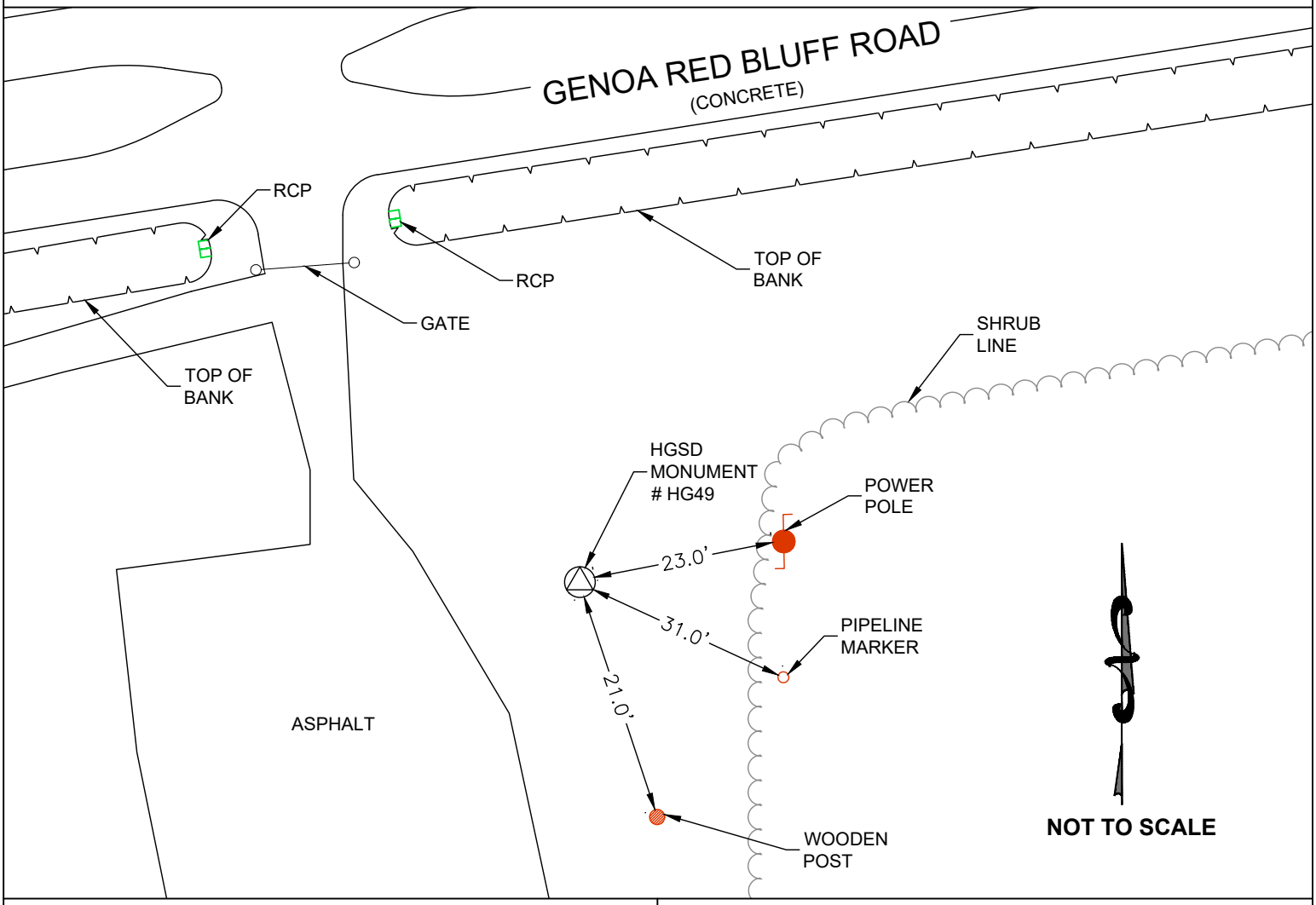


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 50 **4-Char ID/PID:** HG50/AW5663	**General Location:** Shoreacres
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 50 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 580V	**Date Observed:** November 8, 2022
USGS Quad Map: League City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 50 1986	**Monument Depth:** 12.8m
Northing: 13794094.33 (usft) **Easting:** 3238565.11 (usft) **Orthometric Height[1]:** 8.86 (usft) **Geoid Height:** -89.00 (usft)	**Latitude:** 29 37 06.15244(N) **Longitude:** 095 00 06.42903(W) **Ellipsoid Height:** -80.11 (usft) **Convergence Angle:** 01 57 31.59

Scale Factor: 0.99987544 **Elevation Scale Factor:** 1.00000383 **Combined Scale Factor:** 0.99987927

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SUNRISE DR AND BAYWOOD ST, TRAVEL EAST ON BAYWOOD ST APPROXIMATELY 0.36 MILE TO WHERE THE ROAD TURN PARALLEL THE BAY. THE MONUMENT IS ABOUT HALFWAY FROM THE ROAD TO THE WATERS EDGE.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13794094.33 **Easting:** 3238565.11 **Orthometric Height:** 8.86

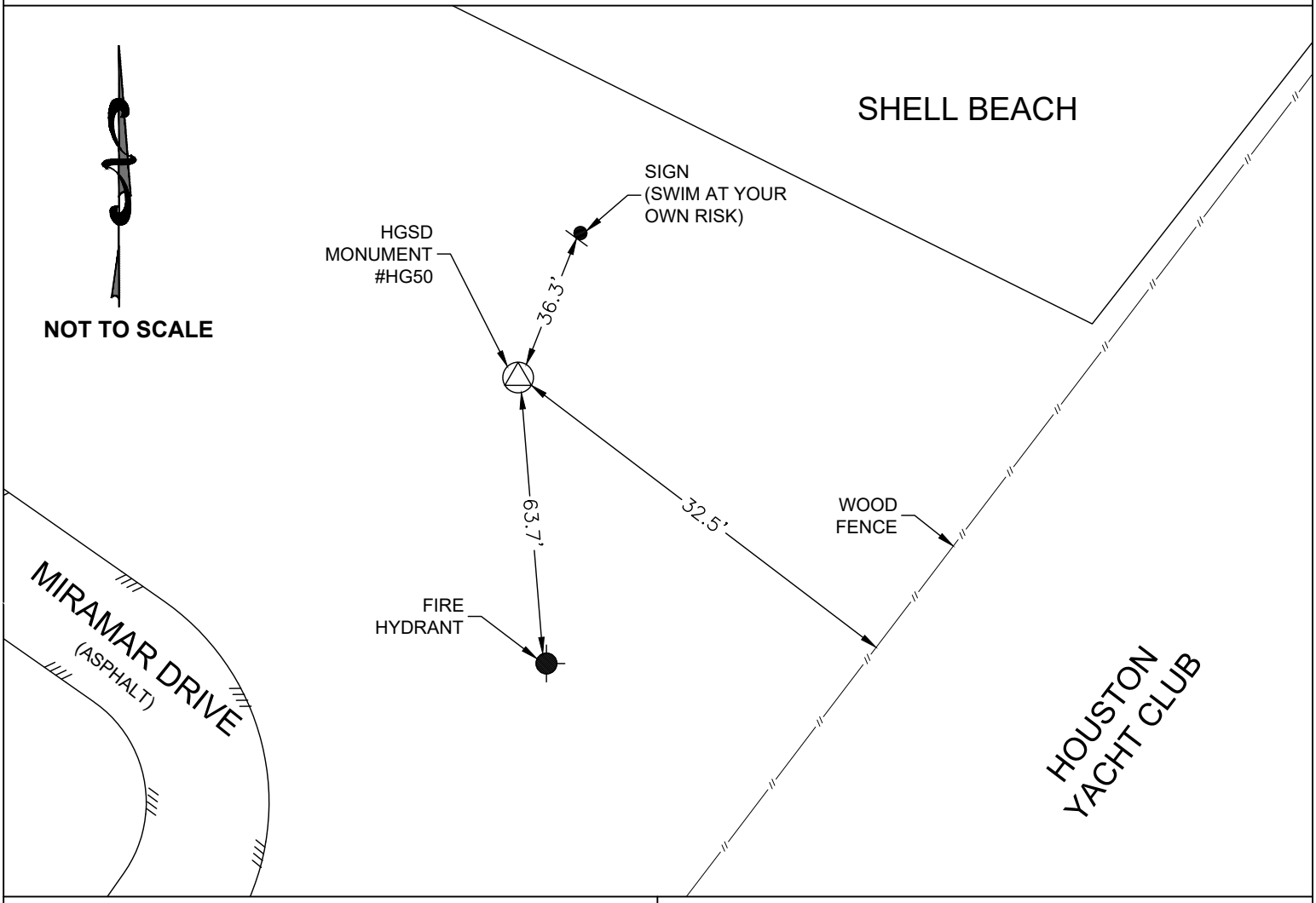


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 53 **4-Char ID/PID:** HG53/AW5664	**General Location:** Seabrook
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 53 1987---, THE ROD IS RECESSED 7 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 620Q	**Date Observed:** November 7, 2022
USGS Quad Map: League City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 53 1987	**Monument Depth:** 13.4m
Northing: 13774702.51 (usft) **Easting:** 3233162.71 (usft) **Orthometric Height[1]:** 8.17 (usft) **Geoid Height:** -88.79 (usft)	**Latitude:** 29 33 56.10011(N) **Longitude:** 095 01 15.08121(W) **Ellipsoid Height:** -80.59 (usft) **Convergence Angle:** 01 56 57.96
Scale Factor: 0.99987132 **Elevation Scale Factor:** 1.00000386 **Combined Scale Factor:** 0.99987518	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF N HWY 146 AND N MEYER AVE, TRAVEL 0.45 MILE ALONG N MEYER AVE TO THE SEABROOK SPORTS COMPLEX ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13774702.51 **Easting:** 3233162.71 **Orthometric Height:** 8.17

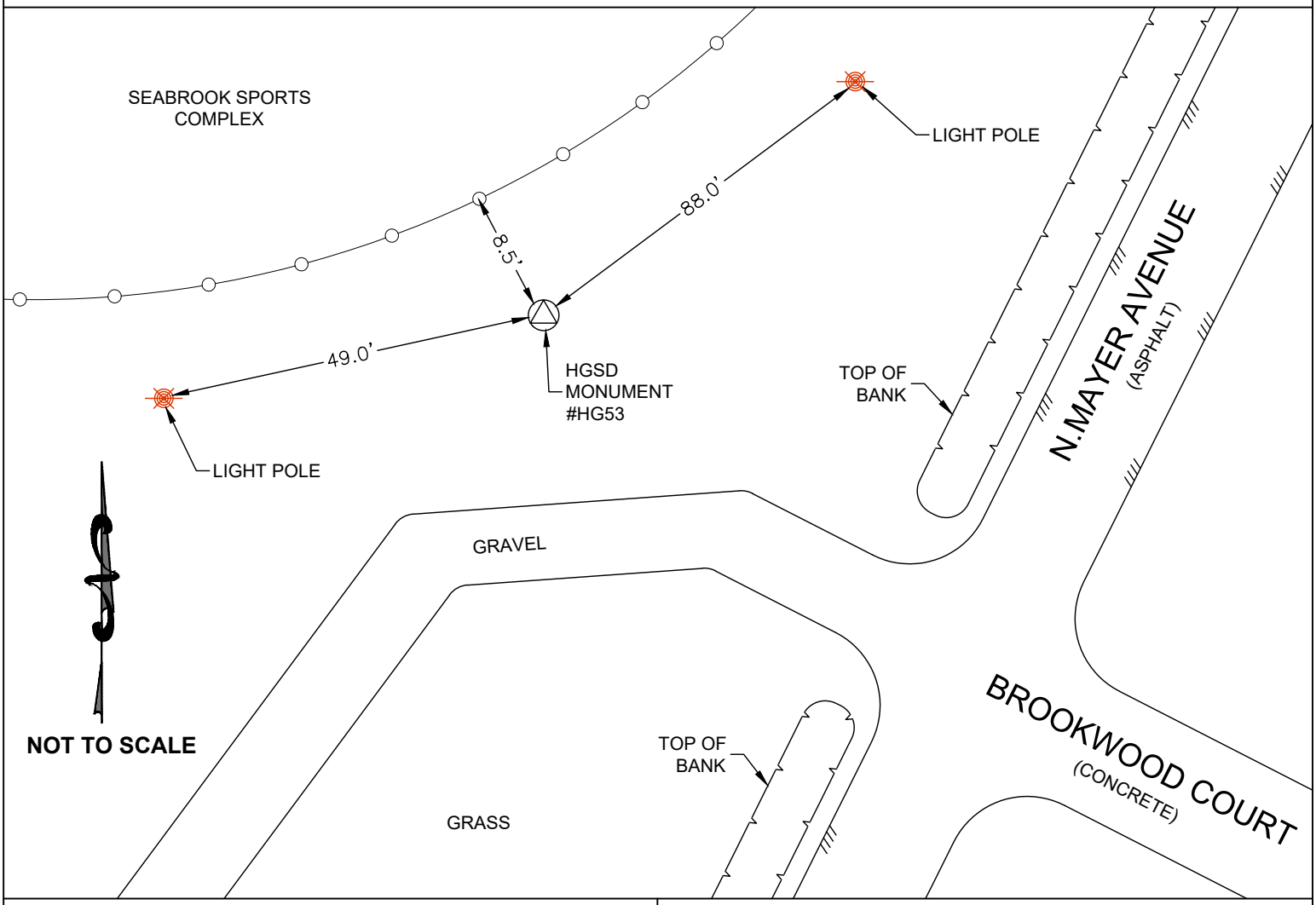


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 54 **4-Char ID/PID:** HG54/AW5596	**General Location:** Friendswood
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 54 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 656V	**Date Observed:** November 2, 2022
USGS Quad Map: Algoa (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 54 1986	**Monument Depth:** 9.8m
Northing: 13748467.96 (usft) **Easting:** 3176255.48 (usft) **Orthometric Height[1]:** 29.49 (usft) **Geoid Height:** -88.75 (usft)	**Latitude:** 29 29 55.23513(N) **Longitude:** 095 12 08.85493(W) **Ellipsoid Height:** -59.22 (usft) **Convergence Angle:** 01 51 37.67
Scale Factor: 0.99986731 **Elevation Scale Factor:** 1.00000283 **Combined Scale Factor:** 0.99987014	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FALCON DRIVE BLVD AND FM 528, GO SW ON FM 528 0.20 MILE TO MONUMENT ON THE LEFT BEFORE WHITAKER DR.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13748467.96 **Easting:** 3176255.48 **Orthometric Height:** 29.49

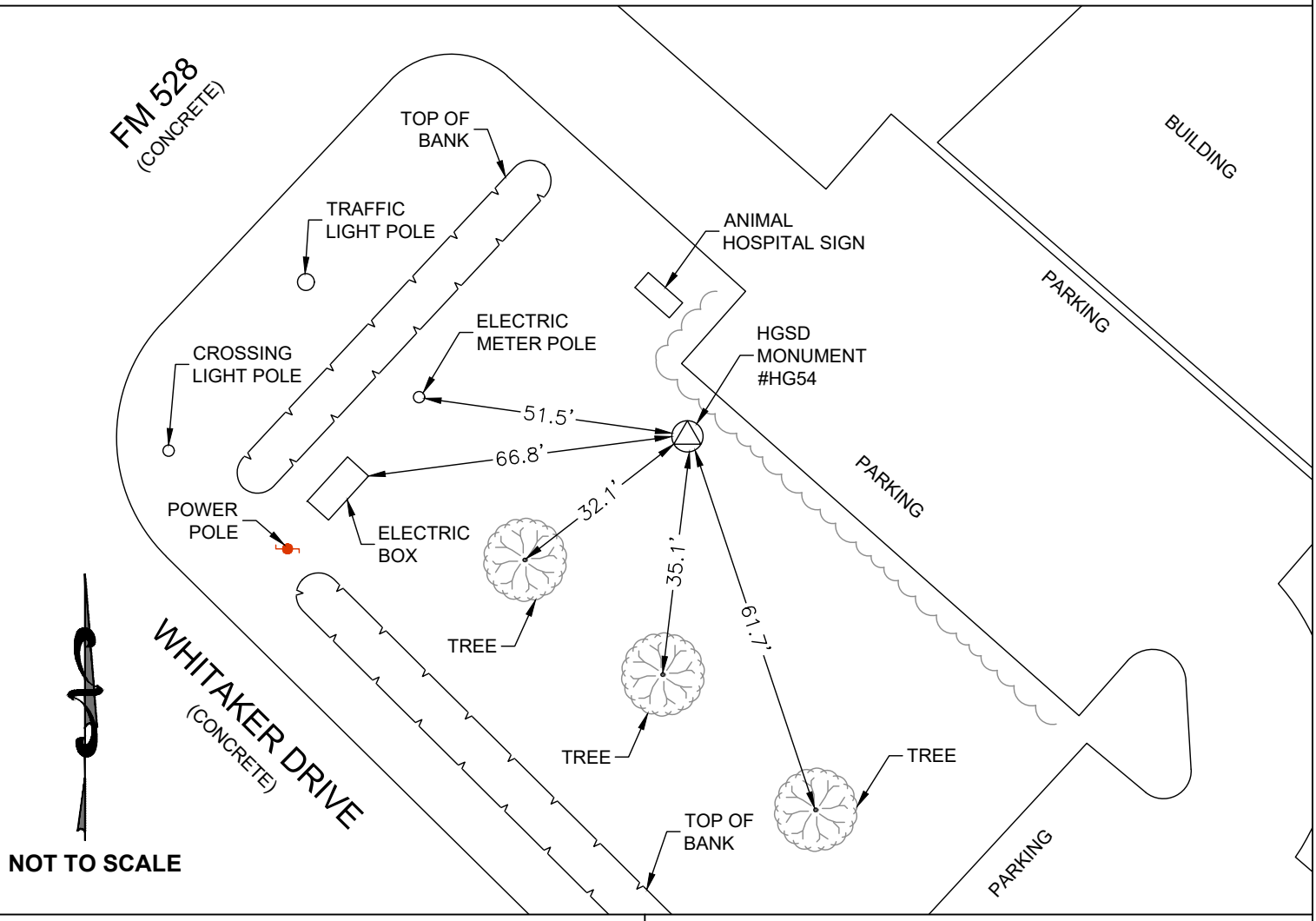


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 55 **4-Char ID/PID:** HG55/AW5666	**General Location:** San Leon

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 55 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 661M	**Date Observed:** November 7, 2022
USGS Quad Map: Bacliff (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 55 1986	**Monument Depth:** 15.9m
Northing: 13753303.26 (usft) **Easting:** 3254993.27 (usft) **Orthometric Height[1]:** 12.50 (usft) **Geoid Height:** -88.44 (usft)	**Latitude:** 29 30 16.94636(N) **Longitude:** 094 57 16.38177(W) **Ellipsoid Height:** -75.90 (usft) **Convergence Angle:** 01 58 54.90

Scale Factor: 0.99986762 **Elevation Scale Factor:** 1.00000363 **Combined Scale Factor:** 0.99987125

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF 26TH ST AND E BAY SHORE DR (646), GO NORTHWEST ALONG E BAY SHORE DR APPROXIMATELY 0.28 MILE TO PARK RD ON THE RIGHT AND FOLLOW IT 0.09 MILE TO THE MONUMENT ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13753303.26 **Easting:** 3254993.27 **Orthometric Height:** 12.50

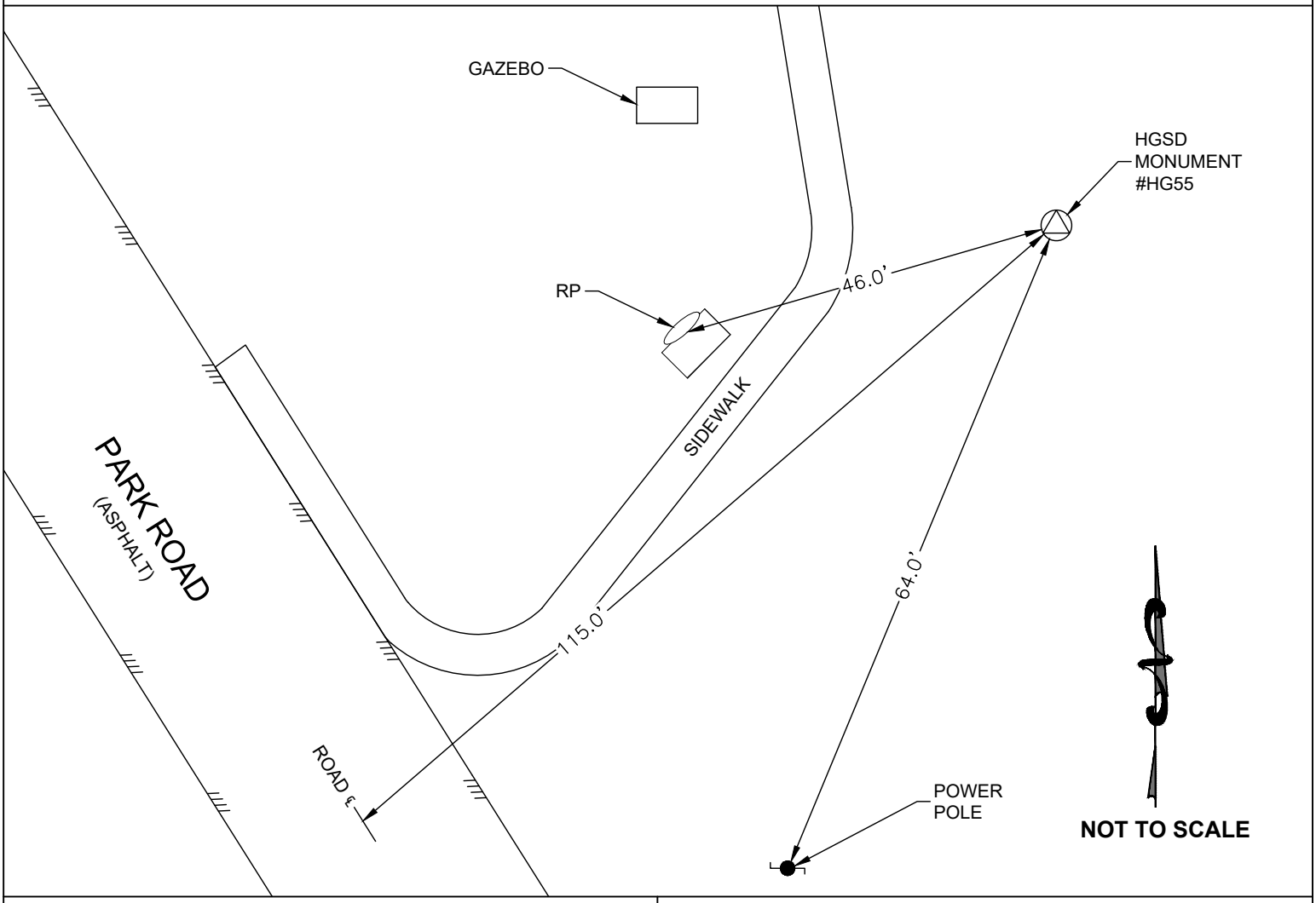


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 56 **4-Char ID/PID:** HG56/AW5547	**General Location:** Alvin
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 56 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.	
County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 696Z	**Date Observed:** November 3, 2022
USGS Quad Map: Algoa (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 56 1986	**Monument Depth:** 18.3m
Northing: 13716610.55 (usft) **Easting:** 3178278.02 (usft) **Orthometric Height[1]:** 34.45 (usft) **Geoid Height:** -88.32 (usft)	**Latitude:** 29 24 39.33949(N) **Longitude:** 095 11 57.69182(W) **Ellipsoid Height:** -53.84 (usft) **Convergence Angle:** 01 51 43.14
Scale Factor: 0.99986412 **Elevation Scale Factor:** 1.00000258 **Combined Scale Factor:** 0.9998667	

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF STATE HIGHWAY 6 AND STATE HIGHWAY 35 BYPASS IN ALVIN, GO SOUTHEAST ON STATE HIGHWAY 6 FOR 3.1 KM (1.9 MI) TO A DIRT ROAD AND THE MONUMENT ON THE LEFT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13716610.55 **Easting:** 3178278.02 **Orthometric Height:** 34.45

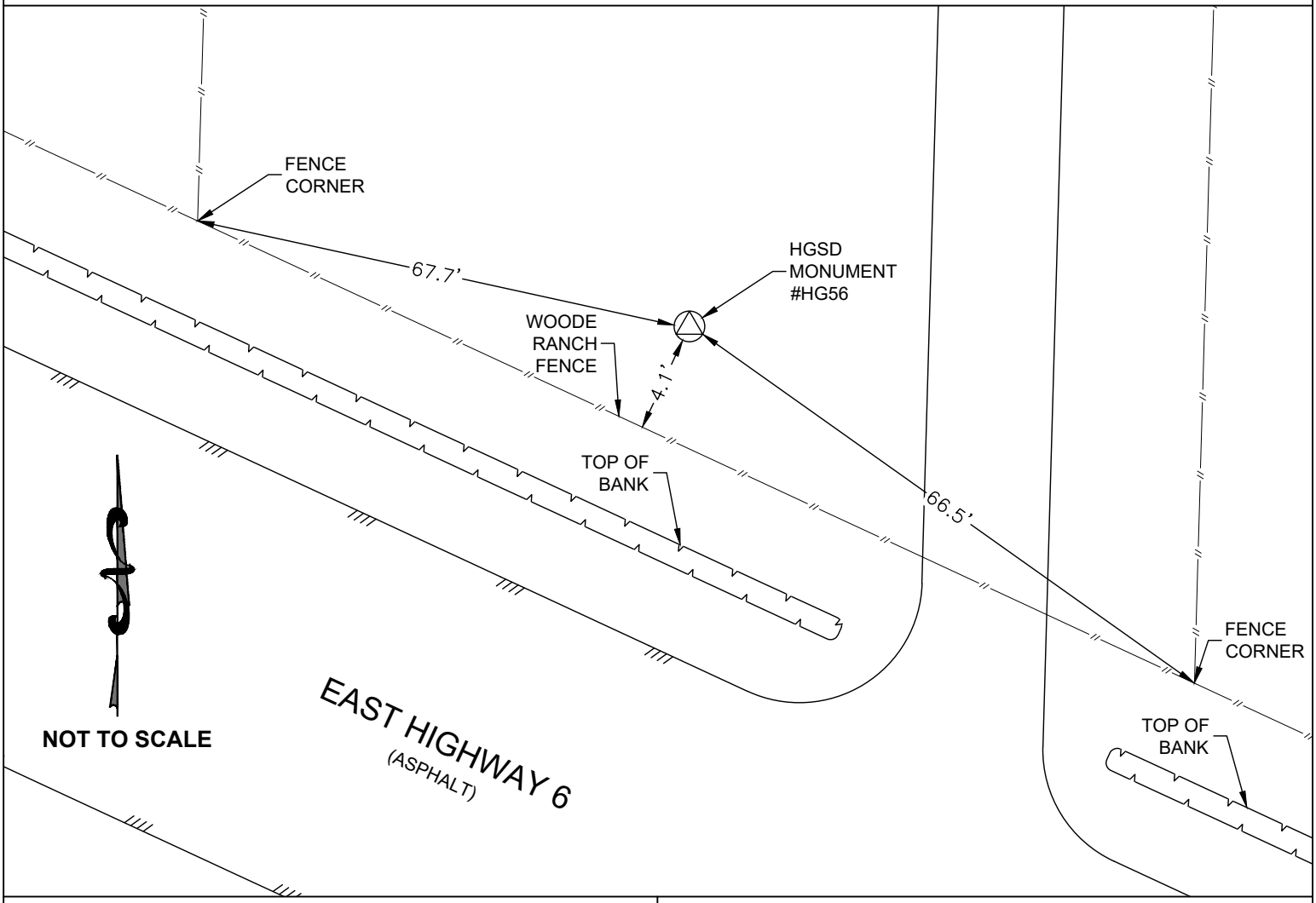


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 57 **4-Char ID/PID:** HG57/AW5499	**General Location:** Dickinson

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 57 1986---, THE ROD IS RECESSED 5 CM BELOW THE GROUND SURFACE.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 699D	**Date Observed:** November 7, 2022
USGS Quad Map: Dickinson (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 57 1986	**Monument Depth:** 10.7m
Northing: 13736624.92 (usft) **Easting:** 3223934.81 (usft) **Orthometric Height[1]:** 12.30 (usft) **Geoid Height:** -88.39 (usft)	**Latitude:** 29 27 42.41993(N) **Longitude:** 095 03 14.07393(W) **Ellipsoid Height:** -76.08 (usft) **Convergence Angle:** 01 55 59.66

Scale Factor: 0.99986569 **Elevation Scale Factor:** 1.00000364 **Combined Scale Factor:** 0.99986933

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM 517 AND TERMINI ST, TRAVEL NORTHEAST ALONG TERMINI ST APPROXIMATELY 0.10 MILE TO THE U.S POST OFFICE ON THE LEFT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13736624.92 **Easting:** 3223934.81 **Orthometric Height:** 12.30

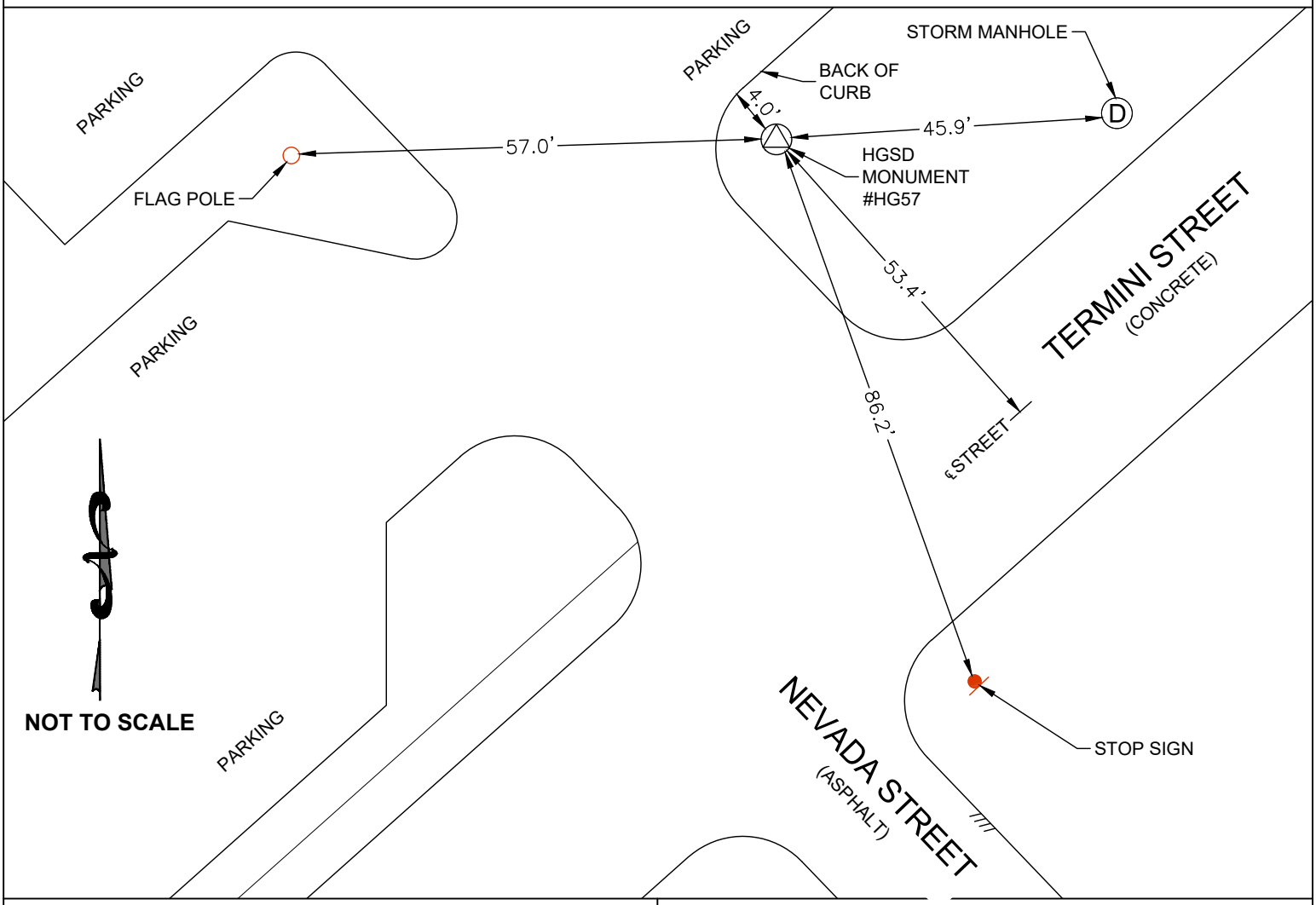


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 59 **4-Char ID/PID:** HG59/AW5706	**General Location:** Santa Fe

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 59 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 735J	**Date Observed:** November 2, 2022
USGS Quad Map: Hitchcock(2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 59 1986	**Monument Depth:** 16.8m
Northing: 13704117.11 (usft) **Easting:** 3213359.38 (usft) **Orthometric Height[1]:** 22.28 (usft) **Geoid Height:** -88.08 (usft)	**Latitude:** 29 22 24.26399(N) **Longitude:** 095 05 25.94278(W) **Ellipsoid Height:** -65.76 (usft) **Convergence Angle:** 01 54 55.06

Scale Factor: 0.9998666 **Elevation Scale Factor:** 1.00000315 **Combined Scale Factor:** 0.99986662

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 6 AND FM 646, TRAVEL 0.008 MILE NW AND THE MONUMENT IS 87 FEET NORTH OF THE CENTERLINE OF SH 6 AT THE SOUTHWEST CORNER OF TEXAS FIRST BANK.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13704117.11 **Easting:** 3213359.38 **Orthometric Height:** 22.28

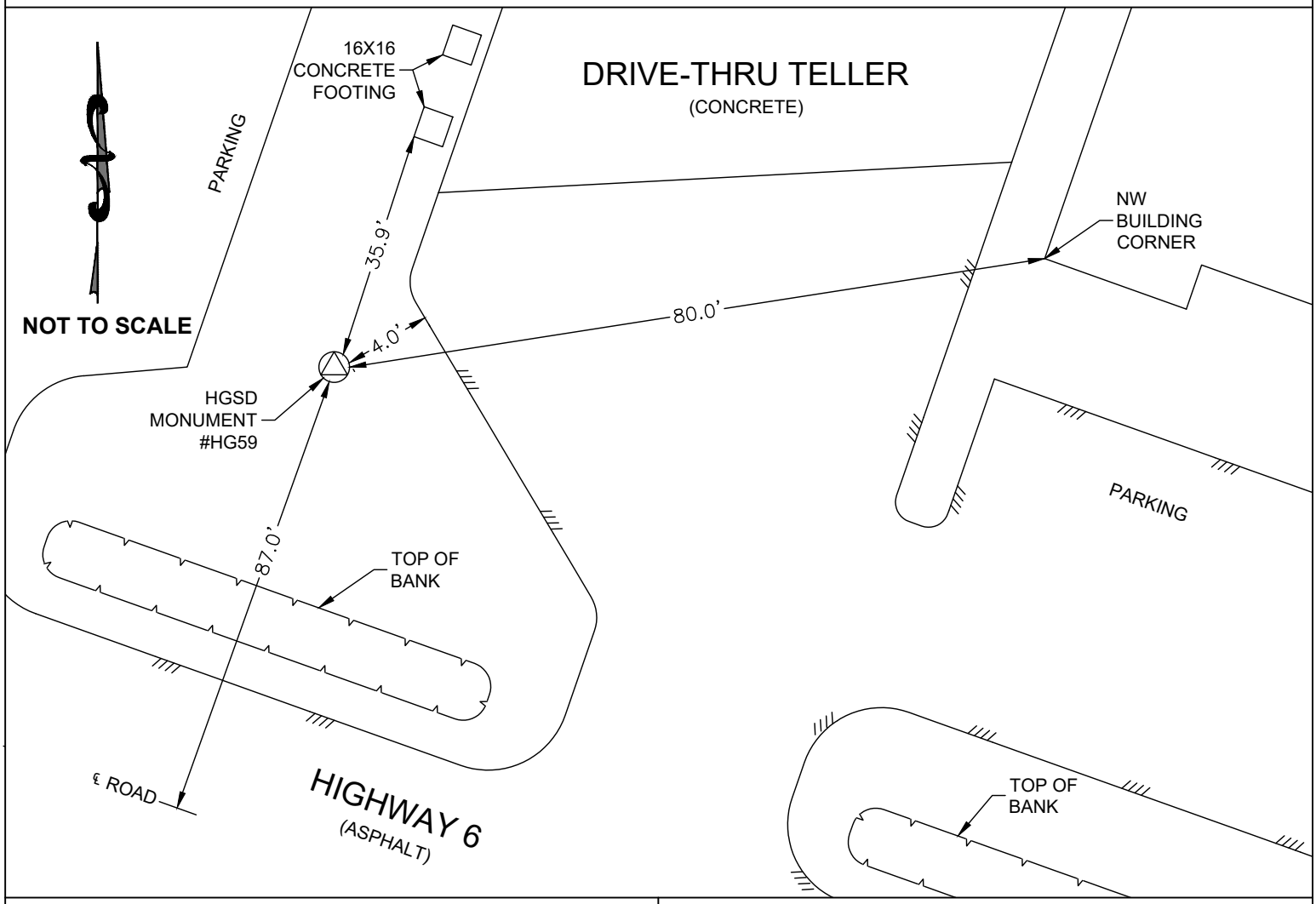


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 60 **4-Char ID/PID:** HG60/AW5578	**General Location:** La Marque
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 60 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 737V	**Date Observed:** November 2, 2022
USGS Quad Map: Virginia Point (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 60 1986	**Monument Depth:** 18.9m
Northing: 13700349.99 (usft) **Easting:** 3258210.67 (usft) **Orthometric Height[1]:** 5.45 (usft) **Geoid Height:** -87.94 (usft)	**Latitude:** 29 21 31.87987(N) **Longitude:** 094 57 00.73826(W) **Ellipsoid Height:** -82.36 (usft) **Convergence Angle:** 01 59 02.56
Scale Factor: 0.99986333 **Elevation Scale Factor:** 1.000003941 **Combined Scale Factor:** 0.99986727	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 3 AND FM 519, GO EAST TO 3RD AVE AND INTO THE THE WEST LAWN OF THE CHURCH BUILDING AT THE NORTHEAST CORNER OF PREVIOUS INTERSECTION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13700349.99 **Easting:** 3258210.67 **Orthometric Height:** 5.45

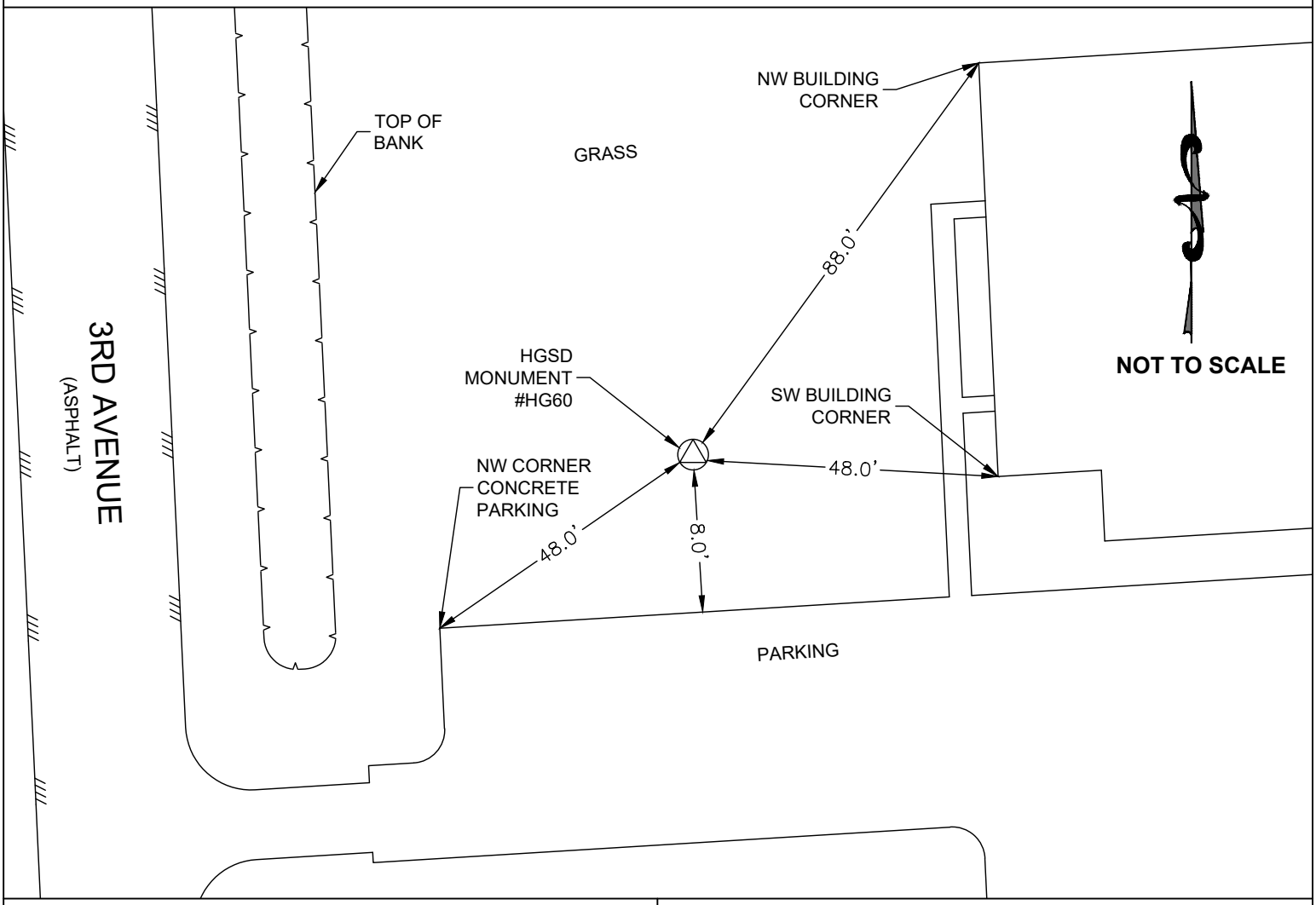


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 61 **4-Char ID/PID:** HG61/AW5710	**General Location:** Galveston

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 61 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 864U	**Date Observed:** November 2, 2022
USGS Quad Map: San Luis Pass (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 61 1986	**Monument Depth:** 15.8m
Northing: 13602086.93 (usft) **Easting:** 3210358.63 (usft) **Orthometric Height[1]:** 5.84 (usft) **Geoid Height:** -86.98 (usft)	**Latitude:** 29 05 35.60920(N) **Longitude:** 095 06 38.19160(W) **Ellipsoid Height:** -81.12 (usft) **Convergence Angle:** 01 54 19.66

Scale Factor: 0.99987208 **Elevation Scale Factor:** 1.00000388 **Combined Scale Factor:** 0.99987596

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF BAYWATER DR AND SAN LUIS PASS RD, TRAVEL 0.28 MILE SOUTHWEST ALONG THE FEEDER RD TO MAKE A U-TURN UNDER SAN LUIS PASS. THEN FOLLOW THE FEEDER RD GOING NORTHEAST 0.11 MILE TO THE MONUMENT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13602086.93 **Easting:** 3210358.63 **Orthometric Height:** 5.84

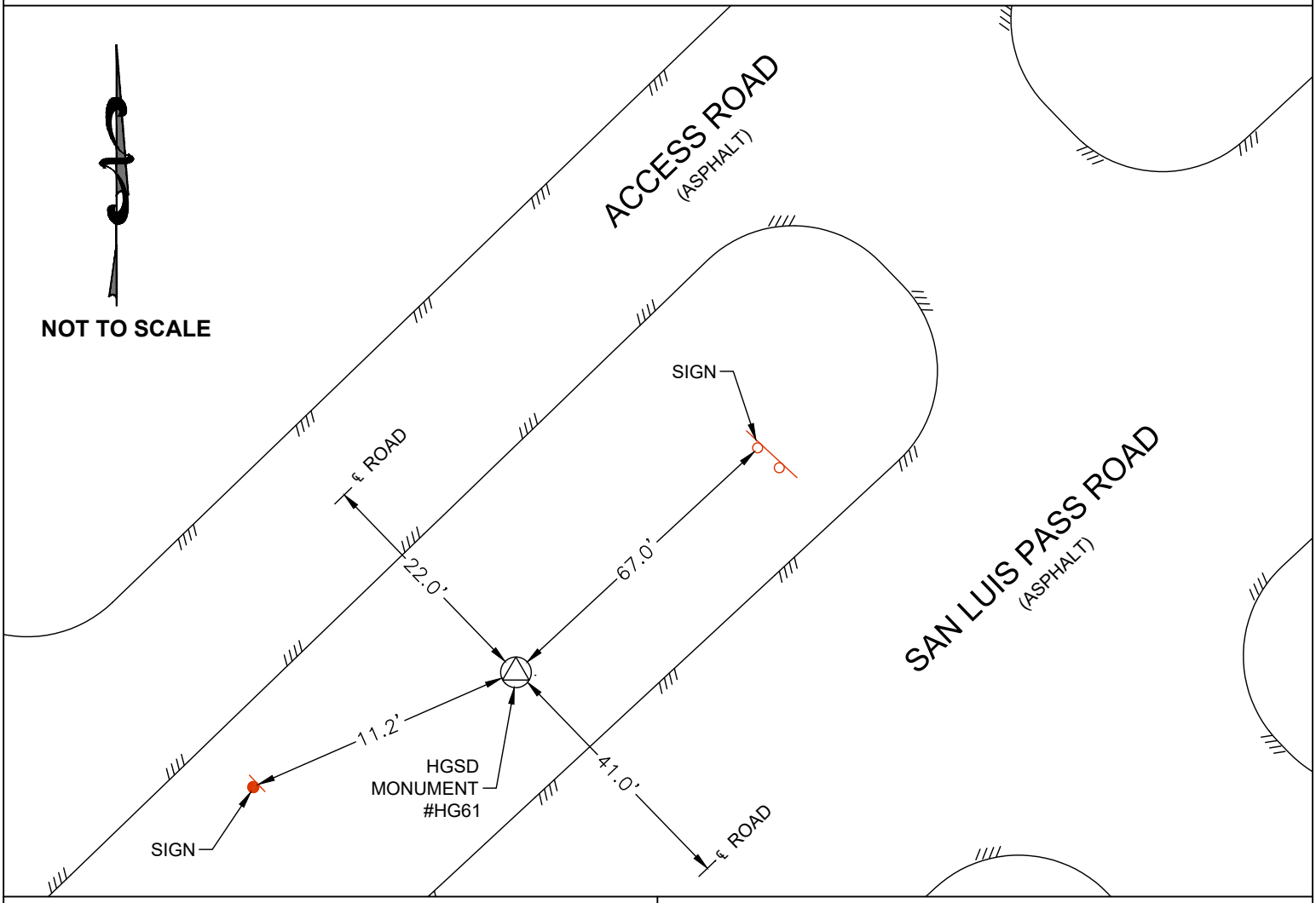


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 62 **4-Char ID/PID:** HG62/AW5708	**General Location:** Galveston
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 62 1986---, THE ROD IS RECESSED 6 CM BELOW THE GROUND SURFACE.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 806W	**Date Observed:** Novermber 2, 2022
USGS Quad Map: Lake Como (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 62 1986	**Monument Depth:** 14.3m
Northing: 13645727.08 (usft) **Easting:** 3264124.39 (usft) **Orthometric Height[1]:** 6.50 (usft) **Geoid Height:** -87.28 (usft)	**Latitude:** 29 12 29.35334(N) **Longitude:** 094 56 15.38138(W) **Ellipsoid Height:** -80.81 (usft) **Convergence Angle:** 01 59 24.79
Scale Factor: 0.99986567 **Elevation Scale Factor:** 1.000003871 **Combined Scale Factor:** 0.99986954	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF MARINA BLVD AND TERMINI SAN LUIS PASS, HEAD 0.45 MILE EAST ON TERMINI SAN LUIS PAST 12 MILE RD TO THE DRIVEWAY THAT'S RIGHT AFTER ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13645727.08 **Easting:** 3264124.39 **Orthometric Height:** 6.50

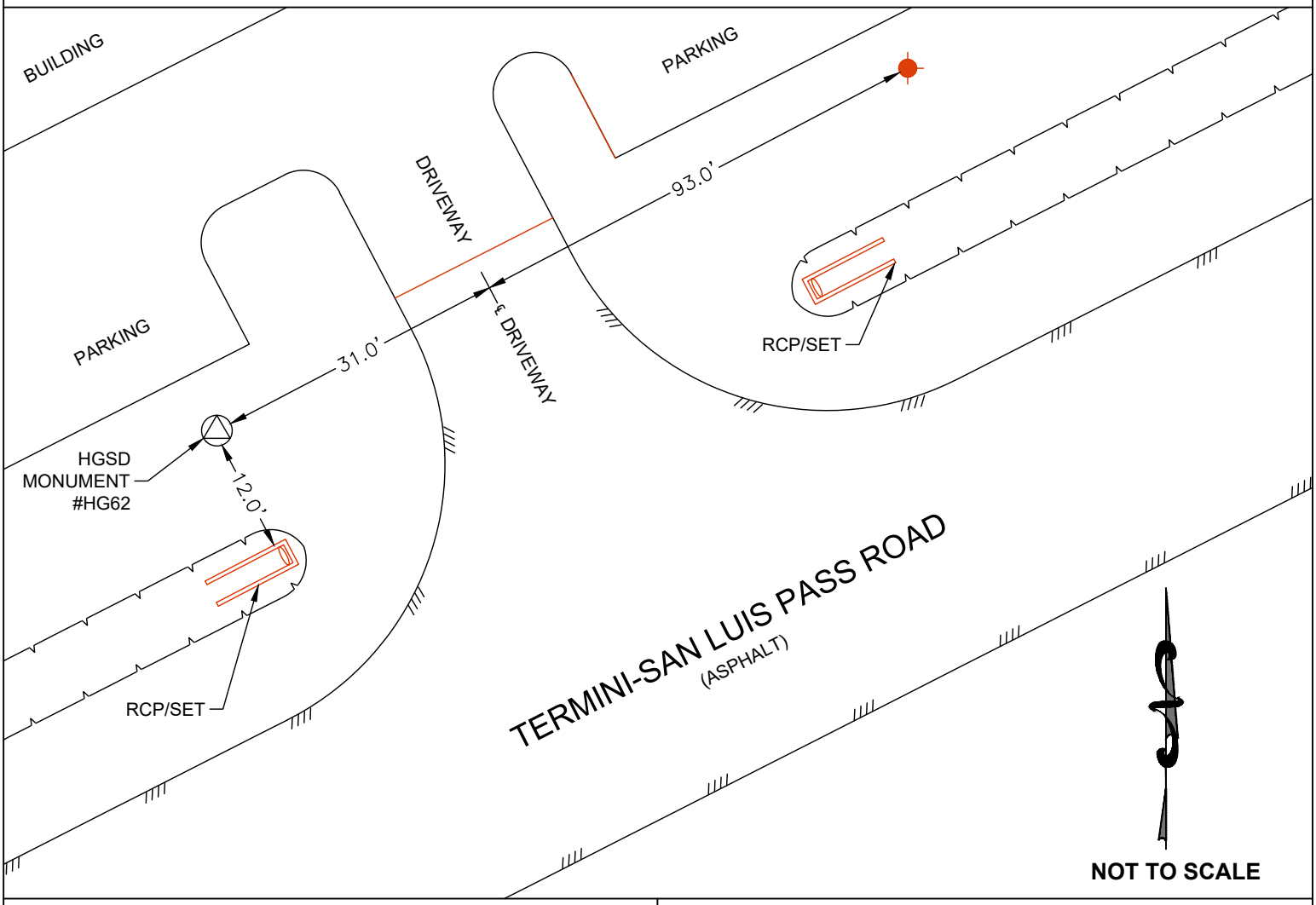


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 63 **4-Char ID/PID:** HG63/AW5707	**General Location:** Galveston

Benchmark Description:
THE MONUMENT IS ASTAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT WITH A LOGO CAP SURROUNDED BY CONCRETE SET FLUSH WITH THE GROUND.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 775D	**Date Observed:** November 2, 2022
USGS Quad Map: Galveston (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 63 1986	**Monument Depth:** 24.4m
Northing: 13693607.86 (usft) **Easting:** 3321588.05 (usft) **Orthometric Height[1]:** 2.33 (usft) **Geoid Height:** -87.39 (usft)	**Latitude:** 29 20 02.91291(N) **Longitude:** 094 45 07.68439(W) **Ellipsoid Height:** -85.01 (usft) **Convergence Angle:** 02 04 51.90

Scale Factor: 0.99986324 **Elevation Scale Factor:** 1.000004071 **Combined Scale Factor:** 0.99986731

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SEAWALL BLVD AND BODDECKER DR, GO 200 FEET EAST OF SEAWALL BLVD AND 20 FEET SOUTH OF THE SOUTH EDGE OF PAVEMENT OF BODDECKER DR.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13693607.86	Easting: 3321588.05	Orthometric Height: 2.33

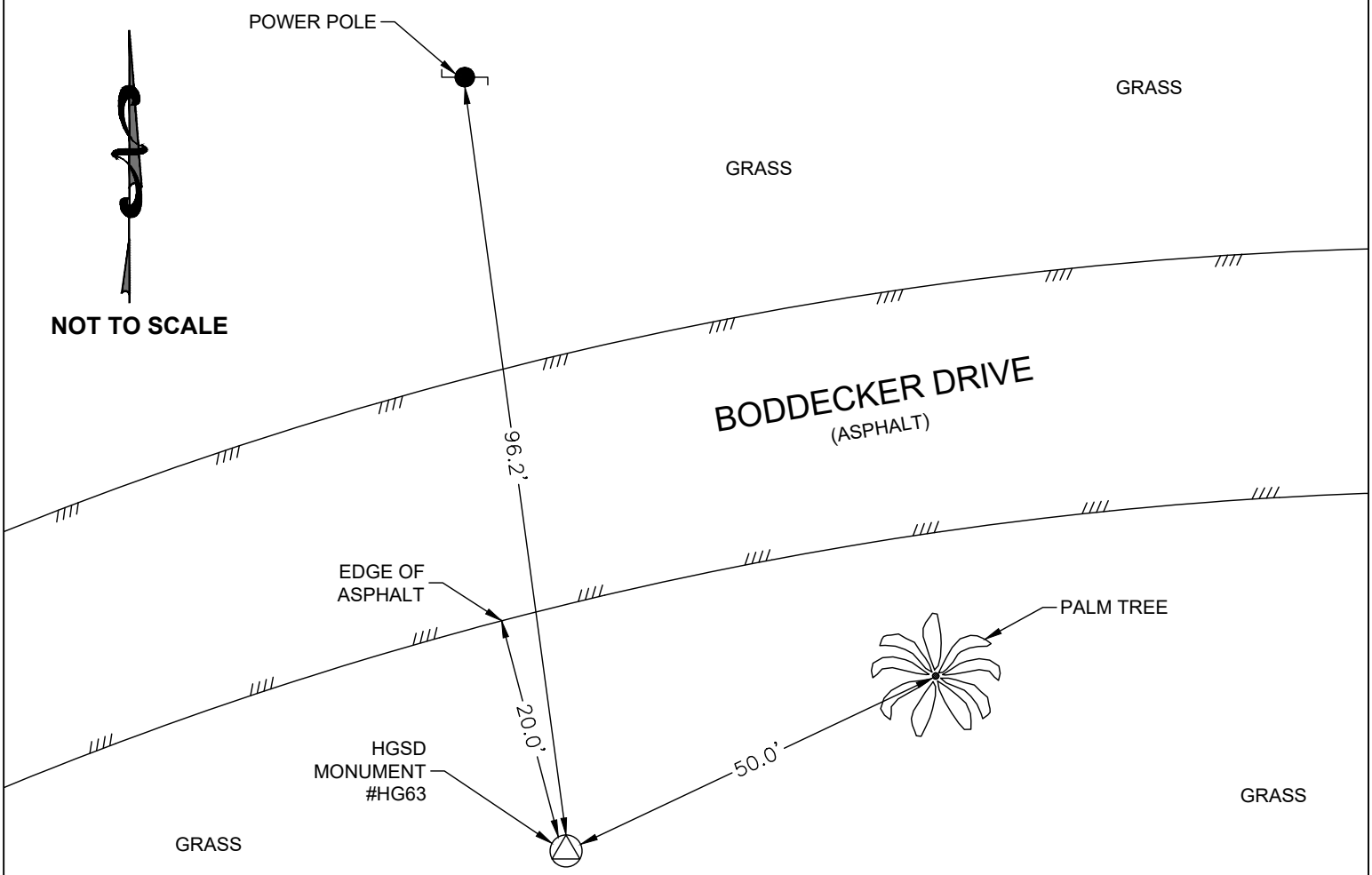


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 64 **4-Char ID/PID:** HG64/AW6988	**General Location:** Bolivar Peninsula
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 64 1986---, THE ROD IS RECESSED 10 CM BELOW THE GROUND SURFACE.	
County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 708D	**Date Observed:** November 8, 2022
USGS Quad Map: Caplen (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 64 1986	**Monument Depth:** 3.1m
Northing: 13744577.61 (usft) **Easting:** 3366638.76 (usft) **Orthometric Height[1]:** 4.92 (usft) **Geoid Height:** -87.88 (usft)	**Latitude:** 29 28 10.73295(N) **Longitude:** 094 36 17.36318(W) **Ellipsoid Height:** -82.95 (usft) **Convergence Angle:** 02 09 11.71
Scale Factor: 0.999866 **Elevation Scale Factor:** 1.000003971 **Combined Scale Factor:** 0.99986997	

To Reach Monument

TO REACH THE MONUMENT FROM THE POST OFFICE IN CRYSTAL BEACH, GO NORTHEAST ON STATE HIGHWAY 87 FOR 3.7 KM (2.3 MI) TO AN ENTRANCE DRIVE LEADING TO A SUB-STATION (A BROWN BUILDING). TURN RIGHT AND GO 0.1 KM (0.05 MI) TO THE MONUMENT IS ON THE RIGHT JUST BEFORE REACHING A CHAIN LINK FENCE SURROUNDING THE BUILDING.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13744577.61 **Easting:** 3366638.76 **Orthometric Height:** 4.92

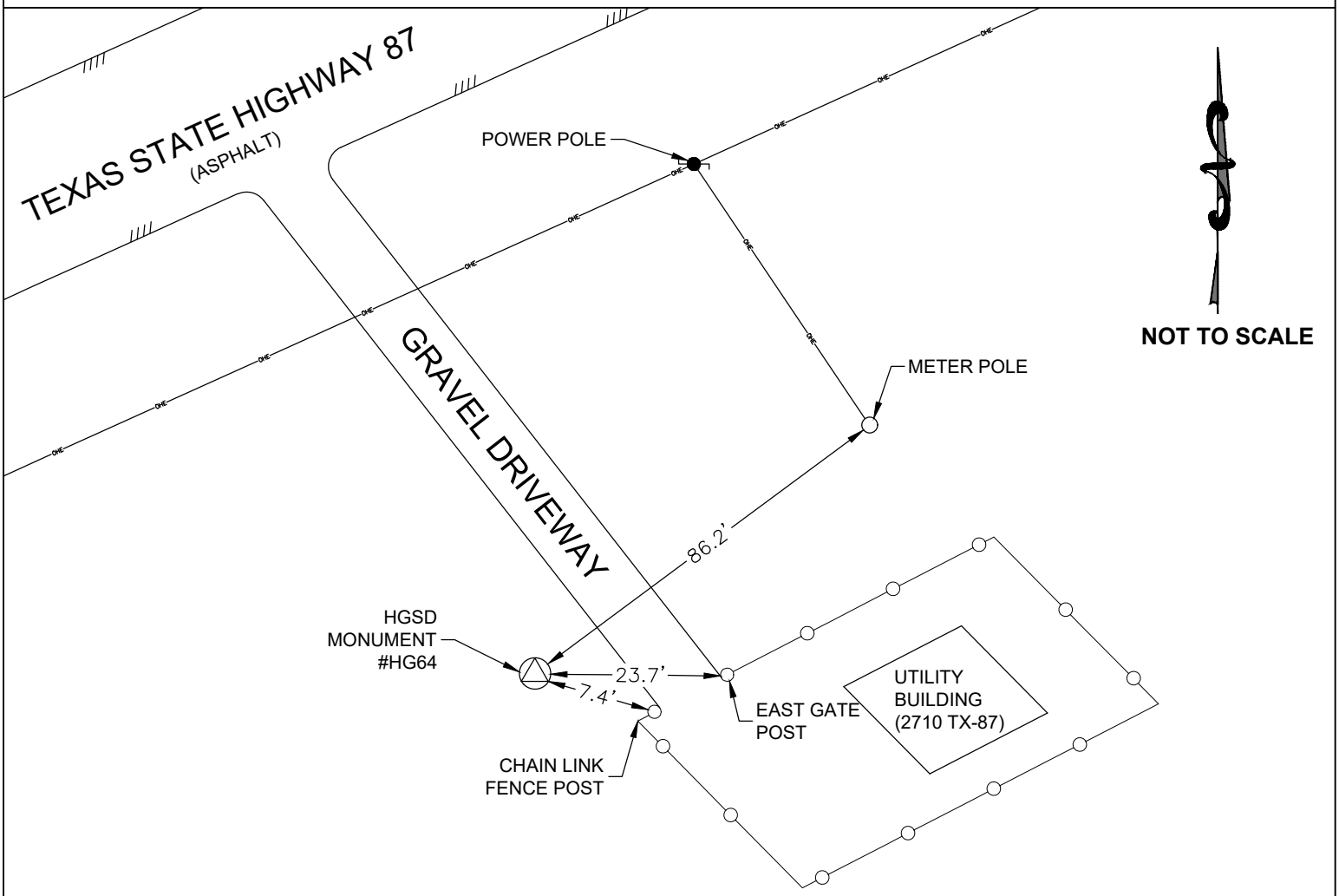


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 66 **4-Char ID/PID:** HG66/AW5411	**General Location:** Katy

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND. THE ROD IS RECESSED 2.7 FEET FROM THE TOP OF THE PVC PIPE.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 484S	**Date Observed:** October 25, 2022
USGS Quad Map: Richmond NE (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 66 1986	**Monument Depth:** 14.9m
Northing: 13827491.20 (usft) **Easting:** 2969312.89 (usft) **Orthometric Height[1]:** 135.76 (usft) **Geoid Height:** -90.08 (usft)	**Latitude:** 29 43 58.13414(N) **Longitude:** 095 50 45.96726(W) **Ellipsoid Height:** 45.70 (usft) **Convergence Angle:** 01 32 42.48

Scale Factor: 0.99988727 **Elevation Scale Factor:** 0.99999781 **Combined Scale Factor:** 0.99988508

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF CORBITT RD AND CINCO TRACE DR., HEAD SOUTH ON CINCO TRACE DR APPROXIMATELY 0.1 MILE TO 4019 FM 1463, KATY, TX 77494. THE MONUMENT BEING ON THE SOUTH SIDE OF THE DRIVEWAY, JUST INSIDE THE BACK OF CURB NEAR THE POWERLINE EASEMENT IN FRONT OF THE BUSINESS.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13827491.20 **Easting:** 2969312.89 **Orthometric Height:** 135.76

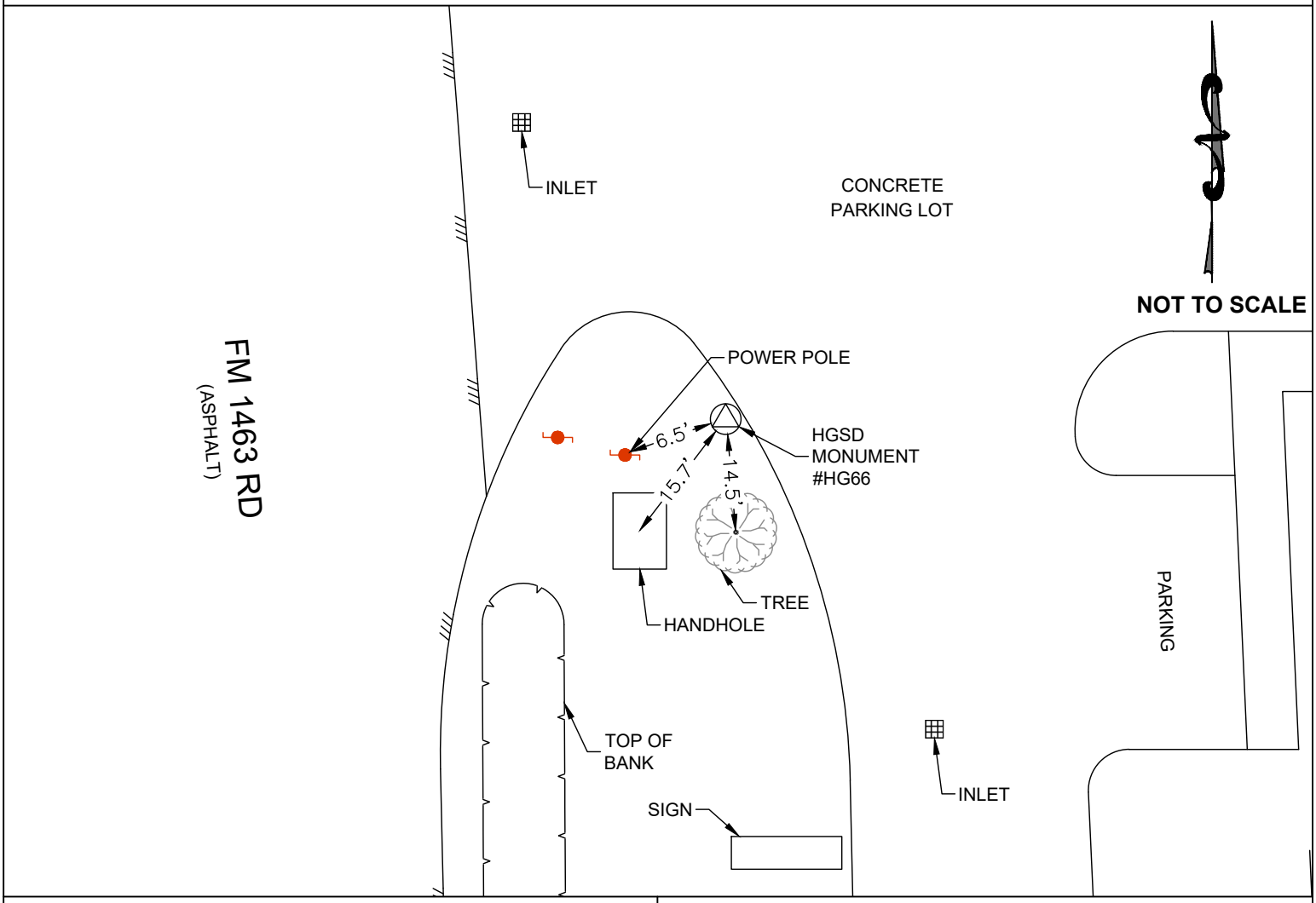


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 68 **4-Char ID/PID:** HG68/AW5544	**General Location:** Beasley

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF ITWITH NGS LOGO CAP SURROUNNDED WITH CONCRETE. THE MARK IS RECESSED 6 CM BELOW THE TOP OF LOGO CAP.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 642L	**Date Observed:** November 16, 2022
USGS Quad Map: Kendleton (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 68 1986	**Monument Depth:** 10.6m
Northing: 13741829.63 (usft) **Easting:** 2949638.45 (usft) **Orthometric Height[1]:** 105.91 (usft) **Geoid Height:** -89.63 (usft)	**Latitude:** 29 29 55.54770(N) **Longitude:** 095 54 54.69270(W) **Ellipsoid Height:** 16.29 (usft) **Convergence Angle:** 01 30 40.63

Scale Factor: 0.99986732 **Elevation Scale Factor:** 0.99999922 **Combined Scale Factor:** 0.99986654

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF HAMLINK RD AND LOOP 540, TRAVEL SOUTHWEST 0.54 MILE TO SOUTH 1ST ST. THE MONUMENT IS IN THE SOUTHEAST CORNER OF THAT INTERSECTION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13741829.63 **Easting:** 2949638.45 **Orthometric Height:** 105.91

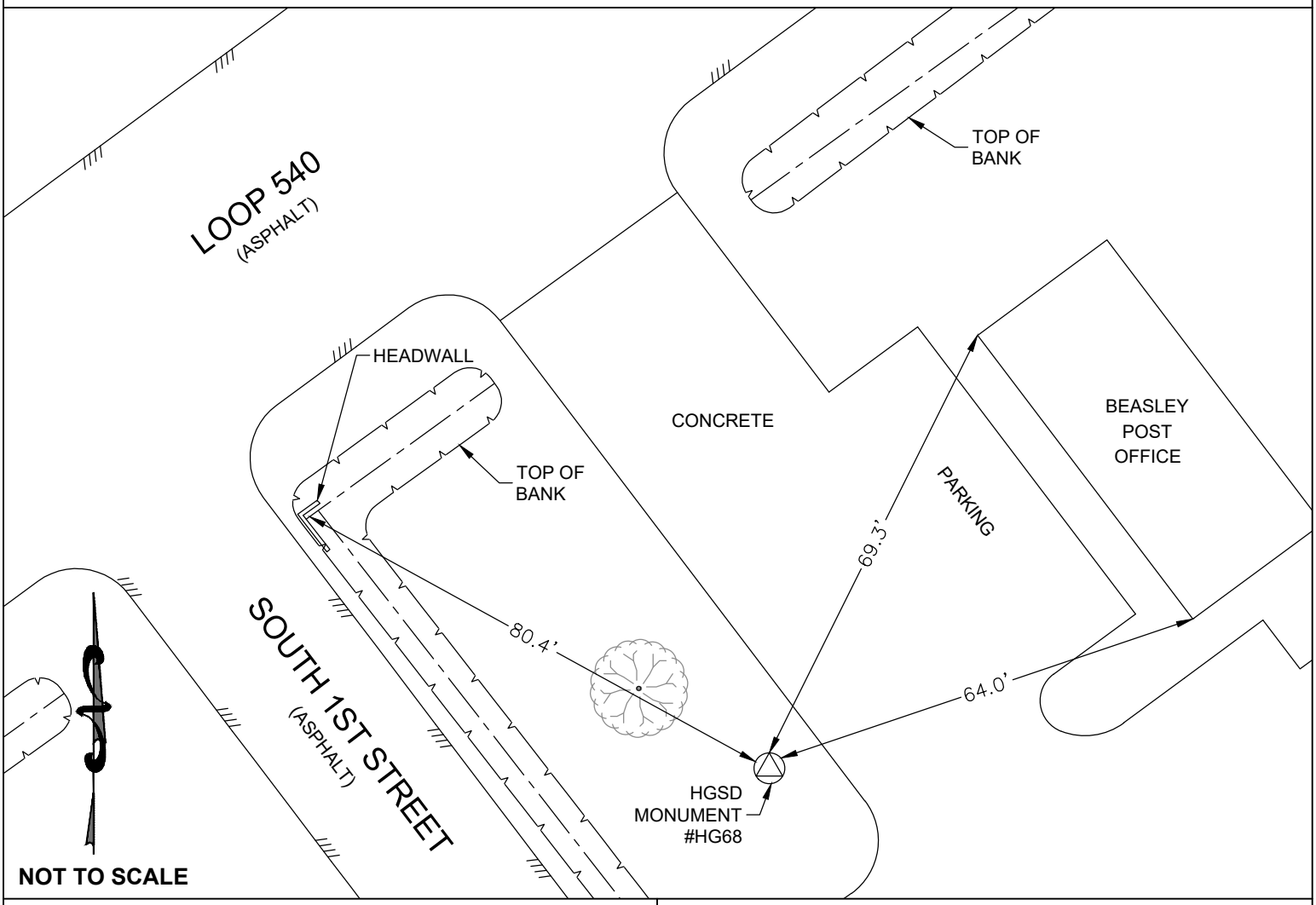


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 69 **4-Char ID/PID:** HG69/AW5471	**General Location:** Rosenberg

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 69 1987---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 604L	**Date Observed:** October 31, 2022
USGS Quad Map: Richmond (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 69 1987	**Monument Depth:** 12.5m
Northing: 13766086.23 (usft) **Easting:** 2981388.60 (usft) **Orthometric Height[1]:** 100.52 (usft) **Geoid Height:** -89.69 (usft)	**Latitude:** 29 33 47.18860(N) **Longitude:** 095 48 48.01500(W) **Ellipsoid Height:** 10.92 (usft) **Convergence Angle:** 01 33 40.27

Scale Factor: 0.99987114 **Elevation Scale Factor:** 0.99999948 **Combined Scale Factor:** 0.99987062

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF WEST ST AND AVE D, TRAVEL ALONG AVE D APPROXIMATELY 0.06 MILE TO THE EAST ENTERANCE OF THE ROSENBERG CEMENTARY ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13766086.23 **Easting:** 2981388.60 **Orthometric Height:** 100.52

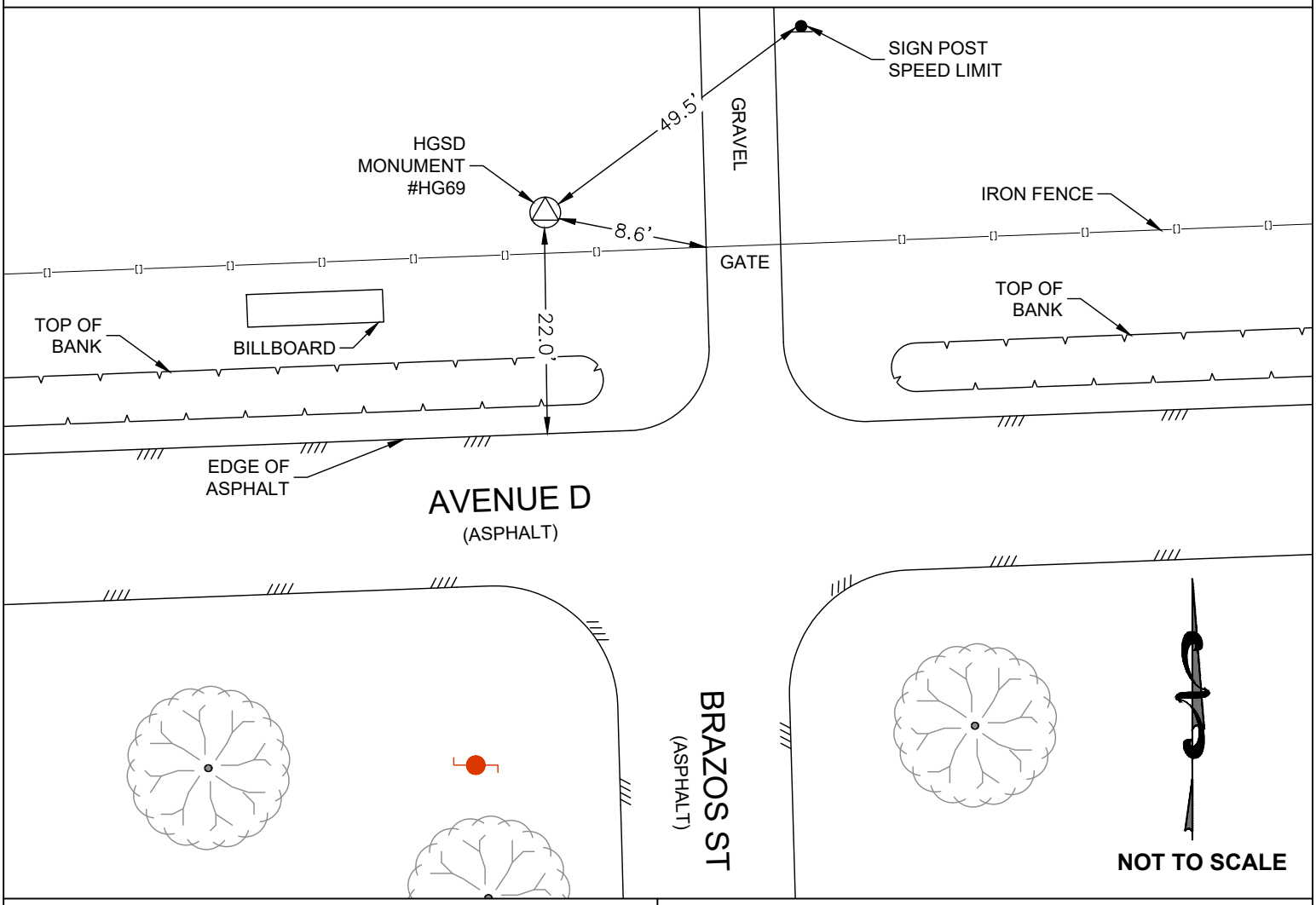


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 71 **4-Char ID/PID:** HG71/AW5478	**General Location:** Needville

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 71 1987---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 684W	**Date Observed:** November 9, 2022
USGS Quad Map: Needville (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 71 1987	**Monument Depth:** 11.9m
Northing: 13704698.97 (usft) **Easting:** 2977147.41 (usft) **Orthometric Height[1]:** 88.22 (usft) **Geoid Height:** -89.27 (usft)	**Latitude:** 29 23 40.77775(N) **Longitude:** 095 49 54.85687(W) **Ellipsoid Height:** -1.08 (usft) **Convergence Angle:** 01 33 07.52

Scale Factor: 0.99986379 **Elevation Scale Factor:** 1.00000005 **Combined Scale Factor:** 0.99986384

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF STATE HIGHWAY 36 AND FM ROAD 360 IN NEEDVILLE, GO SOUTHEAST ON STATE HIGHWAY 36 FOR 0.1 KM (0.05 MI) TO THE AMERICAN LEGION POST ON THE LEFT AND THE MONUMENT IN THE GRASS BETWEEN HIGHWAY AND PARKING LOT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13704698.97 **Easting:** 2977147.41 **Orthometric Height:** 88.22

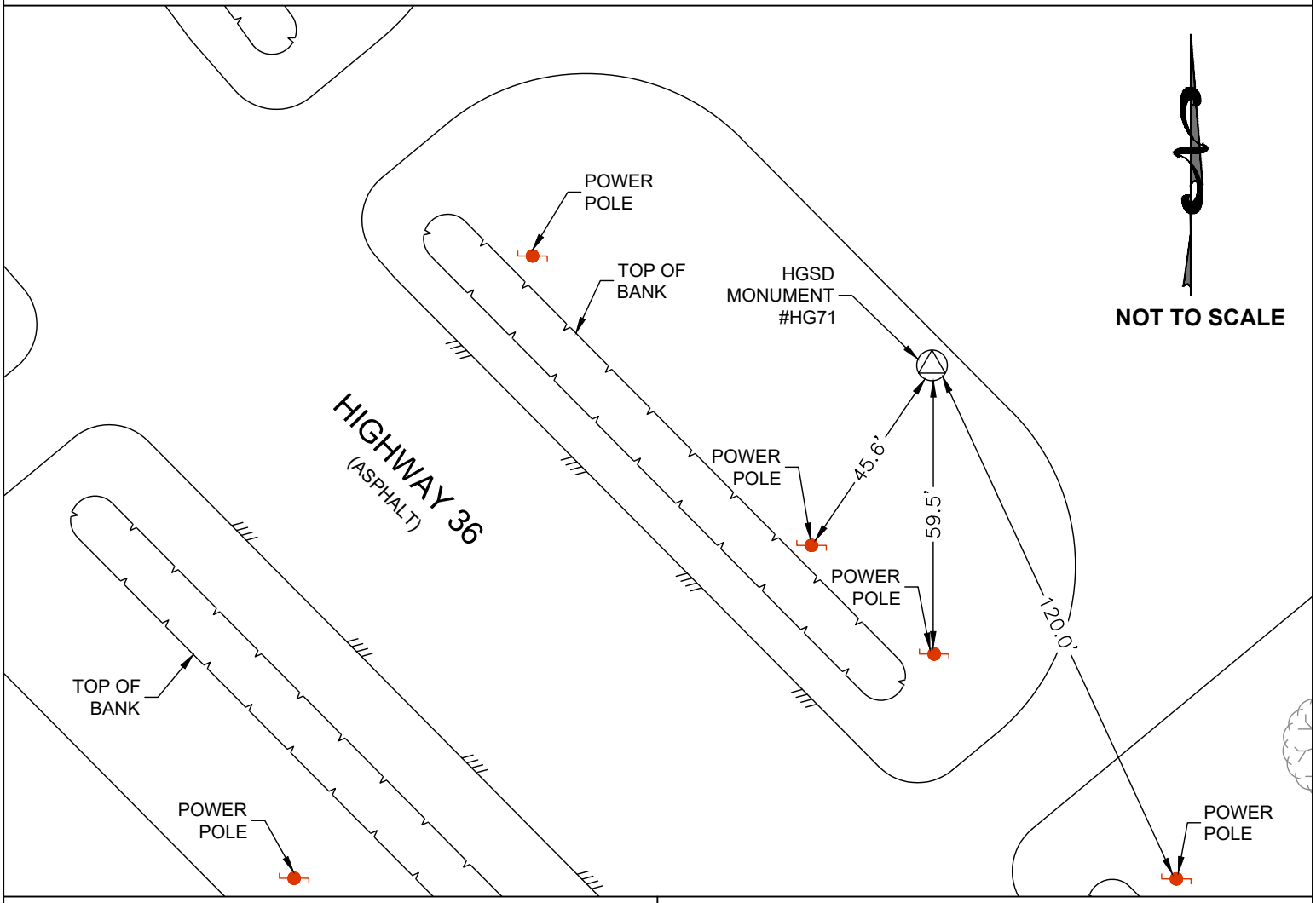


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 72 **4-Char ID/PID:** HG72/AW5477	**General Location:** Thompsons
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 72 1987---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 648S	**Date Observed:** October 27, 2022
USGS Quad Map: Smithers Lake (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 72 1987	**Monument Depth:** 20.7m
Northing: 13734550.43 (usft) **Easting:** 3039590.65 (usft) **Orthometric Height[1]:** 69.59 (usft) **Geoid Height:** -89.11 (usft)	**Latitude:** 29 28 18.94451(N) **Longitude:** 095 37 59.45227(W) **Ellipsoid Height:** -19.63 (usft) **Convergence Angle:** 01 38 58.01
Scale Factor: 0.99986609 **Elevation Scale Factor:** 1.00000094 **Combined Scale Factor:** 0.99986703	

To Reach Monument

TO REACH THE MONUMENT GO 3.6 MILES SOUTHEAST ON SMITHERS LAKE ROAD FROM ITS INTERSECTION WITH FM ROAD 762 TO GATE 6 OF THE CNP POWER PLANT. THE MONUMENT IS NORTHWEST OF SMITHERS LAKE ROAD, SOUTHWEST OF THE GATE 6 DRIVEWAY AND SOUTHEAST OF THE RAILROAD TRACKS.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13734550.43 **Easting:** 3039590.65 **Orthometric Height:** 69.59

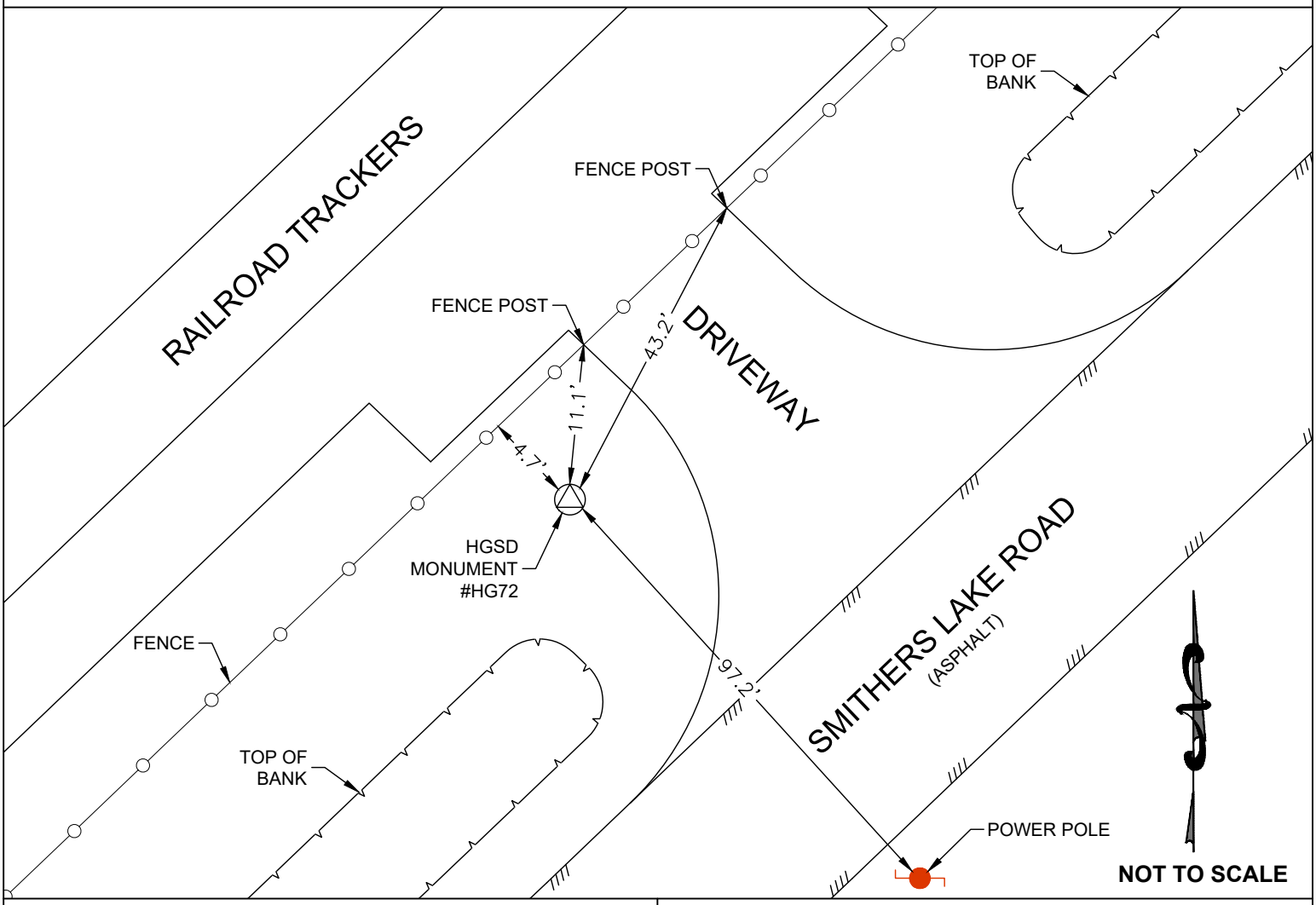


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 73 **4-Char ID/PID:** HG73/AW5464	**General Location:** Missouri City
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH NGS LOGO CAP SURROUNDED WITH CONCRETE. THE MONUMENT IS RECESSED 5 CM BELOW THE TOP OF THE LOGO CAP.	
County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 650G	**Date Observed:** October 26, 2022
USGS Quad Map: Missouri City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 73 1987	**Monument Depth:** 16.2m
Northing: 13748862.85 (usft) **Easting:** 3078378.96 (usft) **Orthometric Height[1]:** 61.19 (usft) **Geoid Height:** -89.07 (usft)	**Latitude:** 29 30 29.32985(N) **Longitude:** 095 30 35.94479(W) **Ellipsoid Height:** -27.86 (usft) **Convergence Angle:** 01 42 35.29

Scale Factor: 0.9998678 **Elevation Scale Factor:** 1.00000133 **Combined Scale Factor:** 0.99986913

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF MCKEEVER RD AND KNIGHT RD, TRAVEL ALONG KNIGHT RD APPROXIMATELY 0.08 MILE AND THE MONUMENT IS ON THE SE CORNER OF KNIGHT ROAD AND MICHAEL WAYNE ROAD.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13748862.85 **Easting:** 3078378.96 **Orthometric Height:** 61.19

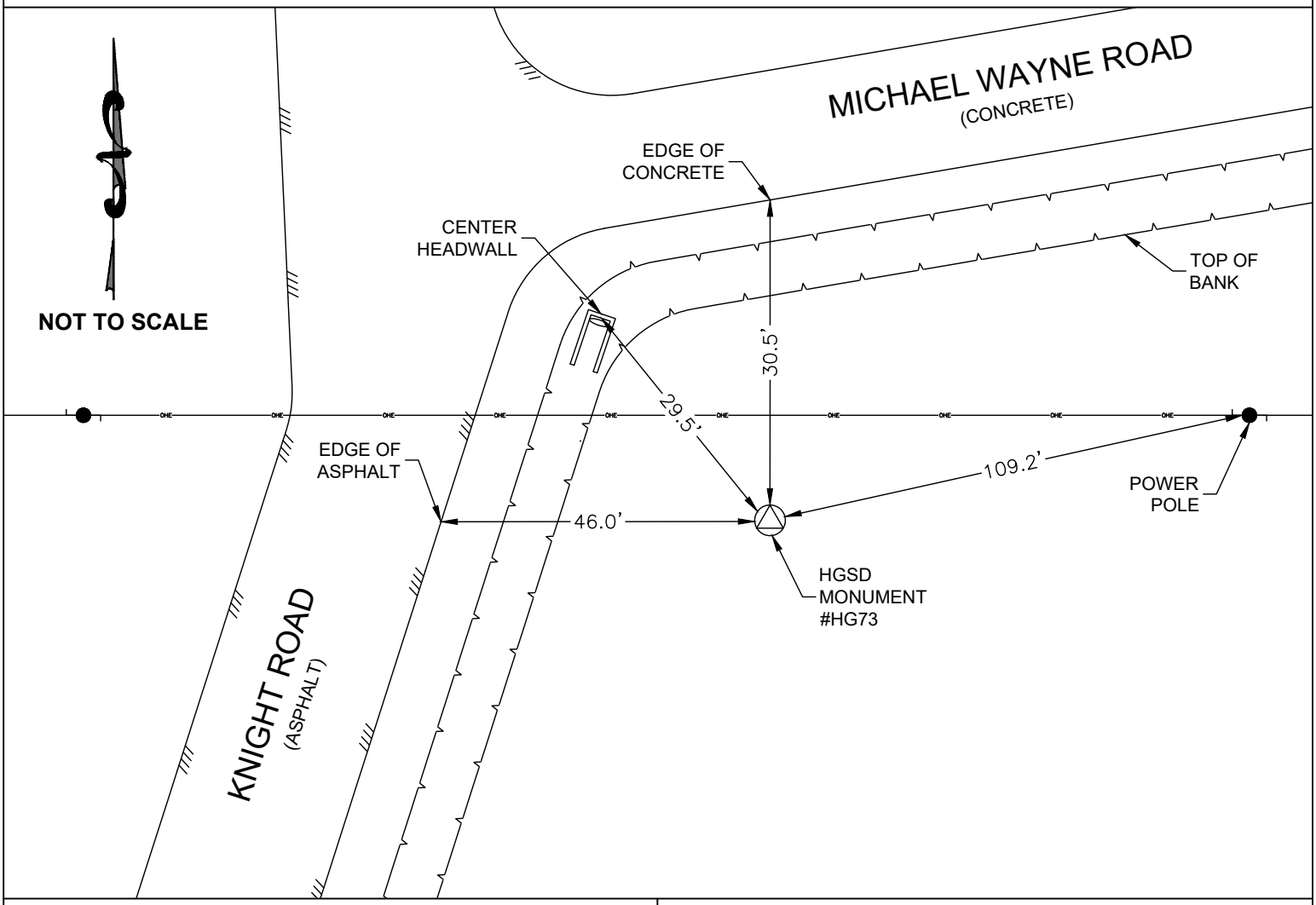


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 74 **4-Char ID/PID:** HG74/AW5686	**General Location:** Manvel

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 74 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 652Q	**Date Observed:** October 25, 2022
USGS Quad Map: Juliff (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 74 1986	**Monument Depth:** 28.0m
Northing: 13743173.63 (usft) **Easting:** 3108578.20 (usft) **Orthometric Height[1]:** 55.68 (usft) **Geoid Height:** -88.93 (usft)	**Latitude:** 29 29 23.98701(N) **Longitude:** 095 24 56.26776(W) **Ellipsoid Height:** -33.24 (usft) **Convergence Angle:** 01 45 21.70

Scale Factor: 0.99986689 **Elevation Scale Factor:** 1.00000159 **Combined Scale Factor:** 0.99986848

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 6 AND CR 48, GO 0.18 MILE NORTH TO SACRED WAY BLVD ON THE LEFT. FOLLOW SACRED WAY BLVD TO THE FIRST DRIVEWAY ON THE LIGHT AND THE MONUMENT WILL BE ON THE SE CORNER OF THE CATHOLIC CHURCH.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13743173.63 **Easting:** 3108578.20 **Orthometric Height:** 55.68

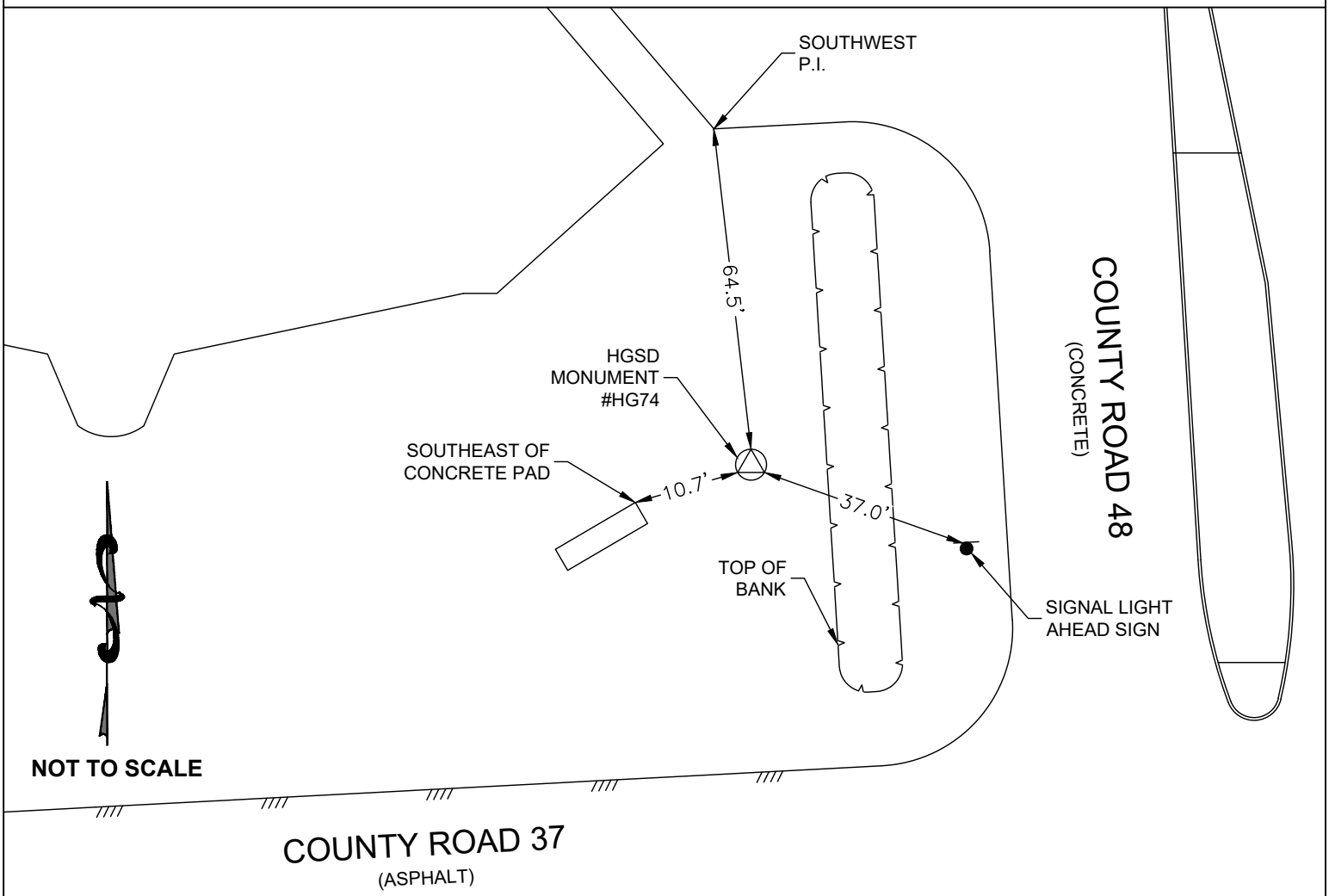


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 75 **4-Char ID/PID:** HG75/AW5683	**General Location:** Alvin
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 75 1987---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 694G	**Date Observed:** November 7, 2022
USGS Quad Map: Manvel (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 75 1987	**Monument Depth:** 13.4m
Northing: 13729463.22 (usft) **Easting:** 3140584.46 (usft) **Orthometric Height[1]:** 48.06 (usft) **Geoid Height:** -88.65 (usft)	**Latitude:** 29 26 58.46498(N) **Longitude:** 095 18 59.13400(W) **Ellipsoid Height:** -40.54 (usft) **Convergence Angle:** 01 48 16.67

Scale Factor: 0.99986524 **Elevation Scale Factor:** 1.00000194 **Combined Scale Factor:** 0.99986718

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 6 AND PEARLAND SITE RD (CR 99) GO SW 0.21 MILE TO ALVIN-MANVEL RD (CR 190) THENCE S.E. 0.16 MILE TO DRIVEWAY ON THE RIGHT. THE MONUMENT IS IN THE SE CORNER OF THE INTERSECTION OF CR 190 AND THE DRIVEWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13729463.22 **Easting:** 3140584.46 **Orthometric Height:** 48.06

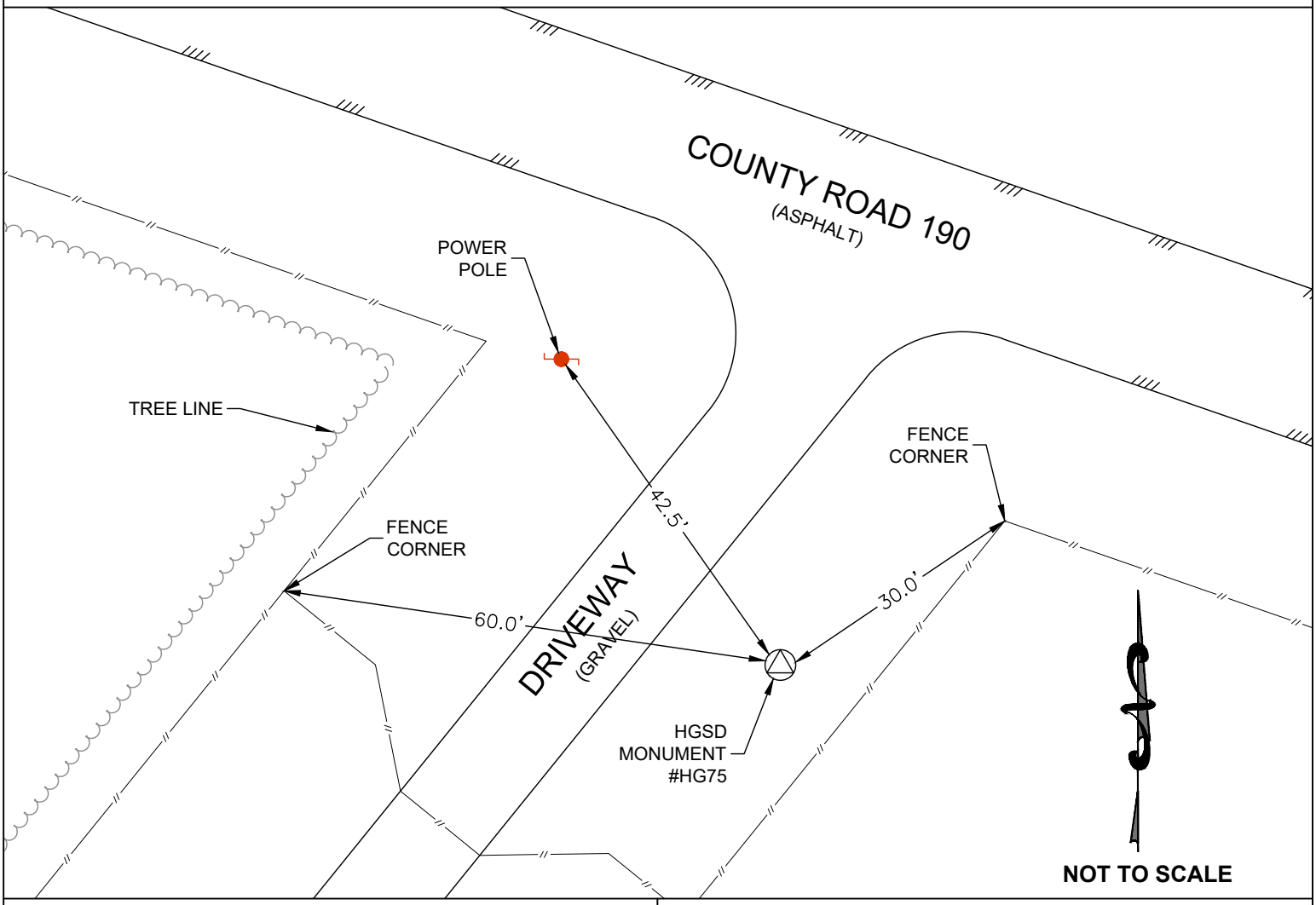


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 76 **4-Char ID/PID:** HG76/AW5552	**General Location:** Pearland
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 76 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 615T	**Date Observed:** Novermber 3, 2022
USGS Quad Map: Pearland (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 76 1986	**Monument Depth:** 11.9m
Northing: 13765213.10 (usft) **Easting:** 3150843.76 (usft) **Orthometric Height[1]:** 45.57 (usft) **Geoid Height:** -89.03 (usft)	**Latitude:** 29 32 49.02043(N) **Longitude:** 095 16 50.28004(W) **Ellipsoid Height:** -43.44 (usft) **Convergence Angle:** 01 49 19.79
Scale Factor: 0.99987007 **Elevation Scale Factor:** 1.00000208 **Combined Scale Factor:** 0.99987215	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 35 AND MAGNOLIA PARKWAY GO WEST 0.20 MILE TO DRIVEWAY ON THE RIGHT. THE MONUMENT IS IN THE NW CORNER OF MAGNOLIA PARKWAY AND THE DRIVEWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13765213.10 **Easting:** 3150843.76 **Orthometric Height:** 45.57

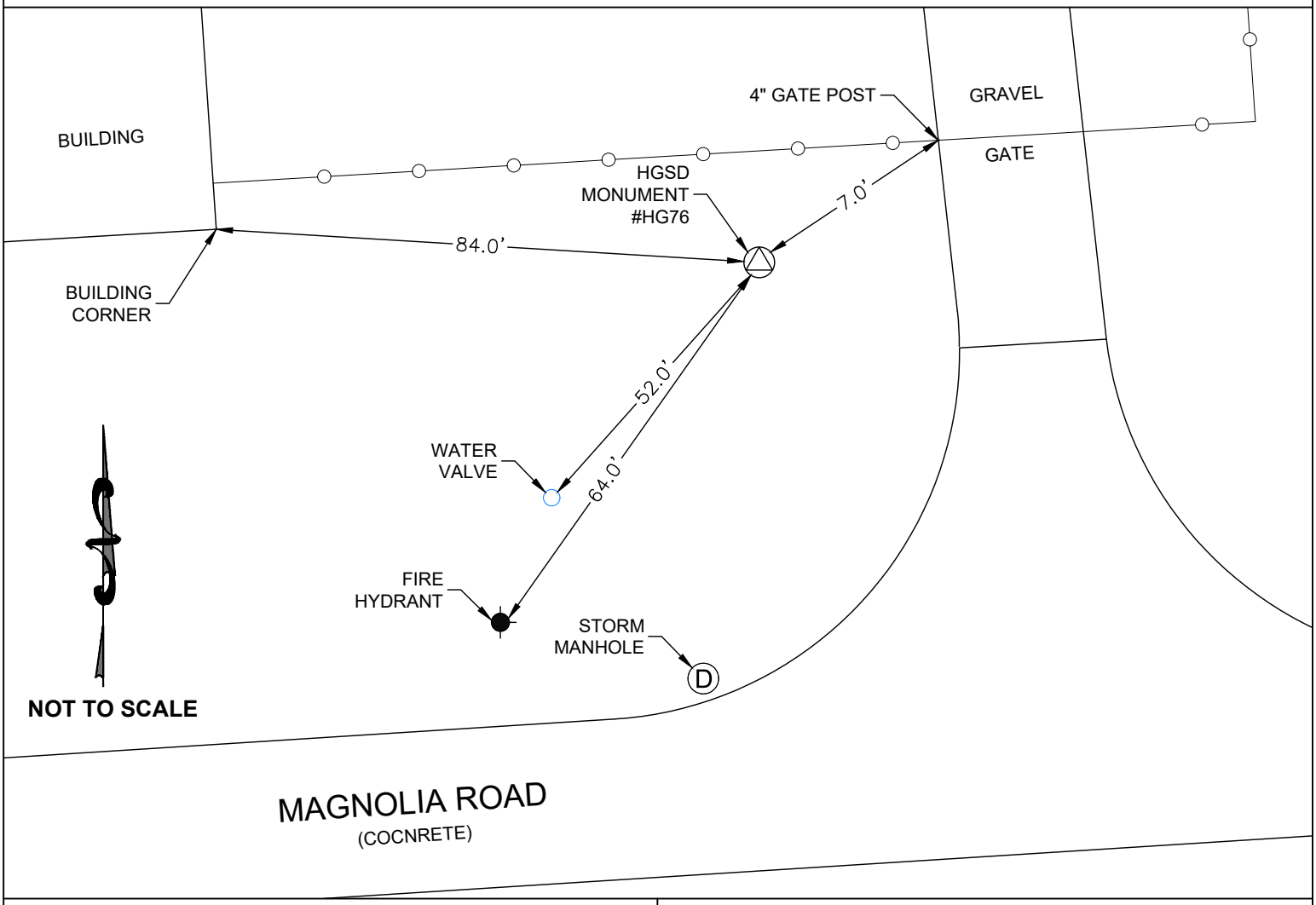


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 77 **4-Char ID/PID:** HG77/AX2557	**General Location:** El Campo

Benchmark Description:
THE MONUMENT IS A PUNCH MARK ON TOP OF A STAINLESS STEEL ROD IN A SLEEVE, COVERED BY AN ALUMINUM TOP AT THE NORTH CORNER OF INTERSECTION IN 3' SQUARE 2' TALL GUARD RAIL.

County: Wharton **State:** Texas	**Observed by:** HGSD
Key Map Page No:	**Date Observed:** October 25, 2022
USGS Quad Map: El Campo (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 77 1987	**Monument Depth:** 21.9m
Northing: 13630665.15 (usft) **Easting:** 2842296.40 (usft) **Orthometric Height[1]:** 103.90 (usft) **Geoid Height:** -89.37 (usft)	**Latitude:** 29 12 01.71962(N) **Longitude:** 096 15 38.66824(W) **Ellipsoid Height:** 14.56 (usft) **Convergence Angle:** 01 20 31.19

Scale Factor: 0.99986598 **Elevation Scale Factor:** 0.9999993 **Combined Scale Factor:** 0.99986528

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF BUSINESS 59 AND FM 653 (S. WHARTON ST.) ON NORTH SIDE OF EL CAMPO, GO SE ON FM 653 0.1 MILES TO N BLUE CREEK ST. JUST SE OF OLD RR (RAILS HAVE BEEN REMOVED).

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13630665.15 **Easting:** 2842296.40 **Orthometric Height:** 103.90

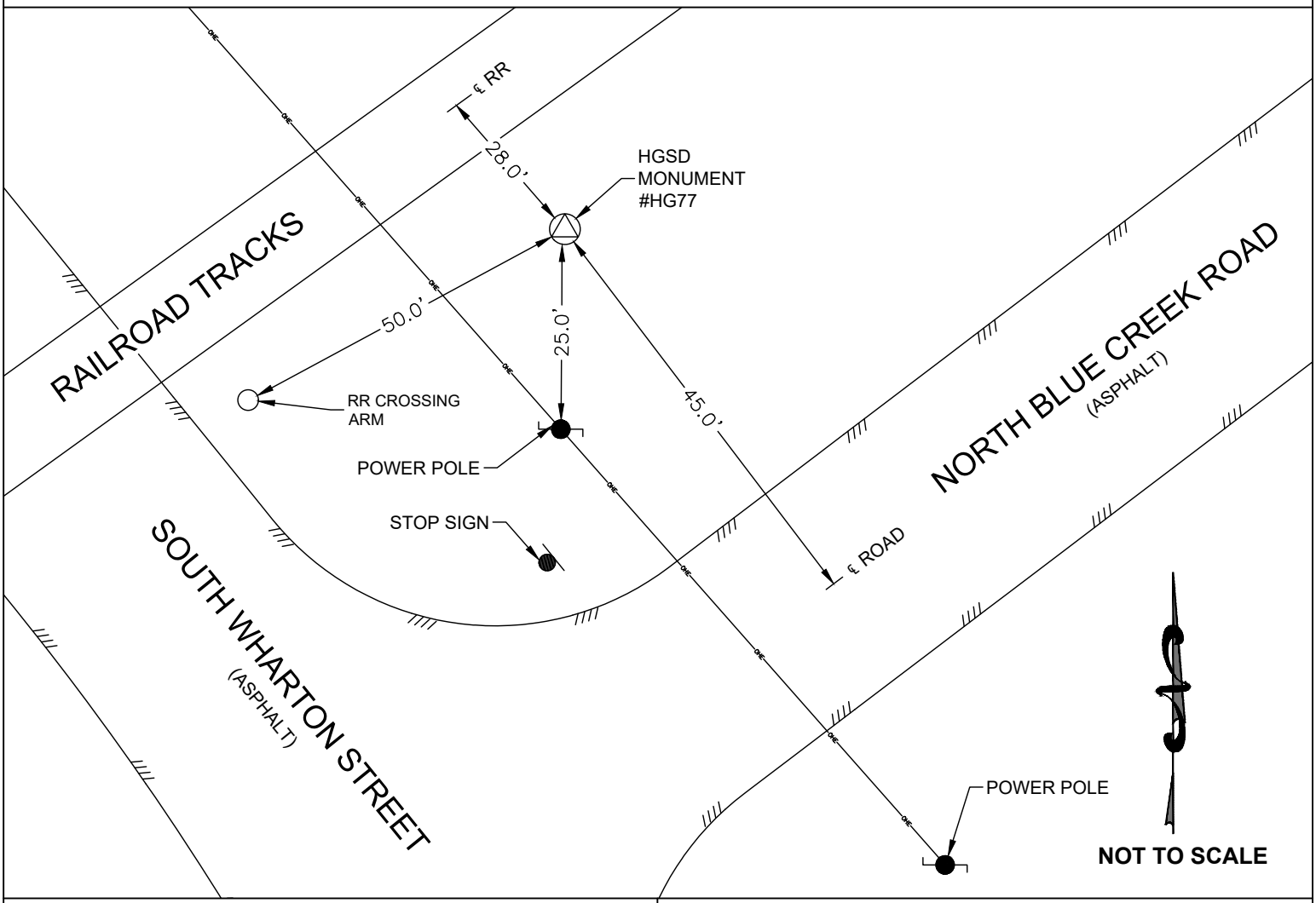


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 78 **4-Char ID/PID:** HG78/AX2549	**General Location:** Wharton
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH NGS LOGO CAP SURROUNDED WITH CONCRETE. THE MONUMENT IS RECESSED 7 CM BELOW THE TOP OF LOGO CAP.	
County: Wharton **State:** Texas	**Observed by:** HGSD
Key Map Page No:	**Date Observed:** October 25, 2022
USGS Quad Map: Wharton (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 78 1987	**Monument Depth:** 24.3m
Northing: 13675487.87 (usft) **Easting:** 2891709.03 (usft) **Orthometric Height[1]:** 102.49 (usft) **Geoid Height:** -89.43 (usft)	**Latitude:** 29 19 13.59298(N) **Longitude:** 096 06 08.70763(W) **Ellipsoid Height:** 13.02 (usft) **Convergence Angle:** 01 25 10.42

Scale Factor: 0.99986327 **Elevation Scale Factor:** 0.99999938 **Combined Scale Factor:** 0.99986265

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF U.S. 59 AND FM ROAD 102 GO EAST 1.2 MILES ON FM 102 TO NORTH SUNSET ST. THE MONUMENT IS EAST OF THE RAILROAD TRACKS, SOUTH OF F.M. 102 AND WEST OF NORTH SUNSET STREET.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13675487.87 **Easting:** 2891709.03 **Orthometric Height:** 102.49

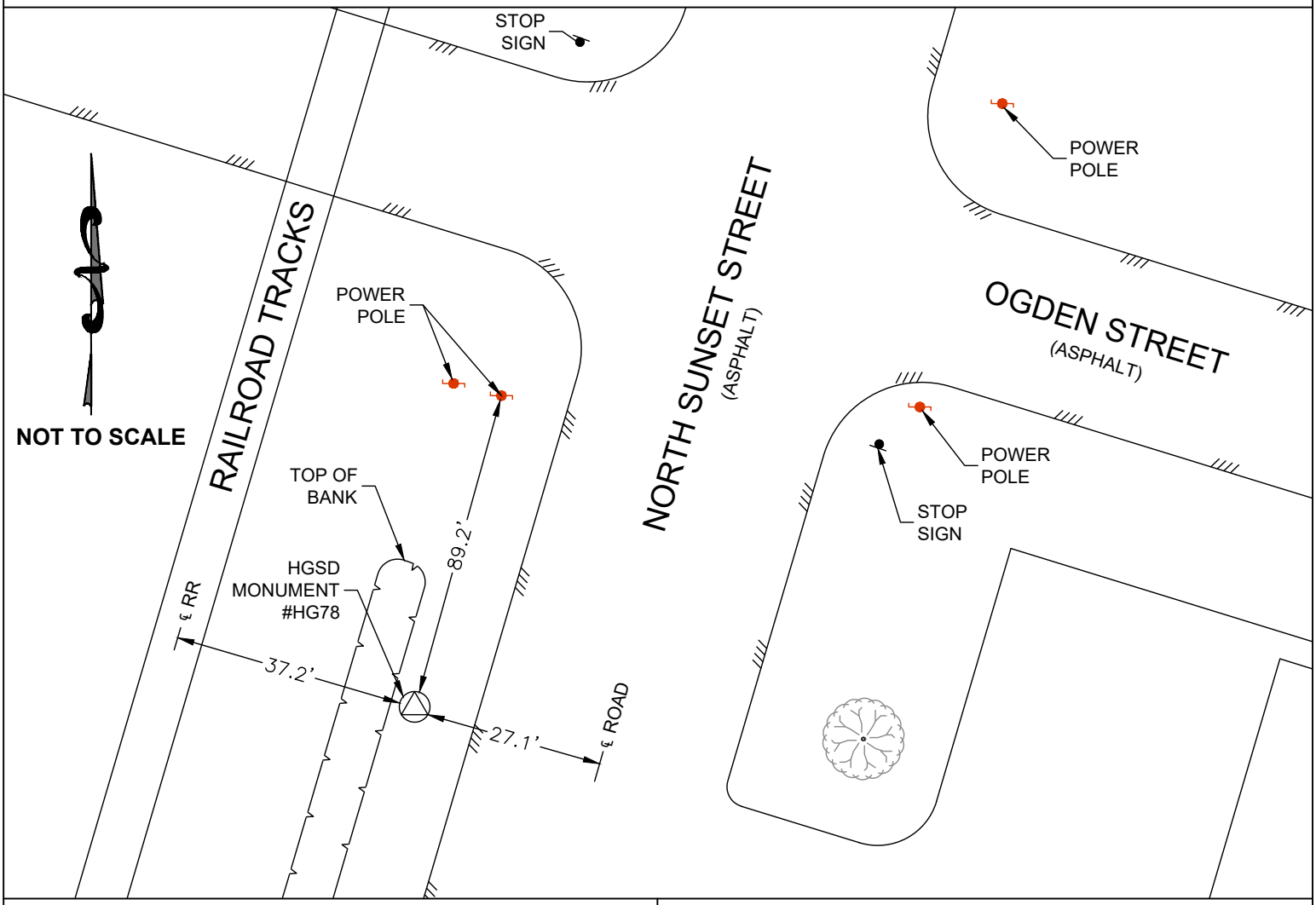


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGSD 85 **4-Char ID/PID:** HG85/DR9248	**General Location:** Hitchcock

Benchmark Description:
THE MONUMENT IS A BRONZE DISK SET IN THE CENTER OF A 12 INCH DIAMETER CONCRETE MONUMENT. THE DISK IS STAMPED IN THE CENTER WITH "TEXAS" AROUND THE TEXAS STAR AND HARRIS-GALVESTON SUBSIDENCE DISTRICT AROUND THE EDGE. THE MONUMENT IS SLIGHTLY COUNTER SUNK BELOW GRADE.

County: Galveston **State:** Texas	**Observed by:** HGSD
Key Map Page No: 735V	**Date Observed:** November 3, 2022
USGS Quad Map: Hitchcock(2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HG85	**Monument Depth:** 1.2m
Northing: 13695317.75 (usft) **Easting:** 3227830.33 (usft) **Orthometric Height[1]:** 15.29 (usft) **Geoid Height:** -87.99 (usft)	**Latitude:** 29 20 52.37589(N) **Longitude:** 095 02 45.82401(W) **Ellipsoid Height:** -72.67 (usft) **Convergence Angle:** 01 56 13.50

Scale Factor: 0.99986327 **Elevation Scale Factor:** 1.00000348 **Combined Scale Factor:** 0.99986675

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF MECOM RD AND SH 6, TRAVEL 0.66 MILE SOUTH ALONG MECOM RD TO ANOTHER INTERSECTION WHERE THE MONUMENT WILL BE ON SOUTHEAST CORNER OF JAY RD. AT MECOM RD

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13695317.75 **Easting:** 3227830.33 **Orthometric Height:** 15.29

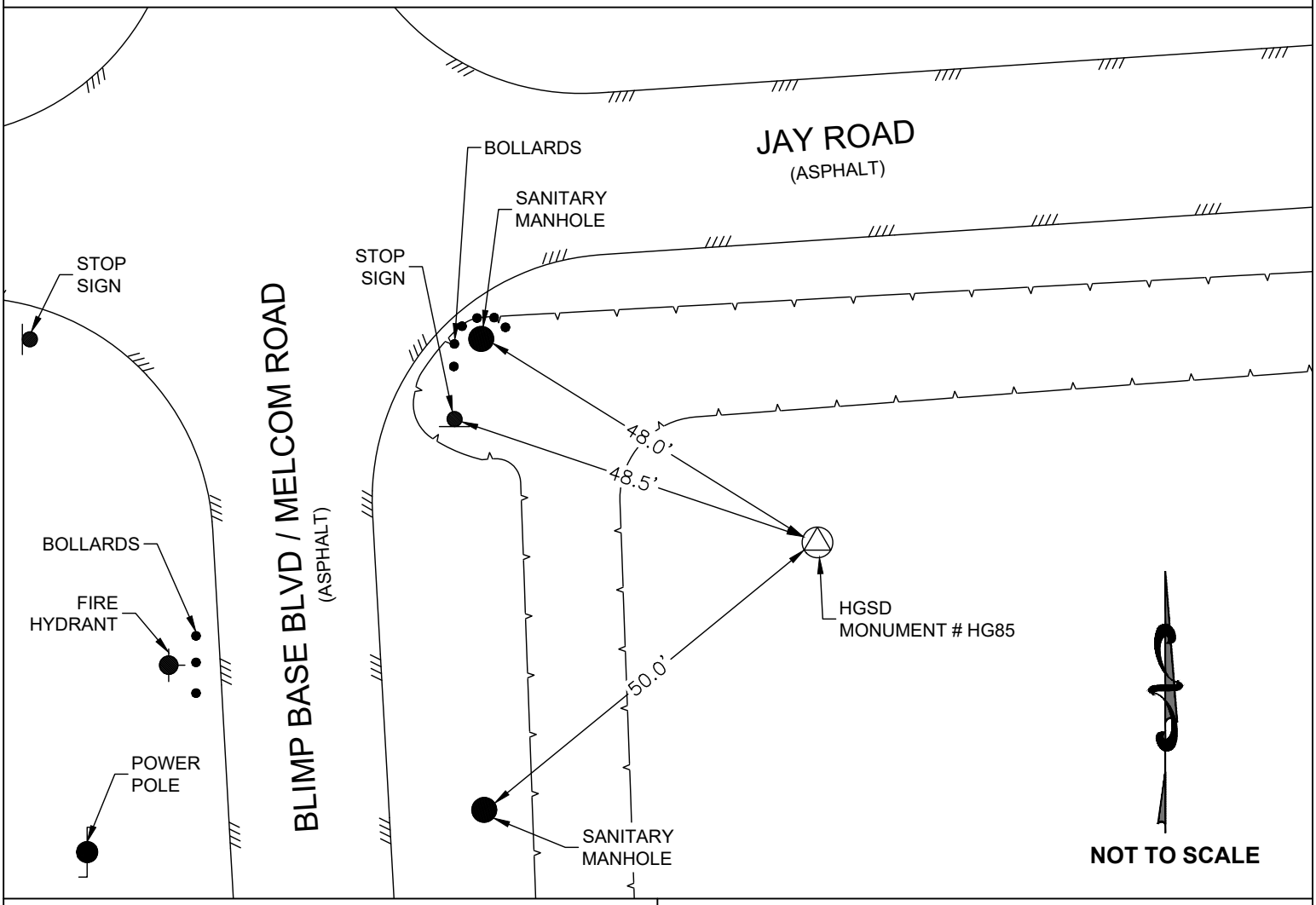


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HG86 **4-Char ID/PID:** HG86/DR9249	**General Location:** Houston

Benchmark Description:
THE MONUMENT DISK IS STAMPED HG86 IN THE CENTER WITH "TEXAS" AROUND THE TEXAS STAR AND HARRIS-GALVESTON SUBSIDENCE DISTRICT AROUND THE EDGE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 572T	**Date Observed:** December 8, 2022
USGS Quad Map: Almeda (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HG86	**Monument Depth:** N/A
Northing: 13788659.75 (usft) **Easting:** 3105485.35 (usft) **Orthometric Height[1]:** 49.61 (usft) **Geoid Height:** -89.31 (usft)	**Latitude:** 29 36 55.05042(N) **Longitude:** 095 25 15.50143(W) **Ellipsoid Height:** -39.71 (usft) **Convergence Angle:** 01 45 12.28

Scale Factor: 0.99987517 **Elevation Scale Factor:** 1.0000019 **Combined Scale Factor:** 0.99987707

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SAM HOUSTON TOLLWAY EAST BELTWAY 8 AND W FUQUA ST, GO 0.12 MI NORTH ON W. FUQUA ST. TURN WEST ON BROOKFIELD DR FOR 0.12 MILE. TO THE MONUMENT LOCATED ON A STORM INLET AT THE SE CORNER OF THE INTERSECTION OF BROOKFIELD DR AND GOLDFARB STREET.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13788659.75 **Easting:** 3105485.35 **Orthometric Height:** 49.61

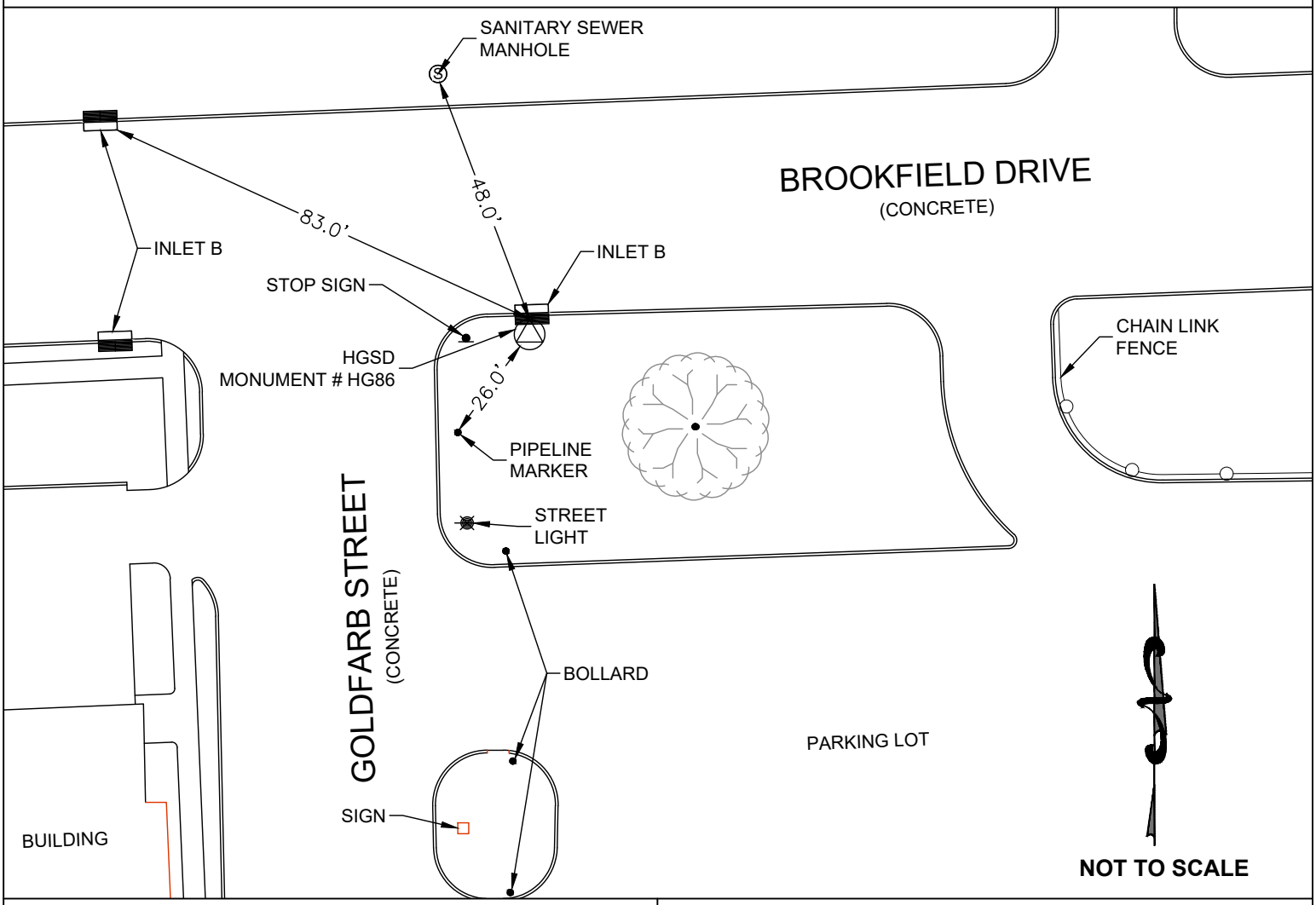


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 1 **4-Char ID/PID:** HGD1/BL1989	**General Location:** Hockley

Benchmark Description:
THE MONUMENT IS A PUNCH MARK TOP CENTER ON A STAINLESS STEEL ROD IN A 2.5 CM GREASE FILLED SLEEVE 6 M (19.7 FT) LONG, ENCASED IN A 12.7 CM PVC PIPE WITH A LOGO CAP SURROUNDED BY CONCRETE SET FLUSH WITH THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 284S	**Date Observed:** October 17, 2022
USGS Quad Map: Hockley (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 1 1986	**Monument Depth:** 12.2m
Northing: 13947929.54 (usft) **Easting:** 2967506.54 (usft) **Orthometric Height[1]:** 253.18 (usft) **Geoid Height:** -90.47 (usft)	**Latitude:** 30 03 50.47387(N) **Longitude:** 095 50 29.55840(W) **Ellipsoid Height:** 162.75 (usft) **Convergence Angle:** 01 32 50.52

Scale Factor: 0.99994401 **Elevation Scale Factor:** 0.99999221 **Combined Scale Factor:** 0.99993622

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF U.S. HIGHWAY 290 AND FARM ROAD 2920 IN WALLER, GO NORTH, BECOMING EAST, ON FARM ROAD 2920 FOR 8.1 KM (5.05 MI) TO THE INTERSECTION OF HEGAR ROAD. TURN RIGHT, SOUTH, ON HEGAR ROAD FOR 0.35 KM (0.20 MI) TO THE MONUMENT ON THE LEFT ABOUT 0.1 KM (0.05 MI) SOUTH OF A DOUBLE DRIVEWAY LEADING TO THE FARM.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13947929.54 **Easting:** 2967506.54 **Orthometric Height:** 253.18

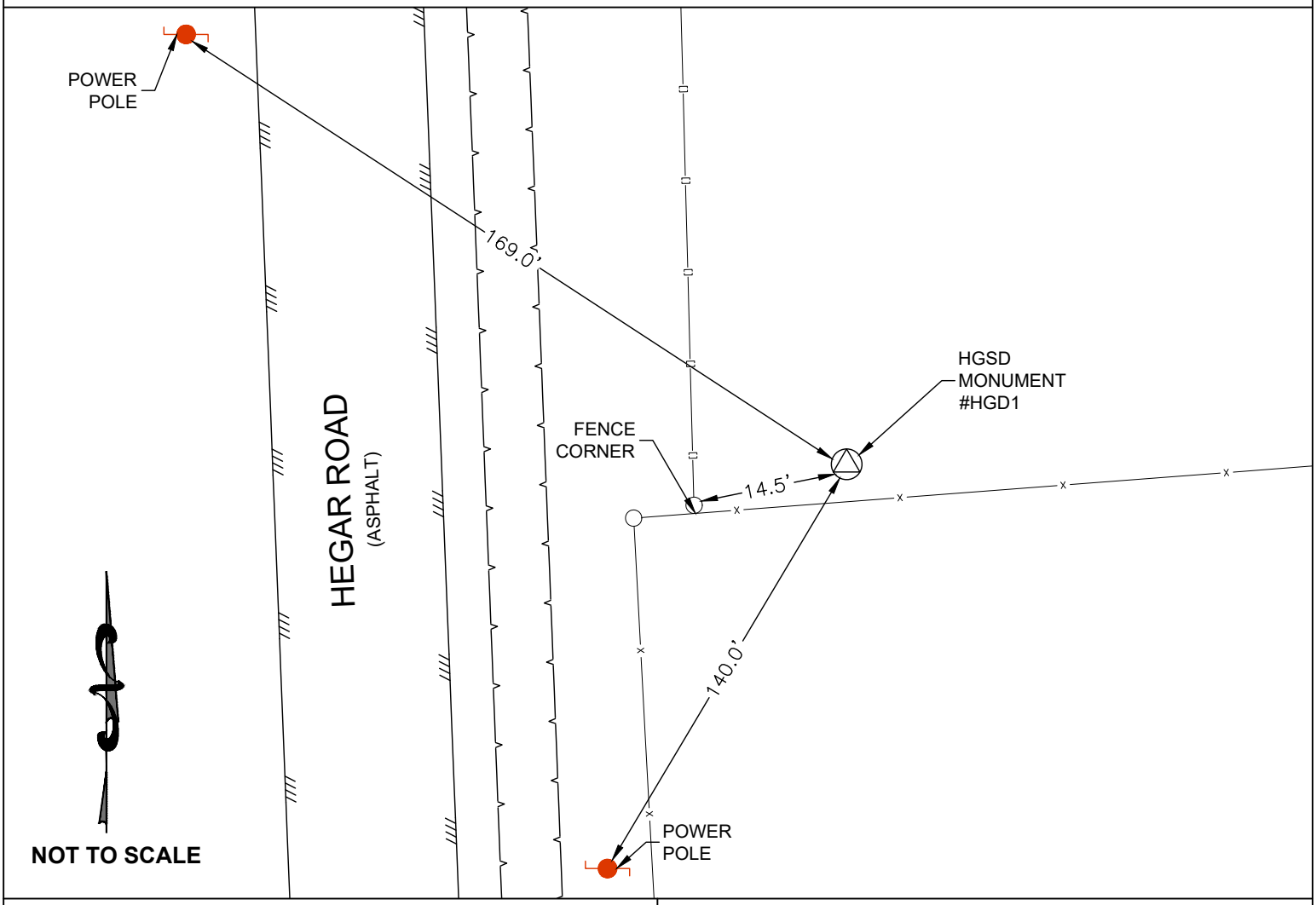


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 2 **4-Char ID/PID:** HGD2/BL1991	**General Location:** Tomball

Benchmark Description:
THE MONUMENT IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PCV PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PCV PIPE WITH A LOGO CAP STAMPED --- HGCSD 2 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 287S	**Date Observed:** October 17, 2022
USGS Quad Map: Rose Hill (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 2 1986	**Monument Depth:** 19.5m
Northing: 13947486.23 (usft) **Easting:** 3013202.47 (usft) **Orthometric Height[1]:** 177.49 (usft) **Geoid Height:** -90.53 (usft)	**Latitude:** 30 03 33.59322(N) **Longitude:** 095 41 49.87170(W) **Ellipsoid Height:** 86.98 (usft) **Convergence Angle:** 01 37 05.12

Scale Factor: 0.99994297 **Elevation Scale Factor:** 0.99999584 **Combined Scale Factor:** 0.99993881

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF FARM ROAD 149 AND FARM ROAD 2920 ON THE WEST SIDE OF TOMBALL, GO WEST ON FARM ROAD 2920 FOR 2.4 KM (1.5 MI) TO HOLLY CREEK TRAIL ON THE RIGHT. CONTINUE WEST FOR 0.8 KM (0.5 MI) TO CYPRESS-ROSEHILL ROAD ON THE LEFT. TURN LEFT AND GO SOUTH FOR 2.4 KM (1.5 MI) TO A DRIVEWAY AND THE MONUMENT ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13947486.23 **Easting:** 3013202.47 **Orthometric Height:**177.49

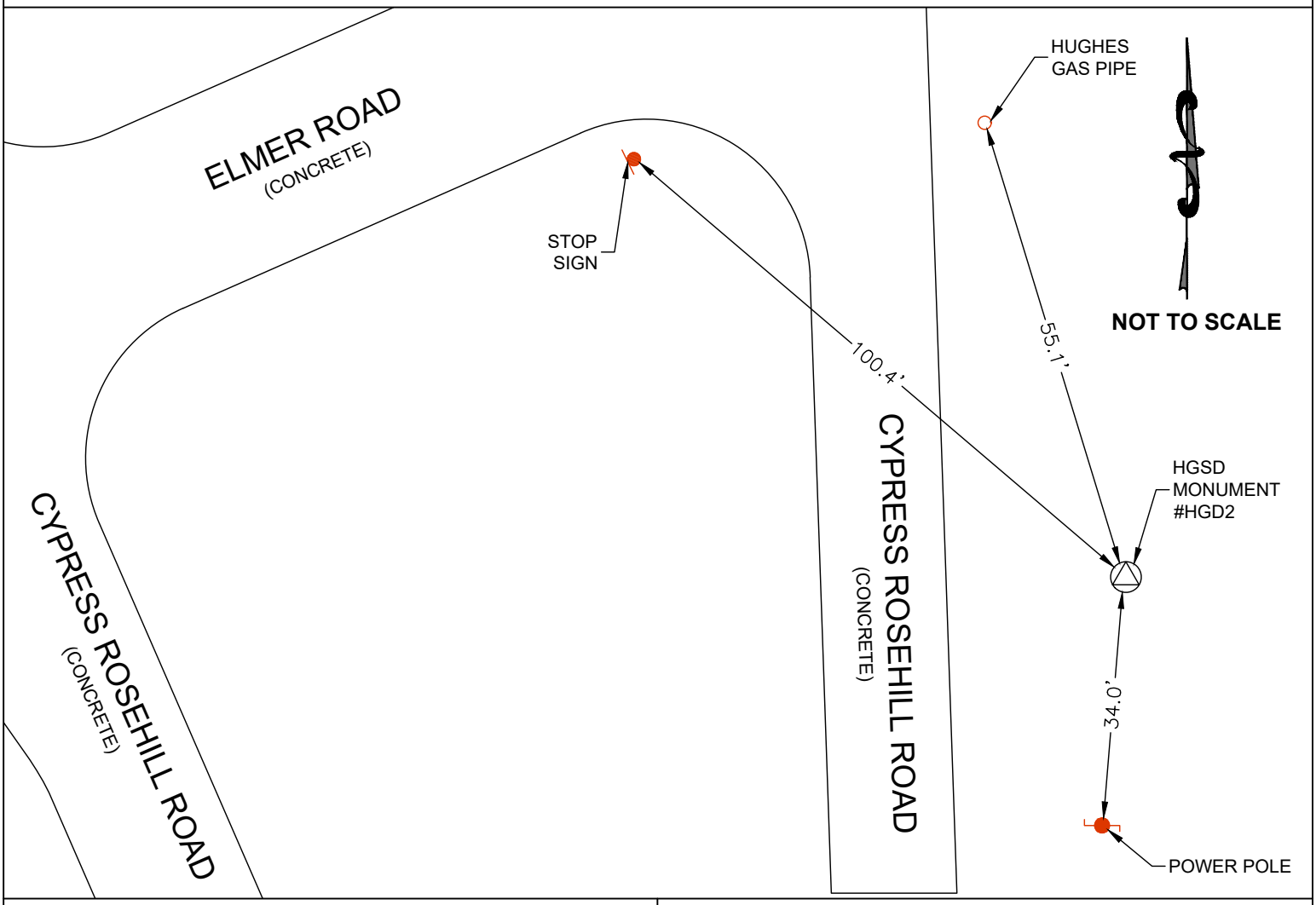


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD3 **4-Char ID/PID:** HGD3/BL1994	**General Location:** Tomball
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 3 1987, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.	
County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 329K	**Date Observed:** October 20, 2022
USGS Quad Map: Tomball (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 3	**Monument Depth:** N/A
Northing: 13933459.91 (usft) **Easting:** 3048851.78 (usft) **Orthometric Height[1]:** 138.55 (usft) **Geoid Height:** -90.40 (usft)	**Latitude:** 30 01 04.66921(N) **Longitude:** 095 35 09.02002(W) **Ellipsoid Height:** 48.17 (usft) **Convergence Angle:** 01 40 21.51
Scale Factor: 0.99993411 **Elevation Scale Factor:** 0.99999769 **Combined Scale Factor:** 0.9999318	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SPRING CYPRESS RD AND HUFSMITH-KOHRVILLE RD GO NORTH 0.25 MILE ON HUFSMITH-KOHRVILLE RD TO THE MONUMENT ON THE LEFT

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13933459.91 **Easting:** 3048851.78 **Orthometric Height:**138.55

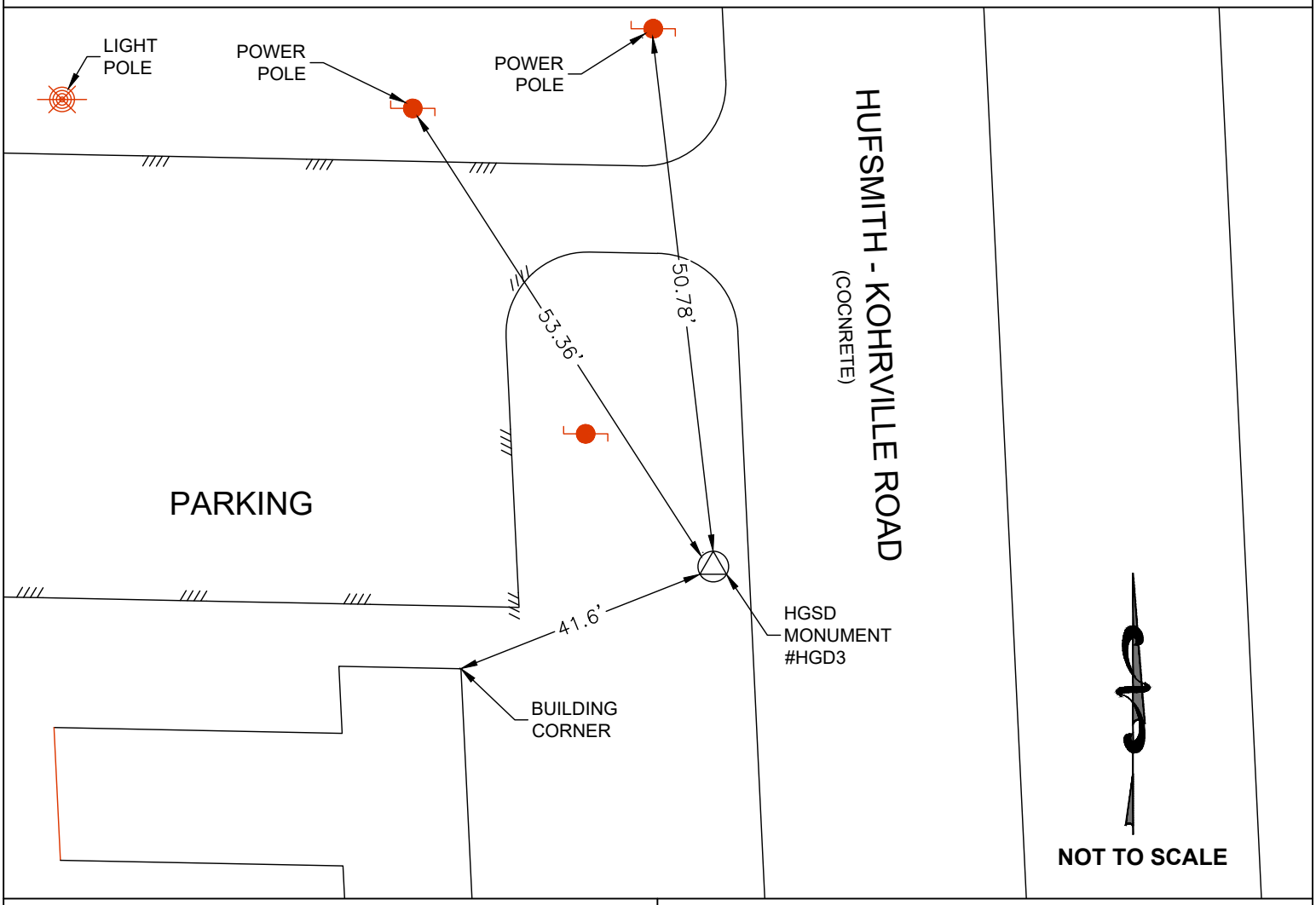


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 4 **4-Char ID/PID:** HGD4/BL2001	**General Location:** Klein

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 1 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 290G	**Date Observed:** October 17, 2022
USGS Quad Map: Tomball (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 4 1986	**Monument Depth:** 14.0m
Northing: 13962374.70 (usft) **Easting:** 3068347.61 (usft) **Orthometric Height[1]:** 145.70 (usft) **Geoid Height:** -90.38 (usft)	**Latitude:** 30 05 45.08819(N) **Longitude:** 095 31 17.56758(W) **Ellipsoid Height:** 55.36 (usft) **Convergence Angle:** 01 42 14.90

Scale Factor: 0.99995122 **Elevation Scale Factor:** 0.99999735 **Combined Scale Factor:** 0.99994857

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF THE GRAND PARKWAY (N US 99) WITH NORTH CREST DRIVE GO NORTH 0.20 MILE ON NORTH CREST DR TO THE INTERSECTION WITH KLEIN OAK LANE, THENCE GO 0.28 MILE NW ON KLEIN OAK LANE TO THE ENTRANCE TO THE NORTH TO KLEIN OAK HIGH SCHOOL STADIUM. THE MONUMENT IS ON THE WEST SIDE OF THE DRIVEWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13962374.70 **Easting:** 3068347.61 **Orthometric Height:** 145.70

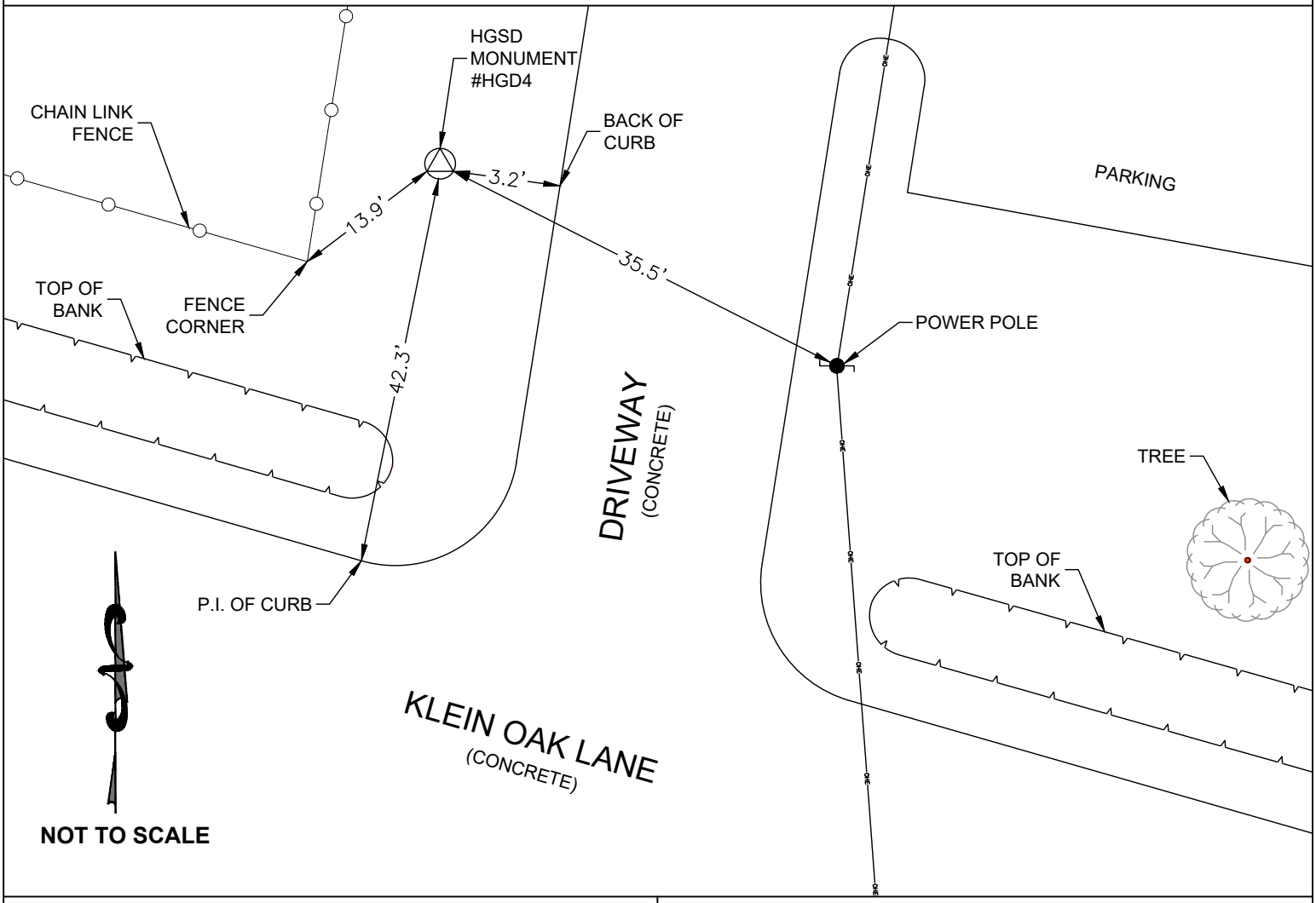
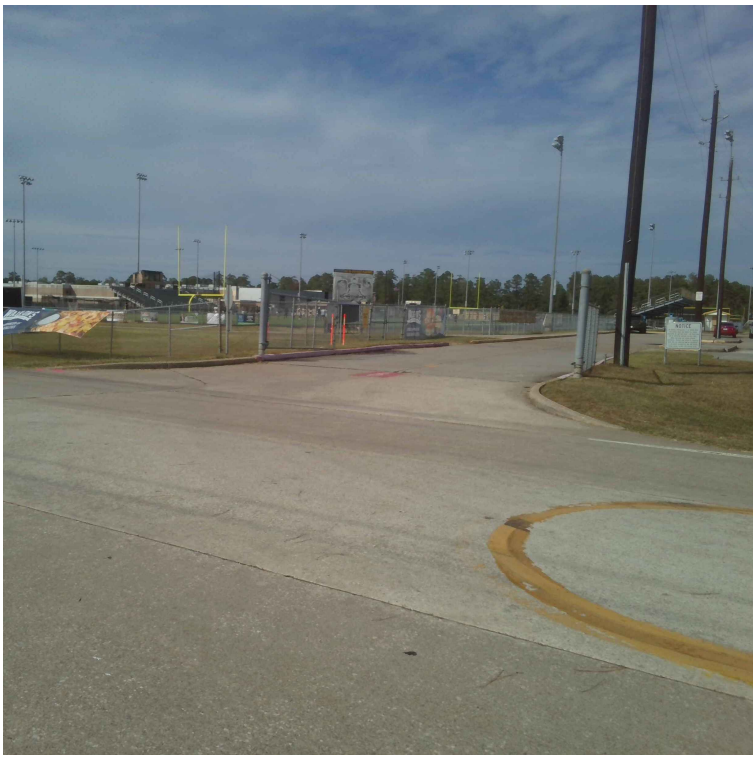


Photo 1 - Station Detail

Photo 2 - Station Overall



HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 5 **4-Char ID/PID:** HGD5/BL1998	**General Location:** Spring

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 1 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 292Z	**Date Observed:** October 18, 2022
USGS Quad Map: Spring (2019)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: HGCSD 5 1987	**Monument Depth:** 15.8m
Northing: 13950771.62 (usft) **Easting:** 3102507.30 (usft) **Orthometric Height[1]:** 108.04 (usft) **Geoid Height:** -90.17 (usft)	**Latitude:** 30 03 40.07146(N) **Longitude:** 095 24 52.92746(W) **Ellipsoid Height:** 17.89 (usft) **Convergence Angle:** 01 45 23.34

Scale Factor: 0.99994337 **Elevation Scale Factor:** 0.99999914 **Combined Scale Factor:** 0.99994251

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF E. CYPRESSWOOD DR. AND W. HARDY ROAD GO SOUTH OF W. HARDY RD. 0.27 MILE TO ENTRANCE TO ARTHUR BAYOU PARK LITTLE LEAGUE BASEBALL FIELDS, TURN RIGHT AND GO 0.10 MILE TO PARKING LOT ENTRANCE ON THE RIGHT, GO 0.06 MILE TO THE NE CORNER OF THE PARKING LOT. THE MONUMENT IS WEST OF THE SW FIELD OUTFIELD FENCE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13950771.62 **Easting:** 3102507.30 **Orthometric Height:** 108.04

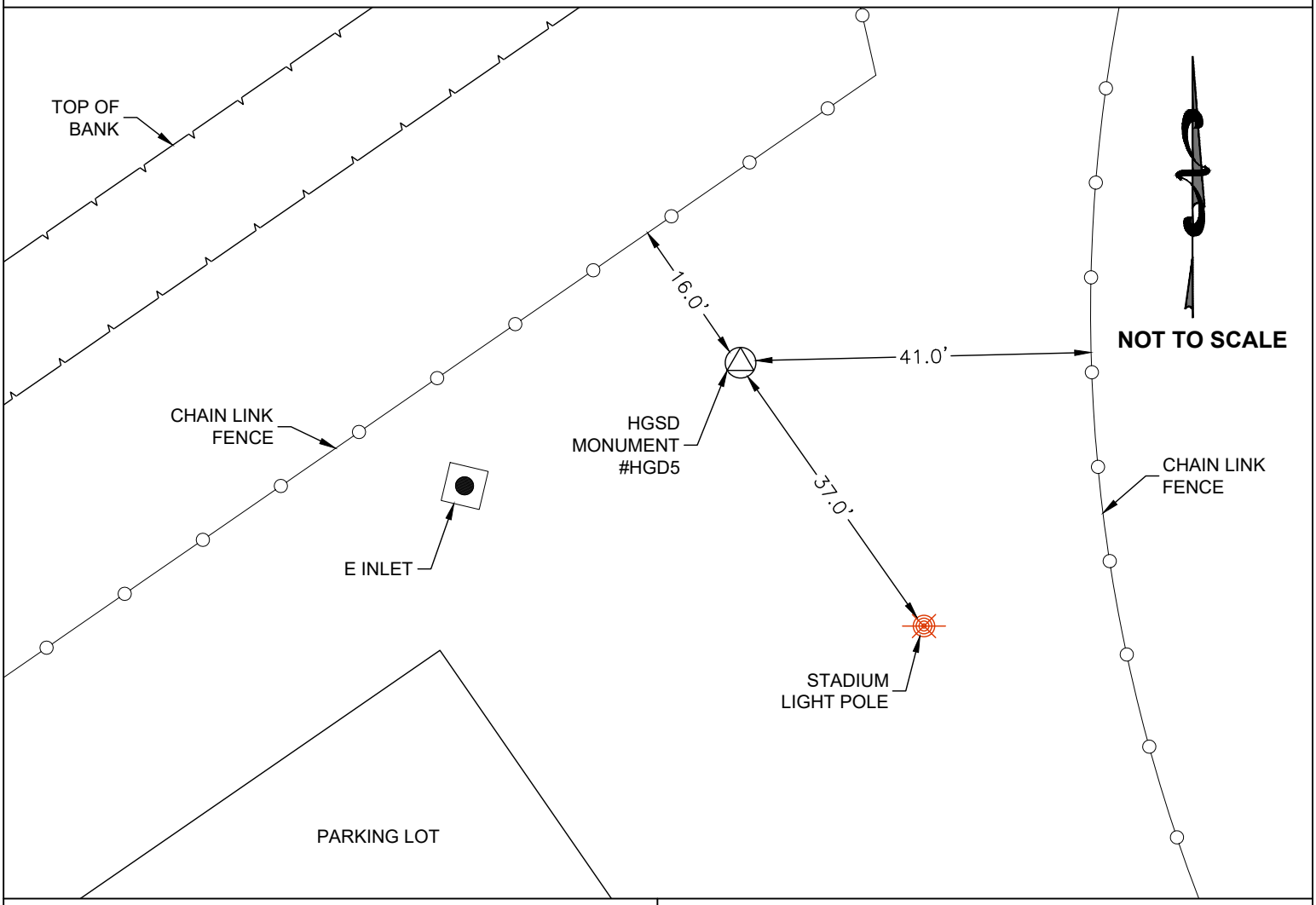


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 7 **4-Char ID/PID:** HGD7/AW5615	**General Location:** Atascocita

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 7 1986---, THE ROD IS RECESSED 7 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 337W	**Date Observed:** November 16, 2022
USGS Quad Map: Harmaston (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 7 1987	**Monument Depth:** 18.0m
Northing: 13930261.82 (usft) **Easting:** 3172936.27 (usft) **Orthometric Height[1]:** 69.78 (usft) **Geoid Height:** -89.92 (usft)	**Latitude:** 29 59 55.11627(N) **Longitude:** 095 11 39.46051(W) **Ellipsoid Height:** -20.10 (usft) **Convergence Angle:** 01 51 52.07

Scale Factor: 0.99993016 **Elevation Scale Factor:** 1.00000096 **Combined Scale Factor:** 0.99993112

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM 1960 AND TIMBER FOREST DR. GO 0.07 MILE WEST ON TIMBER FOREST DR. TO DRIVEWAY TO THE SOUTH TO SHOPPING CENTER. THE MONUMENT IS ON THE EAST SIDE OF THE DRIVEWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13930261.82 **Easting:** 3172936.27 **Orthometric Height:** 69.78

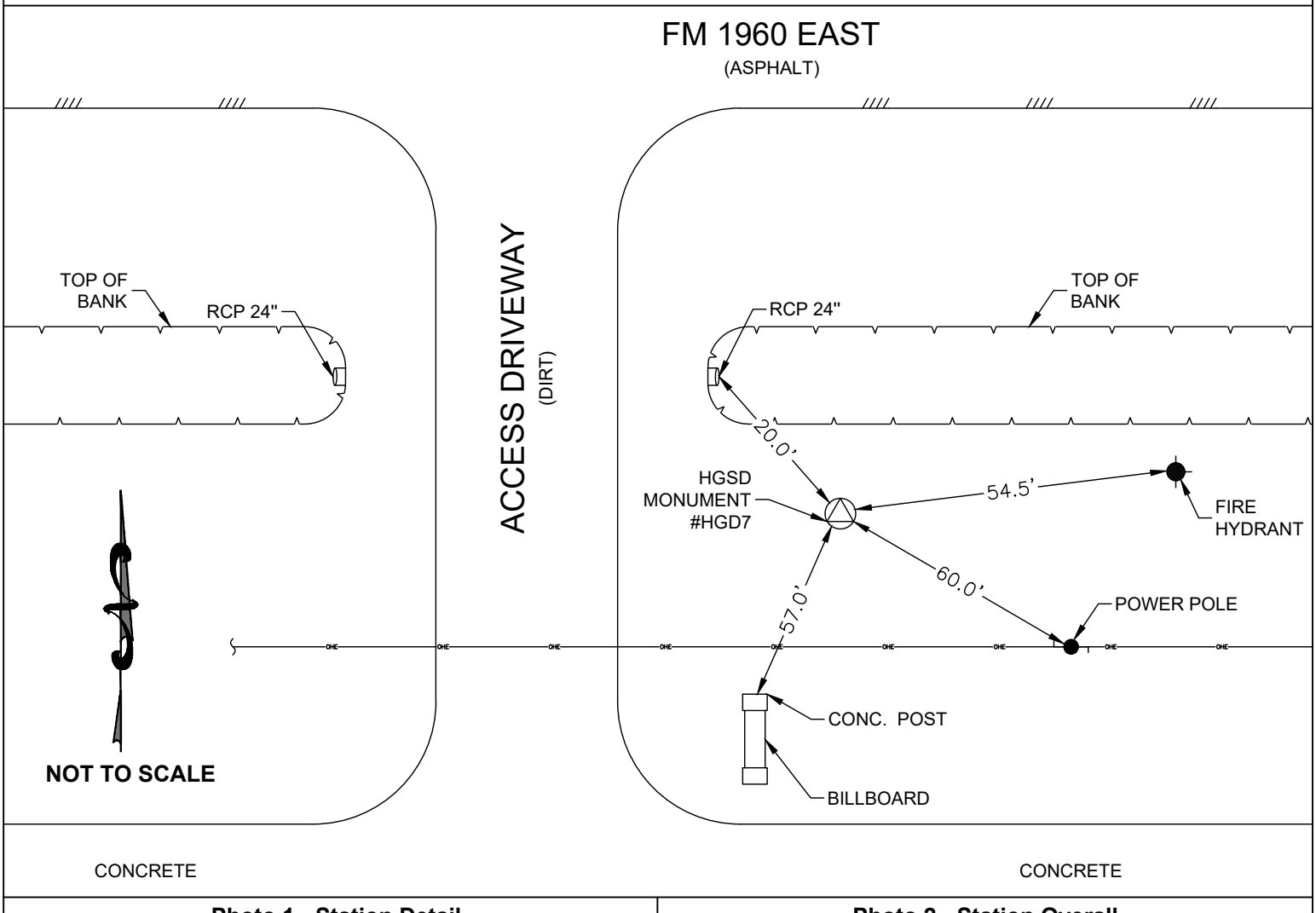


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 8 **4-Char ID/PID:** HGD8/BL2031	**General Location:** Huffman

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 8 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 339S	**Date Observed:** November 16, 2022
USGS Quad Map: Huffman (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 8 1986	**Monument Depth:** 12.2m
Northing: 13933312.08 (usft) **Easting:** 3204151.97 (usft) **Orthometric Height[1]:** 67.55 (usft) **Geoid Height:** -89.77 (usft)	**Latitude:** 30 00 15.11078(N) **Longitude:** 095 05 43.48236(W) **Ellipsoid Height:** -22.10 (usft) **Convergence Angle:** 01 54 46.47

Scale Factor: 0.99993128 **Elevation Scale Factor:** 1.00000106 **Combined Scale Factor:** 0.99993234

To Reach Monument

TO REACH THE MONUMENT FROM THE JUNCTION OF FM 1960 AND FM 2100 IN HUFFMAN, GO SOUTH ON FM 2100 FOR 2.0 KM (1.25 MI) TO A ROAD RIGHT, ATASCOCITA ROAD, TURN RIGHT FOR 0.2 KM (0.15 MI) TO THE CHURCH ON THE LEFT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13933312.08 **Easting:** 3204151.97 **Orthometric Height:** 67.55

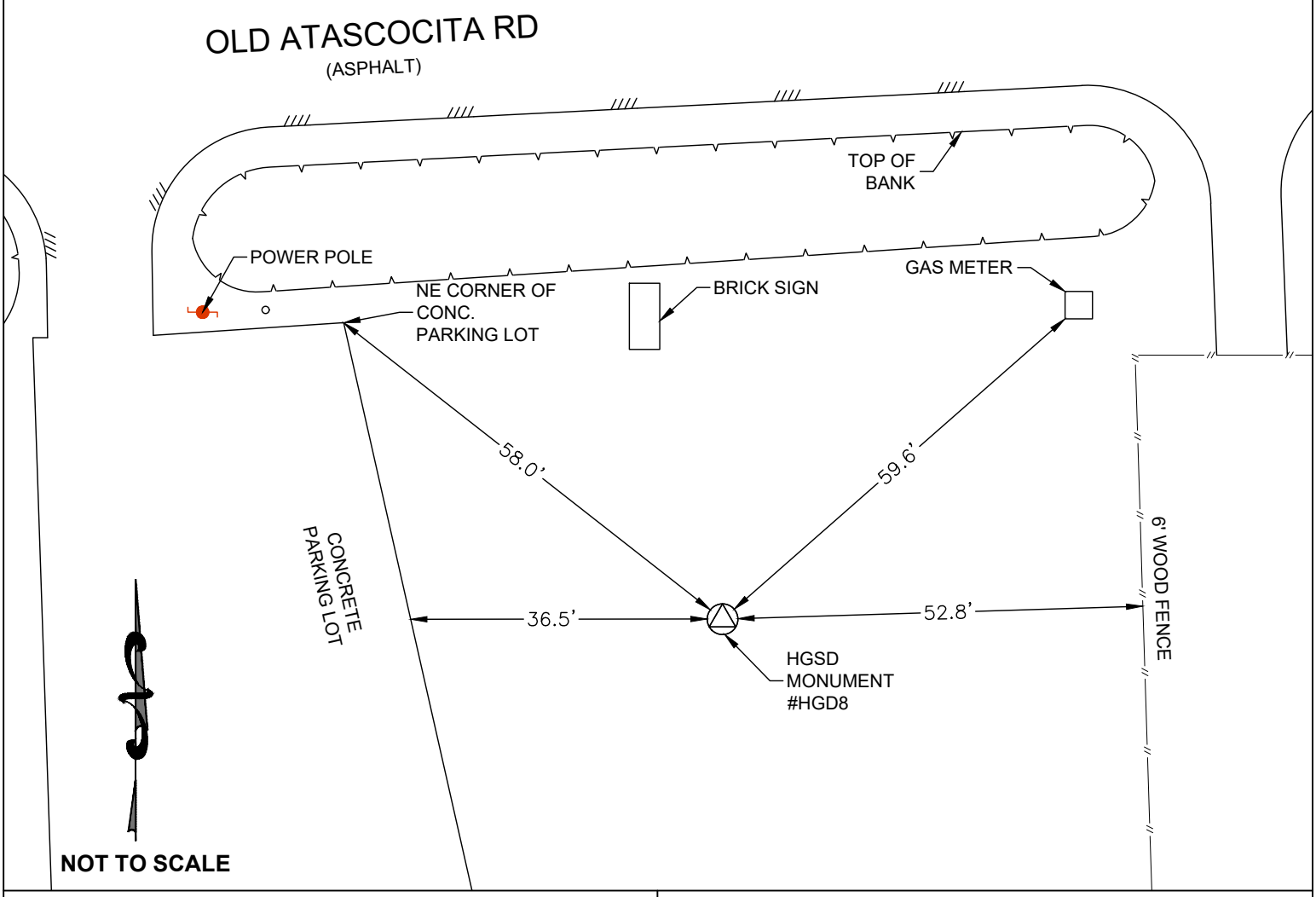


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD 9 **4-Char ID/PID:** HGD9/AW5443	**General Location:** Hockley

Benchmark Description:
THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---HGCSD 9 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 364R	**Date Observed:** October 18, 2022
USGS Quad Map: Warren Lake (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: HGCSD 9 1986	**Monument Depth:** 14.6m
Northing: 13903576.47 (usft) **Easting:** 2979329.73 (usft) **Orthometric Height[1]:** 165.16 (usft) **Geoid Height:** -90.48 (usft)	**Latitude:** 29 56 28.39575(N) **Longitude:** 095 48 28.83097(W) **Ellipsoid Height:** 74.73 (usft) **Convergence Angle:** 01 33 49.67

Scale Factor: 0.99991907 **Elevation Scale Factor:** 0.99999642 **Combined Scale Factor:** 0.99991549

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF KATY HOCKLEY RD AT JACK RD. GO SOUTH ON KATY HOCKLEY RD 1.78 MILES TO THE MONUMENT ON THE LEFT NORTH OF A DRIVEWAY.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13903576.47 **Easting:** 2979329.73 **Orthometric Height:**165.16

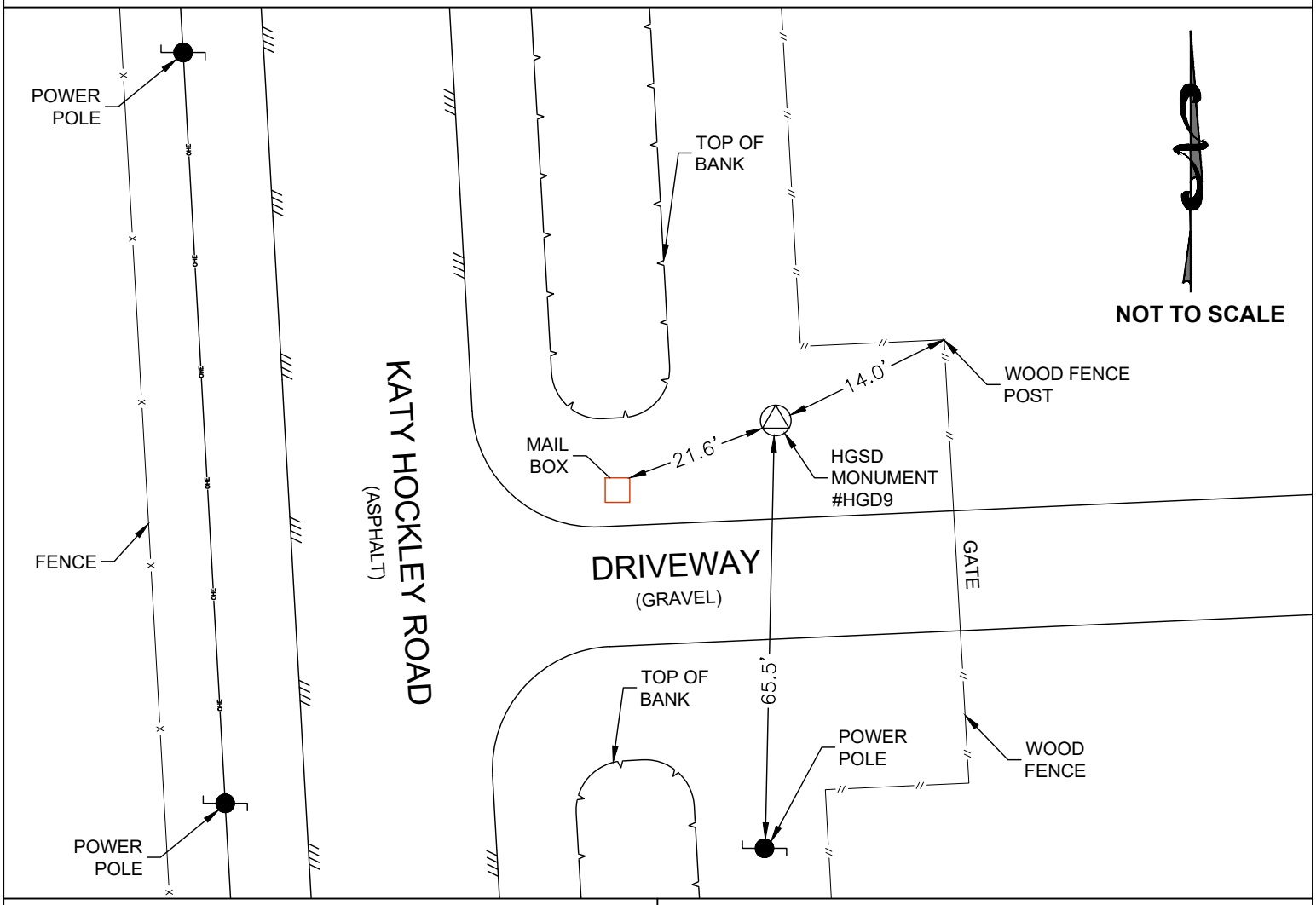


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: HGCSD OFFICE POLE **4-Char ID/PID:** HGPL/AB7501	**General Location:** Friendswood

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH EXTENDS TO A DEPTH OF 10 FT (3.0 M) BELOW THE SURFACE OF THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 617Z	**Date Observed:** November 7, 2022
USGS Quad Map: Friendswood (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 3.1m
Northing: 13763504.01 (usft) **Easting:** 3191748.07 (usft) **Orthometric Height[1]:** 36.78 (usft) **Geoid Height:** -88.84 (usft)	**Latitude:** 29 32 19.00898(N) **Longitude:** 095 09 08.01512(W) **Ellipsoid Height:** -52.08 (usft) **Convergence Angle:** 01 53 06.26

Scale Factor: 0.99986954 **Elevation Scale Factor:** 1.00000249 **Combined Scale Factor:** 0.99987203

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF W. BAY AREA BLVD AND GLENWEST DR. GO WEST 0.09 MILE TO A DRIVEWAY ENTRANCE ON THE RIGHT, THENCE GO 0.04 MILE TO THE NE CORNER OF THE PARKING LOT. THE STATION IS LOCATED AT THE NE CORNER OF THE HARRIS GALVESTON SUBSIDENCE DISTRICT OFFICE AT 1660 W BAY AREA BLVD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13763504.01	Easting: 3191748.07	Orthometric Height: 36.78

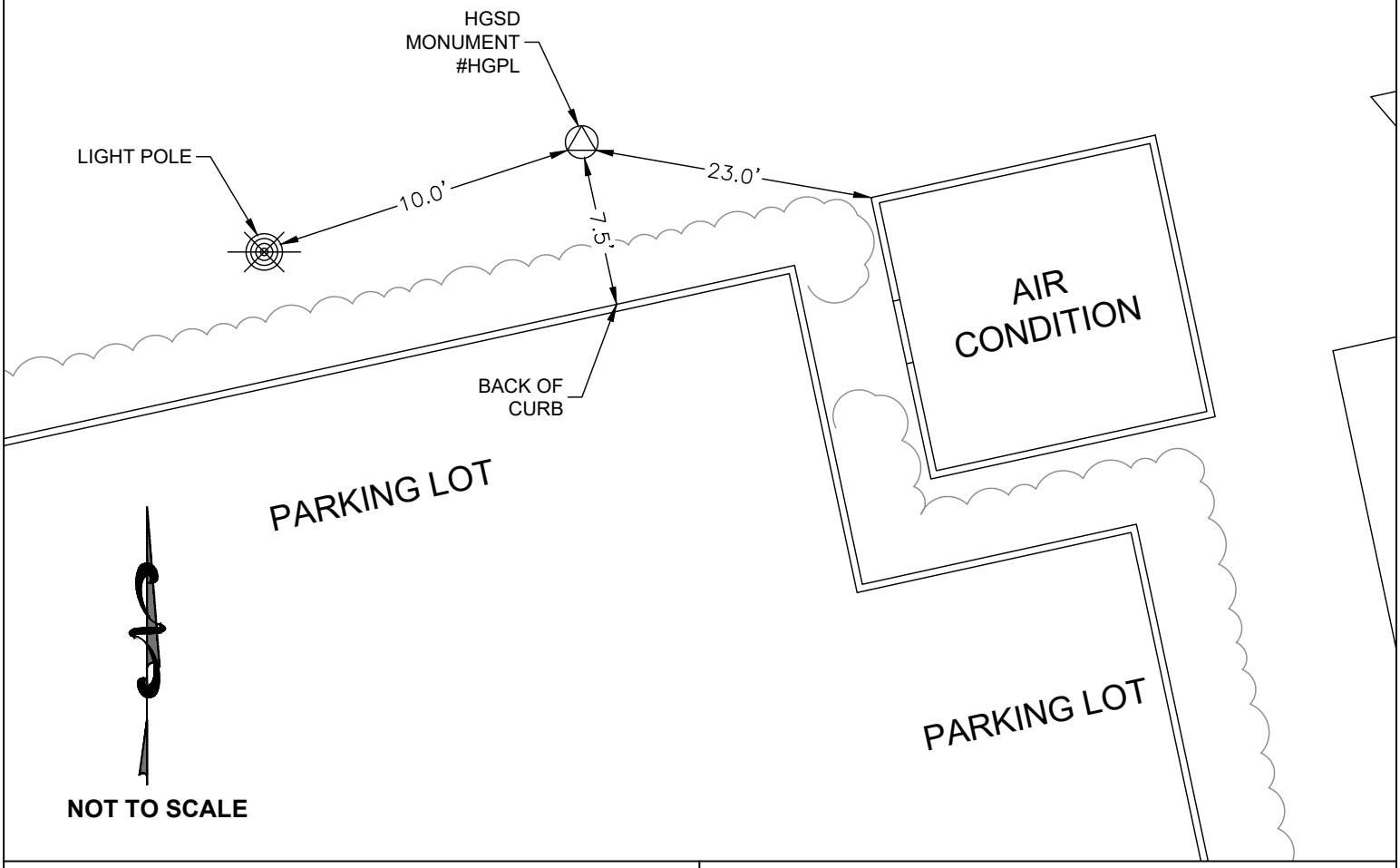


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: J 1185 **4-Char ID/PID:** J185/AW0902	**General Location:** Galena Park

Benchmark Description:
THE MONUMENT IS SET IN THE TOP OF THE WEST END CONCRETE HEADWALL OF A TRIPLE CHANNEL PIPE CULVERT, AND 5 IN WEST OF A PIPE RAILING, APPROXIMATELY SAME LEVEL AS ROAD.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 496U	**Date Observed:** November 10, 2022
USGS Quad Map: Pasadena (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: J 1185 1964	**Monument Depth:** N/A
Northing: 13836479.04 (usft) **Easting:** 3170409.08 (usft) **Orthometric Height[1]:** 4.36 (usft) **Geoid Height:** -89.46 (usft)	**Latitude:** 29 44 27.99669(N) **Longitude:** 095 12 42.72908(W) **Ellipsoid Height:** -85.07 (usft) **Convergence Angle:** 01 51 21.07

Scale Factor: 0.99988829 **Elevation Scale Factor:** 1.00000407 **Combined Scale Factor:** 0.99989236

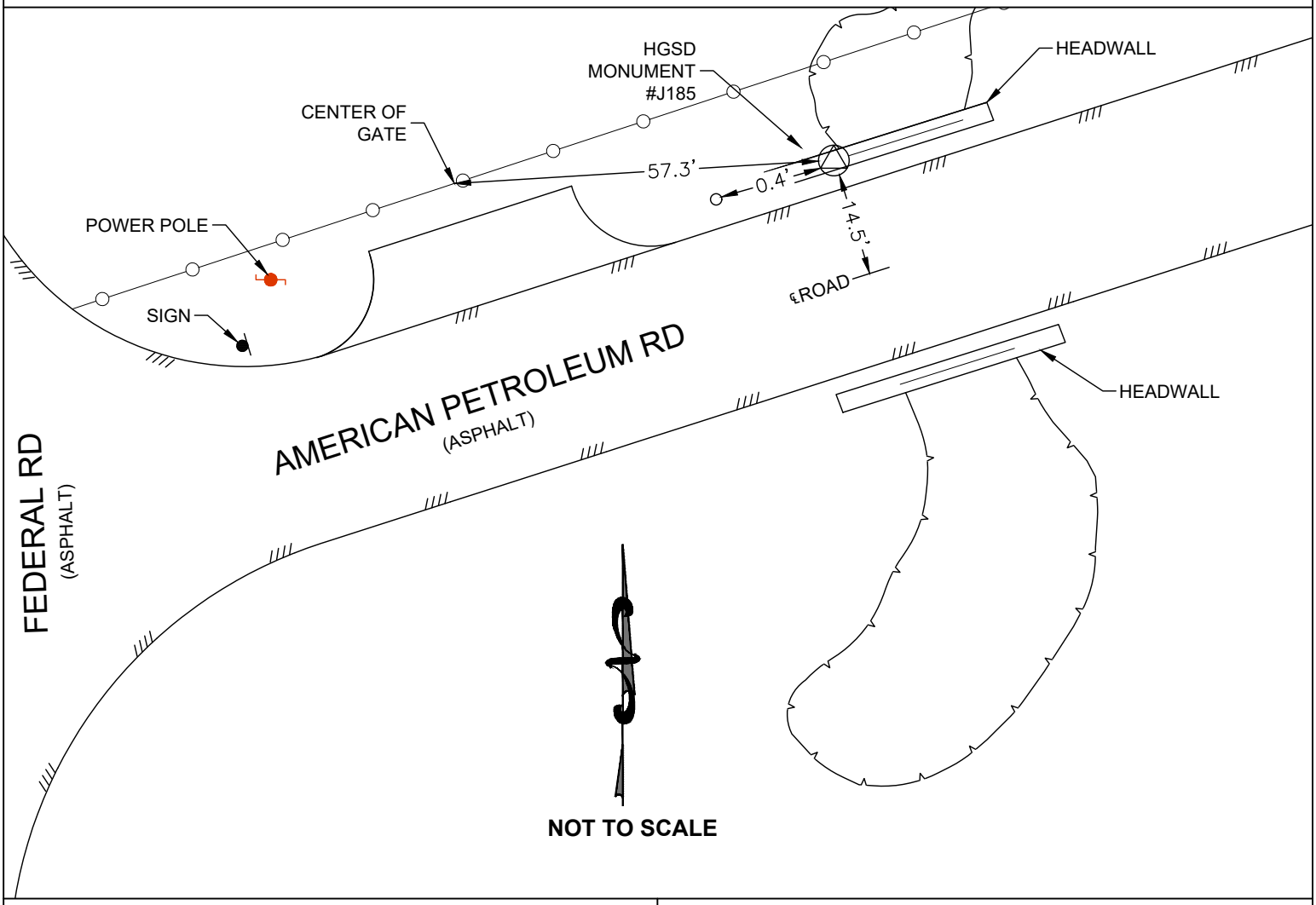
To Reach Monument

TO REACH THE MONUMENT FROM THE NORTH END OF THE WASHBURN TUNNEL AT PASADENA, TRAVEL ABOUT 0.7 MILE NORTH ALONG FEDERAL RD. THE MONUMENT IS 137 FEET EAST OF THE CENTER LINE OF THE EAST LANE OF FEDERAL RD, ON THE TOP OF THE WEST END OF THE NORTH CONCRETE HEADWALL OF A TRIPLE CHANNEL PIPE CULVERT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13836479.04 **Easting:** 3170409.08 **Orthometric Height:** 4.36



NOT TO SCALE

Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: J 1187 **4-Char ID/PID:** J187/AW1029	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS SET SOUTHWEST OF THE NORTHEAST END OF THE CONCRETE GUARD RAIL AT THE EAST CURB OF THE BRIDGE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 619S	**Date Observed:** November 3, 2022
USGS Quad Map: League City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: J 1187 1964	**Monument Depth:** N/A
Northing: 13768975.72 (usft) **Easting:** 3211472.47 (usft) **Orthometric Height[1]:** 15.78 (usft) **Geoid Height:** -88.80 (usft)	**Latitude:** 29 33 06.67613(N) **Longitude:** 095 05 22.75133(W) **Ellipsoid Height:** -73.00 (usft) **Convergence Angle:** 01 54 56.62

Scale Factor: 0.99987038 **Elevation Scale Factor:** 1.00000349 **Combined Scale Factor:** 0.99987387

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSEECTION OF SATURN LN AND E NASA PWKY, TRAVEL 0.17 MILE NORTHEAST ALONG E NASA PWKY TO 3RD ST GOING NORTH. FOLLOW 3RD ST FOR 0.05 MILE TO THE MONUMENT ON THE SOUTHEAST HEAD WALL OF THE BRIDGE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13768975.72 **Easting:** 3211472.47 **Orthometric Height:** 15.78

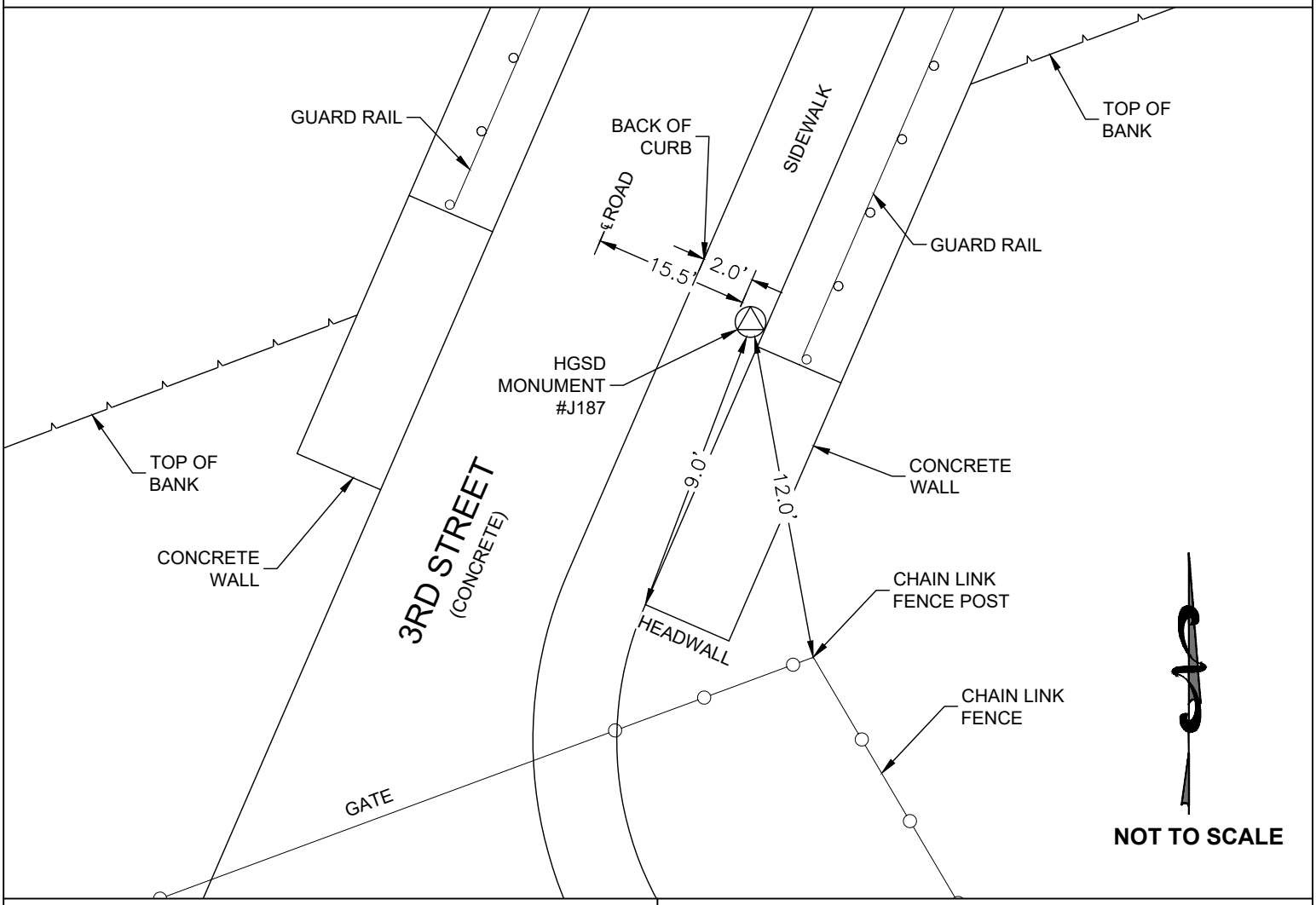


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: JONES **4-Char ID/PID:** JONS/AM0052	**General Location:** Jones Creek

Benchmark Description:
THE MONUMENT IS A BRONZE U.S COAST & GEODETIC SURVEY TRIANGULATION STATION DISK, STAMPED "JONES 1931". SET IN THE TOP OF A CONCRETE POST FLUSH WITH THE GROUND.

County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 910P	**Date Observed:** October 26, 2022
USGS Quad Map: Jones Creek (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: Jones 1931	**Monument Depth:** N/A
Northing: 13553883.82 (usft) **Easting:** 3113155.40 (usft) **Orthometric Height[1]:** Not Published (usft) **Geoid Height:** -86.92 (usft)	**Latitude:** 28 58 09.31275(N) **Longitude:** 095 25 10.06569(W) **Ellipsoid Height:** -80.17 (usft) **Convergence Angle:** 01 45 14.94

Scale Factor: 0.99988347 **Elevation Scale Factor:** 1.00000384 **Combined Scale Factor:** 0.99988731

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 36 AND BRAZOS RIVER ROAD, GO 0.06 MILES EAST ON SH 36 TO THE "T" INTERSECTION OF GULF PARK ROAD TO THE SOUTH. THE MONUMENT IS IN A PASTURE IN THE NORTHERN EXTENSION ON GULF PARK ROAD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13553883.82	Easting: 3113155.40	Orthometric Height: Not Published

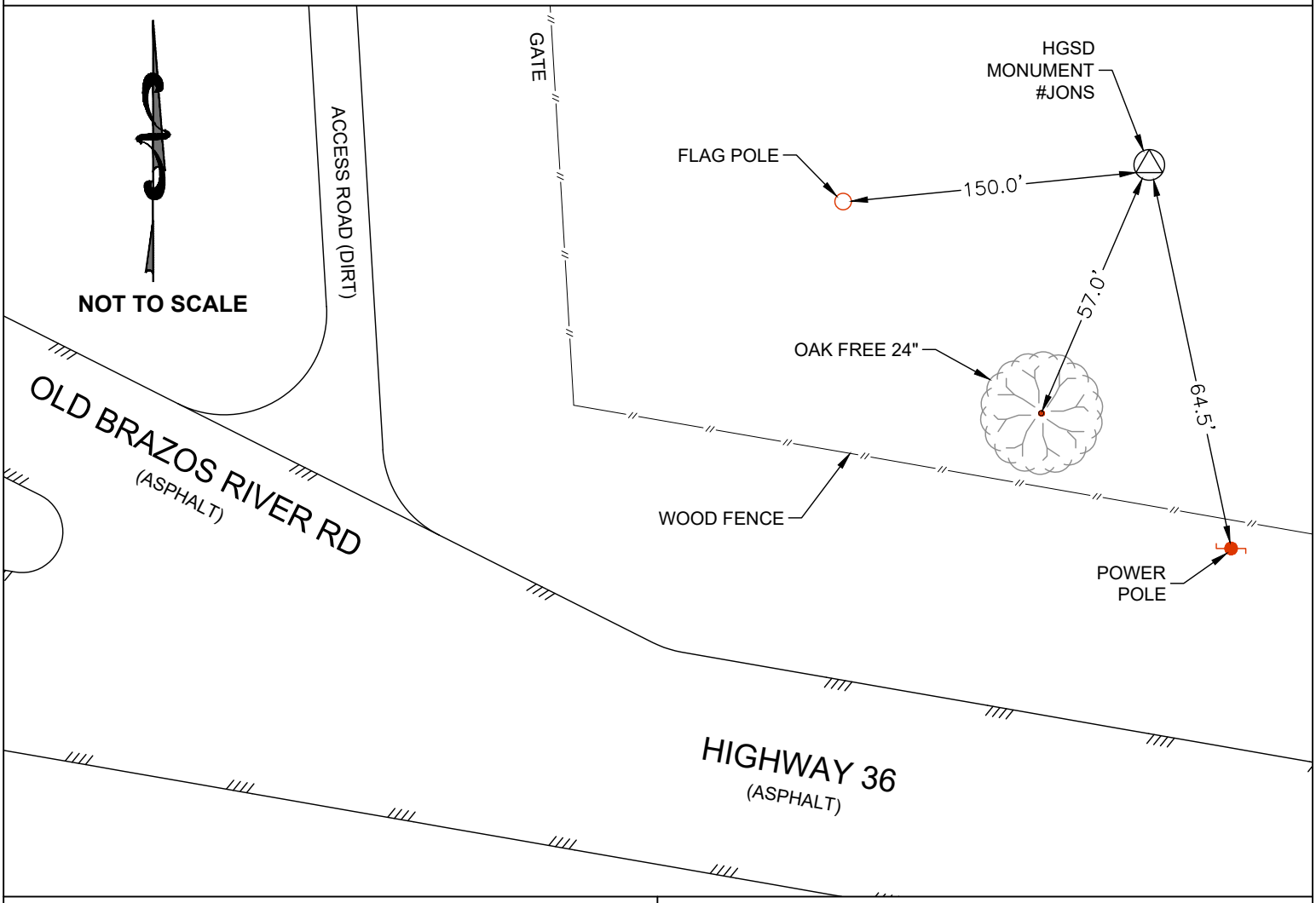


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: L 668 **4-Char ID/PID:** L668/AW2035	**General Location:** Fresno

Benchmark Description:
THE MONUMENT IS A DISK EAST OF THE WEST END OF THE SOUTH CONCRETE HEADWALL OF A CONCRETE BOX CULVERT UNDER THE ROAD.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 651D	**Date Observed:** October 26, 2022
USGS Quad Map: Almeda (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: L 668 1942	**Monument Depth:** N/A
Northing: 13755507.28 (usft) **Easting:** 3095853.21 (usft) **Orthometric Height[1]:** 71.98 (usft) **Geoid Height:** -89.08 (usft)	**Latitude:** 29 31 29.88099(N) **Longitude:** 095 27 15.97328(W) **Ellipsoid Height:** -17.08 (usft) **Convergence Angle:** 01 44 13.26

Scale Factor: 0.99986872 **Elevation Scale Factor:** 1.00000082 **Combined Scale Factor:** 0.99986954

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 6 AND FM 521 RD, TRAVEL ABOUT 1.25 MILE NORTH ALONG FM 521 RD TO THE INTERSECTION OF FM 521 RD AND W SYCAMORE STREET. THE MONUMENT IS ON A BOX CULVERT JUST BEFORE THE TRAIN TRACKS THAT CROSS W SYCAMORE RD.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13755507.28 **Easting:** 3095853.21 **Orthometric Height:** 71.98

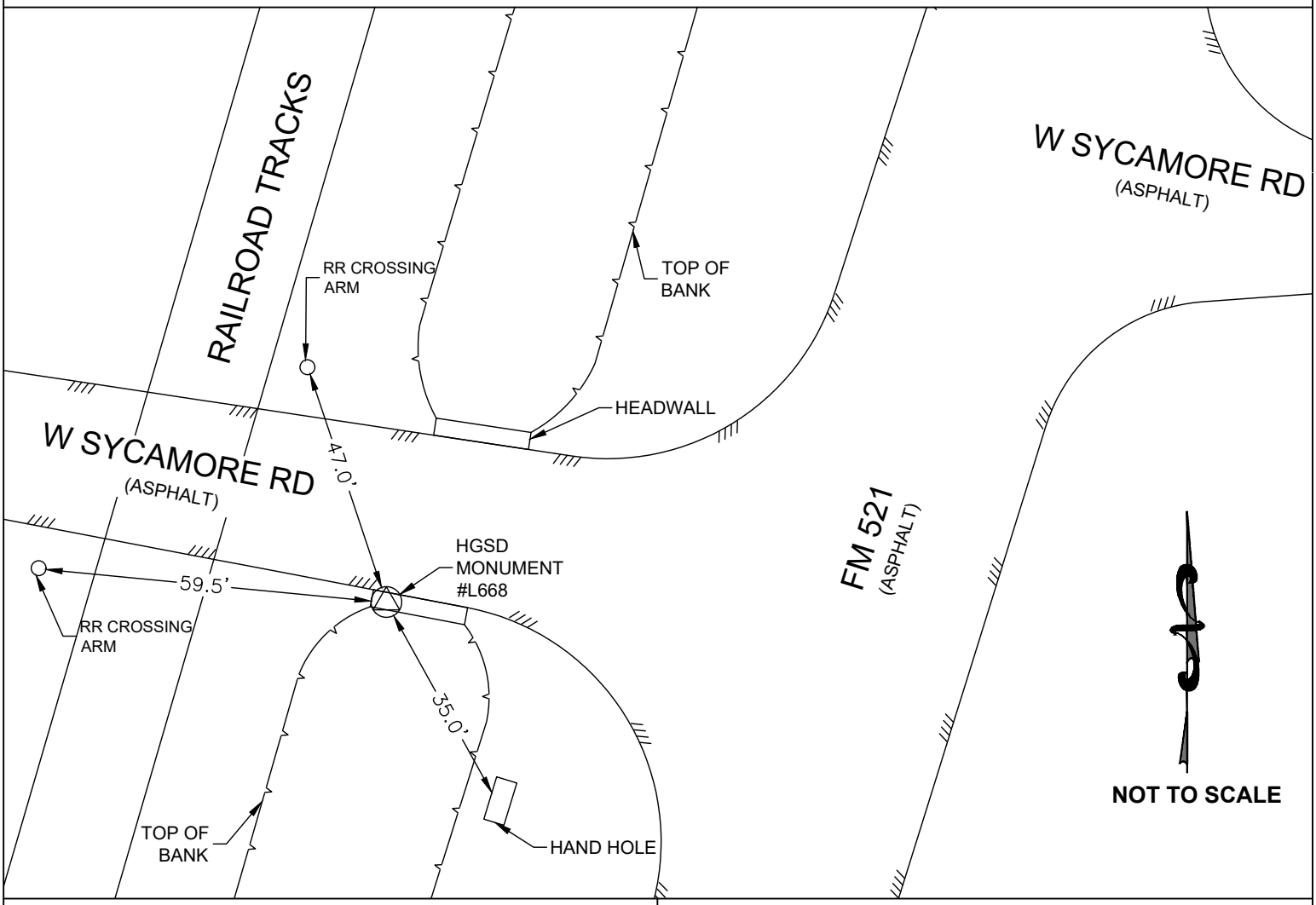


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: LAKEPORT **4-Char ID/PID:** LKPT/AX2802	**General Location:** Eagle Lake
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD WITH A PUNCH MARK IN THE TOP OF IT AND DRIVEN INTO THE GROUND WITH A LOGO CAP STAMPED---LAKEPORT 1987---, THE ROD IS RECESSED 1 CM BELOW THE GROUND SURFACE.	
County: Colorado **State:** Texas	**Observed by:** HGSD
Key Map Page No:	**Date Observed:** November 7, 2022
USGS Quad Map: Eagle Lake (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: LAKEPORT 1987	**Monument Depth:** 10m
Northing: 13773803.78 (usft) **Easting:** 2819591.44 (usft) **Orthometric Height[1]:** 181.59 (usft) **Geoid Height:** -89.67 (usft)	**Latitude:** 29 35 43.73456(N) **Longitude:** 096 19 17.82811(W) **Ellipsoid Height:** 91.96 (usft) **Convergence Angle:** 01 18 43.82
Scale Factor: 0.99987355 **Elevation Scale Factor:** 0.999995599 **Combined Scale Factor:** 0.99986915	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF N LAKE AVE AND E WAYSIDE AVE, TRAVEL ON N LAKE AVE APPROXIMATELY 0.07 MILE TO THE SOUTH CORNER OF EAGLE LAKE AIRPORT AND THE MONUMENT IS LOCATED BY THE WIND SOCK.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13773803.78	Easting: 2819591.44	Orthometric Height:181.59

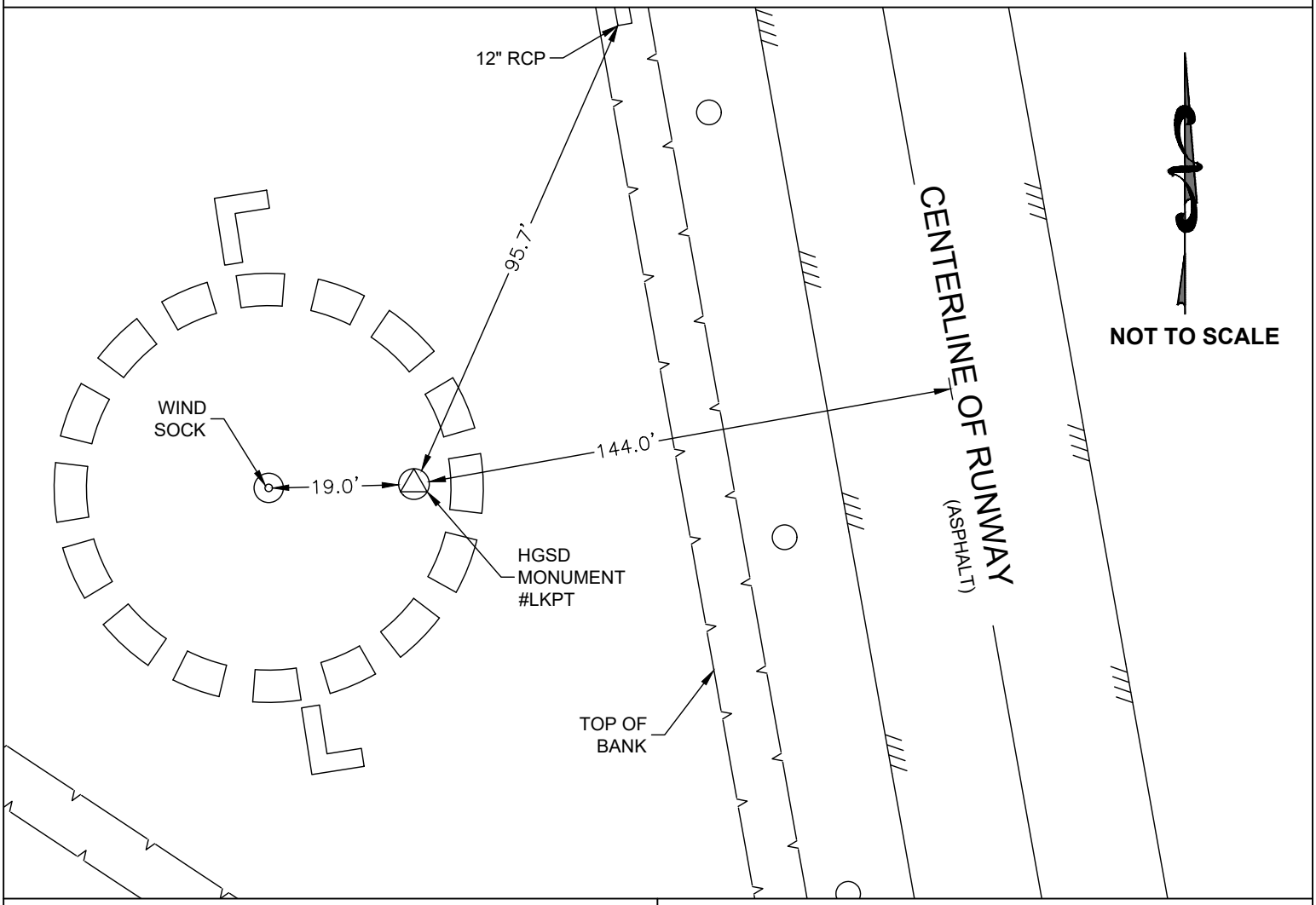


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: LA PORTE **4-Char ID/PID:** LPTE/AW1275	**General Location:** La Porte

Benchmark Description:
THE MONUMENT IS A BRONZE DISK STAMPED, LA PORTE 1952, SET IN THE TOP OF A 12 INCH SQUARE CONCRETE MONUMENT, WHICH IS FLUSH WITH THE GROUND SURFACE.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 539Y	**Date Observed:** November 8, 2022
USGS Quad Map: La Porte (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: LA PORTE 1952	**Monument Depth:** N/A
Northing: 13810340.55 (usft) **Easting:** 3217684.68 (usft) **Orthometric Height[1]:** 21.92 (usft) **Geoid Height:** -89.22 (usft)	**Latitude:** 29 39 53.91236(N) **Longitude:** 095 03 56.69439(W) **Ellipsoid Height:** -67.35 (usft) **Convergence Angle:** 01 55 38.78

Scale Factor: 0.99987978 **Elevation Scale Factor:** 1.00000322 **Combined Scale Factor:** 0.999883

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SPENCER HIGHWAY AND FARRINGTON ST, GO 0.28 MILE EAST ON SPENCER HIGHWAY TO THE DRIVEWAY ON THE LEFT. THE MONUMENT IS LOCATED ON THE SOUTH SIDE OF LA PORTE MUNICIPAL AIRPORT ON THE NORTH SIDE OF SPENCER HIGHWAY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13810340.55 **Easting:** 3217684.68 **Orthometric Height:** 21.92

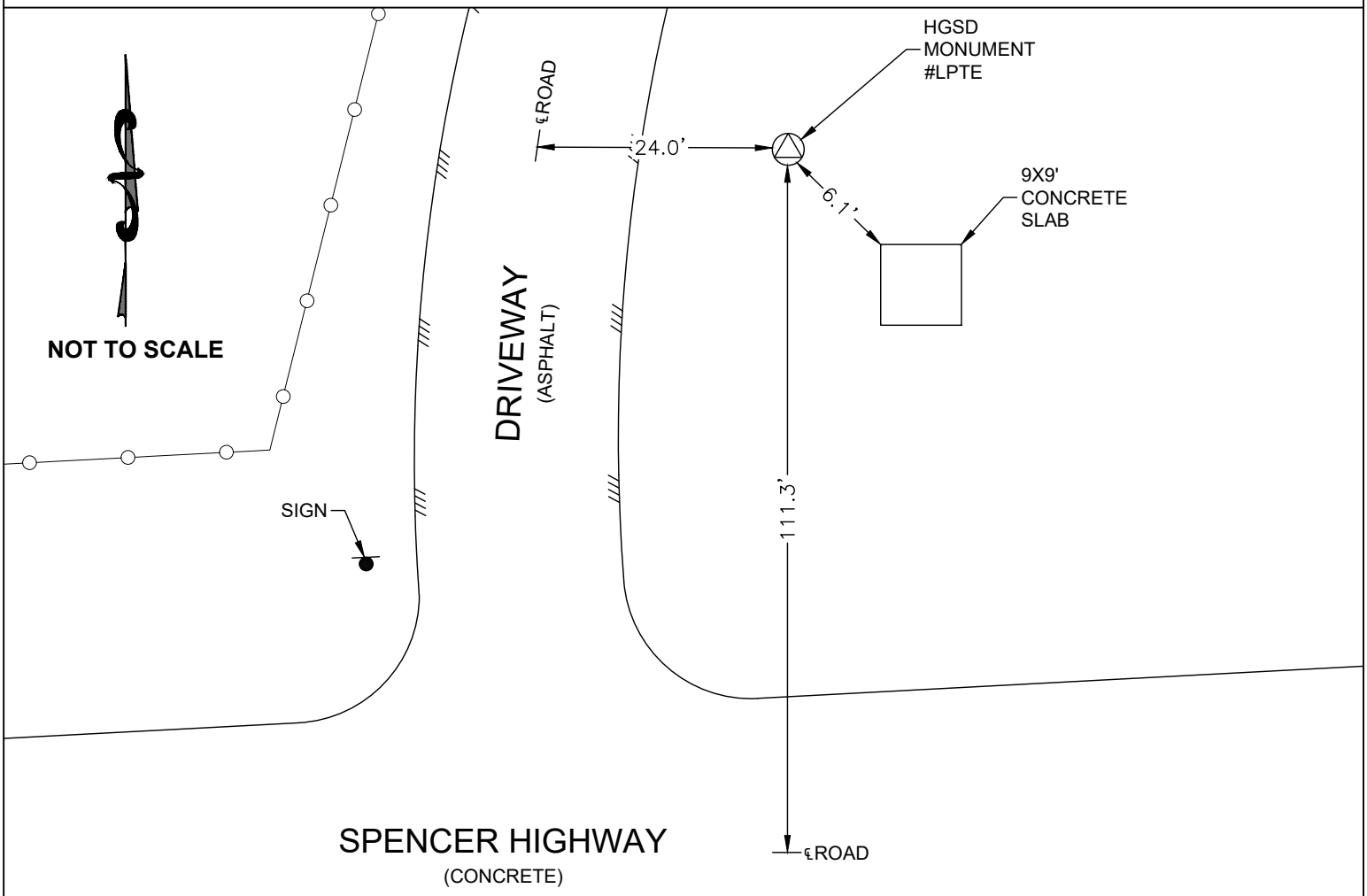


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: M 89 **4-Char ID/PID:** M089/AW0215	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A DISK SET IN THE TOP OF A 12 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND, NOTE--THE DISK HAS BEEN MUTILATED AND THE STAMPING IS VERY DIM.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 493H	**Date Observed:** October 24, 2022
USGS Quad Map: Settegast (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: M 89 1932	**Monument Depth:** N/A
Northing: 13846118.98 (usft) **Easting:** 3126591.45 (usft) **Orthometric Height[1]:** 47.93 (usft) **Geoid Height:** -89.68 (usft)	**Latitude:** 29 46 17.17867(N) **Longitude:** 095 20 56.15636(W) **Ellipsoid Height:** -41.72 (usft) **Convergence Angle:** 01 47 19.33

Scale Factor: 0.99989217 **Elevation Scale Factor:** 1.000002 **Combined Scale Factor:** 0.99989417

To Reach Monument

TO REACH THE MONUMENT FROM THE HARRIS COUNTY CIVIL COURTS BUILDING IN HOUSTON, GO 0.5 KM (0.3 MI) NORTHEAST ALONG SAN JACINTO STREET TO THE CROSSING OF THE SOUTHERN PACIFIC RAILROAD, THENCE 1.4 KM (0.9 MI) NORTHEAST ALONG THE RAILROAD, AT THE CROSSING OF LYONS STREET, 0.2 KM (0.15 MI) NORTH OF INTERSTATE HIGHWAY 10.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13846118.98 **Easting:** 3126591.45 **Orthometric Height:** 47.93

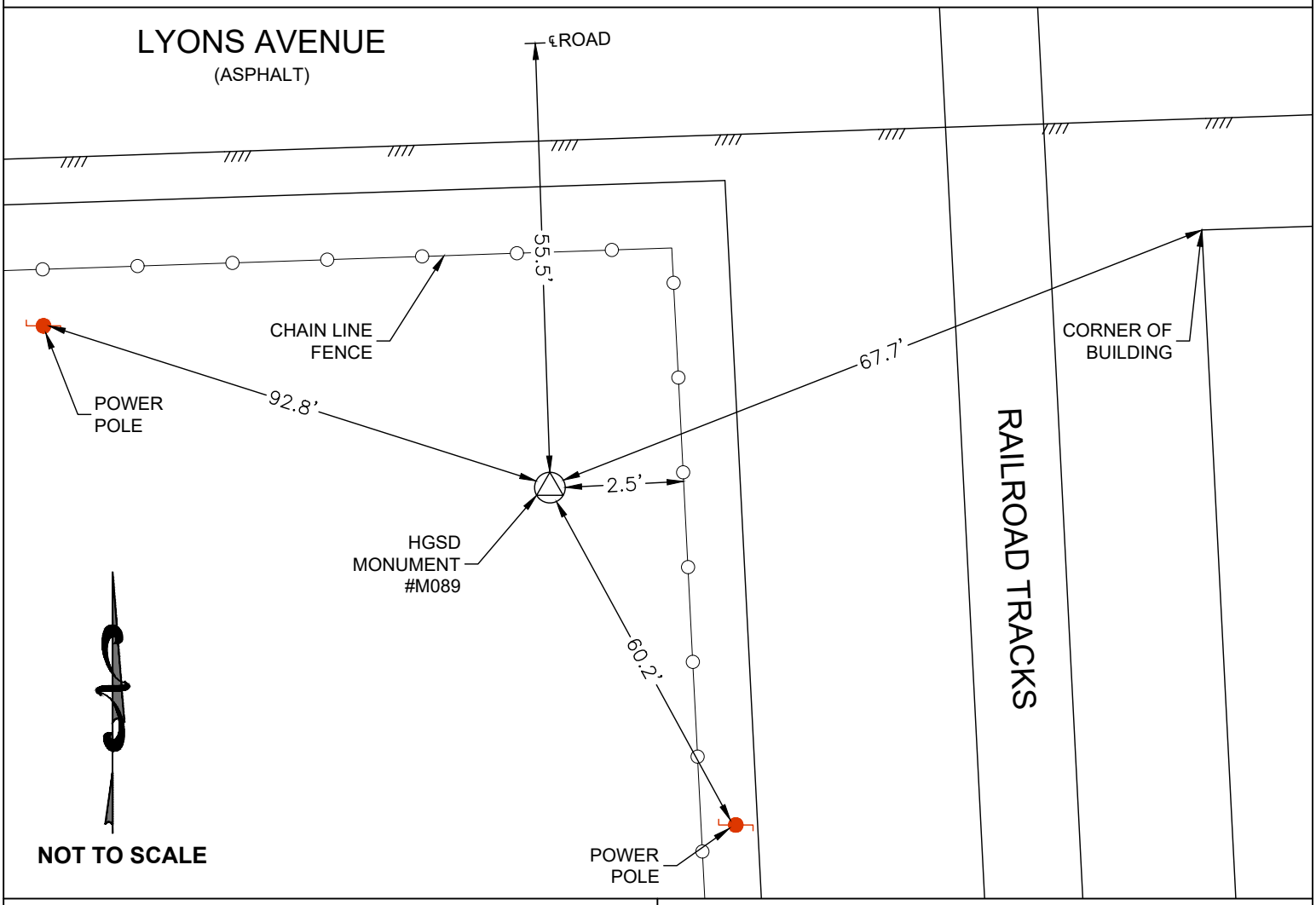


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: N20X **4-Char ID/PID:** N20X/AW0813	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE TEXAS HIGHWAY DEPARTMENT DISK, STAMPED "N 20". SET IN THE TOP OF A CONCRETE POST, FLUSED WITH THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 375T	**Date Observed:** October 19, 2022
USGS Quad Map: Humble (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: TXHD	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: N 20	**Monument Depth:** N/A
Northing: 13907469.47 (usft) **Easting:** 3145293.14 (usft) **Orthometric Height[1]:** 65.45 (usft) **Geoid Height:** -89.93 (usft)	**Latitude:** 29 56 18.40130(N) **Longitude:** 095 17 01.92401(W) **Ellipsoid Height:** -24.45 (usft) **Convergence Angle:** 01 49 14.09

Scale Factor: 0.99991856 **Elevation Scale Factor:** 1.00000117 **Combined Scale Factor:** 0.99991973

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF N. SAM HOUSTON PARKWAY E (BELTWAY 8) AND OLD HUMBLE RD, GO SW 0.13 MILE TO OLD NORTH BELT RD AND THE NW EAST 0.07 MILE TO ELMTEX DR. THE MONUMENT IS LOCATED AT THE SOUTHEAST CORNER OF OLD NORTH BELT DR AND ELMTEX DR.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13907469.47	Easting: 3145293.14	Orthometric Height: 65.45

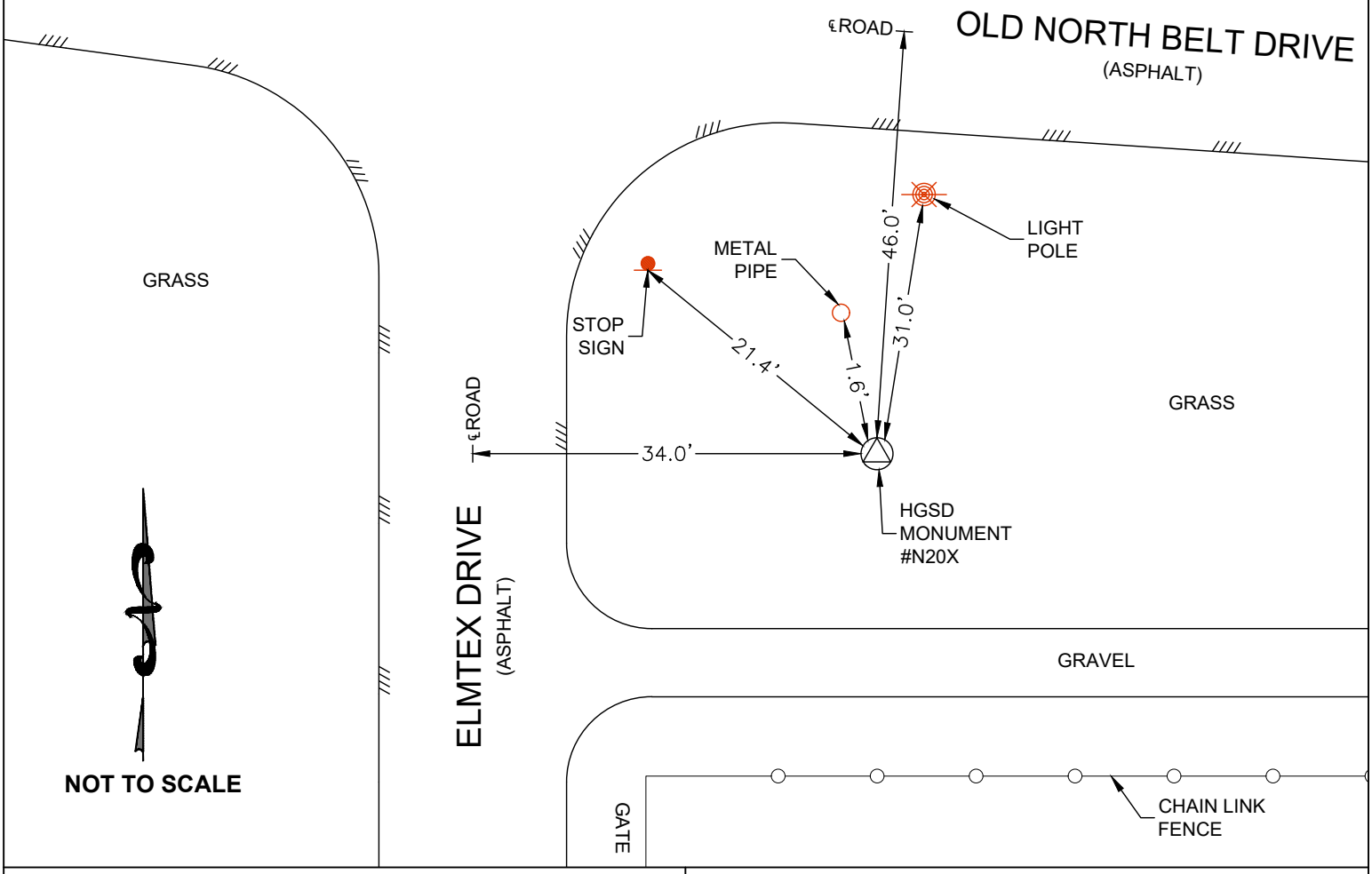


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 10 ARP **4-Char ID/PID:** P10A/AJ6417	**General Location:** Rosenberg

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 604H	**Date Observed:** October 31, 2022
USGS Quad Map: Richmond (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13767399.01 (usft) **Easting:** 2985858.28 (usft) **Orthometric Height[1]:** 109.91 (usft) **Geoid Height:** -89.68 (usft)	**Latitude:** 29 33 58.97255(N) **Longitude:** 095 47 57.00969(W) **Ellipsoid Height:** 20.21 (usft) **Convergence Angle:** 01 34 05.26

Scale Factor: 0.99987137 **Elevation Scale Factor:** 0.99999903 **Combined Scale Factor:** 0.9998704

To Reach Monument

TO REACH THE STATION GO EAST 0.15 MILE ON AVENUE "A" FROM THE INTERSECTION OF AVENUE "A" AND 8TH STREET, ROSENBERG, TEXAS. THE STATION IS IN THE CIRCLE DRIVE FOR THE ROSENBERG UTILITIES DEPT. FACILITY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13767399.01 **Easting:** 2985858.28 **Orthometric Height:** 109.91

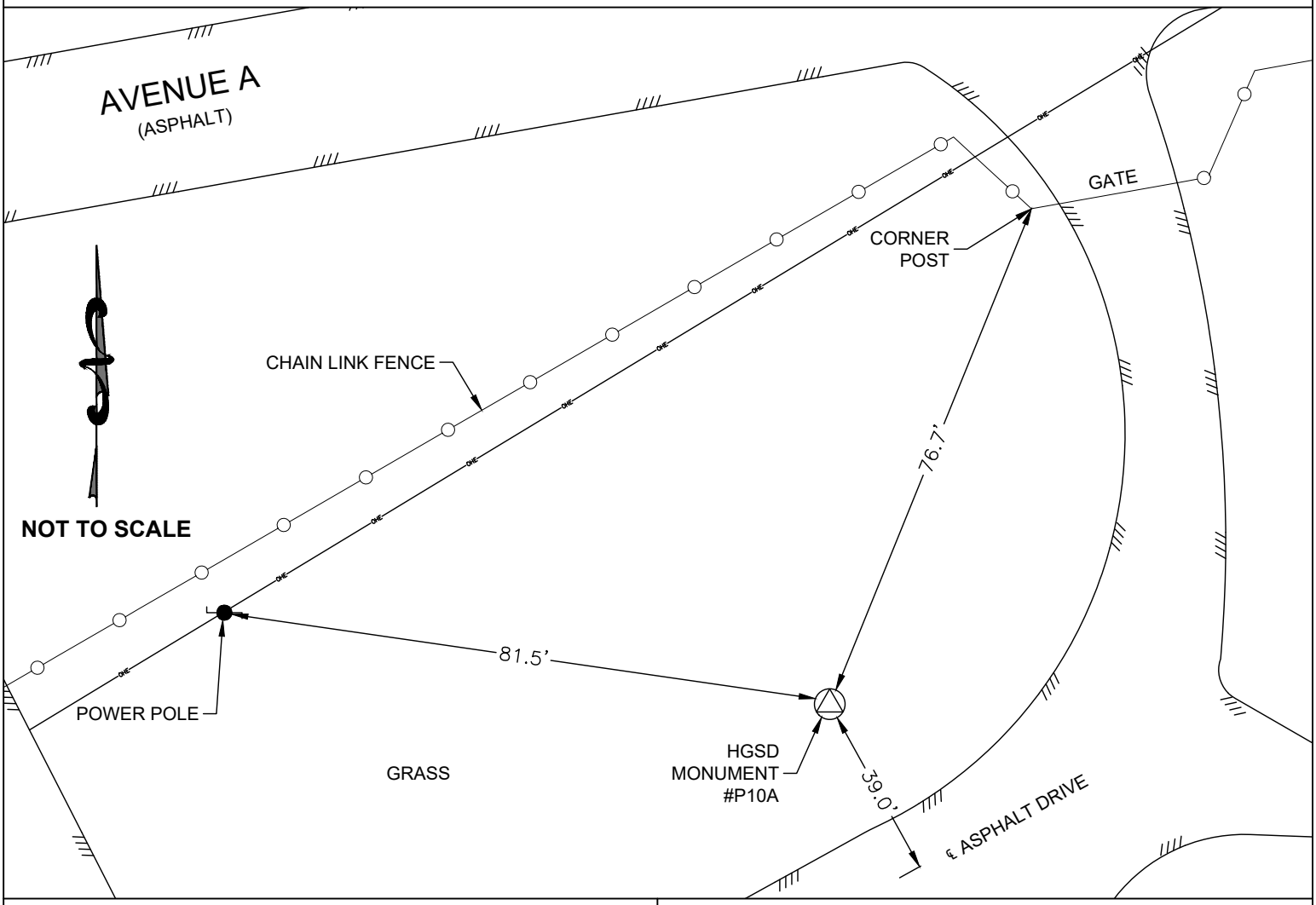


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 11 ARP **4-Char ID/PID:** P11A/AJ6418	**General Location:** Hockley

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 323H	**Date Observed:** October 11, 2022
USGS Quad Map: Hockley (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13936144.87 (usft) **Easting:** 2960331.78 (usft) **Orthometric Height[1]:** 237.96 (usft) **Geoid Height:** -90.47 (usft)	**Latitude:** 30 01 55.76908(N) **Longitude:** 095 51 54.77483(W) **Ellipsoid Height:** 147.52 (usft) **Convergence Angle:** 01 32 08.77

Scale Factor: 0.99993709 **Elevation Scale Factor:** 0.99999294 **Combined Scale Factor:** 0.99993003

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF HIGHWAY 290 AND KICKAPOO RD, GO SOUTH ON KIKAPOO RD TO OLD WASHINGTON RD, THENCE SOUTHEAST ON OLD WASHINGTON TO PREMIUM DR. 0.54 MILES, (0.87 KM) SOUTH ON PREMIUM DR. TO GATE ON LEFT INTO SERVICE CENTER.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13936144.87	Easting: 2960331.78	Orthometric Height: 237.96

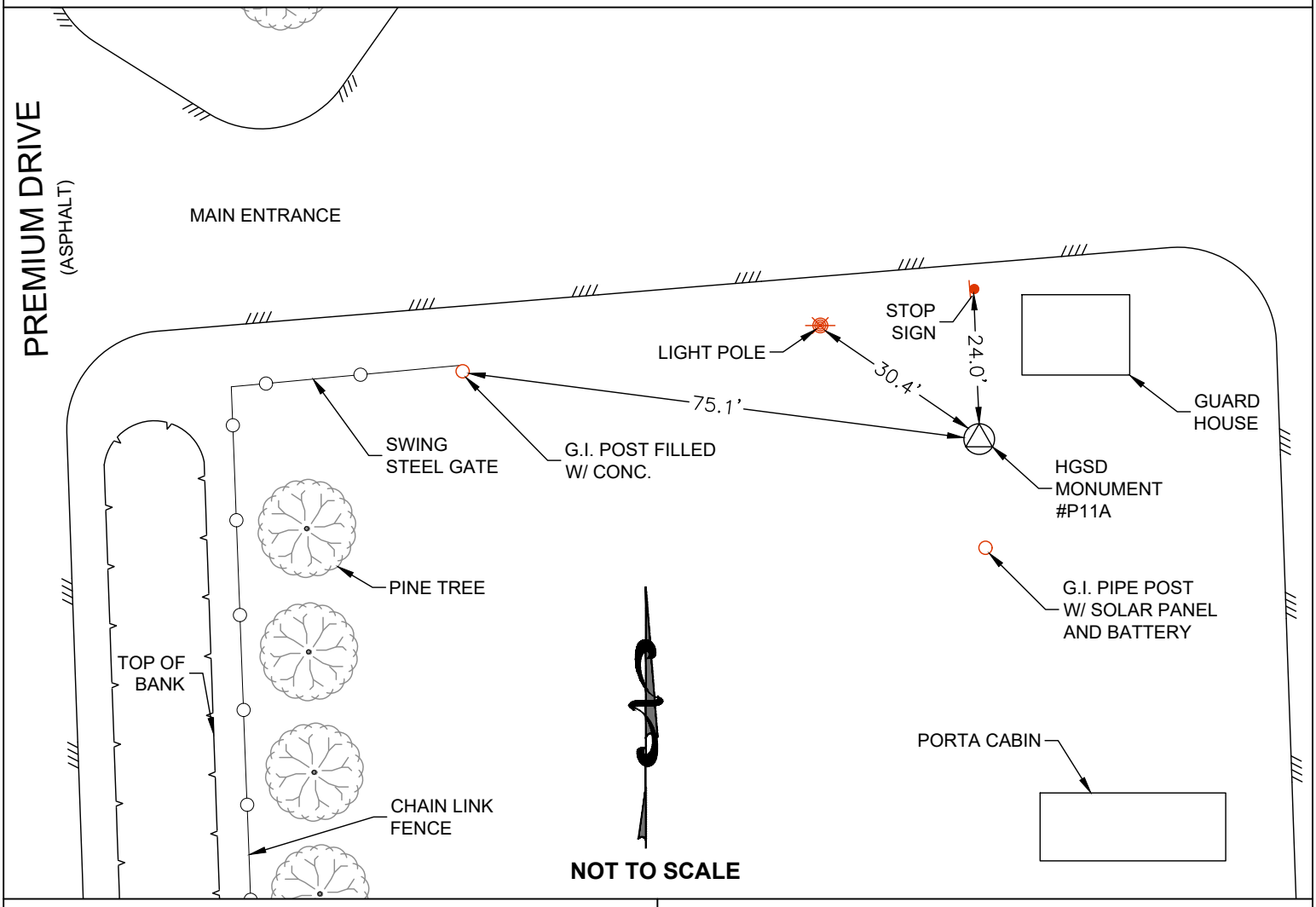


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 14 ARP **4-Char ID/PID:** P14A/AJ6420	**General Location:** Thompsons

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 647V	**Date Observed:** October 27, 2022
USGS Quad Map: Smithers Lake (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13735076.48 (usft) **Easting:** 3036100.78 (usft) **Orthometric Height[1]:** 81.07 (usft) **Geoid Height:** -89.13 (usft)	**Latitude:** 29 28 25.14358(N) **Longitude:** 095 38 38.75142(W) **Ellipsoid Height:** -8.09 (usft) **Convergence Angle:** 01 38 38.76

Scale Factor: 0.99986616 **Elevation Scale Factor:** 1.00000039 **Combined Scale Factor:** 0.99986655

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 762 AND SMITHERS LAKE RD. GO IN A SOUTHEASTERLY DIRECTION ON SMITHERS LAKE RD FOR 2.6 MILES (4.2 KM) TO GATE 7 INTO THE CNP POWER PLANT. THE STATION IS 385 FEET NORTH OF THE INTERSECTION OF SMITHERS LAKE ROAD AND Y.U. JONES ROAD.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204	Northing: 13735076.48	Easting: 3036100.78	Orthometric Height: 81.07

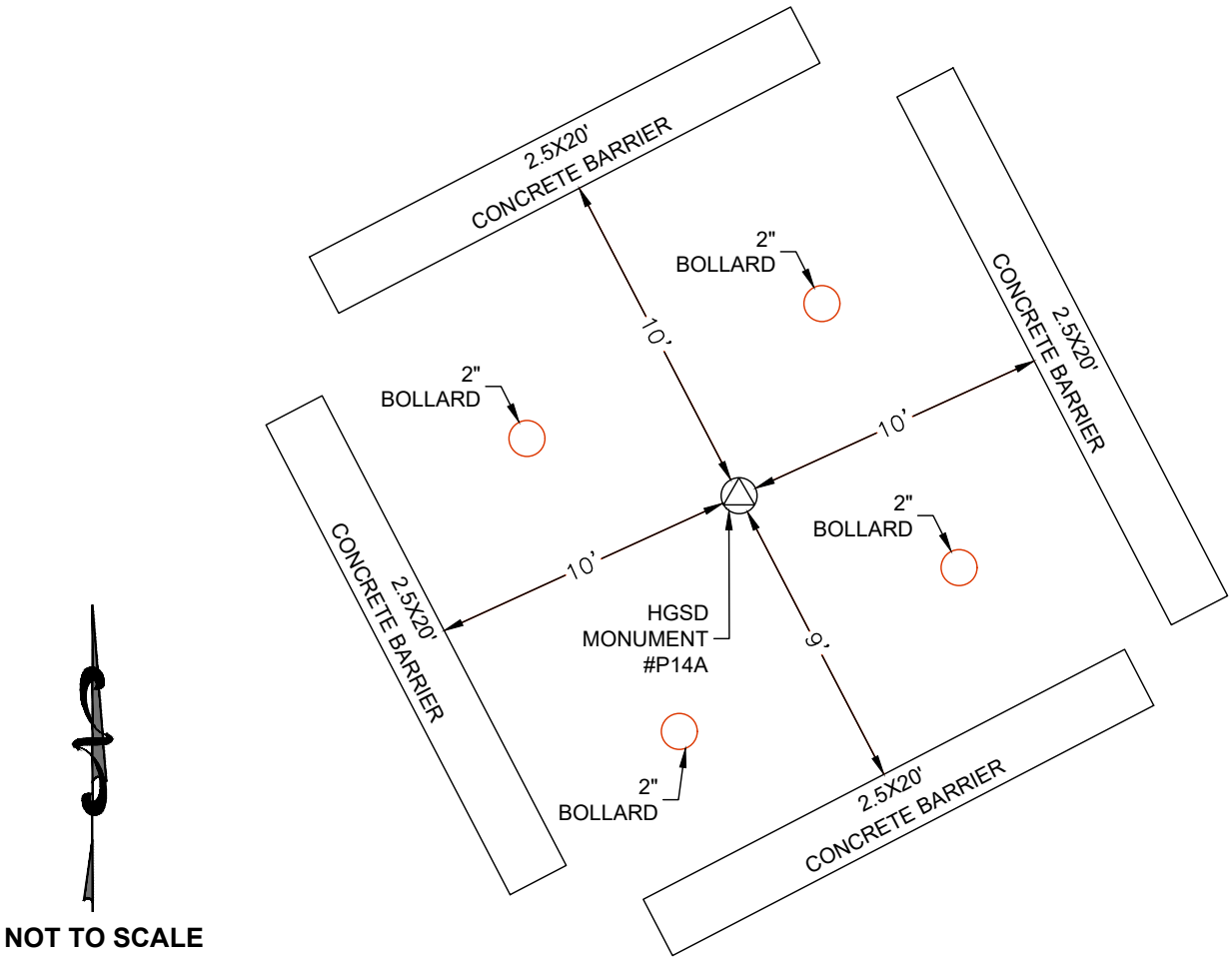


Photo 1 - Station Detail	Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 16 ARP **4-Char ID/PID:** P16A/AJ6422	**General Location:** Missouri City

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 610T	**Date Observed:** November 2, 2022
USGS Quad Map: Missouri City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13761896.91 (usft) **Easting:** 3072502.49 (usft) **Orthometric Height[1]:** 71.82 (usft) **Geoid Height:** -89.20 (usft)	**Latitude:** 29 32 40.04922(N) **Longitude:** 095 31 38.04839(W) **Ellipsoid Height:** -17.34 (usft) **Convergence Angle:** 01 42 04.86

Scale Factor: 0.99986991 **Elevation Scale Factor:** 1.00000083 **Combined Scale Factor:** 0.99987074

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF SH 6 AND SIENNA PARKWAY GO EAST 0.35 MILE ON SH 6 TO KITTY HOLLOW PARK DR. TO THE NORTH. GO NORTH ON KITTY HOLLOW PARK DR. FOR 1.0 MILE TO A PARKING LOT ON THE LEFT. THE STATION IS ON THE WEST SIDE OF THE PARKING LOT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13761896.91 **Easting:** 3072502.49 **Orthometric Height:** 71.82

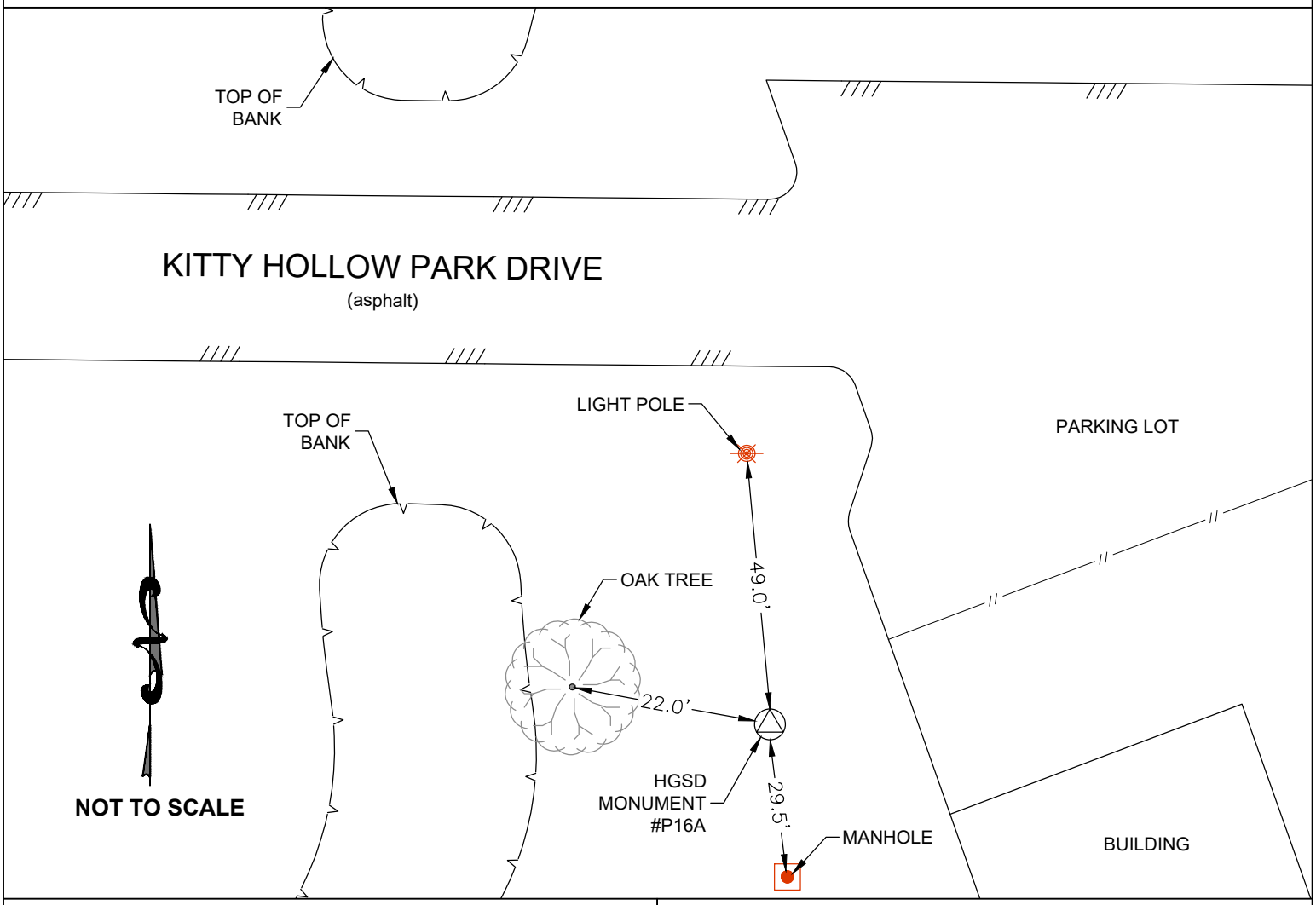


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 17 ARP **4-Char ID/PID:** P17A/AJ6411	**General Location:** Tomball

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 288M	**Date Observed:** October 14, 2022
USGS Quad Map: Tomball (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13959796.34 (usft) **Easting:** 3038765.74 (usft) **Orthometric Height[1]:** 186.75 (usft) **Geoid Height:** -90.51 (usft)	**Latitude:** 30 05 28.16714(N) **Longitude:** 095 36 55.03381(W) **Ellipsoid Height:** 96.29 (usft) **Convergence Angle:** 01 39 29.57

Scale Factor: 0.99995014 **Elevation Scale Factor:** 0.99999539 **Combined Scale Factor:** 0.99994553

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF JAMES ST AND S. PINE ST GO SOUTH ON S PINE ST 0.05 MILE TO THE STATION ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13959796.34 **Easting:** 3038765.74 **Orthometric Height:** 186.75

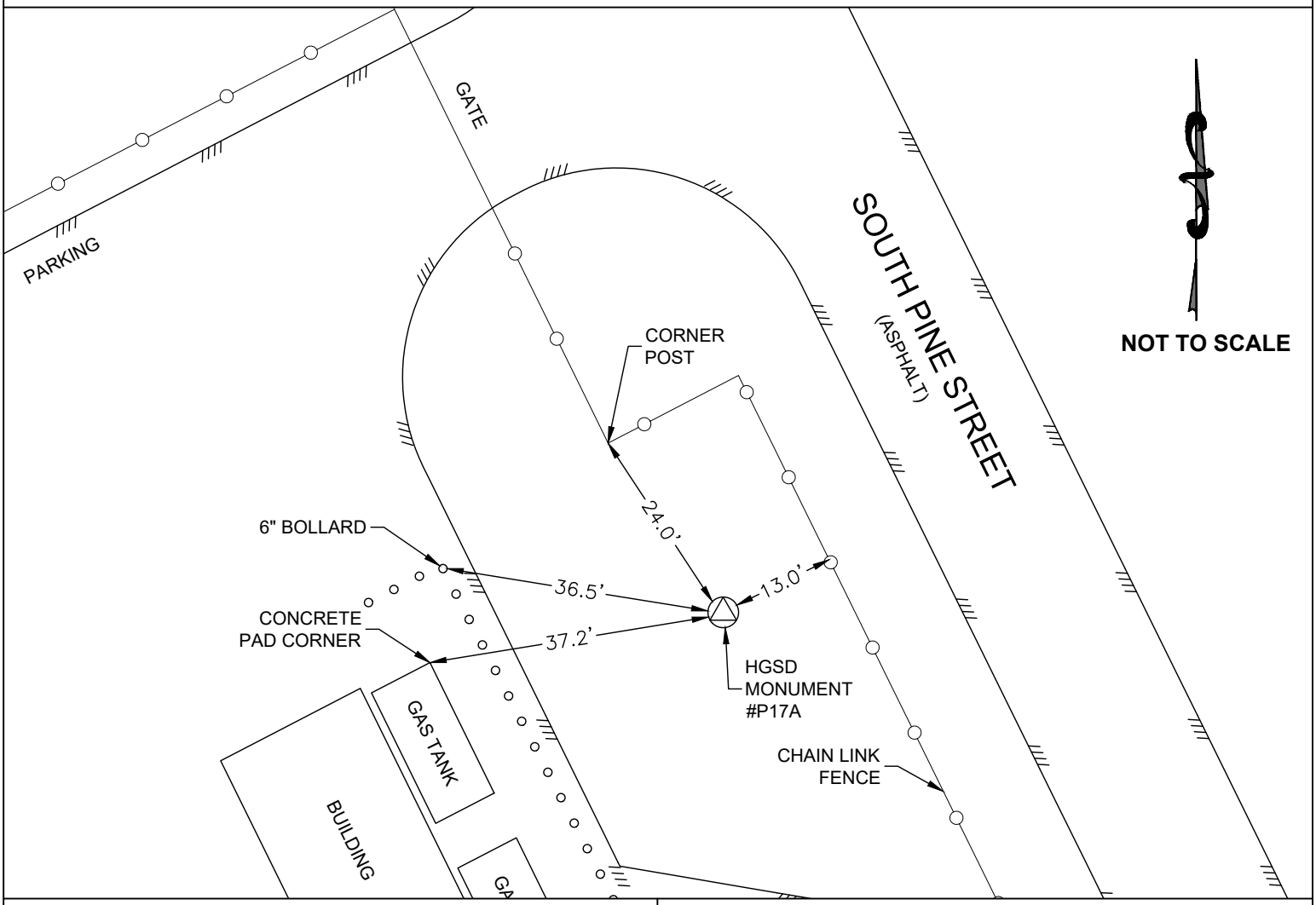


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 18 ARP **4-Char ID/PID:** P18A/AJ6423	**General Location:** Cypress

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 367F	**Date Observed:** October 20, 2022
USGS Quad Map: Cypress (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13913339.49 (usft) **Easting:** 3020175.47 (usft) **Orthometric Height[1]:** 152.17 (usft) **Geoid Height:** -90.42 (usft)	**Latitude:** 29 57 53.74766(N) **Longitude:** 095 40 41.58760(W) **Ellipsoid Height:** 61.79 (usft) **Convergence Angle:** 01 37 38.58

Scale Factor: 0.99992353 **Elevation Scale Factor:** 0.99999704 **Combined Scale Factor:** 0.99992057

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF HIGHWAY 290 AND FM 1960, GO NORTHWEST ALONG HIGHWAY 290 FOR ABOUT 5 MILES, (8.0 KM) TURN RIGHT INTO THE COMPAQ FACILITY AND DRIVE AROUND TO NORTH SIDE OF FACILITY TO WATER PLANT ON RIGHT WITH STATION WITHIN SECURE GROUNDS.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13913339.49	Easting: 3020175.47	Orthometric Height:152.17

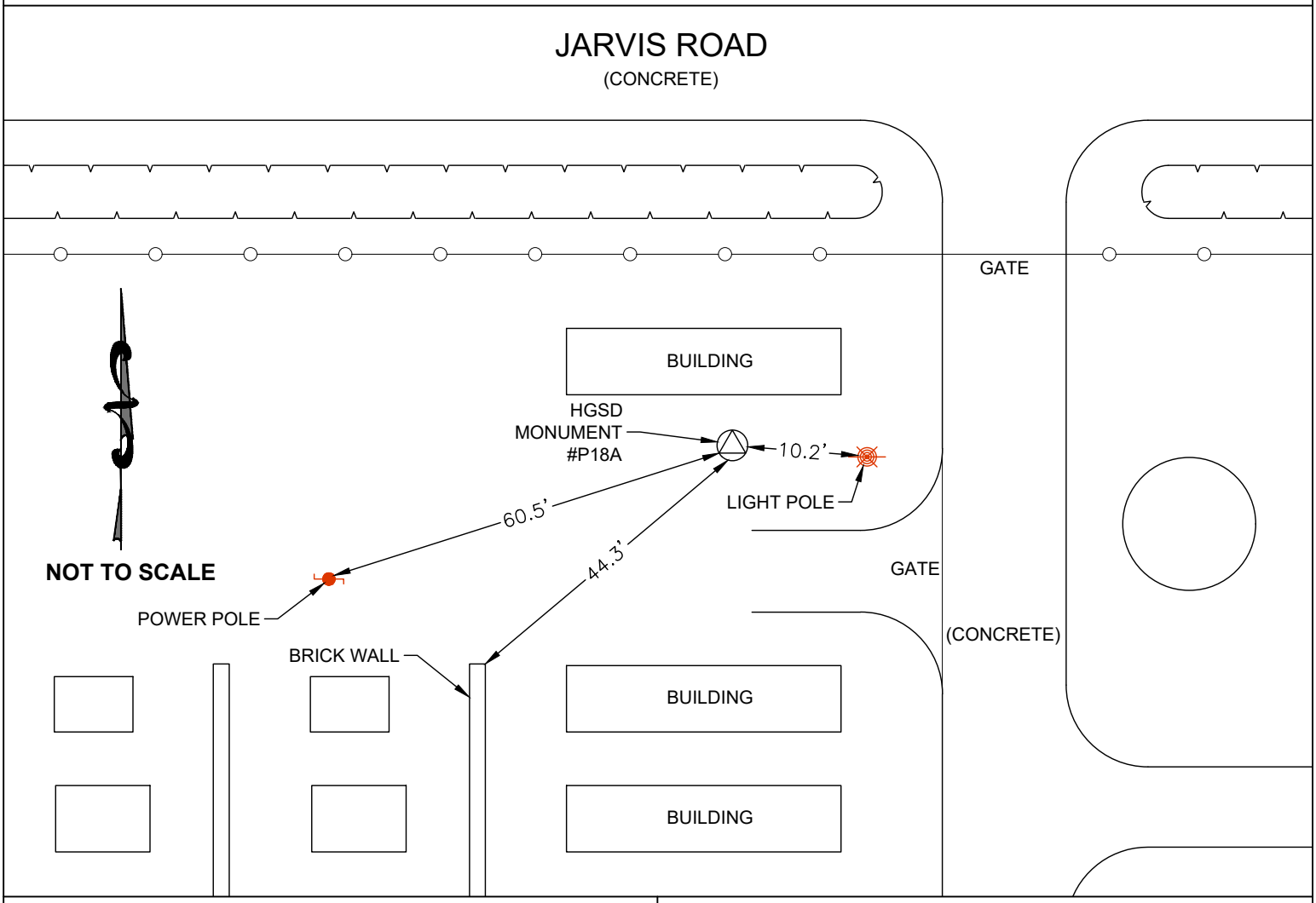


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 19 ARP **4-Char ID/PID:** P19A/AJ6424	**General Location:** Katy

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 444D	**Date Observed:** October 18, 2022
USGS Quad Map: Katy (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13867208.98 (usft) **Easting:** 2981170.17 (usft) **Orthometric Height[1]:** 158.10 (usft) **Geoid Height:** -90.29 (usft)	**Latitude:** 29 50 28.00761(N) **Longitude:** 095 48 19.20966(W) **Ellipsoid Height:** 67.88 (usft) **Convergence Angle:** 01 33 54.38

Scale Factor: 0.99990215 **Elevation Scale Factor:** 0.99999675 **Combined Scale Factor:** 0.9998989

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF MORTON RD AND KATY HOCKLEY-CUTOFF. HEAD NORTH ON KATY HOCKLEY-CUTOFF FOR 1.7 MILES (2.7 KM) TO STATION ON RIGHT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13867208.98 **Easting:** 2981170.17 **Orthometric Height:** 158.10

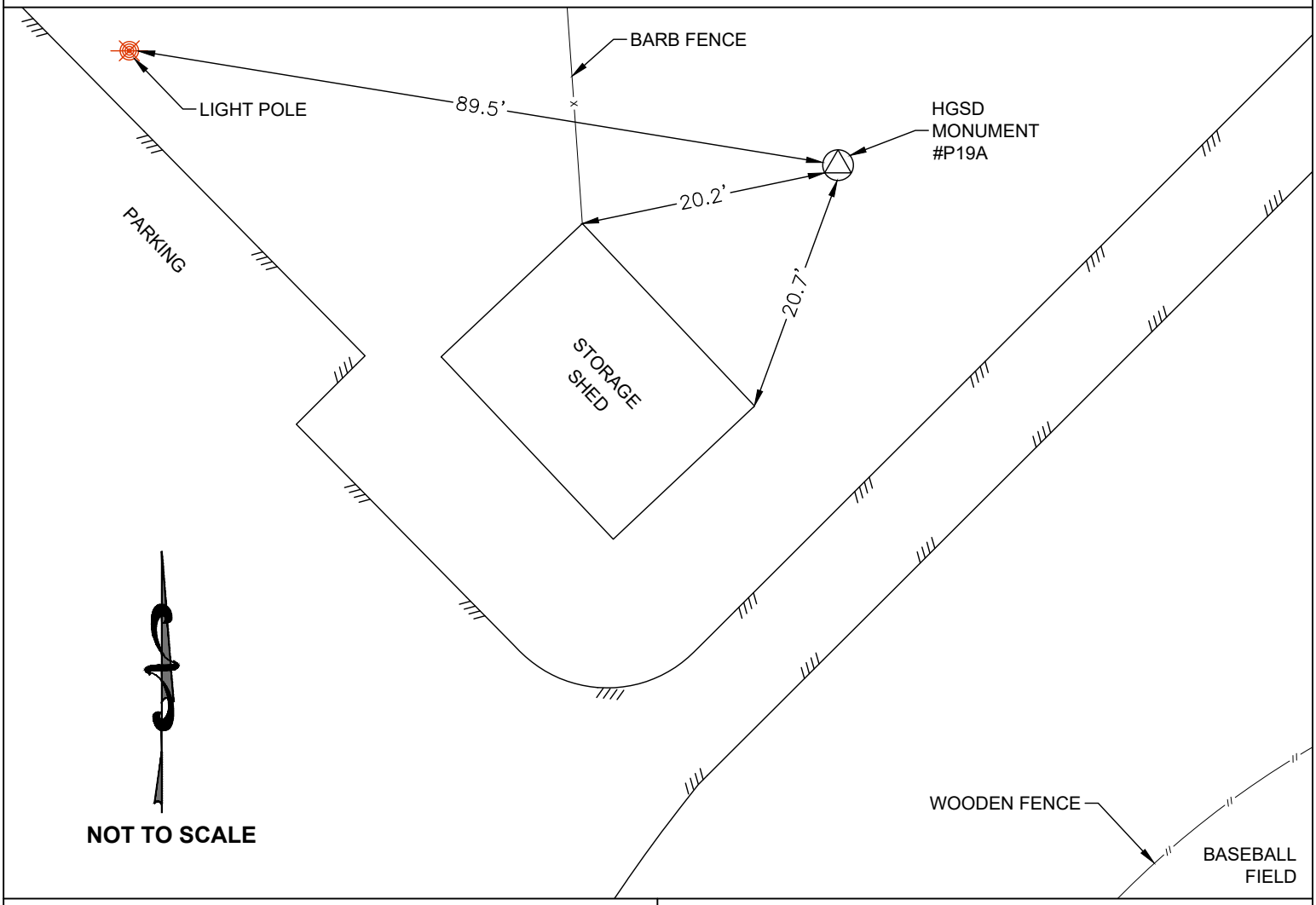


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: P 1218 **4-Char ID/PID:** P218/AW0900	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A DISK SET ON TOP OF A COPPER COATED STEEL ROD 1 INCH BELOW THE SURFACE OF THE GROUND, AND PROTECTED BY A 6-INCH IRON PIPE FLUSH WITH THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 496Y	**Date Observed:** November 10, 2022
USGS Quad Map: Pasadena (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** D: Questionable or unknown reliability
Marker/Stamping: P 1218 1973	**Monument Depth:** N/A
Northing: 13832897.65 (usft) **Easting:** 3170363.42 (usft) **Orthometric Height[1]:** 16.01 (usft) **Geoid Height:** -89.44 (usft)	**Latitude:** 29 43 52.57390(N) **Longitude:** 095 12 44.56244(W) **Ellipsoid Height:** -73.39 (usft) **Convergence Angle:** 01 51 20.17

Scale Factor: 0.99988709 **Elevation Scale Factor:** 1.00000351 **Combined Scale Factor:** 0.9998906

To Reach Monument

TO REACH THE MONUMENT FROM THE ROUNDABOUT LOCATED ON FEDERAL RD AND CLINTON DR, HEAD SOUTH ON FEDERAL RD AND TURN INTO THE FIRST DRIVEWAY BEFORE THE WASHBURN TUNNEL ENTERANCE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13832897.65 **Easting:** 3170363.42 **Orthometric Height:** 16.01

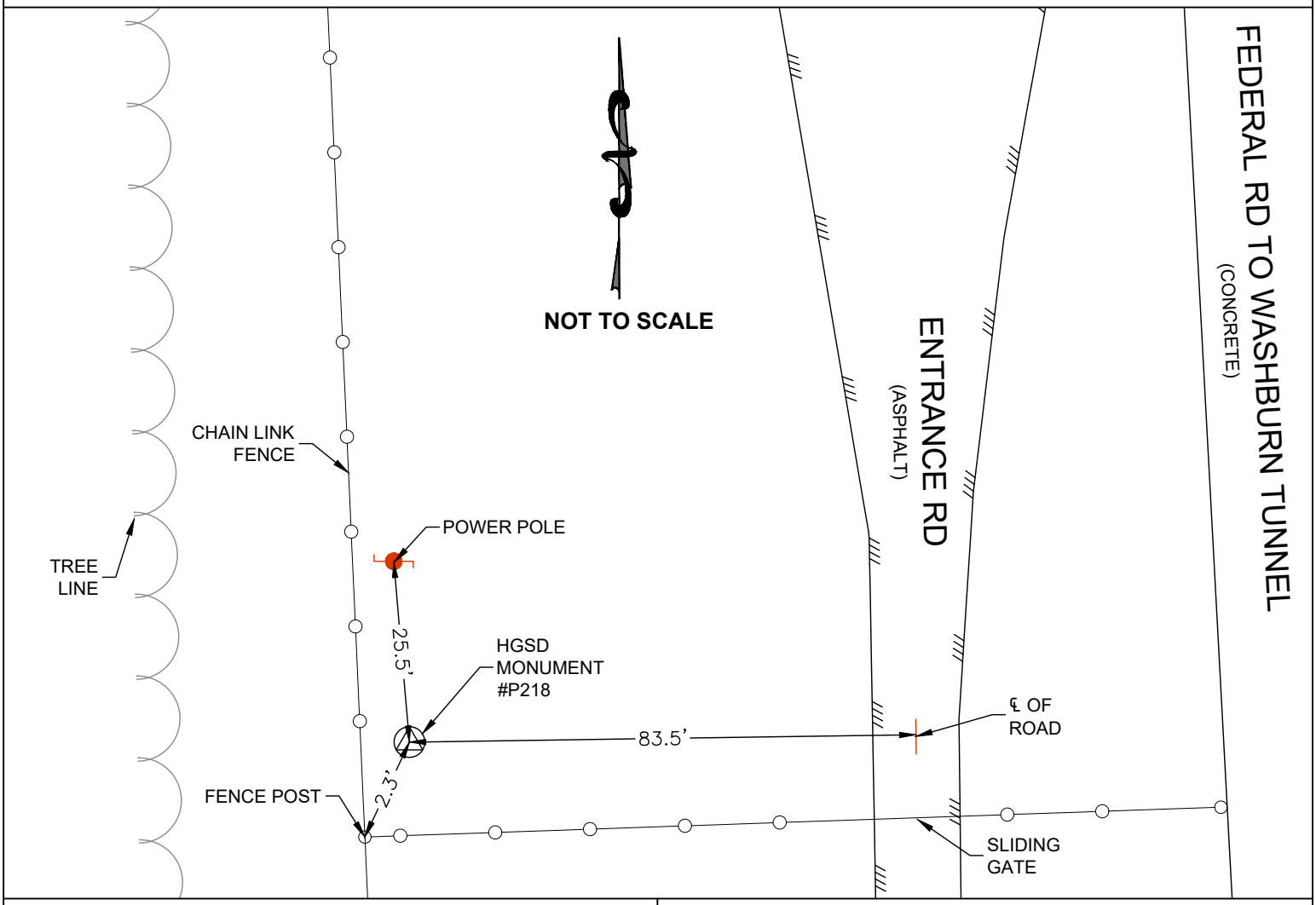


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 29 ARP **4-Char ID/PID:** P29M/DM7882	**General Location:** Katy

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 484G	**Date Observed:** October 25, 2022
USGS Quad Map: Katy (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13840855.12 (usft) **Easting:** 2976545.41 (usft) **Orthometric Height[1]:** 138.25 (usft) **Geoid Height:** -90.15 (usft)	**Latitude:** 29 46 08.45115(N) **Longitude:** 095 49 19.83723(W) **Ellipsoid Height:** 48.02 (usft) **Convergence Angle:** 01 33 24.68

Scale Factor: 0.99989185 **Elevation Scale Factor:** 0.9999977 **Combined Scale Factor:** 0.99988955

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF PIN OAK RD AND KINGSLAND BLVD GO 0.32 MILE WEST ON KINGSLAND TO THE ENTRANCE DRIVE TO THE WATER PLANT ON THE LEFT. THE STATION IS AT THE SOUTHWEST SIDE OF THE WATER TANK.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13840855.12 **Easting:** 2976545.41 **Orthometric Height:** 138.25

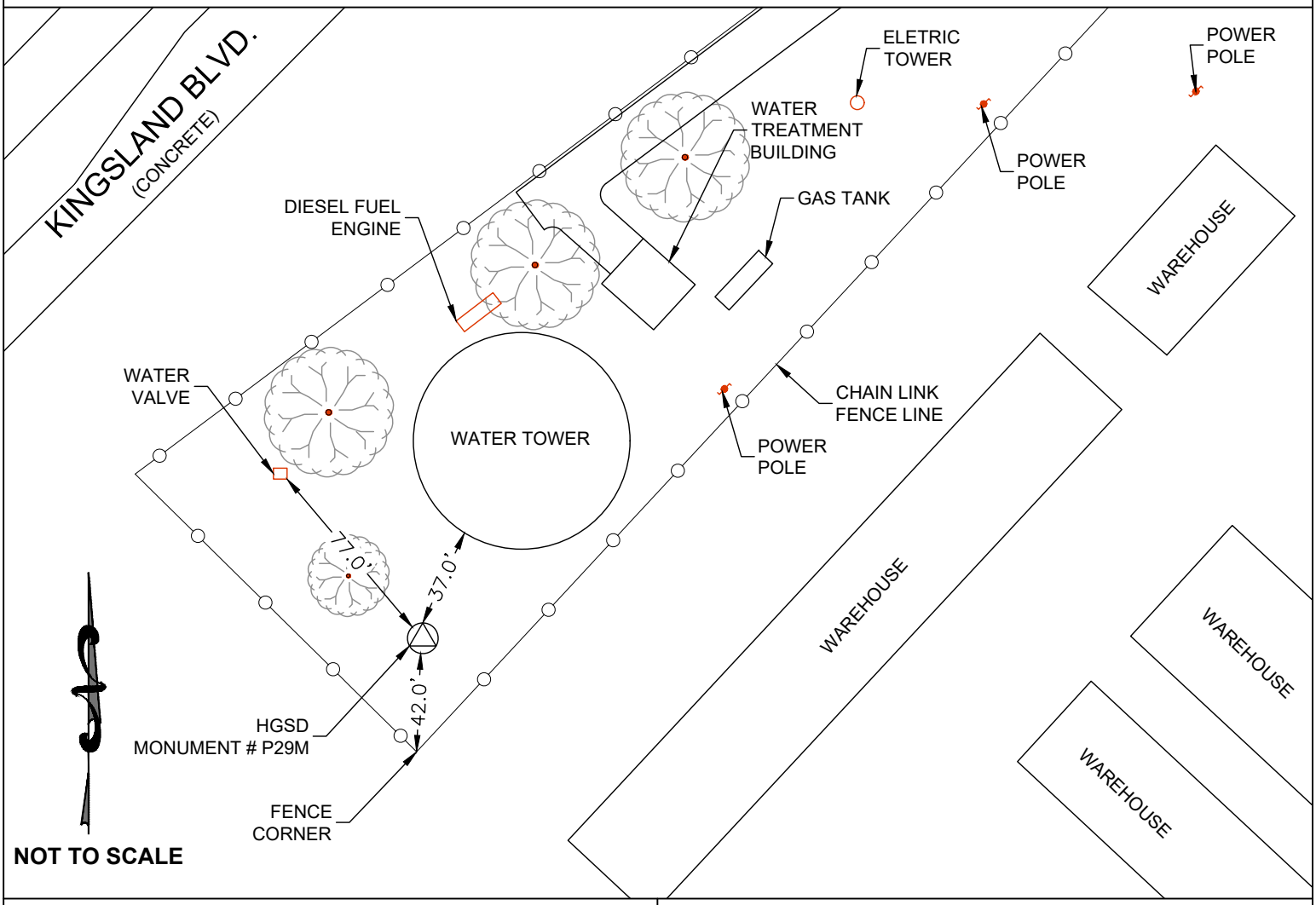


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 30 ARP **4-Char ID/PID:** P30M/DM7883	**General Location:** Fulshear

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 522M	**Date Observed:** October 31, 2022
USGS Quad Map: Fulshear (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13811180.84 (usft) **Easting:** 2952028.39 (usft) **Orthometric Height[1]:** 136.29 (usft) **Geoid Height:** -89.98 (usft)	**Latitude:** 29 41 21.29005(N) **Longitude:** 095 54 06.86465(W) **Ellipsoid Height:** 46.28 (usft) **Convergence Angle:** 01 31 04.06

Scale Factor: 0.9998823 **Elevation Scale Factor:** 0.99999778 **Combined Scale Factor:** 0.99988008

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 359/ FULSHEAR TRACE AND FM 1093 GO WEST 0.13 MILE ON THE WESTBOUND FRONTAGE RD. OF FM 1093 TO THE ENTRANCE TO A SEWAGE PLANT TO THE LEFT SITUATED IN THE MEDIAN OF FM 1093. THE STATION IS LOCATED IN THE NE CORNER OF THE SEWAGE PLANT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13811180.84 **Easting:** 2952028.39 **Orthometric Height:** 136.29

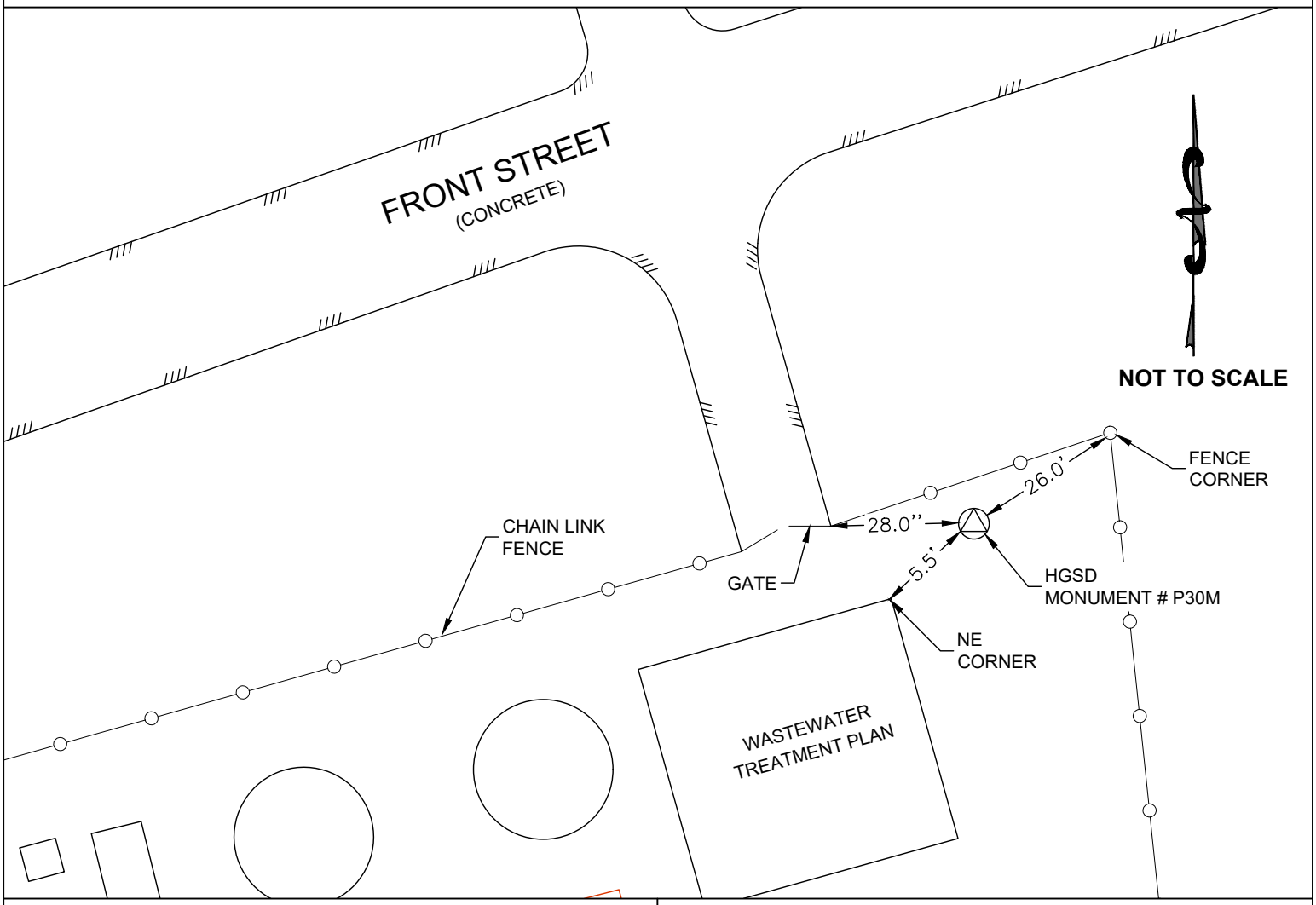


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 50 ARP **4-Char ID/PID:** P50A/DM7901	**General Location:** Mont Belvieu

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Chambers **State:** Texas	**Observed by:** HGSD
Key Map Page No: 463H	**Date Observed:** November 10, 2022
USGS Quad Map: Cove (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13879275.33 (usft) **Easting:** 3281883.12 (usft) **Orthometric Height[1]:** 46.06 (usft) **Geoid Height:** -89.59 (usft)	**Latitude:** 29 50 54.01602(N) **Longitude:** 094 51 21.72036(W) **Ellipsoid Height:** -43.47 (usft) **Convergence Angle:** 02 01 48.65

Scale Factor: 0.99990326 **Elevation Scale Factor:** 1.00000208 **Combined Scale Factor:** 0.99990534

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 3180 (EAGLE DR.) AND WILBUR RANCH RD. GO NORTH ON FM 3180 0.20 MILES TO A DRIVEWAY ON THE NORTH SIDE OF "THE SANCTUARY" CHURCH. TURN RIGHT ON DRIVEWAY AND GO 0.14 MILE TO STATION ON THE RIGHT

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13879275.33 **Easting:** 3281883.12 **Orthometric Height:** 46.06

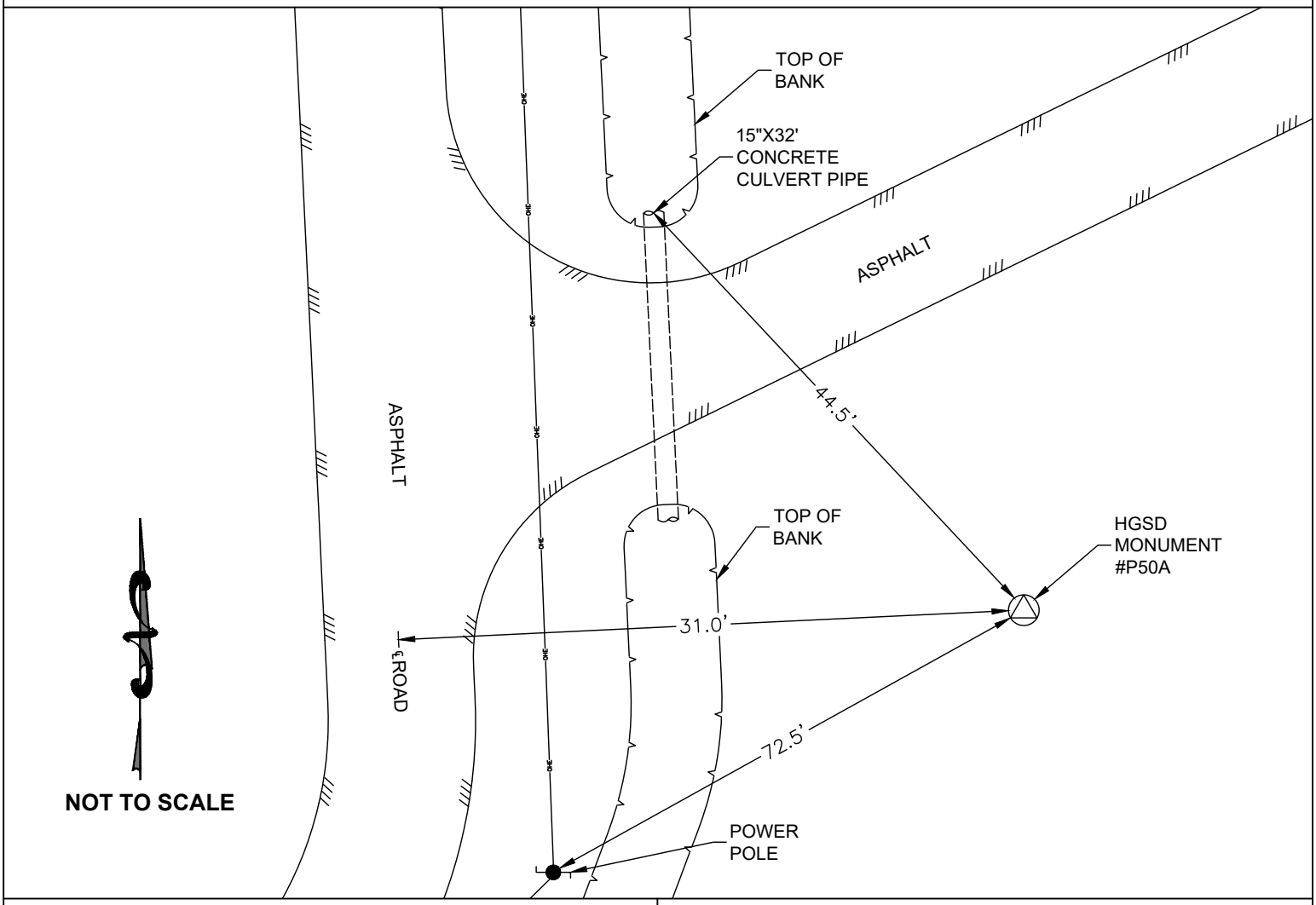


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 57 ARP **4-Char ID/PID:** P57M/DM7908	**General Location:** Richmond

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 526P	**Date Observed:** October 26, 2022
USGS Quad Map: Texas City (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13810852.46 (usft) **Easting:** 3009241.06 (usft) **Orthometric Height[1]:** 101.71 (usft) **Geoid Height:** -89.95 (usft)	**Latitude:** 29 41 02.60130(N) **Longitude:** 095 43 18.51225(W) **Ellipsoid Height:** 11.82 (usft) **Convergence Angle:** 01 36 21.70

Scale Factor: 0.99988174 **Elevation Scale Factor:** 0.99999943 **Combined Scale Factor:** 0.99988117

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF HARLEM RD/GRAND MISSION BLVD AND BEECHNUT RD GO WEST 0.34 MILE ON BEECHNUT RD TO THE ENTRANCE TO THE FORT BEND COUNTY ROAD AND BRIDGE FACILITY ON THE RIGHT. THE STATION IS AT THE NORTH CORNER OF THE TRACT.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13810852.46 **Easting:** 3009241.06 **Orthometric Height:** 101.71

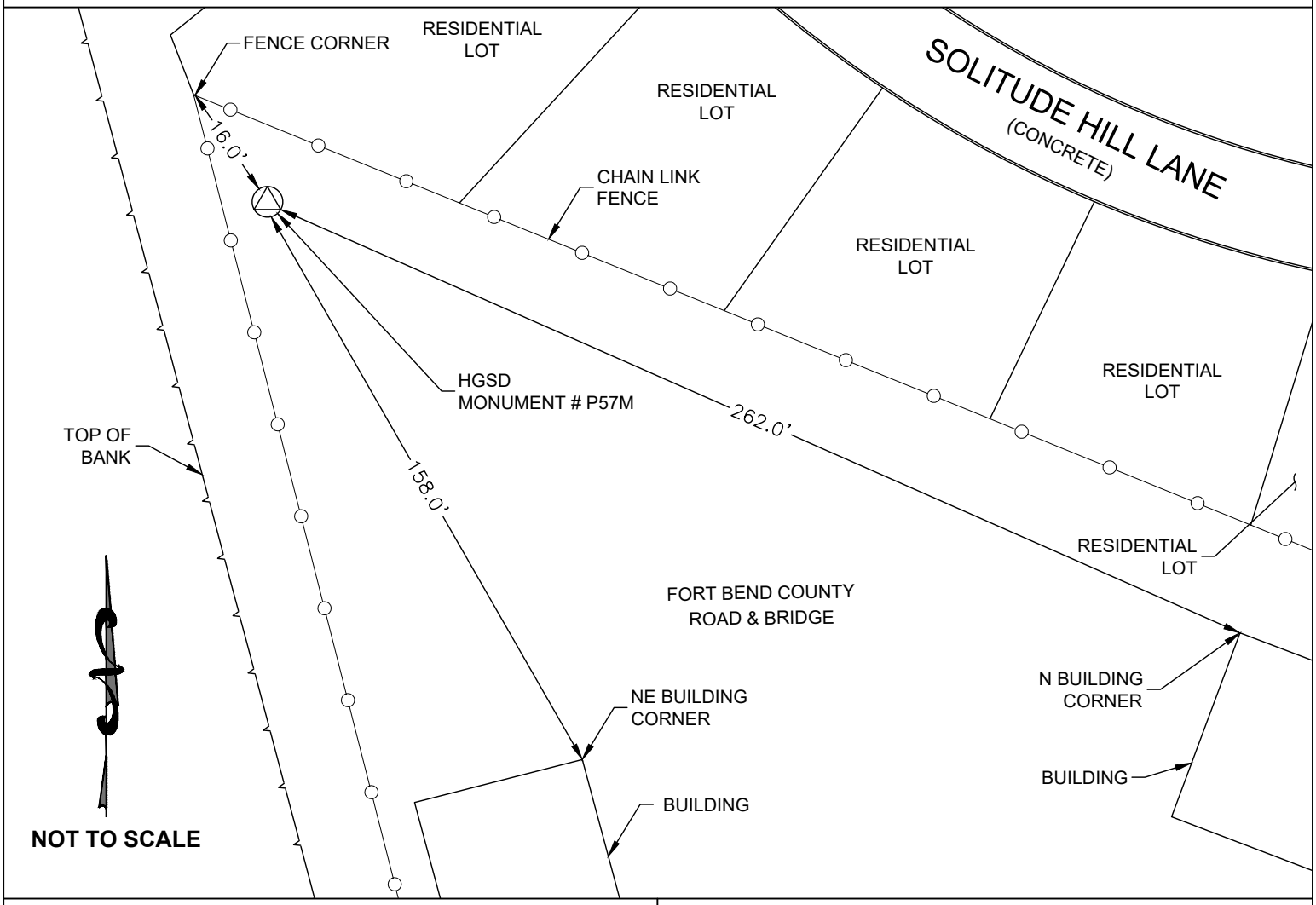


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 59 ARP **4-Char ID/PID:** P59M/AW1607	**General Location:** Richmond

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 566N	**Date Observed:** November 3, 2022
USGS Quad Map: Sugar Land (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13786188.32 (usft) **Easting:** 3004021.41 (usft) **Orthometric Height[1]:** 93.01 (usft) **Geoid Height:** -89.77 (usft)	**Latitude:** 29 36 59.95816(N) **Longitude:** 095 44 25.46279(W) **Ellipsoid Height:** 3.30 (usft) **Convergence Angle:** 01 35 48.90

Scale Factor: 0.99987529 **Elevation Scale Factor:** 0.99999984 **Combined Scale Factor:** 0.99987513

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF PLANTATION DR. AND FM 359 GO SOUTH 0.49 MILE ON FM 359 TO THE ENTRANCE TO THE SEWAGE TREATMENT PLANT ON THE LEFT, THEN GO EAST ON THE ENTRANCE DRIVE 0.10 MILE TO THE PLANT. THE STATION IS AT THE SOUTHEAST CORNER OF THE TRACT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13786188.32 **Easting:** 3004021.41 **Orthometric Height:** 93.01

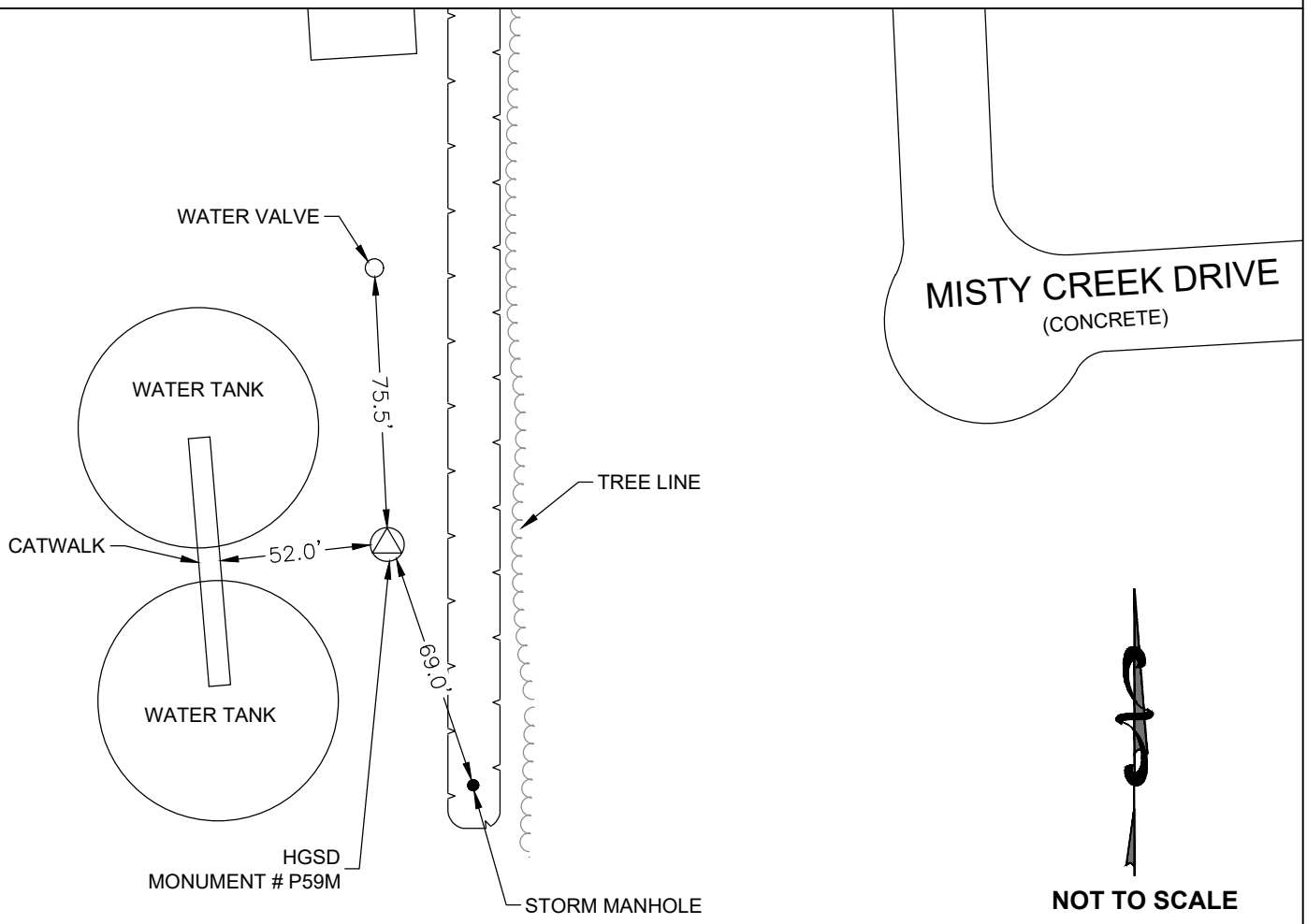


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 61 ARP **4-Char ID/PID:** P61M/DR8908	**General Location:** Simonton

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 521P	**Date Observed:** November 2, 2022
USGS Quad Map: Fulshear (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13805556.58 (usft) **Easting:** 2929775.18 (usft) **Orthometric Height[1]:** 120.44 (usft) **Geoid Height:** -89.95 (usft)	**Latitude:** 29 40 31.39670(N) **Longitude:** 095 58 20.75101(W) **Ellipsoid Height:** 30.53 (usft) **Convergence Angle:** 01 28 59.68

Scale Factor: 0.99988084 **Elevation Scale Factor:** 0.99999854 **Combined Scale Factor:** 0.99987938

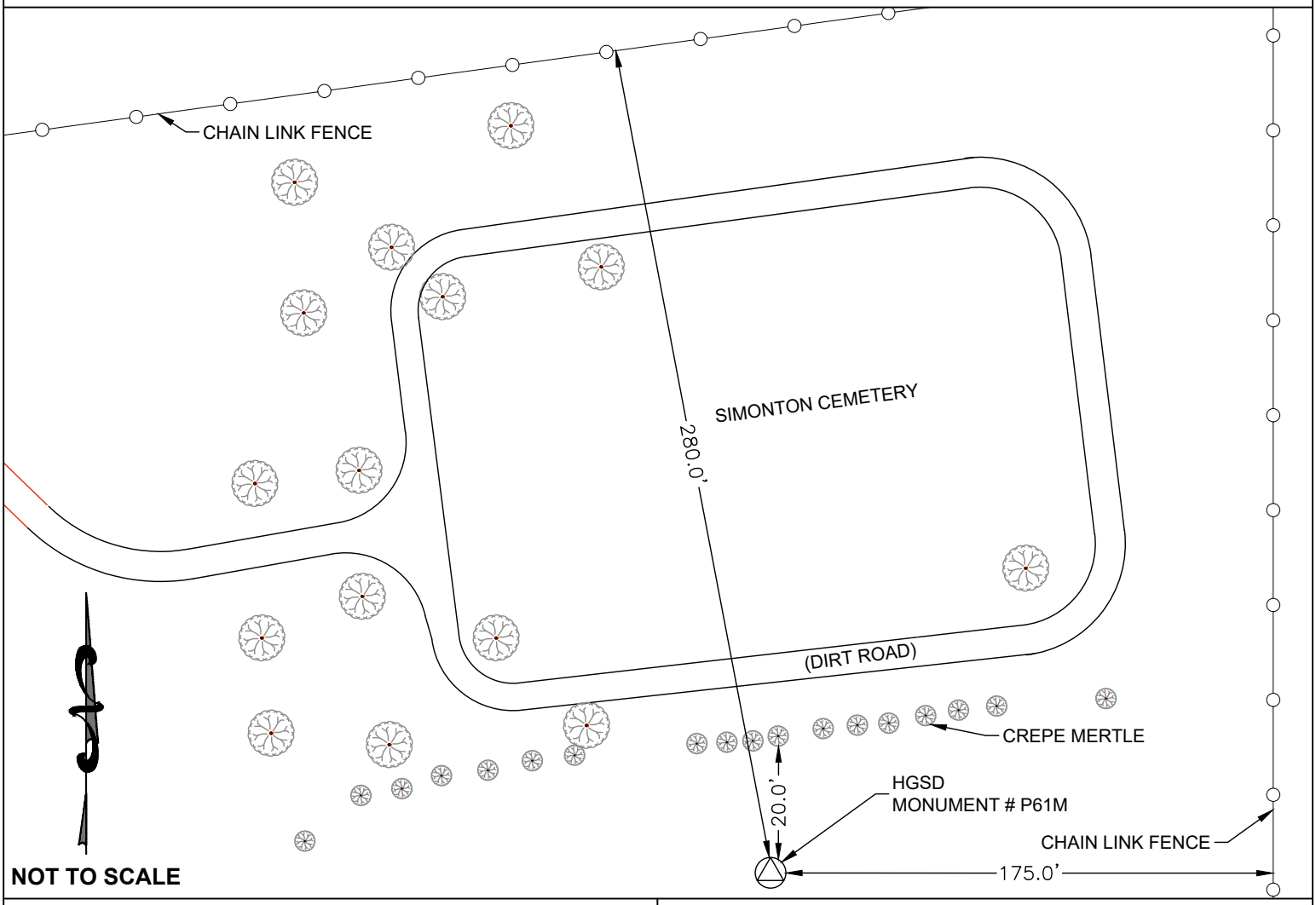
To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 1093 AND FM 1489, HEAD WEST ON 1093 FROM FULSHEAR. WHEN YOU REACH THE INTERSECTION AT 1489, TAKE A LEFT AND TRAVEL SOUTH ON FM 1498 FOR 1, 524 FEET. THEN TURN LEFT INTO SIMONTON COMMUNITY CHURCH AND FOLLOW THE PARKING LOT TO AN UN-NAMED DIRT ROAD THAT LEADS TO THE SIMONTON CEMETERY. THE STATION IS LOCATED AT THE SOUTH END OF THE CEMETERY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13805556.58 **Easting:** 2929775.18 **Orthometric Height:** 120.44



NOT TO SCALE

Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 62 ARP **4-Char ID/PID:** P62A/DR8909	**General Location:** Orchard

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 561X	**Date Observed:** October 25, 2022
USGS Quad Map: Orchard (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13775697.09 (usft) **Easting:** 2929993.01 (usft) **Orthometric Height[1]:** 129.40 (usft) **Geoid Height:** -89.78 (usft)	**Latitude:** 29 35 35.82051(N) **Longitude:** 095 58 27.03961(W) **Ellipsoid Height:** 39.68 (usft) **Convergence Angle:** 01 28 56.60

Scale Factor: 0.99987337 **Elevation Scale Factor:** 0.9999981 **Combined Scale Factor:** 0.99987147

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF SH 36 AND S. MISSOURI ST IN ORCHARD, GO SOUTH ON S. MISSOURI ST. 0.57 MILE TO THE ENTRANCE TO THE SEWAGE PLANT ON THE RIGHT, GO 0.18 MILES TO THE PLANT ON THE LEFT. THE STATION IS AT THE SW CORNER OF THE TRACT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13775697.09 **Easting:** 2929993.01 **Orthometric Height:** 129.40

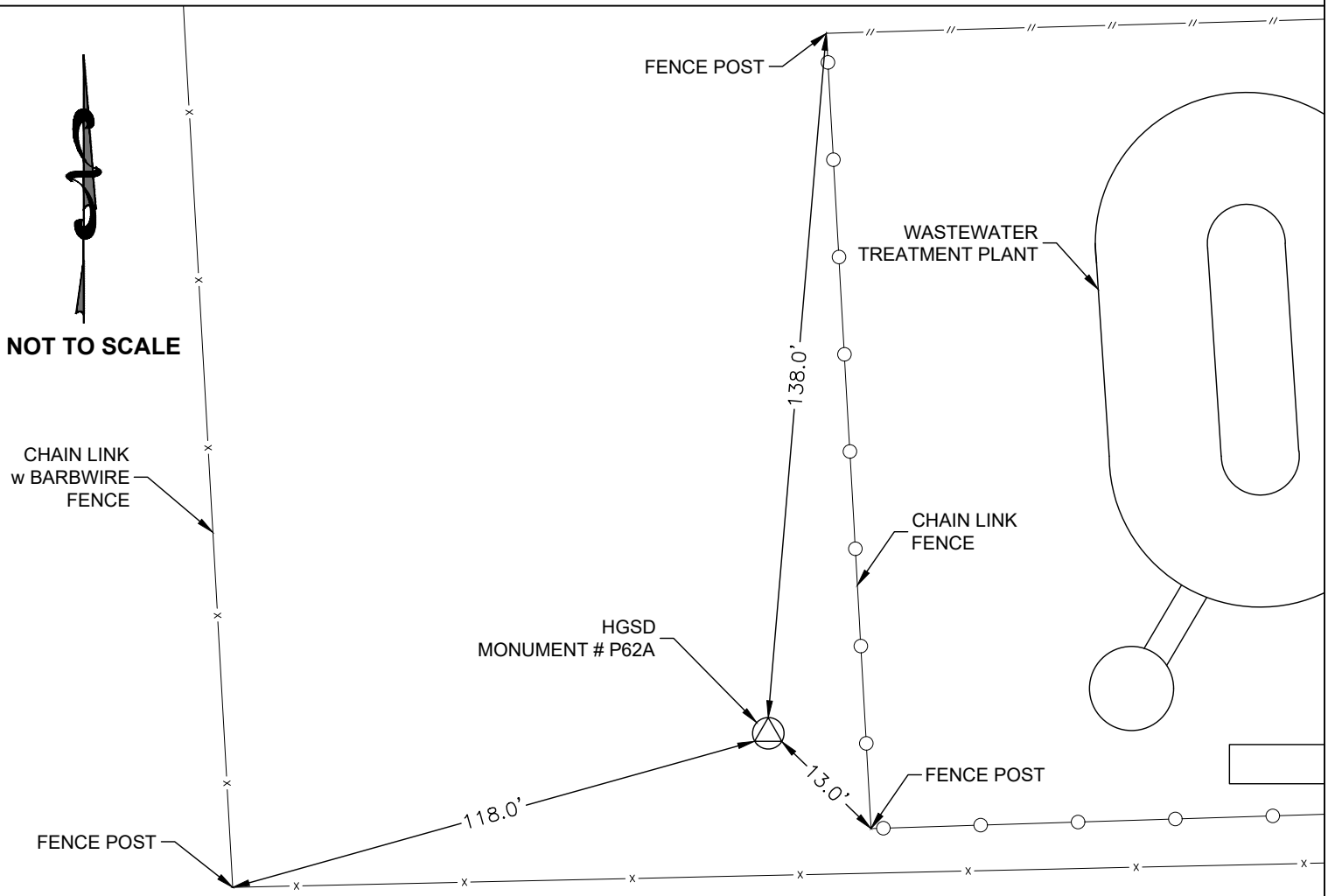


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 82 ARP **4-Char ID/PID:** P82M/DR9246	**General Location:** Damon

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 756J	**Date Observed:** October 25, 2022
USGS Quad Map: Damon (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13669595.27 (usft) **Easting:** 3010163.38 (usft) **Orthometric Height[1]:** 77.07 (usft) **Geoid Height:** -88.74 (usft)	**Latitude:** 29 17 44.35600(N) **Longitude:** 095 43 52.81560(W) **Ellipsoid Height:** -11.66 (usft) **Convergence Angle:** 01 36 04.89

Scale Factor: 0.99986348 **Elevation Scale Factor:** 1.00000056 **Combined Scale Factor:** 0.99986404

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 1462 AND SH 36 IN DAMON, GO SOUTH ON FM 1462 0.21 MILE TO DRIVE ON THE LEFT TO THE SEWAGE TREATMENT PLANT. THE STATION IS AT THE NE CORNER OF THE TRACT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13669595.27	Easting: 3010163.38	Orthometric Height: 77.07

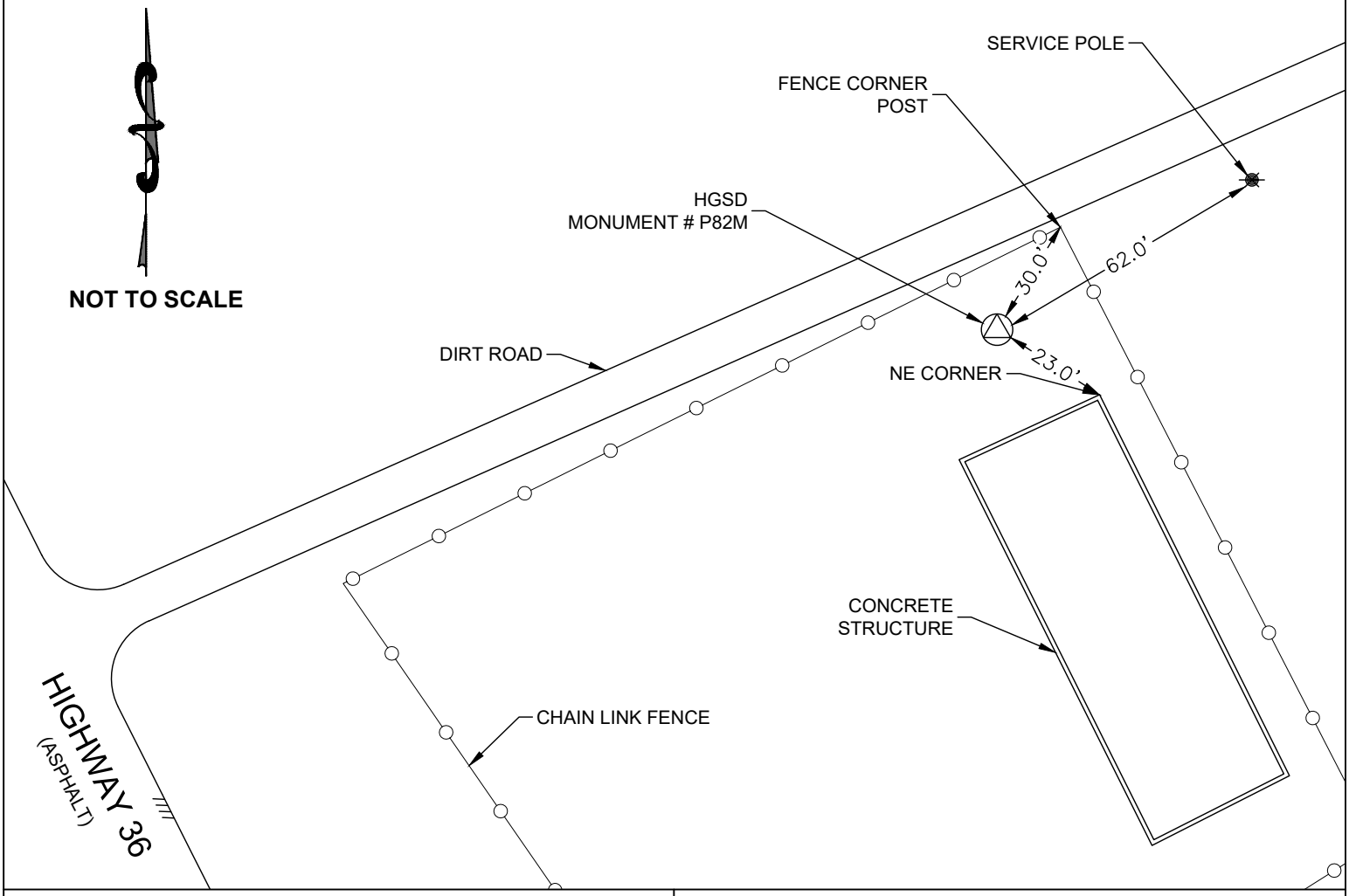


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 83 ARP **4-Char ID/PID:** P83M/DR9247	**General Location:** Alvin

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Brazoria **State:** Texas	**Observed by:** HGSD
Key Map Page No: 766Z	**Date Observed:** November 3, 2022
USGS Quad Map: Mustang Bayou (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13662822.53 (usft) **Easting:** 3185719.74 (usft) **Orthometric Height[1]:** 22.34 (usft) **Geoid Height:** -87.67 (usft)	**Latitude:** 29 15 44.67115(N) **Longitude:** 095 10 53.44252(W) **Ellipsoid Height:** -65.31 (usft) **Convergence Angle:** 01 52 14.61

Scale Factor: 0.99986404 **Elevation Scale Factor:** 1.00000313 **Combined Scale Factor:** 0.99986717

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 2004 AND FM 2917, GO 1.2 MILES NW ON FM 2917 TO THE SECOND ENTRANCE ON THE RIGHT TO MCGILL MAINTENANCE. THE STATION IS NW OF THE BUILDING.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13662822.53	Easting: 3185719.74	Orthometric Height: 22.34

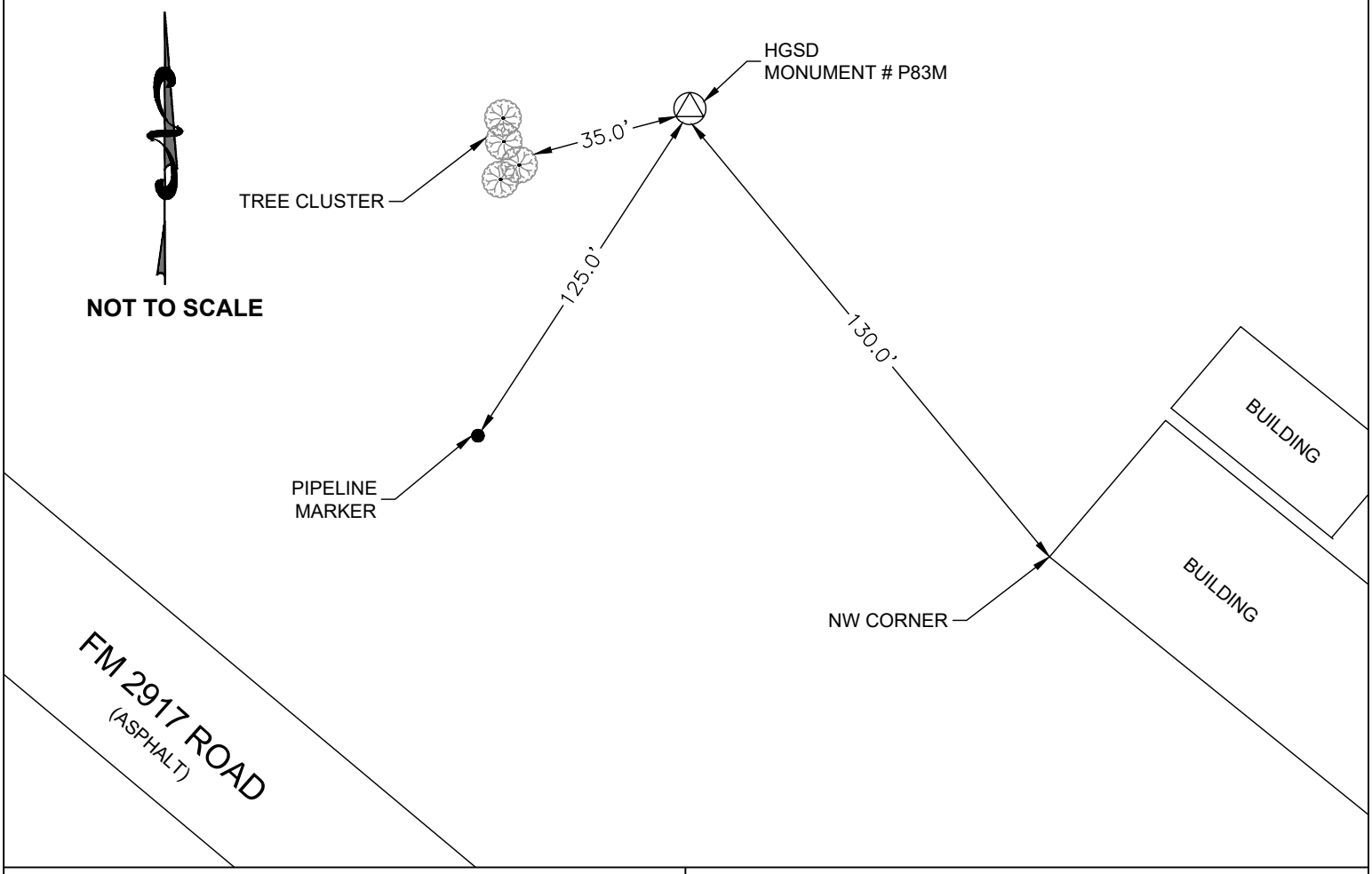


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 97 ARP **4-Char ID/PID:** P97M/DR8936	**General Location:** Katy

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Waller **State:** Texas	**Observed by:** HGSD
Key Map Page No: 444W	**Date Observed:** October 14, 2023
USGS Quad Map: Katy (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13846456.61 (usft) **Easting:** 2968521.81 (usft) **Orthometric Height[1]:** 146.65 (usft) **Geoid Height:** -90.20 (usft)	**Latitude:** 29 47 06.03522(N) **Longitude:** 095 50 49.13816(W) **Ellipsoid Height:** 56.52 (usft) **Convergence Angle:** 01 32 40.93

Scale Factor: 0.999894 **Elevation Scale Factor:** 0.99999729 **Combined Scale Factor:** 0.99989129

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF US 90 AND CANE ISLAND PWKY, HEAD SOUTH ON CANE ISLAND PWKY TO THE FIRST DRIVEWAY ON RIGHT. THE STATION WILL BE INSIDE THE GATED AREA, ON THE SOUTHEAST SIDE OF THE WATER TANK.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13846456.61 **Easting:** 2968521.81 **Orthometric Height:** 146.65

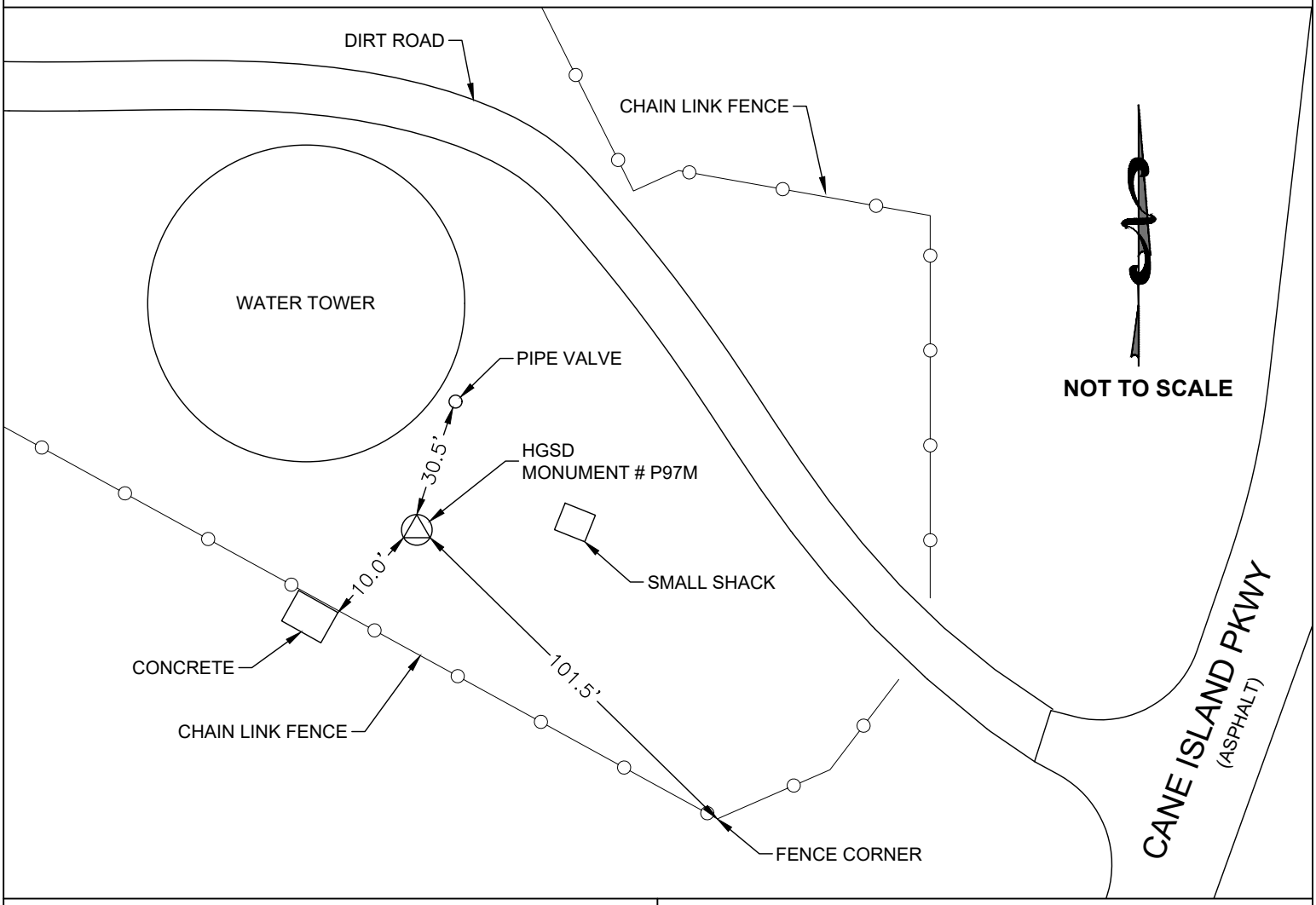


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 1 ARP **4-Char ID/PID:** PM1A/AJ6427	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 408C	**Date Observed:** October 24, 2022
USGS Quad Map: Satsuma (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13894611.26 (usft) **Easting:** 3040232.88 (usft) **Orthometric Height[1]:** 132.28 (usft) **Geoid Height:** -90.26 (usft)	**Latitude:** 29 54 42.73288(N) **Longitude:** 095 36 59.80355(W) **Ellipsoid Height:** 42.06 (usft) **Convergence Angle:** 01 39 27.23

Scale Factor: 0.99991379 **Elevation Scale Factor:** 0.99999799 **Combined Scale Factor:** 0.99991178

To Reach Monument

TO REACH THE STATION FROM THE CENTER OF THE STATE HIGHWAY 6 OVERPASS OVER U.S. HIGHWAY 290 (HEMPSTEAD HIGHWAY) IN SATSUMA, GO SOUTHWEST ON STATE HIGHWAY 6 FOR 0.2 MI (0.3 KM) TO JACKRABBIT ROAD ON THE LEFT. TURN LEFT ON JACKRABBIT ROAD AND GO SOUTH FOR 0.25 MI (0.4 KM) TO A ROAD ON THE LEFT. TURN LEFT AND GO 0.15 MI (0.2 KM) TO A DRIVE LEADING LEFT TO WAGGONERS TRUCKING. TURN LEFT AND BEAR TO THE RIGHT OF THE MAIN BUILDING TO THE NORTHEAST AND THE STATION IS BETWEEN THE BUILDING AND RAILROAD TRACKS.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13894611.26 **Easting:** 3040232.88 **Orthometric Height:** 132.28

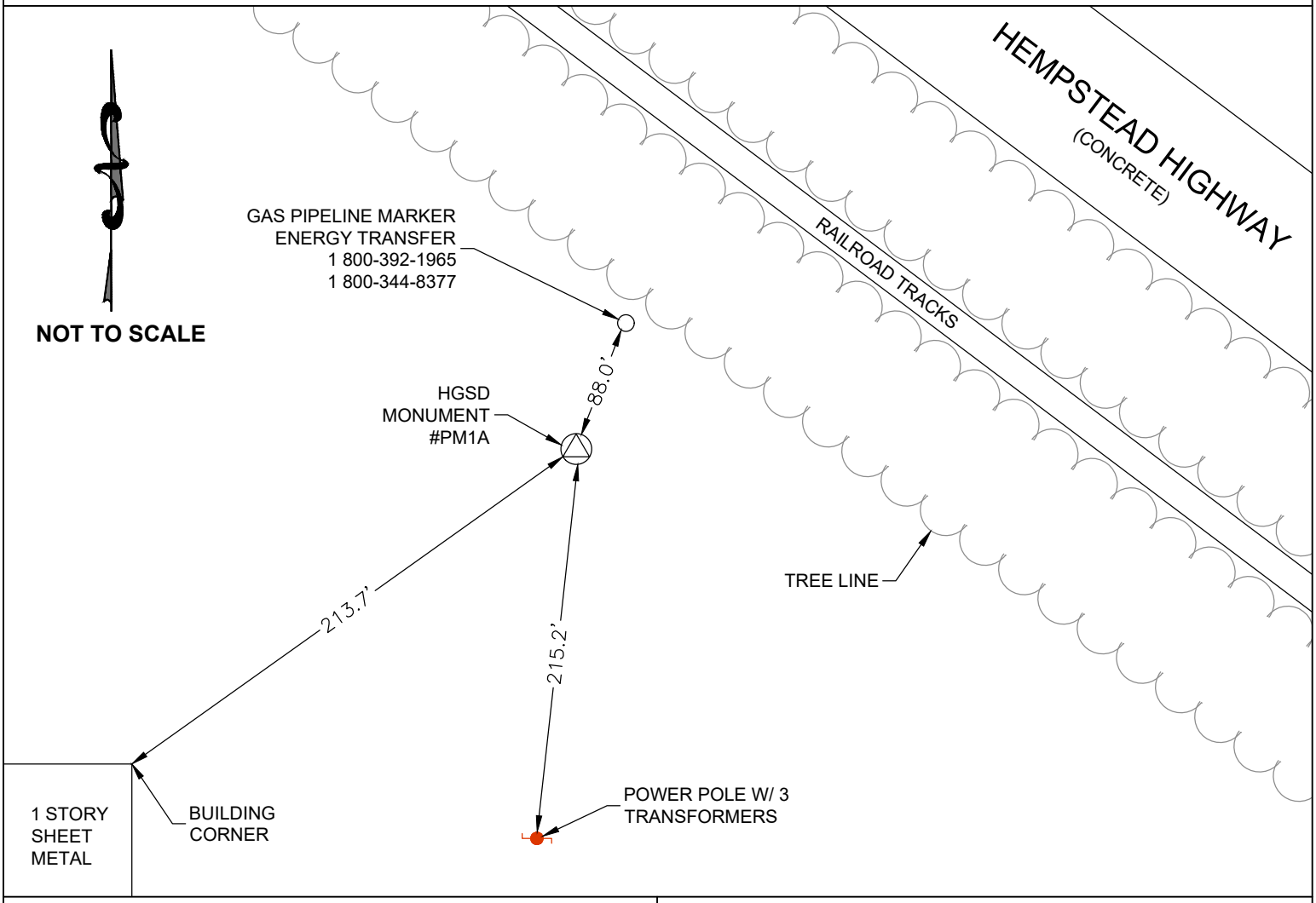


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 2 ARP **4-Char ID/PID:** PM2A/AJ6428	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 332U	**Date Observed:** October 19, 2022
USGS Quad Map: Spring (2019)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13928775.55 (usft) **Easting:** 3102816.08 (usft) **Orthometric Height[1]:** 112.27 (usft) **Geoid Height:** -90.12 (usft)	**Latitude:** 30 00 02.33740(N) **Longitude:** 095 24 57.08534(W) **Ellipsoid Height:** 22.13 (usft) **Convergence Angle:** 01 45 21.30

Scale Factor: 0.99993056 **Elevation Scale Factor:** 0.99999894 **Combined Scale Factor:** 0.9999295

To Reach Monument

TO REACH THE STATION LOCATED ON THE SOUTH SIDE OF TURKEY CREEK, WEST OF A RESIDENTIAL SUBDIVISION IN THE NE CORNER OF A WELL FIELD. FROM THE INTERSECTION OF E. RICHEY RD. (0.50 MILE EAST OF I-45) AND EDGEGLEN DR. GO NORTH 0.13 MILE TO THE ENTRANCE TO THE WELL FIELD TO THE NORTH IN A CURVE OF EDGEGLEN/ BRUSHY GLEN. GO 480 FT NORTH TO THE STATION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13928775.55 **Easting:** 3102816.08 **Orthometric Height:** 112.27

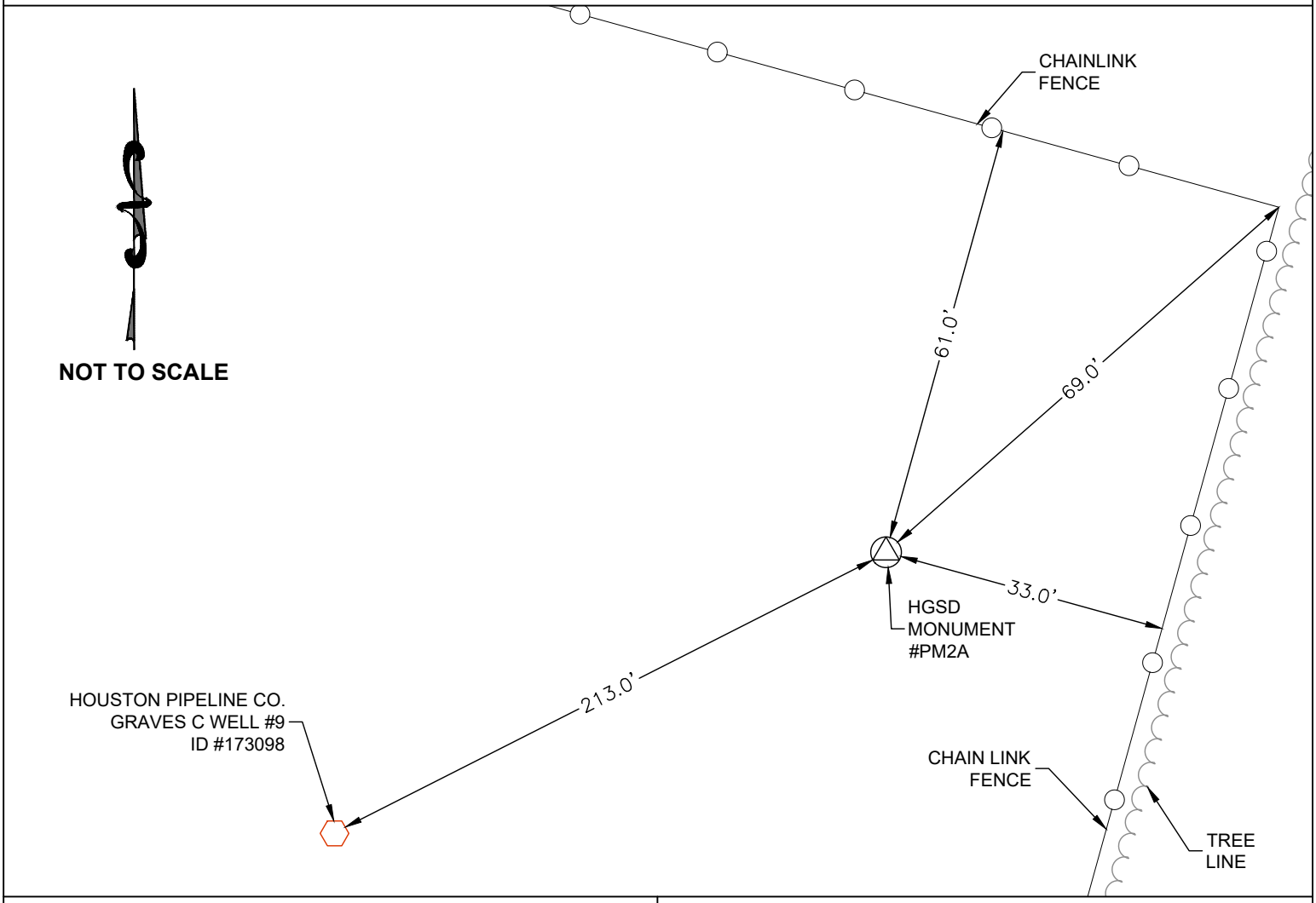


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 3 ARP **4-Char ID/PID:** PM3A/AJ6412	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 448L	**Date Observed:** October 20, 2022
USGS Quad Map: Hedwig Village (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13861539.95 (usft) **Easting:** 3042217.19 (usft) **Orthometric Height[1]:** 101.90 (usft) **Geoid Height:** -90.13 (usft)	**Latitude:** 29 49 14.90497(N) **Longitude:** 095 36 48.14545(W) **Ellipsoid Height:** 11.81 (usft) **Convergence Angle:** 01 39 32.94

Scale Factor: 0.99989908 **Elevation Scale Factor:** 0.99999943 **Combined Scale Factor:** 0.99989851

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF N. ELDRIDGE PARKWAY AND WAR MEMORIAL ST. IN BEAR CREEK PARK, GO NW ON WAR MEMORIAL ST 0.05 MILE TO ZORN DRIVE. GO LEFT ON ZORN DR. 0.20 MILE TO THE HARRIS COUNTY PARKS DEPT. FACILITY. THE STATION IS NEAR THE NE CORNER OF THE FENCED FACILITY.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13861539.95 **Easting:** 3042217.19 **Orthometric Height:** 101.90

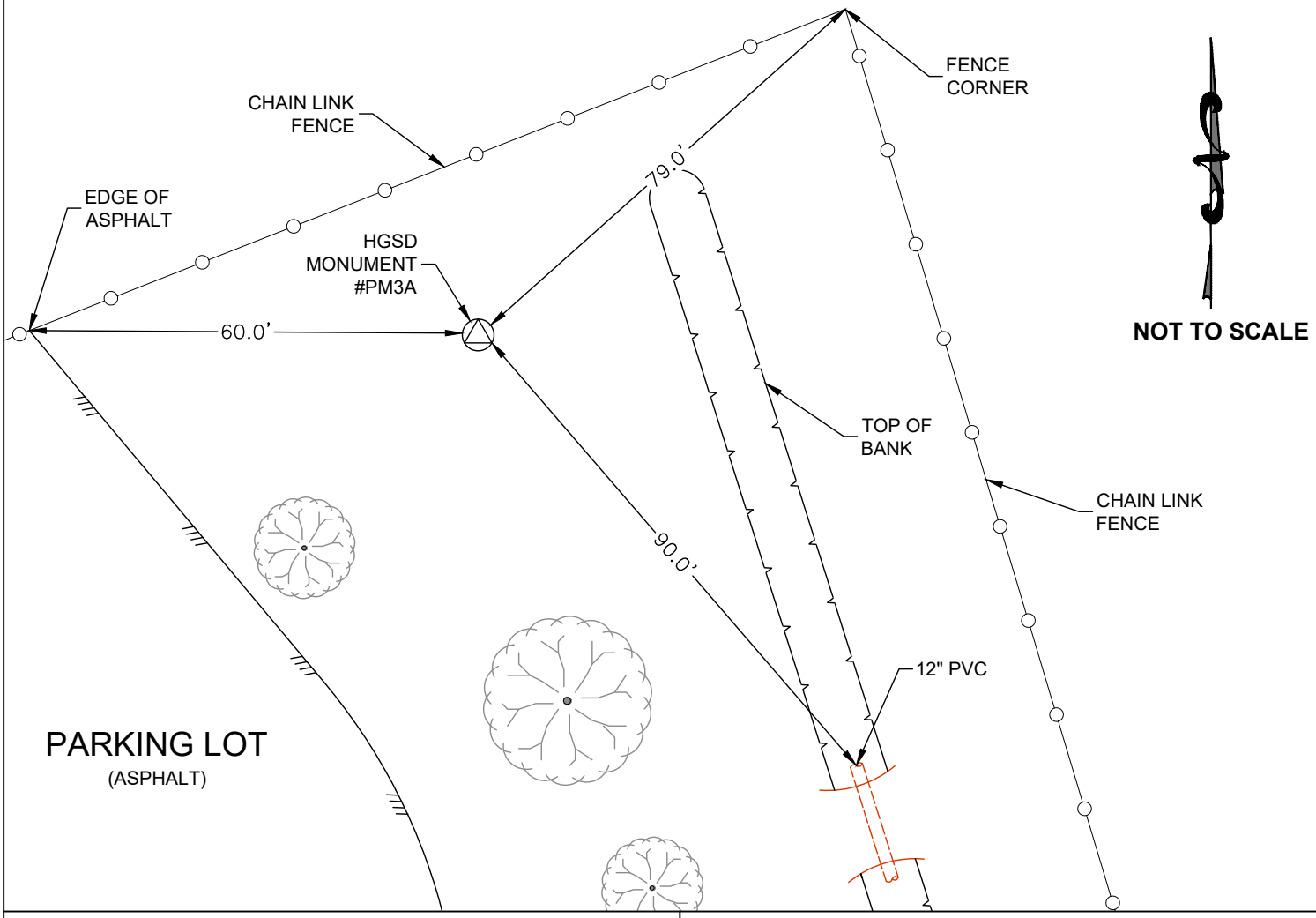


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 4 ARP **4-Char ID/PID:** PM4A/AJ6429	**General Location:** Sugar Land

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 568M	**Date Observed:** October 27, 2022
USGS Quad Map: Alief (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo:	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13792478.61 (usft) **Easting:** 3049467.41 (usft) **Orthometric Height[1]:** 87.30 (usft) **Geoid Height:** -89.58 (usft)	**Latitude:** 29 37 49.39453(N) **Longitude:** 095 35 48.67917(W) **Ellipsoid Height:** -2.25 (usft) **Convergence Angle:** 01 40 02.08

Scale Factor: 0.99987649 **Elevation Scale Factor:** 1.00000011 **Combined Scale Factor:** 0.9998766

To Reach Monument

TO REACH THE STAION FROM THE INTERSECTION OF COPORATE DR. AND DAIRY ASHFORD RD GO SOUTH 0.15 MILE ON DAIRY ASHFORD RD. TO THE ENTRANCE ON THE LEFT TO THE FORT BEND COUNTY JUSTICE OF THE PEACE OFFICE BUILDING. THE STATION IS ON THE SOUTH SIDE OF THE PARKING LOT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13792478.61 **Easting:** 3049467.41 **Orthometric Height:** 87.30

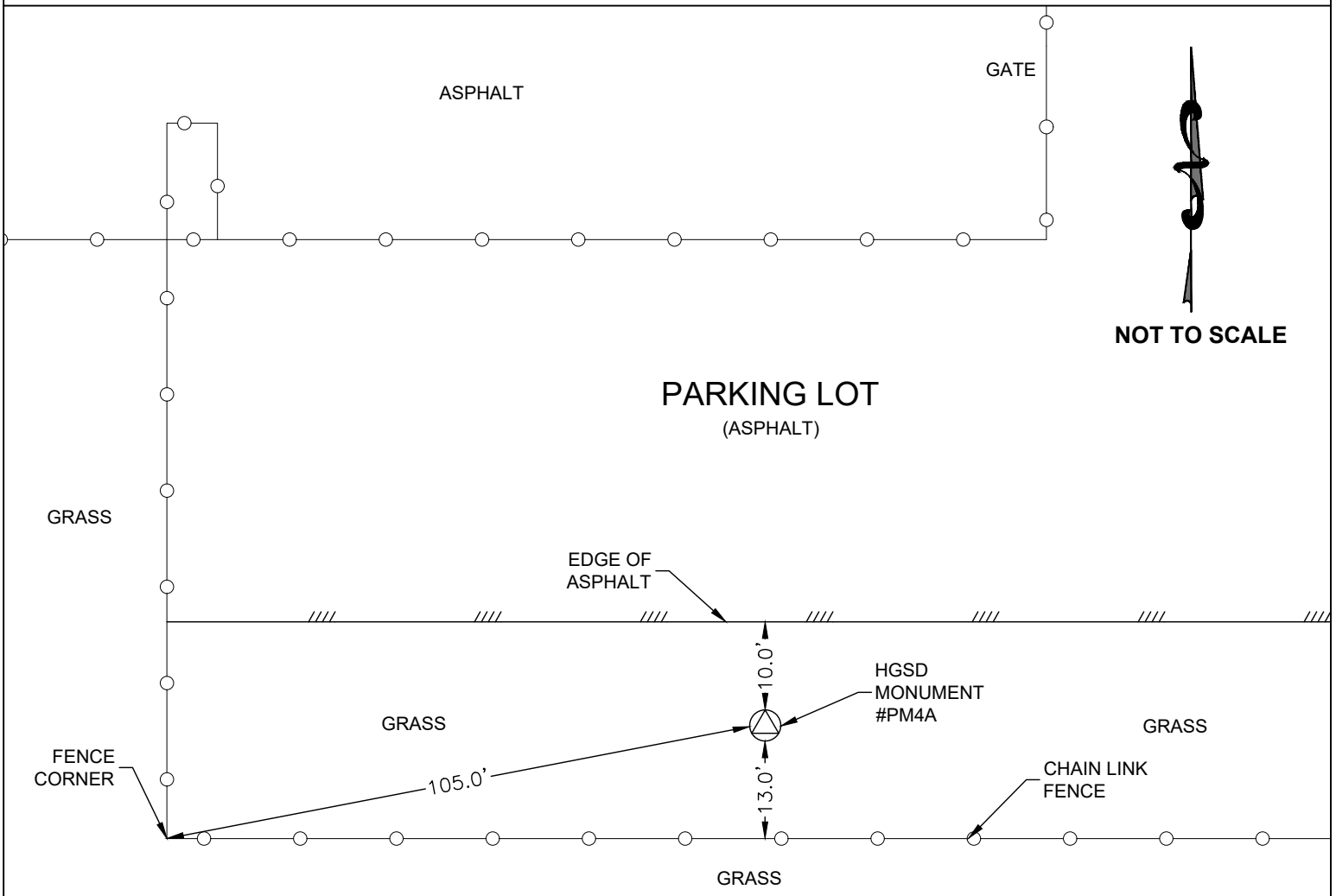


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 5 ARP **4-Char ID/PID:** PM5A/AJ6413	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 449W	**Date Observed:** October 21, 2022
USGS Quad Map: Hedwig Village (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** A: The most reliable nature; expected to hold well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13851032.53 (usft) **Easting:** 3051239.22 (usft) **Orthometric Height[1]:** 97.70 (usft) **Geoid Height:** -90.05 (usft)	**Latitude:** 29 47 28.33008(N) **Longitude:** 095 35 09.24190(W) **Ellipsoid Height:** 7.72 (usft) **Convergence Angle:** 01 40 21.40

Scale Factor: 0.99989485 **Elevation Scale Factor:** 0.99999963 **Combined Scale Factor:** 0.99989448

To Reach Monument

TO REACH THE STATION FROM THE JUNCTION OF KIRKWOOD RD AND OLD KATY HIGHWAY ROAD(ADJACENT TO AND ON THE N. SIDE OF I-10), HEAD EASTERLY ON OLD KATY ROADFOR .25 MILE (0.40 KM) TO A LOCKED GATE ON YOUR LEFT. ARRANGE ACCESS IN ADVANCE, CALL THE HOUSTON WATER PRODUCTION CONTROL CENTER AT 713-226-4496. GO NORTH THRU GATE TO PLANT. THE STATION IS ON THE NORTH SIDE OF THE GROUND STORAGE TANKS ALONG THE CHAIN LINK FENCE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13851032.53 **Easting:** 3051239.22 **Orthometric Height:** 97.70

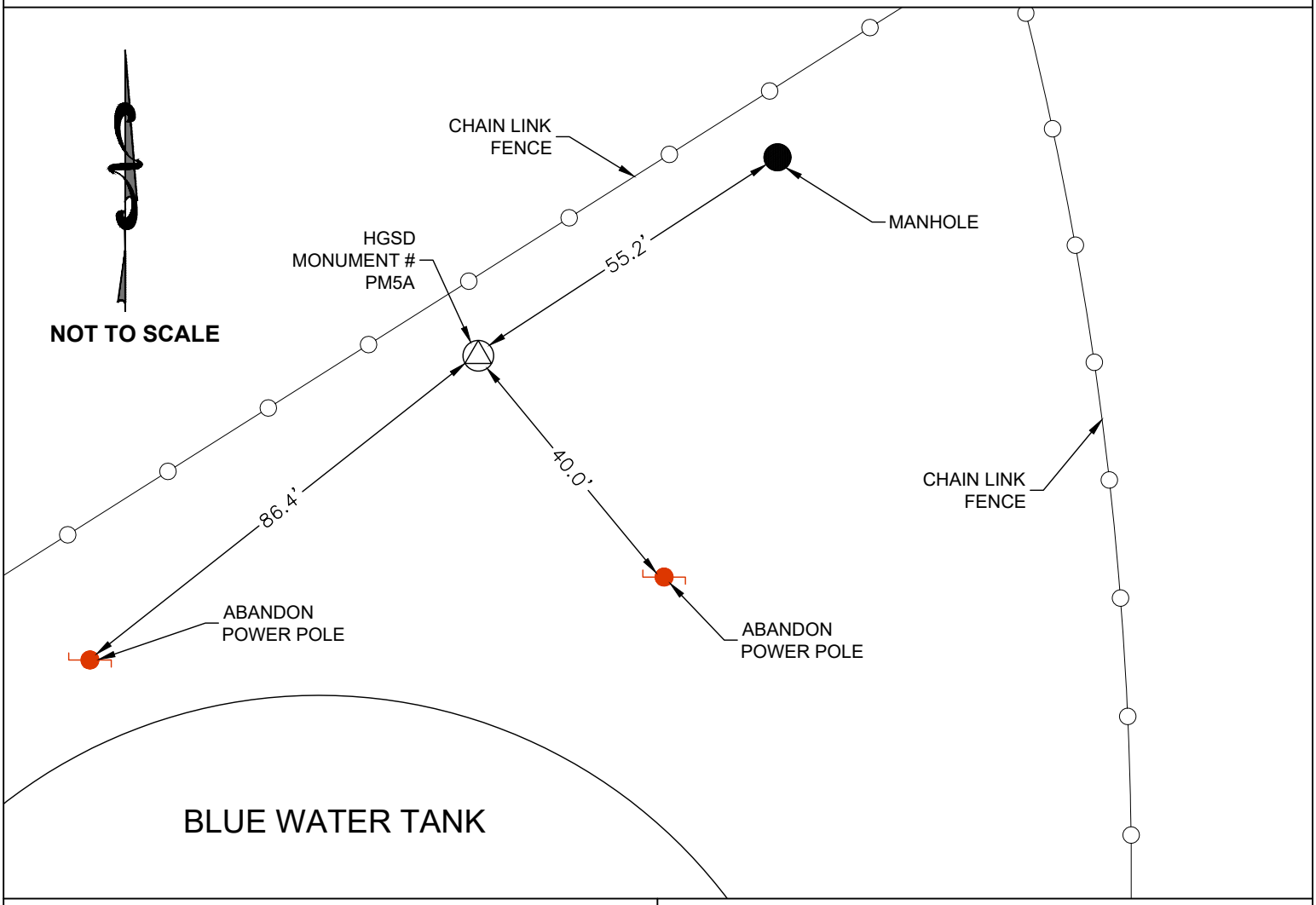


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 6B ARP **4-Char ID/PID:** PM6A/DR9253	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 447P	**Date Observed:** October 19, 2022
USGS Quad Map: Addicks (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13860167.07 (usft) **Easting:** 3023697.48 (usft) **Orthometric Height[1]:** 114.86 (usft) **Geoid Height:** -90.17 (usft)	**Latitude:** 29 49 06.58183(N) **Longitude:** 095 40 18.76220(W) **Ellipsoid Height:** 24.71 (usft) **Convergence Angle:** 01 37 49.76

Scale Factor: 0.99989874 **Elevation Scale Factor:** 0.99999882 **Combined Scale Factor:** 0.99989756

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF BARKER CYPRESS ROAD AND GROSCHKE ROAD, HEAD EAST ALONG GROSCHKE ROAD FOR 1.35 MI AND ENTER THE DRIVEWAY TO THE VTAA FLIGHT SCHOOL PARKING LOT. HEAD NORTH ALONG THE PARKING LOT ACCESS GATE. THEN HEAD WEST 500 FT TO THE WEST END OF THE AIRCRAFT PARKING BAY AND ABOUT 775 FT NORTHWEST.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13860167.07 **Easting:** 3023697.48 **Orthometric Height:** 114.86

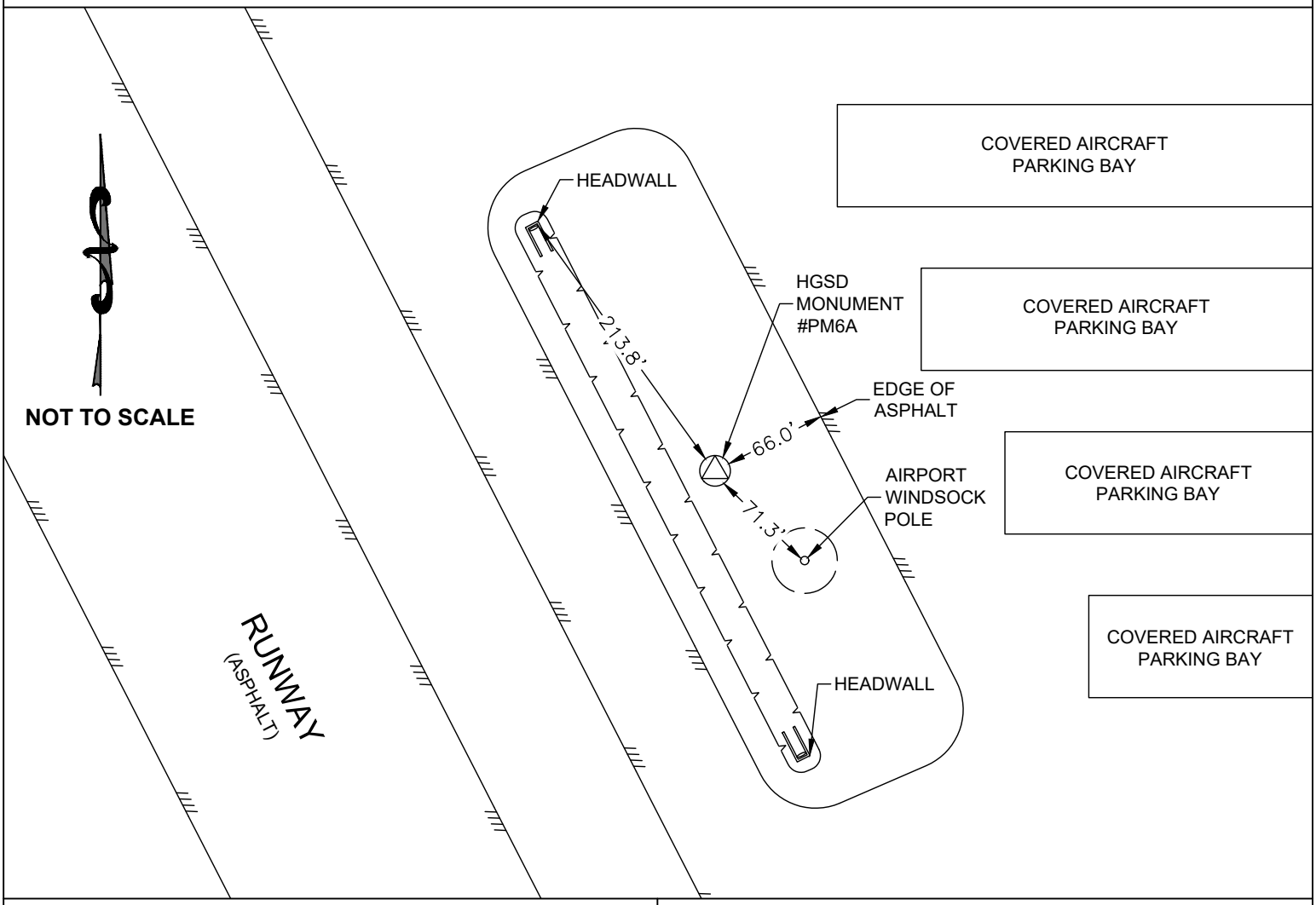


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 7 ARP **4-Char ID/PID:** PM7A/AJ6415	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 369T	**Date Observed:** November 16, 2022
USGS Quad Map: Satsuma (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13903856.64 (usft) **Easting:** 3052630.26 (usft) **Orthometric Height[1]:** 130.58 (usft) **Geoid Height:** -90.25 (usft)	**Latitude:** 29 56 10.64801(N) **Longitude:** 095 34 35.91312(W) **Ellipsoid Height:** 40.36 (usft) **Convergence Angle:** 01 40 37.73

Scale Factor: 0.99991817 **Elevation Scale Factor:** 0.99999807 **Combined Scale Factor:** 0.99991624

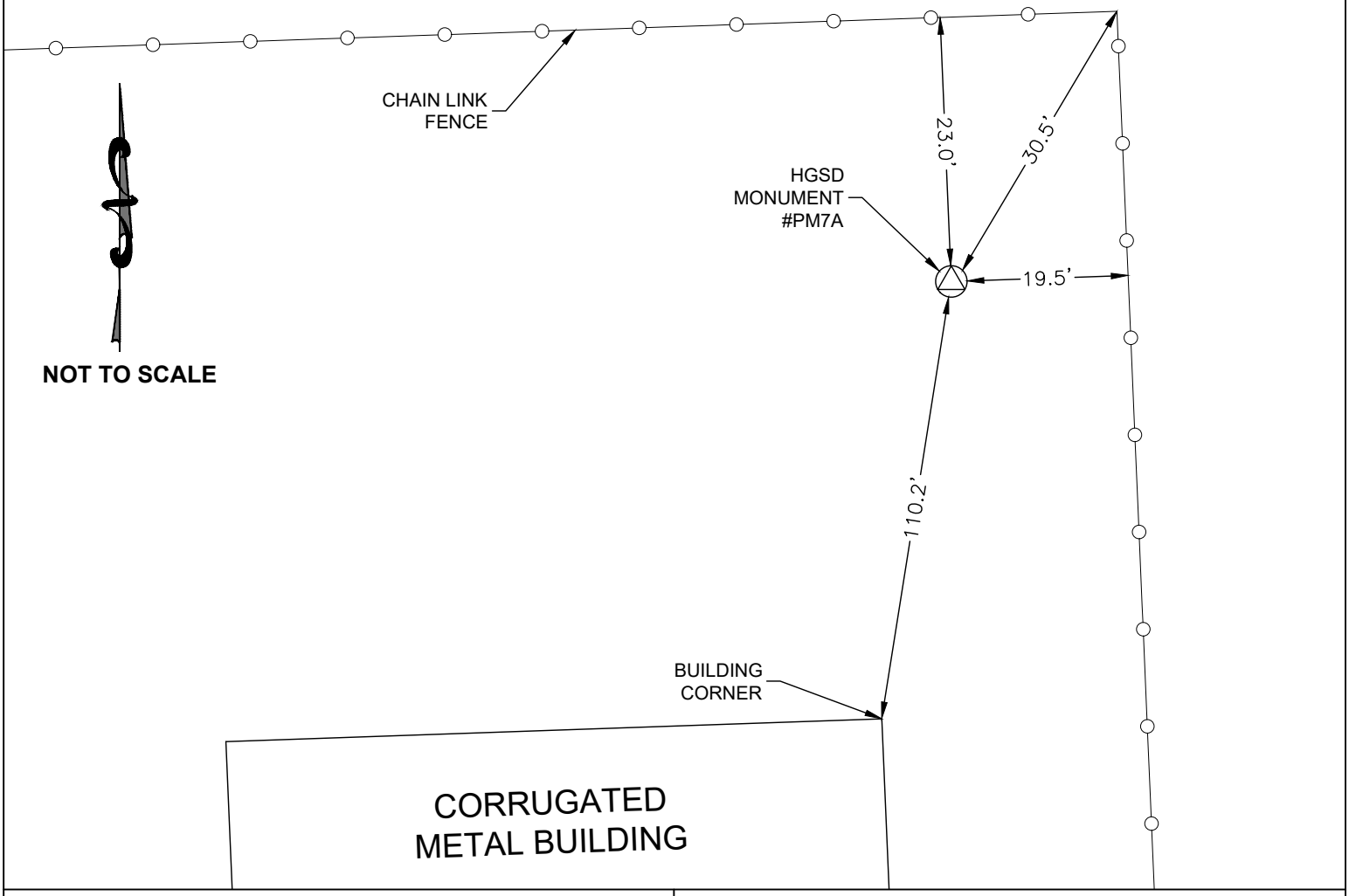
To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF FM 1960 AND WINDFERN, THENCE EAST ON WINDFERN FOR 0.4 MILE (0.6 KM) TO TEJAS GAS PIPELINE DRIVEWAY. GO THROUGH THE GATE AND KEEP GOING 0.18 MILE TO THE NORTHEAST CORNER OF THE COMPOUND.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13903856.64 **Easting:** 3052630.26 **Orthometric Height:** 130.58



NOT TO SCALE

Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 8 ARP **4-Char ID/PID:** PM8A/AJ6416	**General Location:** Houston

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 371C	**Date Observed:** October 20, 2022
USGS Quad Map: Aldine (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13920569.48 (usft) **Easting:** 3083934.65 (usft) **Orthometric Height[1]:** 119.88 (usft) **Geoid Height:** -90.19 (usft)	**Latitude:** 29 58 46.81963(N) **Longitude:** 095 28 34.54323(W) **Ellipsoid Height:** 29.75 (usft) **Convergence Angle:** 01 43 34.77

Scale Factor: 0.99992638 **Elevation Scale Factor:** 0.99999858 **Combined Scale Factor:** 0.99992496

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF BAMMEL NORTH HOUSTON RD AND WALTERS RD, GO SOUTH ON WALTERS RD. 1.06 MILES TO THE STATION ON THE RIGHT BEFORE SALT TRAIL.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13920569.48 **Easting:** 3083934.65 **Orthometric Height:** 119.88

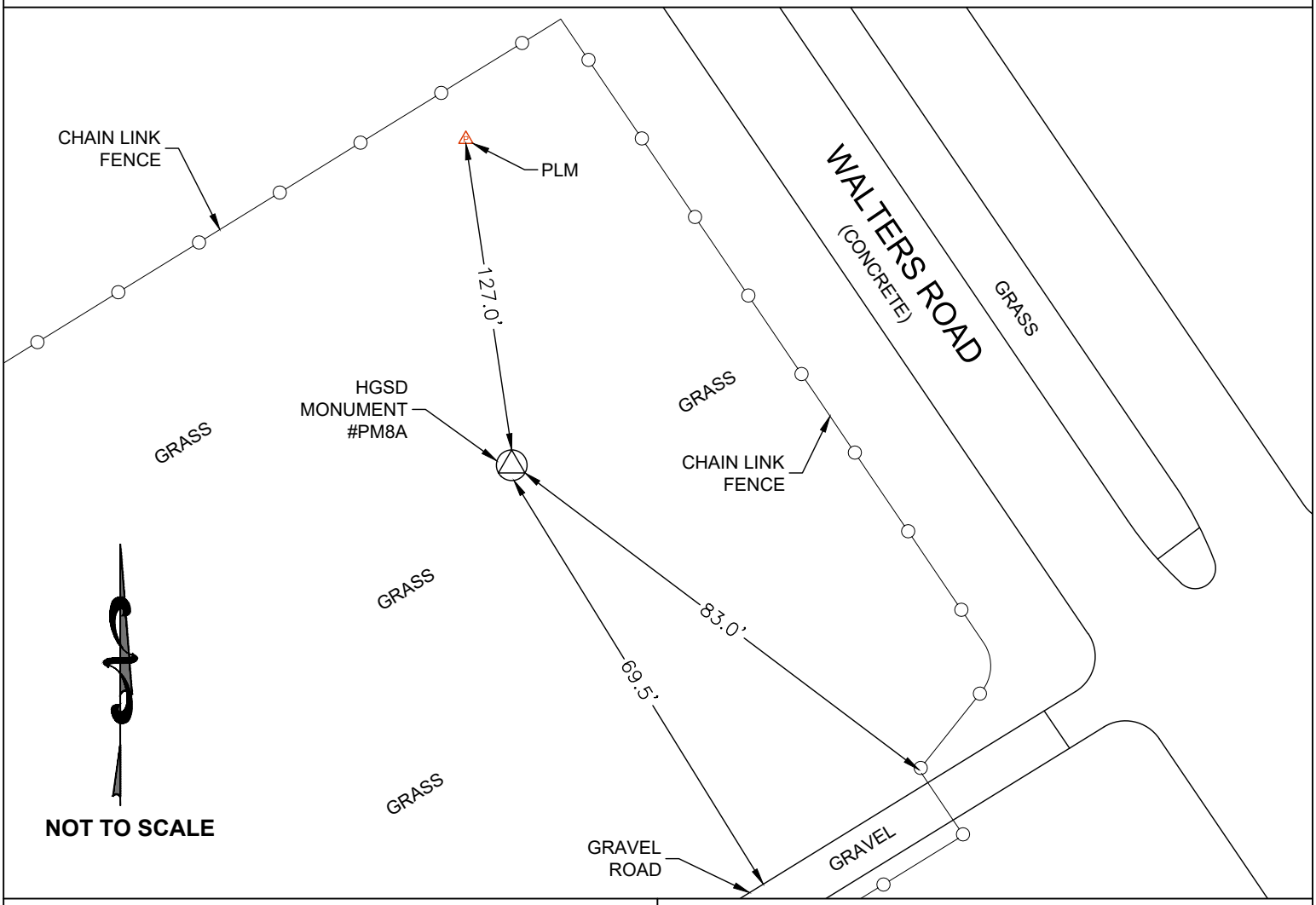


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: PAM 9 ARP **4-Char ID/PID:** PM9A/AJ6402	**General Location:** Huffman

Benchmark Description:
THE STATION IS A 2 INCH DIAMETER GALVANIZED STEEL PIPE WHICH IS DRIVEN 20 FT (6.1 M) INTO THE GROUND. THE PIPE PROJECTS ABOUT 8 FT (2.4 M) ABOVE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 339G	**Date Observed:** November 16, 2022
USGS Quad Map: Huffman (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: HGCSD	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: 2" Iron Pipe	**Monument Depth:** 6.1m
Northing: 13945895.51 (usft) **Easting:** 3211315.87 (usft) **Orthometric Height[1]:** 78.02 (usft) **Geoid Height:** -89.78 (usft)	**Latitude:** 30 02 17.23235(N) **Longitude:** 095 04 17.24180(W) **Ellipsoid Height:** -11.72 (usft) **Convergence Angle:** 01 55 28.72

Scale Factor: 0.99993836 **Elevation Scale Factor:** 1.00000056 **Combined Scale Factor:** 0.99993892

To Reach Monument

TO REACH THE STATION FROM THE INTERSECTION OF HUFFMAN CLEVELAND RD. AND HUFFMAN - EASTGATE RD GO EAST ON HUFFMAN-EASTGATE RD. 1.07 MILES TO THE STATION INSIDE THE FENCED TRACT TO THE SOUTH.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13945895.51 **Easting:** 3211315.87 **Orthometric Height:** 78.02

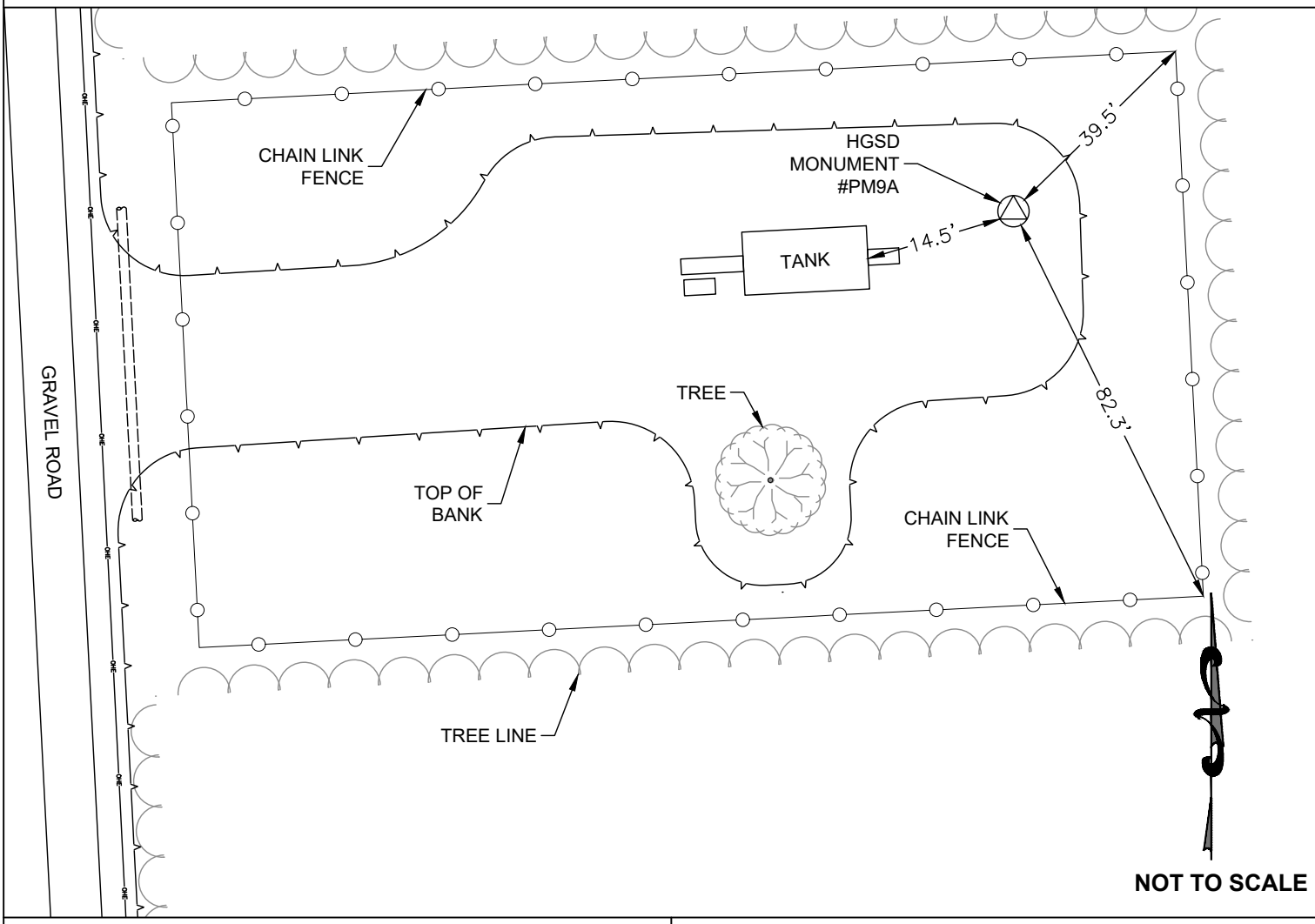


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Q 1279 **4-Char ID/PID:** Q1279/AW2263	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY VERTICAL CONTROL MARK DISK STAMPED "Q 1279 1978", JUST BELOW THE NATURAL GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 528D	**Date Observed:** October 27, 2022
USGS Quad Map: Alief (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: Q 1279 1978	**Monument Depth:** N/A
Northing: 13822847.92 (usft) **Easting:** 3046881.60 (usft) **Orthometric Height[1]:** 74.18 (usft) **Geoid Height:** -89.88 (usft)	**Latitude:** 29 42 50.67566(N) **Longitude:** 095 36 07.97231(W) **Ellipsoid Height:** -15.68 (usft) **Convergence Angle:** 01 39 52.62

Scale Factor: 0.99988506 **Elevation Scale Factor:** 1.000004041 **Combined Scale Factor:** 0.99988581

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF S. DAIRY ASHFORD RD. AND ALIEF CLODINE RD. (SOUTH OF AND PARALLEL TO THE WESTPARK TOLLWAY) GO EAST ON ALIEF CLODINE RD. 0.14 MILE TO THE MONUMENT ON THE SOUTH SIDE OF THE ROAD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13822847.92	Easting: 3046881.60	Orthometric Height: 74.18

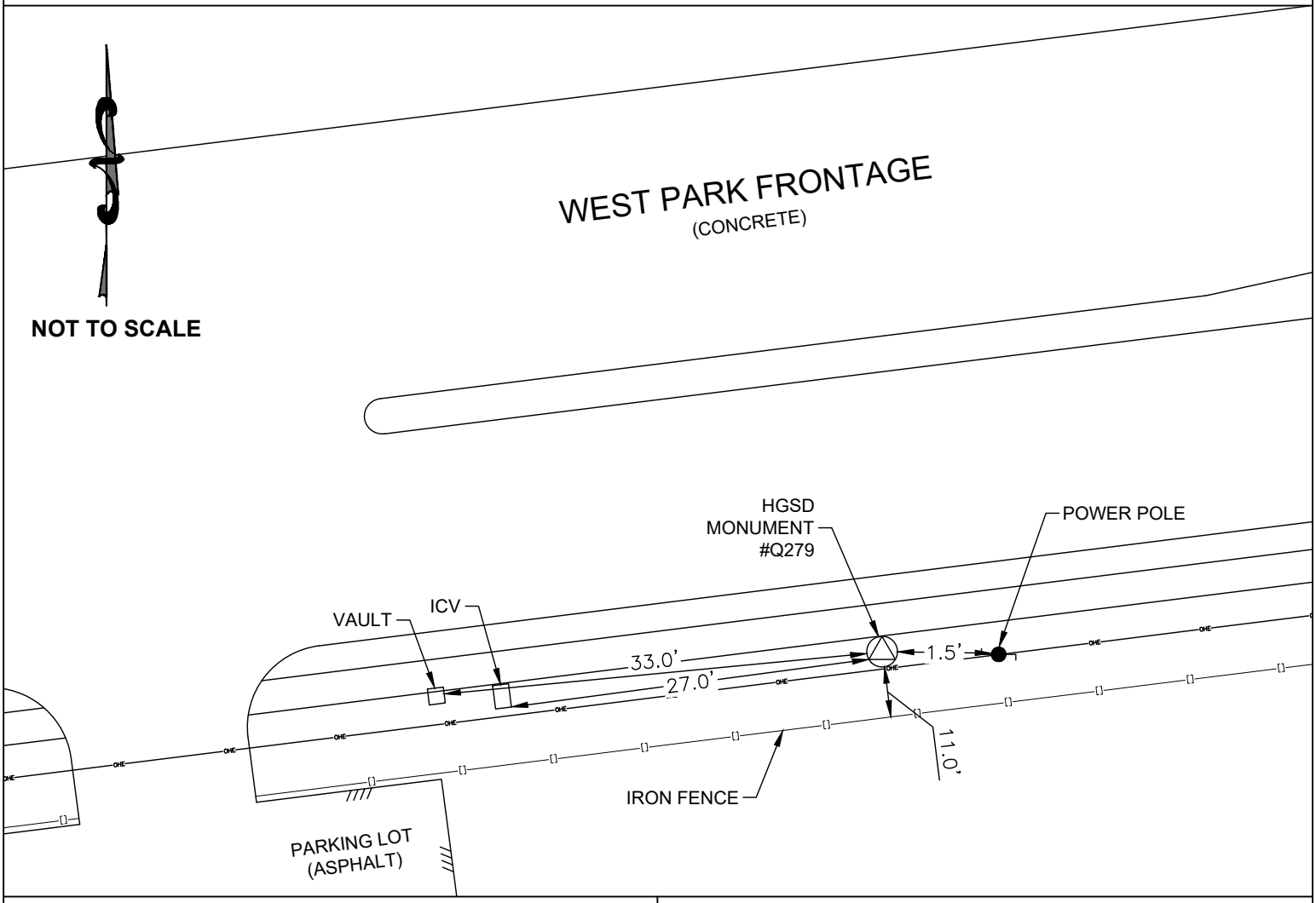


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Q 1281 **4-Char ID/PID:** Q281/AW1864	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A DEEP ROD WITH CAP WITHOUT SLEEVE AND IS RECESSED ABOUT 1.50 FT (0.5 M) IN NATURAL GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 407P	**Date Observed:** October 19, 2022
USGS Quad Map: Cypress (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: Q 1281 1978	**Monument Depth:** N/A
Northing: 13882253.27 (usft) **Easting:** 3019475.07 (usft) **Orthometric Height[1]:** 126.80 (usft) **Geoid Height:** -90.29 (usft)	**Latitude:** 29 52 46.32927(N) **Longitude:** 095 40 59.56947(W) **Ellipsoid Height:** 36.54 (usft) **Convergence Angle:** 01 37 29.77

Scale Factor: 0.99990828 **Elevation Scale Factor:** 0.99999825 **Combined Scale Factor:** 0.99990653

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM 529 AND BARKER CYPRESS RD, GO SOUTH ON BARKER CYPRESS APPROXIMATELY 140 FEET TO THE MONUMENT ON THE SOUTHEAST CORNER OF THE INTERSECTION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13882253.27	Easting: 3019475.07	Orthometric Height:126.80

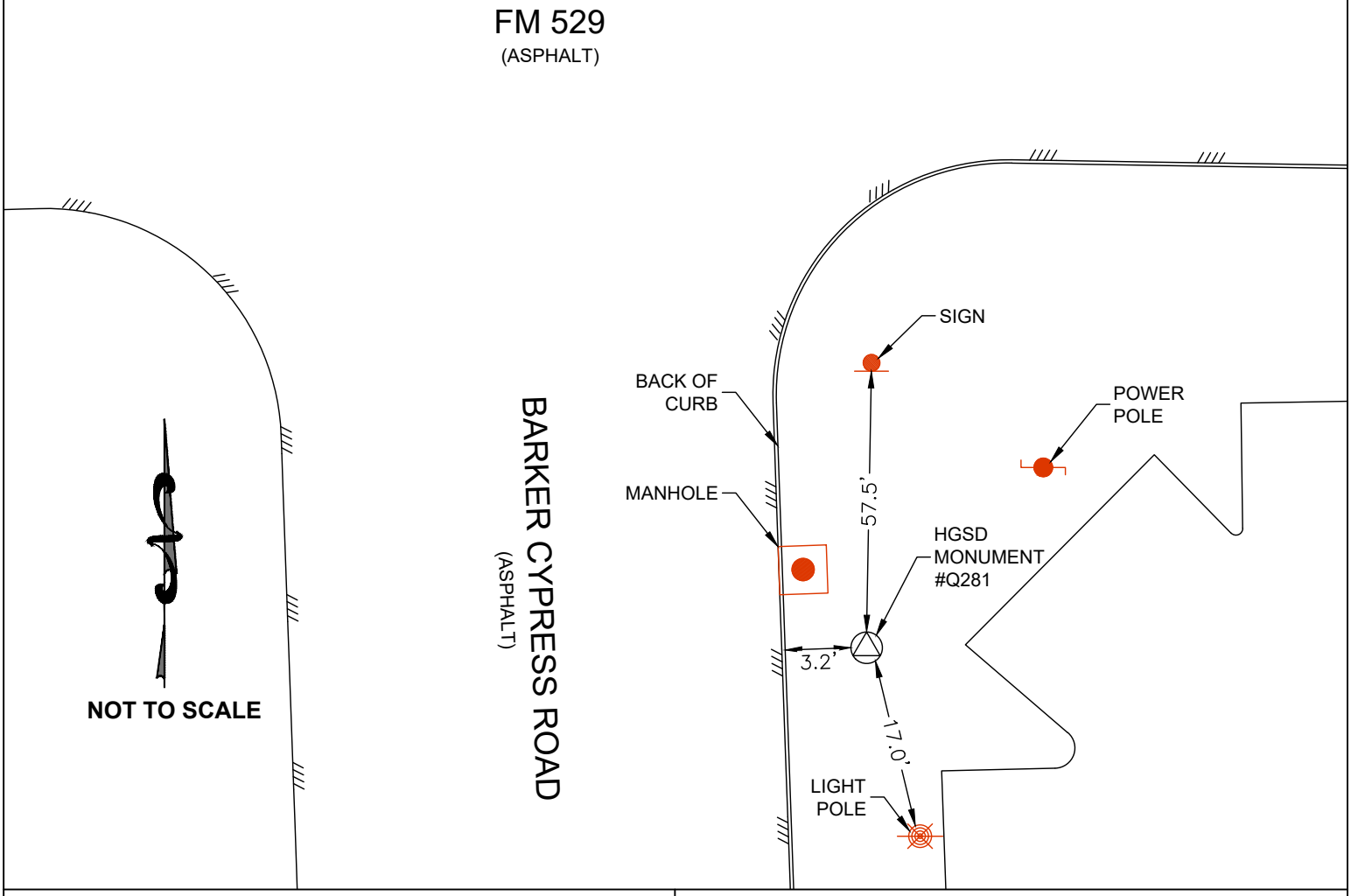


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON
SUBSIDENCE DISTRICT

Mark Des **4-Char ID/P**	**General Location:** Houston
Benchmark De THE BENCHMA P OF A 12 INCH DIAMETER CO 0.3 FOOT.	
County: Harris	**Establi**
Key Map Page No: 370U	**Dat** 2
USGS Quad Map: Satsuma (202	
Horizontal Survey Method: GPS Sta	GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch	D88
Projection Zone: Texas South Central 4204	oid 18
Marker Logo: CGS	ay hold well, but subject to ground movement
Marker/Stamping: Iron Rod in Concrete	N/A
Northing: (usft) **Easting:** (usft) **Orthometric Height[1]:** (usft) **Geoid Height:** (usft)	**E** **Con**
Scale Factor:	**ale Factor:** **actor:**

To Reach Monument

THE BENCHMA RTH SIDE OF BELTWAY 8(SAM I ILE WEST OF SH 249 (TOM HEAST OF THE RAILROAD TRACK.

derived from the ellipsoid height and can vary due to geoid model.

Northing:	Easting:	Elevation:

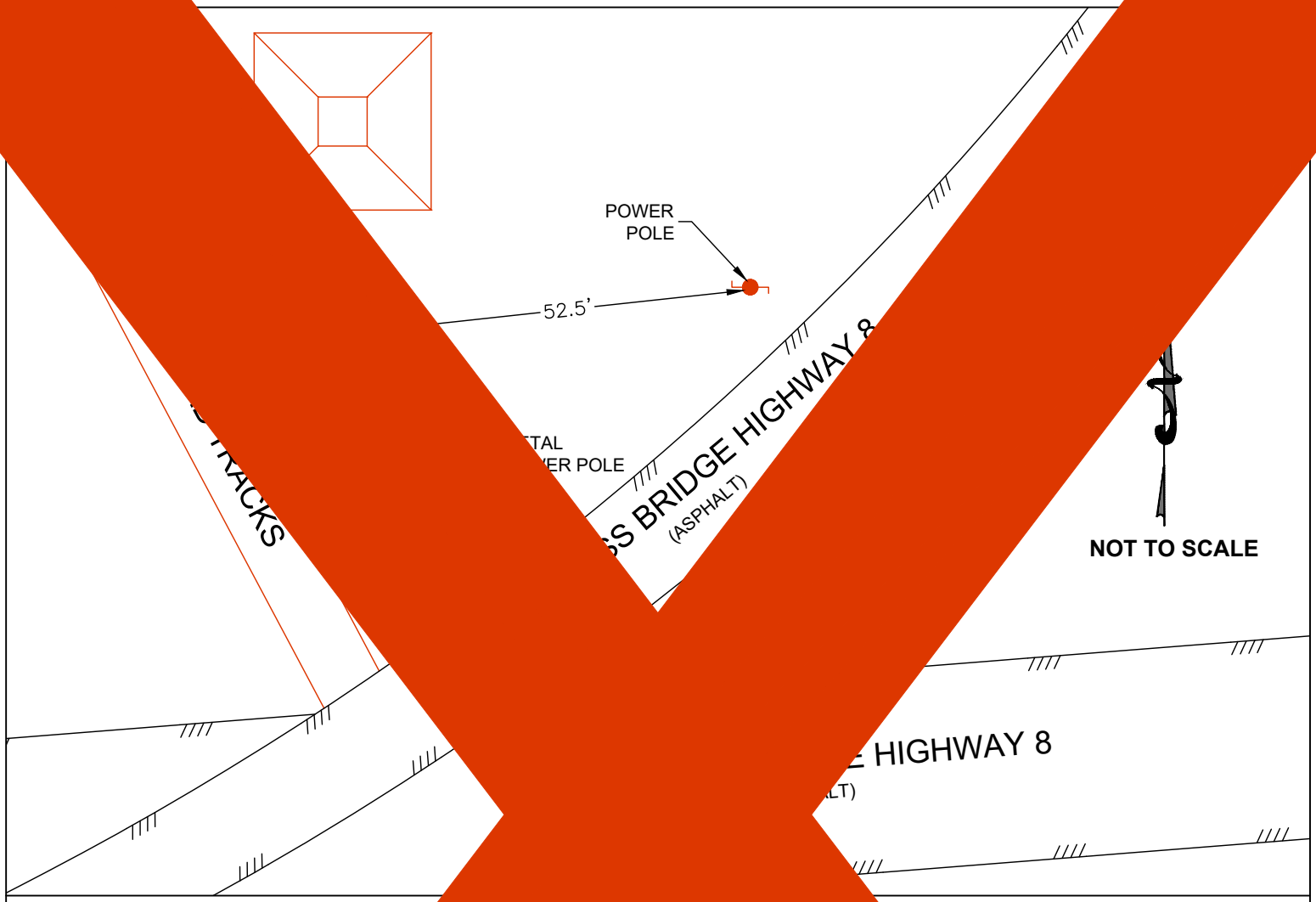


Photo 1 - Station De

oto 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: V 1182 **4-Char ID/PID:** V182/AW2293	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "V 1182 1963", SET FLUSH IN PAVMENT ON BRIDGE WALKWAY.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 531Q	**Date Observed:** October 27, 2022
USGS Quad Map: Bellaire (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** D: Questionable or unknown reliability
Marker/Stamping: V 1182 1963	**Monument Depth:** N/A
Northing: 13812266.01 (usft) **Easting:** 3092533.85 (usft) **Orthometric Height[1]:** 50.43 (usft) **Geoid Height:** -89.55 (usft)	**Latitude:** 29 40 52.55390(N) **Longitude:** 095 27 34.08381(W) **Ellipsoid Height:** -39.12 (usft) **Convergence Angle:** 01 44 04.39

Scale Factor: 0.99988145 **Elevation Scale Factor:** 1.00000187 **Combined Scale Factor:** 0.99988332

To Reach Monument

THE MONUMENT IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF THE SOUTHBOUND FRONTAGE RD OF WEST LOOP 610 SOUTH AND BRAYS BAYOU, ON THE WEST DECK OF THE BRIDGE.

Notes:

1. Elevations are derived from the ellipsoid height and can vary due to geoid model.
2. Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.

SPCS 83/4204 **Northing:** 13812266.01 **Easting:** 3092533.85 **Orthometric Height:** 50.43

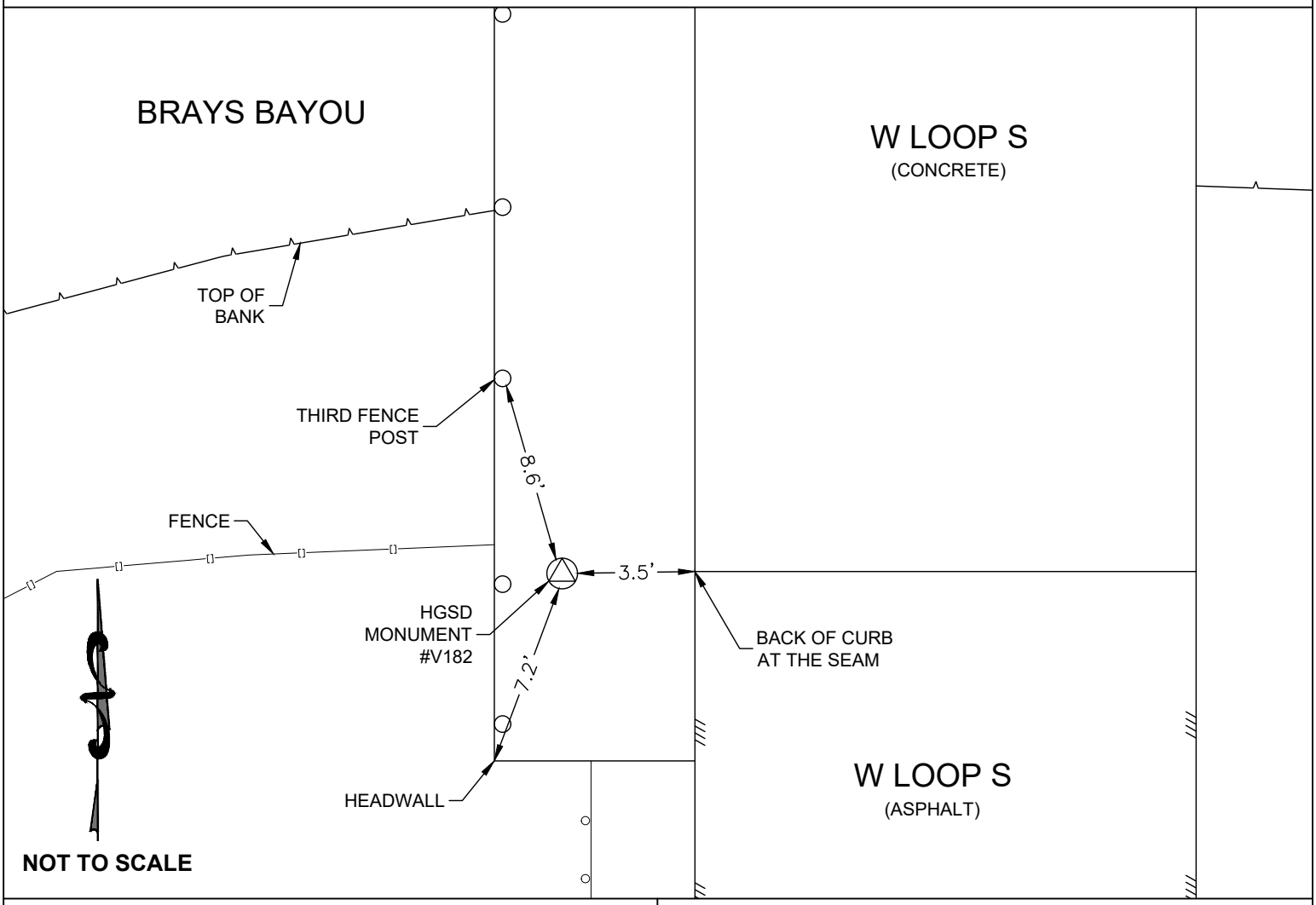


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: W 1019 **4-Char ID/PID:** W019/AW1973	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "W 1019 1954", SET IN THE TOP OF A CONCRETE POST FLUSH WITH THE GROUND.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 418P	**Date Observed:** November 15, 2022
USGS Quad Map: Harmaston (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** D: Questionable or unknown reliability
Marker/Stamping: W 1019 1954	**Monument Depth:** N/A
Northing: 13889111.44 (usft) **Easting:** 3195096.32 (usft) **Orthometric Height[1]:** 29.00 (usft) **Geoid Height:** -89.68 (usft)	**Latitude:** 29 53 00.76967(N) **Longitude:** 095 07 43.06037(W) **Ellipsoid Height:** -60.65 (usft) **Convergence Angle:** 01 53 47.88

Scale Factor: 0.99990895 **Elevation Scale Factor:** 1.0000029 **Combined Scale Factor:** 0.99991185

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SHELDON RD AND BEAUMON PWKY, HEAD NORTH ON SHELDON RD TO THE T OF SHELDON RD AND GARRET RD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13889111.44	Easting: 3195096.32	Orthometric Height: 29.00

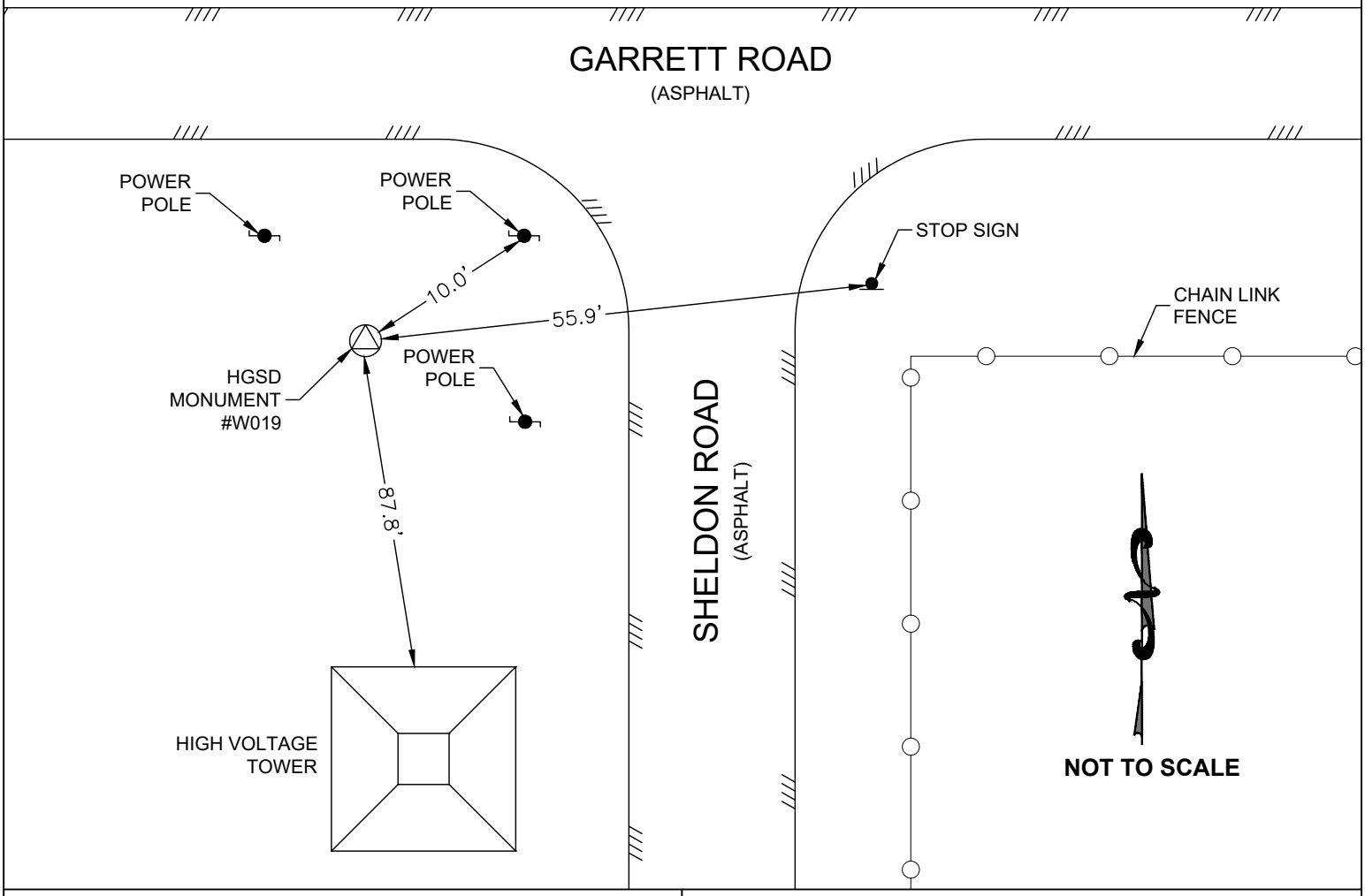


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: W 811 **4-Char ID/PID:** W811/AW4239	**General Location:** Houston
Benchmark Description: THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "W 811 1943", SET IN THE TOP OF A CONCRETE POST PROJECTING 0.2 FOOT ABOVE THE GROUND.	
County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 647N	**Date Observed:** October 31, 2022
USGS Quad Map: Smithers Lake (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: USCGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: W 811 1943	**Monument Depth:** N/A
Northing: 13741292.87 (usft) **Easting:** 3024279.19 (usft) **Orthometric Height[1]:** 74.31 (usft) **Geoid Height:** -89.24 (usft)	**Latitude:** 29 29 30.00475(N) **Longitude:** 095 40 50.45932(W) **Ellipsoid Height:** -14.90 (usft) **Convergence Angle:** 01 37 34.23
Scale Factor: 0.99986697 **Elevation Scale Factor:** 1.00000071 **Combined Scale Factor:** 0.99986768	

To Reach Monument

TO REACH THE MONUMENT GO SOUTH 0.20 MILES FROM THE SOUTH END OF THE FM 762 ROAD BRIDGE OVER SMITHERS LAKE TO THE SOUTH SIDE OF THE INTERSECTION OF FM 762 AND SMITHERS LAKE ROAD. THE MONUMENT IS IN THE SOUTH SIDE OF THE INTERSECTION.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13741292.87 **Easting:** 3024279.19 **Orthometric Height:** 74.31

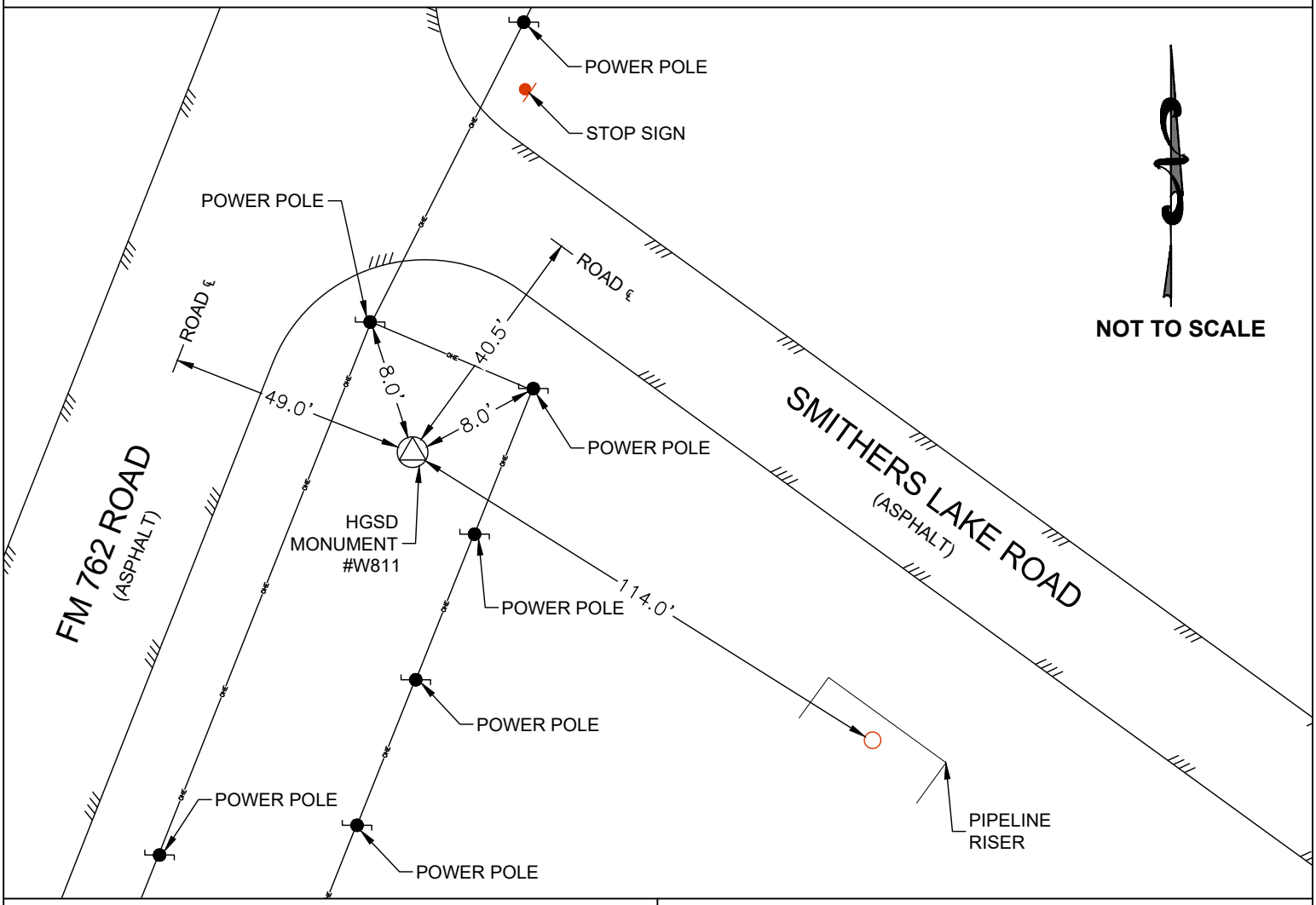
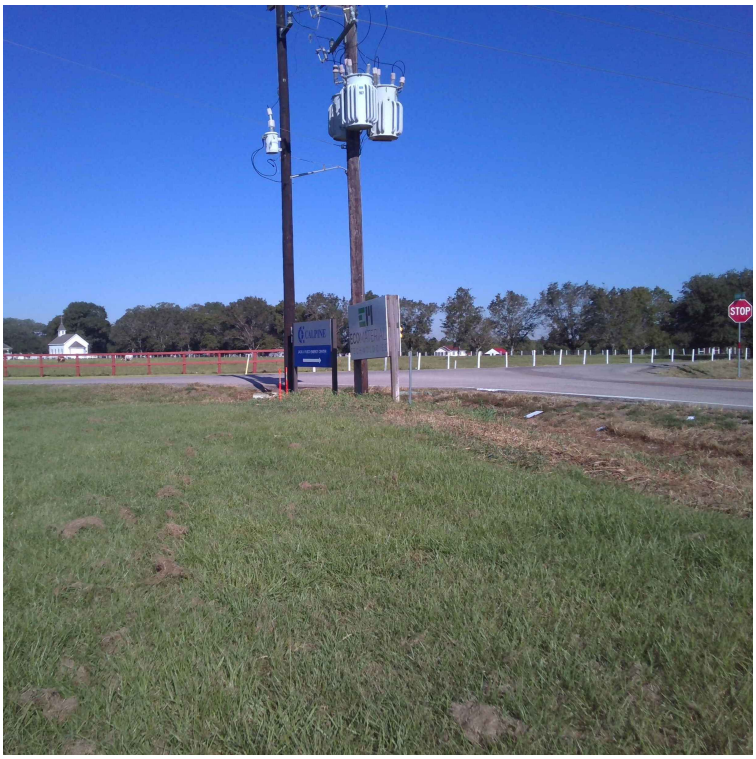


Photo 1 - Station Detail

Photo 2 - Station Overall



HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: X1027 **4-Char ID/PID:** XO27/BM0154	**General Location:** Hempstead

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "X 1027 1954", SET IN THE TOP OF A CONCRETE POST WHICH PROJECTS 0.6 FOOT ABOVE THE GROUND.

County: Waller **State:** Texas	**Observed by:** HGSD
Key Map Page No: 280P	**Date Observed:** October 18, 2022
USGS Quad Map: Hempstead (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: X 1027 1954	**Monument Depth:** N/A
Northing: 13948101.06 (usft) **Easting:** 2905396.64 (usft) **Orthometric Height[1]:** 221.16 (usft) **Geoid Height:** -90.36 (usft)	**Latitude:** 30 04 08.25785(N) **Longitude:** 096 02 16.11594(W) **Ellipsoid Height:** 130.85 (usft) **Convergence Angle:** 01 27 04.37

Scale Factor: 0.99994511 **Elevation Scale Factor:** 0.99999374 **Combined Scale Factor:** 0.99993885

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF US 290 BUS AND FM 359 GO SOUTH ON FM 359 1.03 MILES TO THE MONUMENT ON THE RIGHT AND BEING SOUTH 0.10 MILE OF CANTY RD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204	Northing: 13948101.06	Easting: 2905396.64	Orthometric Height: 221.16

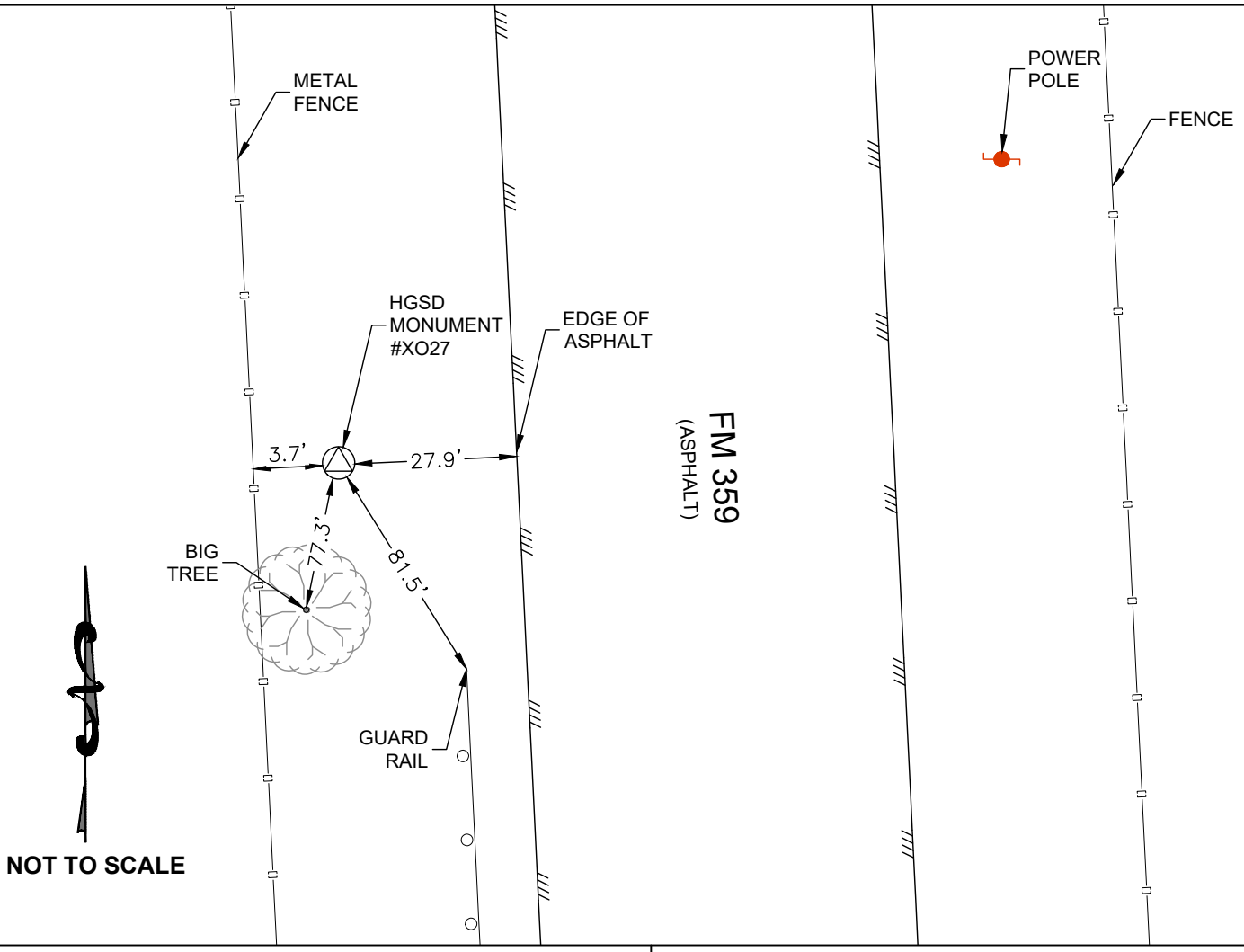


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Y 208 **4-Char ID/PID:** Y208/AX0200	**General Location:** Bellville

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "Y 208 1933" ,SET IN THE TOP OF THE CONCRETE FOUNDATION OF THE SOUTHEAST LEG OF THE CITY WATER TOWER.

County: Austin **State:** Texas	**Observed by:** HGSD
Key Map Page No:	**Date Observed:** October 17, 2022
USGS Quad Map: Bellville (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: Y 208 1933 281.929	**Monument Depth:** N/A
Northing: 13903215.99 (usft) **Easting:** 2836652.18 (usft) **Orthometric Height[1]:** 281.73 (usft) **Geoid Height:** -90.03 (usft)	**Latitude:** 29 57 00.65489(N) **Longitude:** 096 15 30.25047(W) **Ellipsoid Height:** 191.79 (usft) **Convergence Angle:** 01 20 35.31

Scale Factor: 0.99992073 **Elevation Scale Factor:** 0.999990819 **Combined Scale Factor:** 0.99991155

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF W MAIN ST AND N GRANVILLE ST, HEAD EAST ON W MAIN ST FOR APPROXIMATELY 0.08 MILE PAST THE INTERSECTION OF W MAIN ST AND S MASONIC ST. JUST PAST THAT INSTERSECTION TURN INTO THE FIRST DRIVEWAY ON THE RIGHT.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13903215.99 **Easting:** 2836652.18 **Orthometric Height:** 281.73

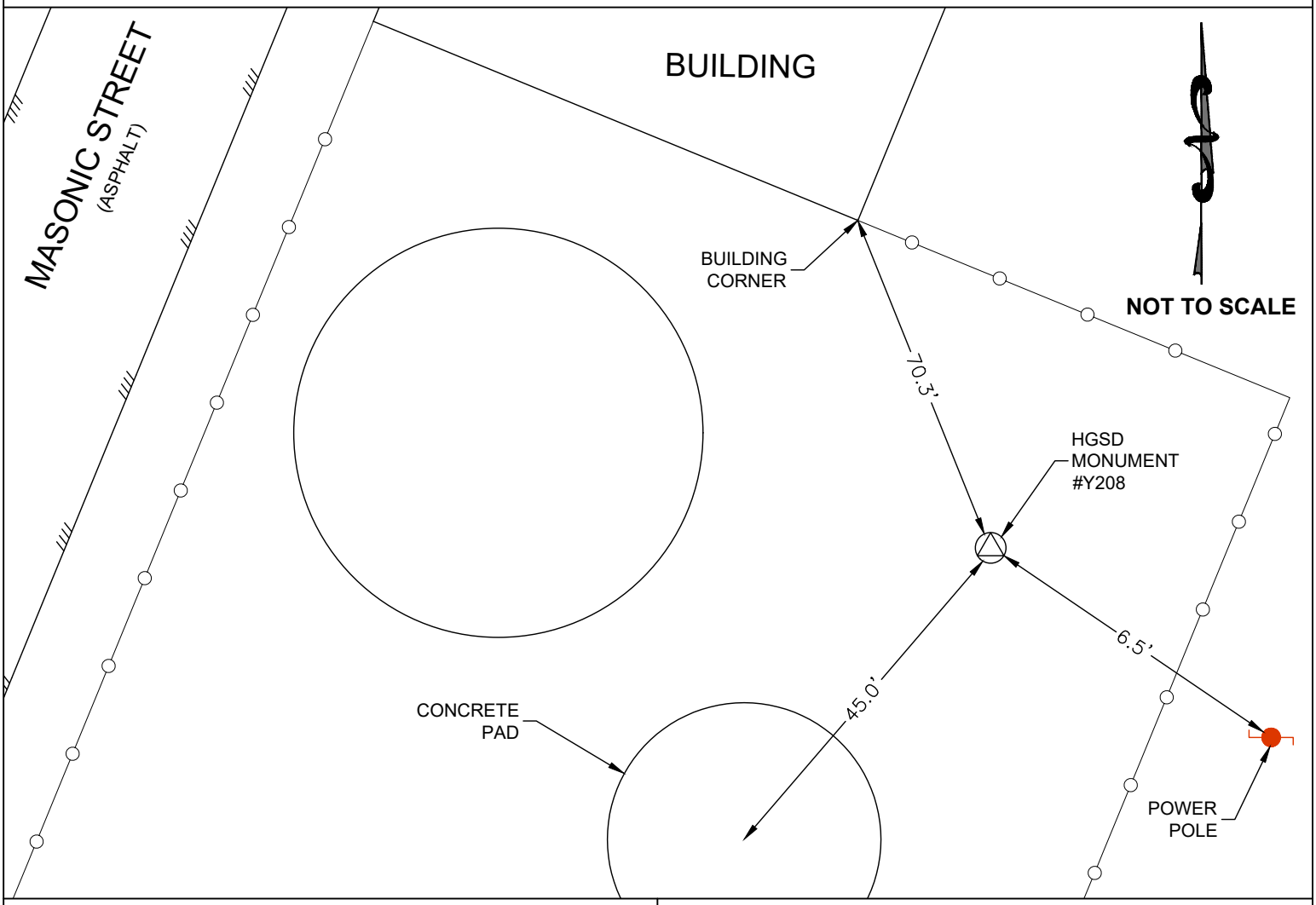


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Y 1249 **4-Char ID/PID:** Y249/AW0938	**General Location:** Baytown

Benchmark Description:
THE MONUMENT IS A BRONZE NATIONAL GEODETIC SURVEY DISK STAMPED "Y 1249 1978", SET IN TOP OF THE SOUTH END OF THE WEST CONCRETE GUARD RAIL OF THE EAST BRIDGE OVER INTERSTATE 10.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 499D	**Date Observed:** November 9, 2022
USGS Quad Map: Highlands (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: Y 1249 1978	**Monument Depth:** N/A
Northing: 13856078.19 (usft) **Easting:** 3218766.35 (usft) **Orthometric Height[1]:** 40.55 (usft) **Geoid Height:** -89.52 (usft)	**Latitude:** 29 47 26.10281(N) **Longitude:** 095 03 26.96466(W) **Ellipsoid Height:** -49.03 (usft) **Convergence Angle:** 01 55 53.35

Scale Factor: 0.99989476 **Elevation Scale Factor:** 1.00000235 **Combined Scale Factor:** 0.99989711

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF DECKER RD AND CROSBY LYNCHBURG RD, HEAD NORTH ON CROSBY LYNCHBURG RD APPROXIMATELY 250FT JUST BEFORE THE I-10 EAST BOUND LANES.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13856078.19 **Easting:** 3218766.35 **Orthometric Height:** 40.55

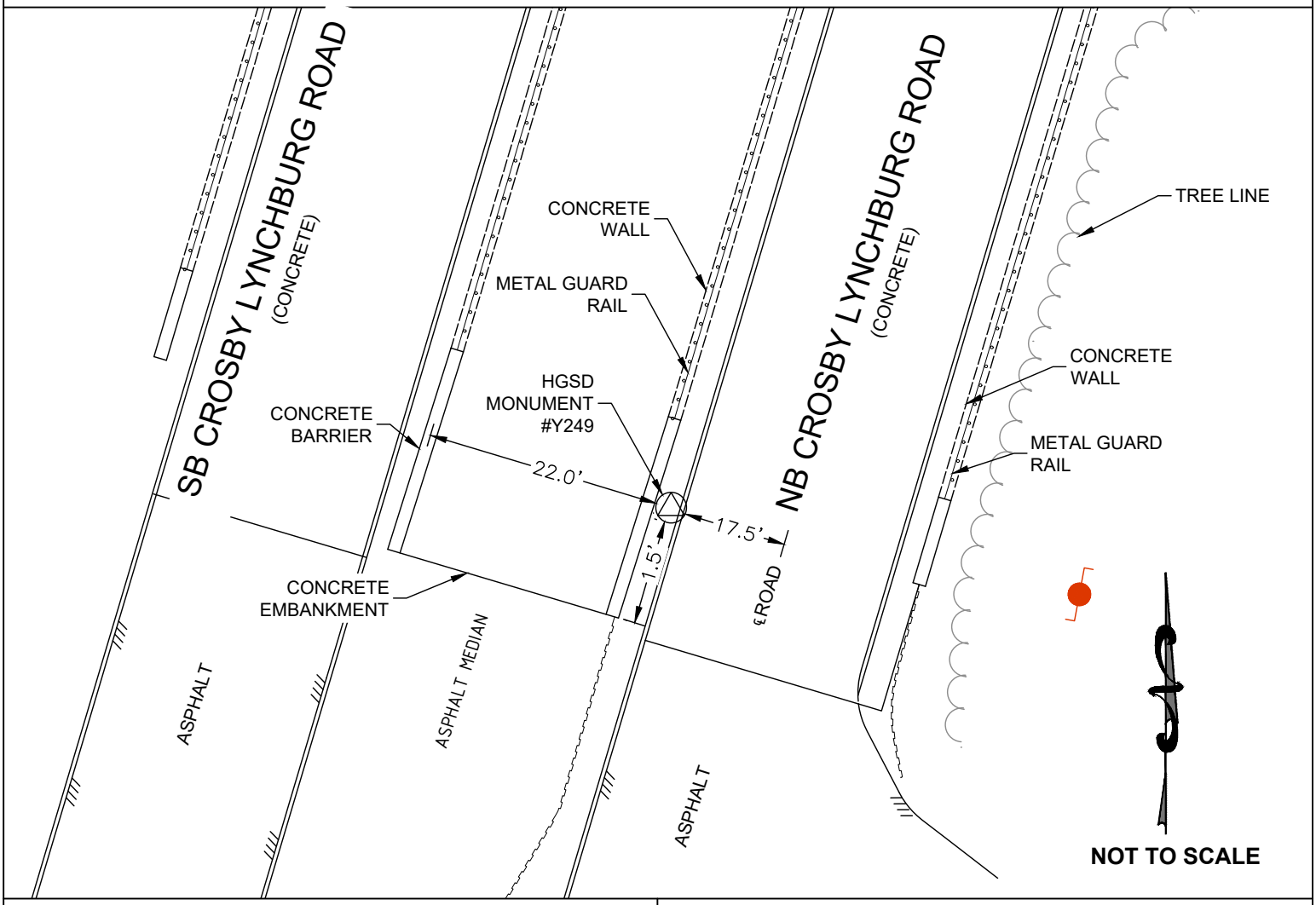


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Y 1505 **4-Char ID/PID:** Y505/AW5494	**General Location:** Beasley
Benchmark Description: THE MONUMENT IS A STAINLESS STEEL ROD INSIDE OF CASING IN CONCRETE.	
County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 601T	**Date Observed:** October 25, 2022
USGS Quad Map: Orchard (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: NGS	**Stability:** B: Will probably hold position and elevation well
Marker/Stamping: Y 1505 1987	**Monument Depth:** 6.1m
Northing: 13757156.99 (usft) **Easting:** 2931703.92 (usft) **Orthometric Height[1]:** 113.45 (usft) **Geoid Height:** -89.73 (usft)	**Latitude:** 29 32 31.88715(N) **Longitude:** 095 58 13.10510(W) **Ellipsoid Height:** 23.71 (usft) **Convergence Angle:** 01 29 03.43
Scale Factor: 0.99986976 **Elevation Scale Factor:** 0.99999887 **Combined Scale Factor:** 0.99986863	

To Reach Monument

TO REACH THE MONUMENT FROM THE POST OFFICE IN BEASLEY, GO 1.6 KM (1.0 MI) SOUTHWEST ALONG US HIGHWAY 59, THENCE GO 7.44 KM (4.63 MI) NORTHWEST ALONG FM ROAD 1875, THE MONUMENT IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF US HIGHWAY 90A AND FM ROAD 1875.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13757156.99 **Easting:** 2931703.92 **Orthometric Height:** 113.45

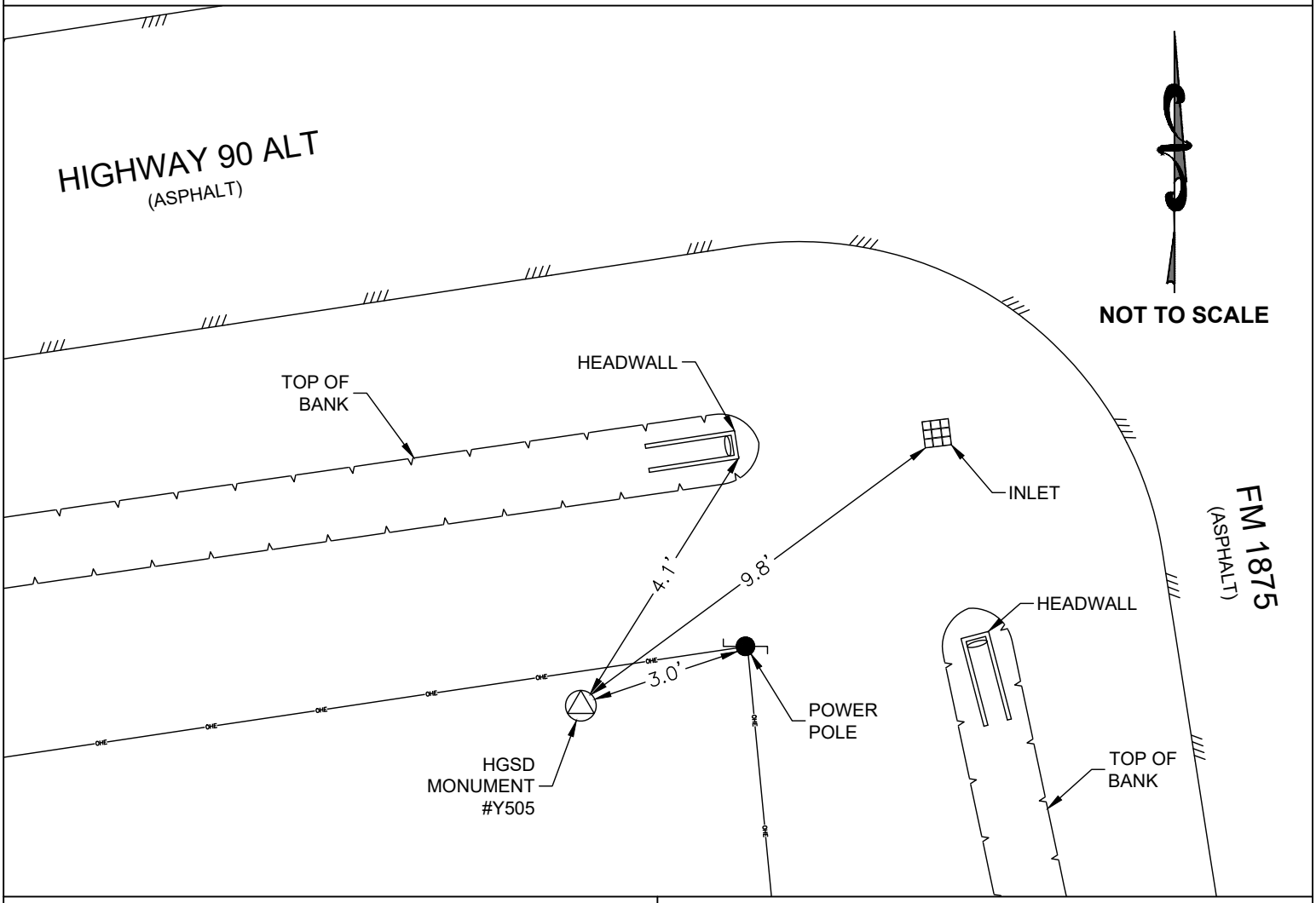


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS-GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Z 639 RESET **4-Char ID/PID:** Z39R/AW1110	**General Location:** Houston

Benchmark Description:
THE MONUMENT IS A BRONZE U.S. COAST & GEODETIC SURVEY DISK STAMPED "Z 639 RESET 1965", SET IN THE TOP AND CENTER OF THE NORTHEAST CONCRETE HEADWALL OF A PIPE CULVERT.

County: Harris **State:** Texas	**Observed by:** HGSD
Key Map Page No: 576G	**Date Observed:** November 11, 2022
USGS Quad Map: Pasadena (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: Z 639 RESET 1965	**Monument Depth:** N/A
Northing: 13801773.27 (usft) **Easting:** 3169208.82 (usft) **Orthometric Height[1]:** 32.97 (usft) **Geoid Height:** -89.25 (usft)	**Latitude:** 29 38 44.96688(N) **Longitude:** 095 13 09.06404(W) **Ellipsoid Height:** -56.25 (usft) **Convergence Angle:** 01 51 08.17

Scale Factor: 0.99987791 **Elevation Scale Factor:** 1.00000269 **Combined Scale Factor:** 0.9998806

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF SH 3 AND EDGEBROOK DR. GO SOUTH ON SH 3 0.17 MILE TO THE MONUMENT LOCATED BETWEEN THE HIGHWAY AND THE RAILROAD.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13801773.27 **Easting:** 3169208.82 **Orthometric Height:** 32.97

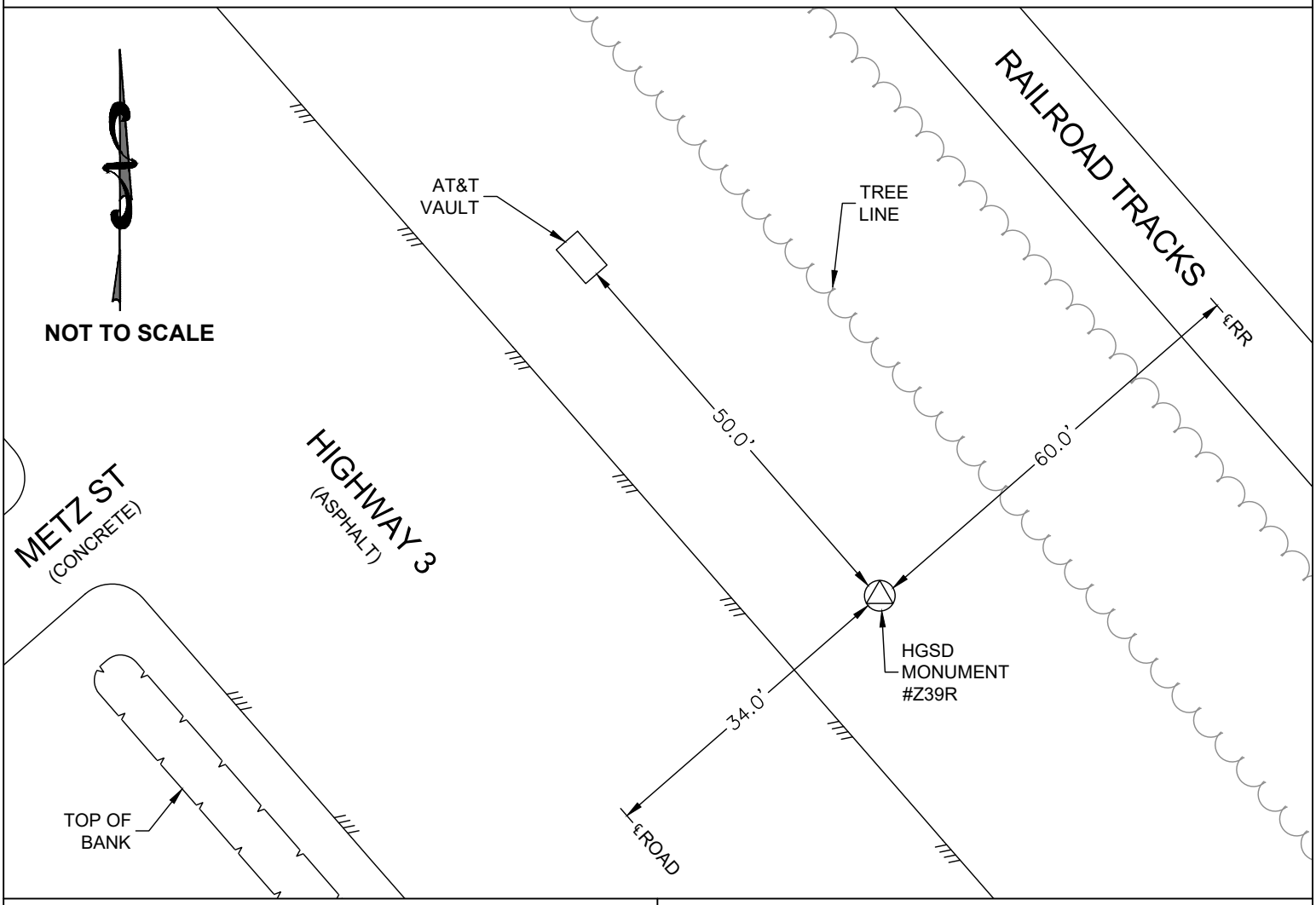


Photo 1 - Station Detail

Photo 2 - Station Overall

HARRIS - GALVESTON SUBSIDENCE DISTRICT

Mark Designation: Z 811 **4-Char ID/PID:** Z811/AW4253	**General Location:** Thompsons
Benchmark Description: THE MONUMENT IS A U.S. COAST & GEODETIC DISK STAMPED "Z 811 1943", SET IN CONCRETE FLUSH WITH THE GROUND.	
County: Fort Bend **State:** Texas	**Observed by:** HGSD
Key Map Page No: 648M	**Date Observed:** October 31, 2022
USGS Quad Map: Thompsons (2022)	**Date Adjusted:** August 2023
Horizontal Survey Method: GPS Static Observation	**Vertical Survey Method:** GPS Static Observation
Horizontal Datum: NAD83 (2011) Epoch 2010.0 **Projection Zone:** Texas South Central 4204	**Vertical Datum:** NAVD88 **Geoid Model:** Geoid 18
Marker Logo: CGS	**Stability:** C: May hold well, but subject to ground movement
Marker/Stamping: Z 811 1943	**Monument Depth:** N/A
Northing: 13743971.05 (usft) **Easting:** 3052046.03 (usft) **Orthometric Height[1]:** 61.15 (usft) **Geoid Height:** -89.14 (usft)	**Latitude:** 29 29 48.60526(N) **Longitude:** 095 35 35.48084(W) **Ellipsoid Height:** -27.95 (usft) **Convergence Angle:** 01 40 08.54
Scale Factor: 0.99986722 **Elevation Scale Factor:** 1.00000134 **Combined Scale Factor:** 0.99986856	

To Reach Monument

TO REACH THE MONUMENT FROM THE INTERSECTION OF FM 2759 AND Y.U. JONES RD. GO SOUTH 0.10 MILE ON Y.U. JONES RD TO THE MONUMENT ON THE LEFT NEAR A POWER POLE.

Notes:

1. **Elevations are derived from the ellipsoid height and can vary due to geoid model.**
2. **Orthometric height is based on the date provided in the date Adjusted herein and may not represent current heights. See NGS database for the latest published height and any superseded heights.**

SPCS 83/4204 **Northing:** 13743971.05 **Easting:** 3052046.03 **Orthometric Height:** 61.15

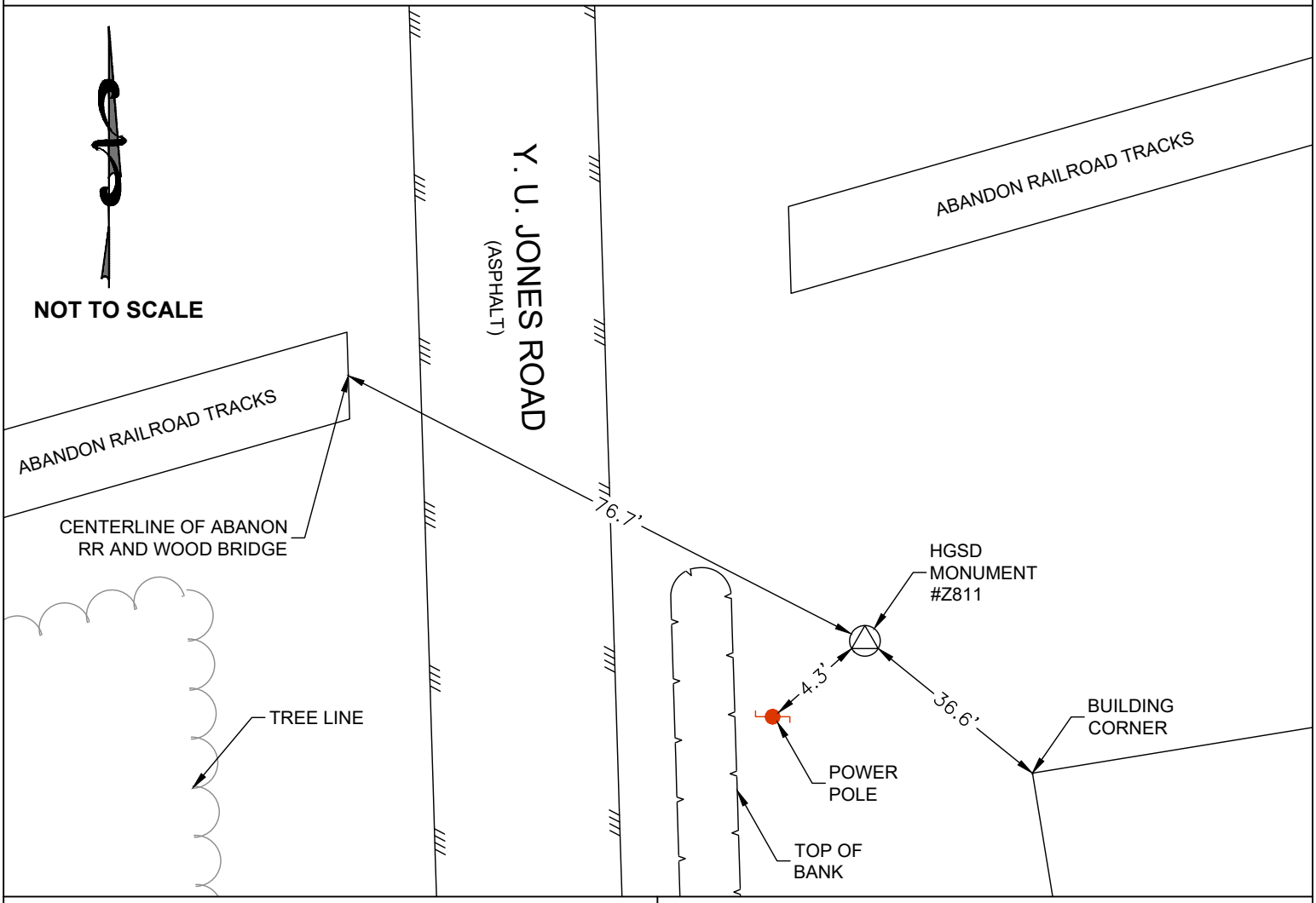


Photo 1 - Station Detail

Photo 2 - Station Overall