



Date: August 20, 2020 **Time:** 20:17:58 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2010

State: Utah **Latitude:** 39 10 24.28132 **Longitude:** -109 07 35.73129

Address and/or Intersection: I-70 EB exit ramp, Old Highway 6

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 20:17:58 UTC	End Time: 21:27:38 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

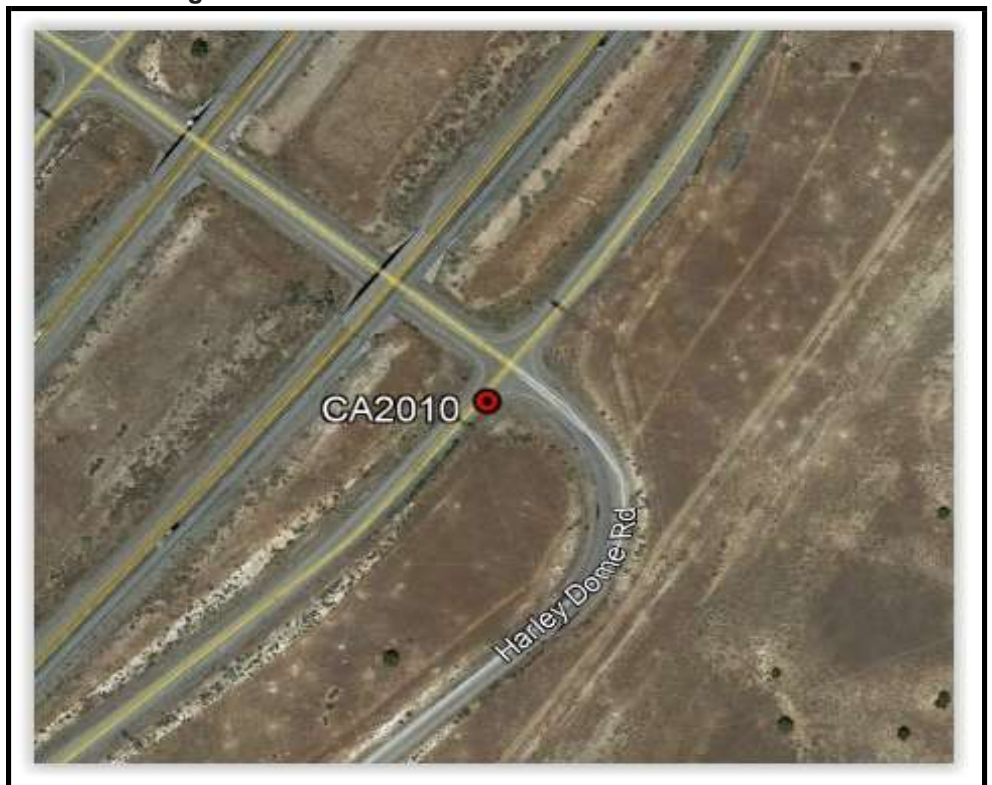
Time: _____

Pt ID: _____

Description:

Intersection of north edge of fog line and centerline of stop stripe

Sketch or Image of Area



POINT ID: CA2010
MONUMENT PHOTO



POINT ID: CA2010
NORTH PHOTO



POINT ID: CA2010
EAST PHOTO



POINT ID: CA2010
SOUTH PHOTO



POINT ID: CA2010
WEST PHOTO





Date: August 24, 2020 **Time:** 15:35:03 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2011

State: Utah **Latitude:** 38 56 20.81009 **Longitude:** -109 24 29.01641

Address and/or Intersection: Intersection HWY 128 and I70

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:35:03 UTC	End Time: 16:46:18 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

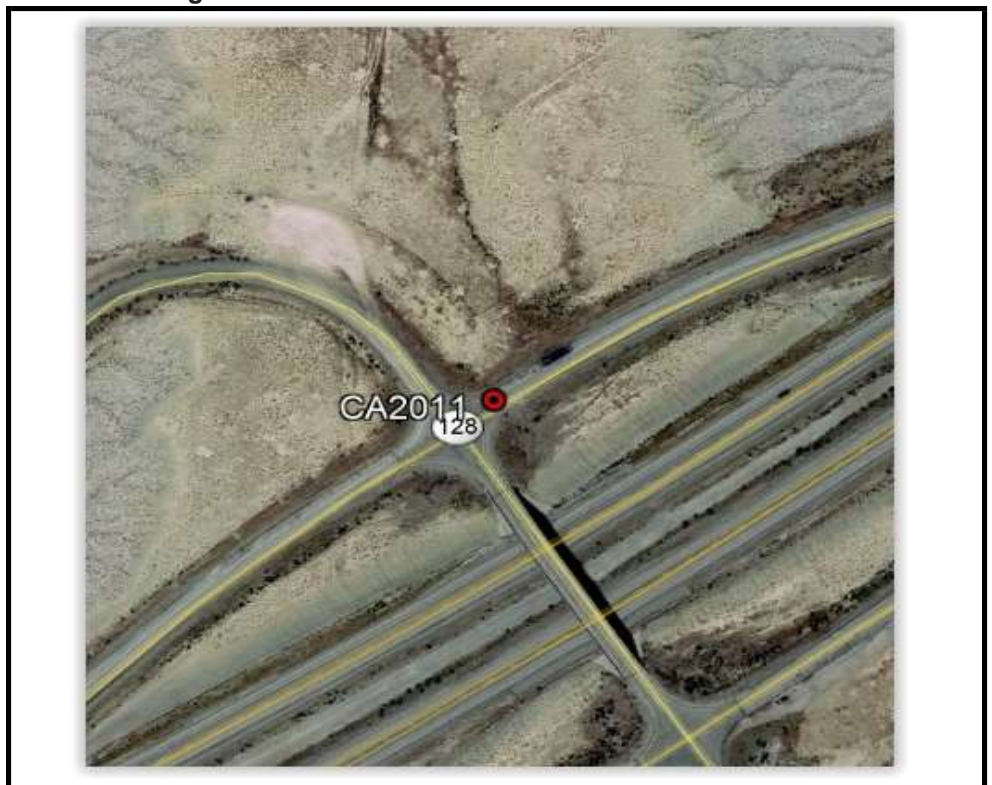
- Photos of area & setup

POINT RE-CHECK

Date: August 24, 2020
Time: 21:54:29
Pt ID: CA2011-CK

Description:
 Intersection of centerlines of stop stripe and fog line

Sketch or Image of Area





POINT ID: CA2011
MONUMENT PHOTO



POINT ID: CA2011
NORTH PHOTO



POINT ID: CA2011

EAST PHOTO





POINT ID: CA2011
SOUTH PHOTO



POINT ID: CA2011

WEST PHOTO





Date: October 11, 2020 **Time:** 18:37:40 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2012

State: Utah **Latitude:** 38 42 16.71523 **Longitude:** -109 23 11.40364

Address and/or Intersection: HWY 128

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 18:37:40 UTC	End Time: 20:49:31 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

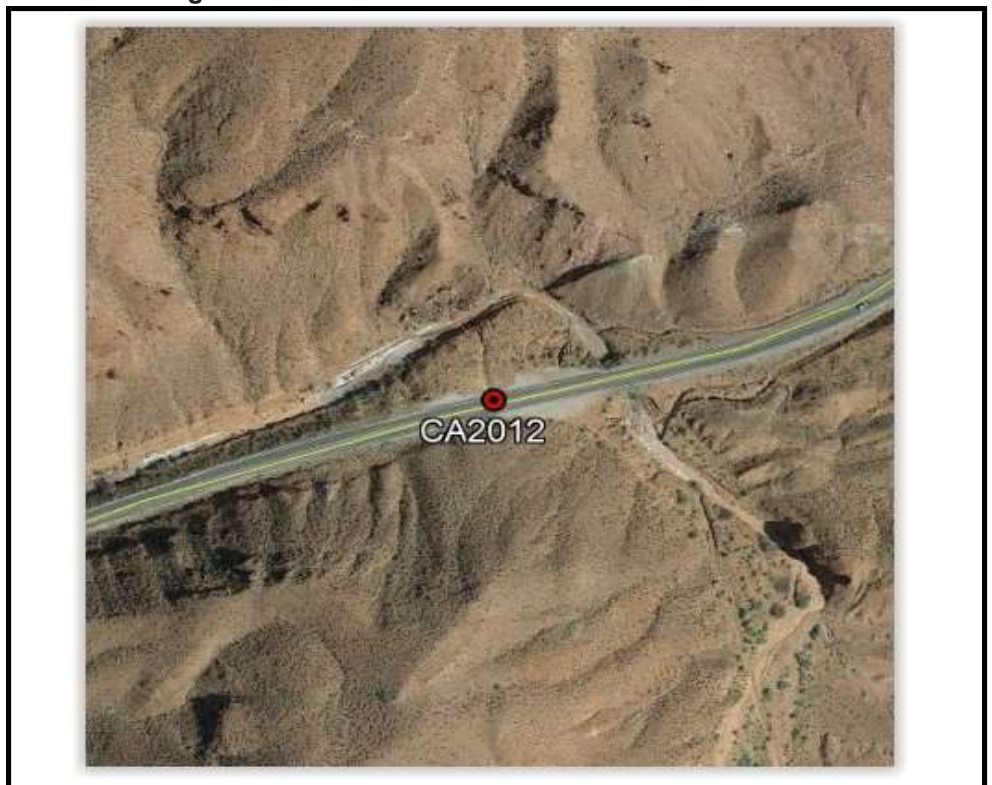
Time: _____

Pt ID: _____

Description:

Intersection of fog line and
northeast edge of concrete
cattleguard frame

Sketch or Image of Area



POINT ID: CA2012
MONUMENT PHOTO



POINT ID: CA2012

NORTH PHOTO



POINT ID: CA2012

EAST PHOTO





POINT ID: CA2012
SOUTH PHOTO



POINT ID: CA2012

WEST PHOTO



POINT ID: CA2012

OPUS REPORT

FILE: CA2012.tps OP1602532068607

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: October 12, 2020
RINEX FILE: ca20285s.20o TIME: 19:48:43 UTC

SOFTWARE: page5 2008.25 master73.pl 160321 START: 2020/10/11 18:38:00
EPHEMERIS: igr21270.eph [rapid] STOP: 2020/10/11 20:49:00
NAV FILE: brdc2850.20n OBS USED: 6202 / 6762 : 92%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 41 / 42 : 98%
ARP HEIGHT: 02.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7782)

X: -1654671.053(m) 0.011(m) -1654671.976(m) 0.011(m)
Y: -4702228.896(m) 0.027(m) -4702227.578(m) 0.027(m)
Z: 3967560.208(m) 0.012(m) 3967560.078(m) 0.012(m)

LAT: 38 42 16.71523 0.025(m) 38 42 16.73093 0.025(m)
E LON: 250 36 48.59636 0.015(m) 250 36 48.54226 0.015(m)
W LON: 109 23 11.40364 0.015(m) 109 23 11.45774 0.015(m)
EL HGT: 1243.542(m) 0.014(m) 1242.730(m) 0.014(m)
ORTHO HGT: 1263.462(m) 0.081(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters]	4285236.798	2043396.544
Easting (X) [meters]	640298.792	683843.272
Convergence [degrees]	1.00909444	1.35386111
Point Scale	0.99984239	1.00009159
Combined Factor	0.99964735	0.99989650

US NATIONAL GRID DESIGNATOR: 12SXH4029885236(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6912	MC02 MESA CNTY 02 COOP CORS ARP	N390052.897	W1082924.112	85101.4
DH6916	MC04 MESA CNTY 04 COOP CORS ARP	N384102.975	W1085825.823	35980.3
DH6914	MC03 MESA CNTY 03 COOP CORS ARP	N391123.785	W1084350.180	78345.2

NEAREST NGS PUBLISHED CONTROL POINT

JM0488	SQUAW	N384354.010	W1092404.202	3260.1
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Date: October 11, 2020 **Time:** 20:05:25 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2013

State: Utah **Latitude:** 38 56 35.25609 **Longitude:** -109 48 59.99906

Address and/or Intersection: Intersection of HWY 191 and I70

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.003 V RMS: 0.005		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

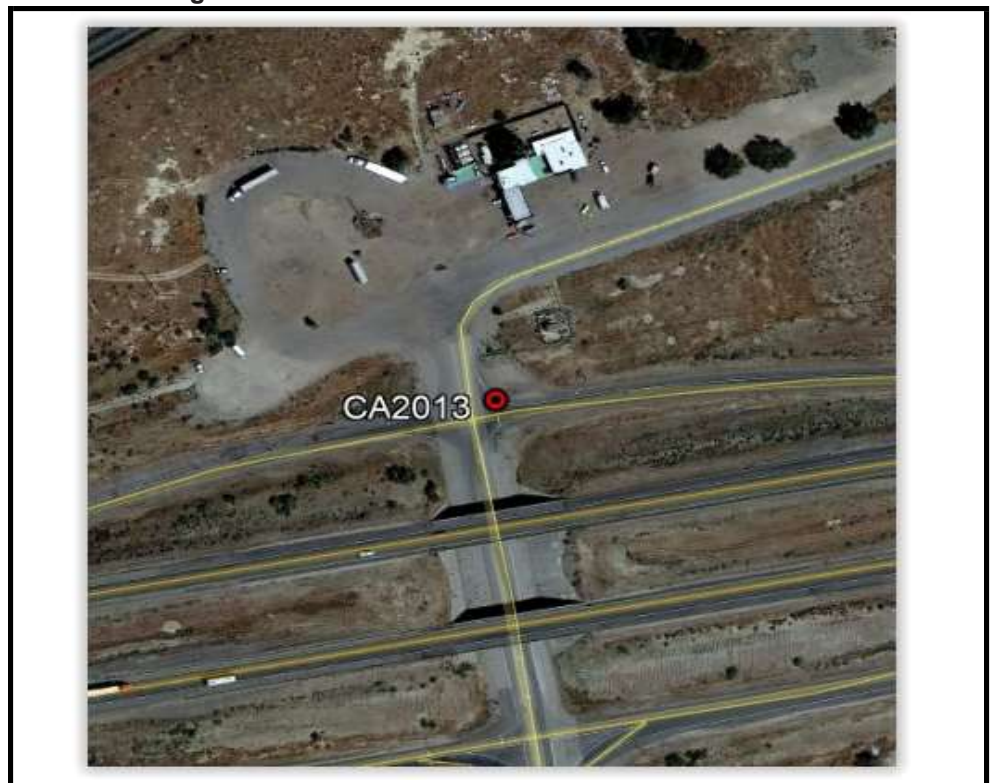
Time: _____

Pt ID: _____

Description:

Intersection of fog line and stop stripe

Sketch or Image of Area





POINT ID: CA2013
MONUMENT PHOTO



POINT ID: CA2013

NORTH PHOTO



POINT ID: CA2013
EAST PHOTO



POINT ID: CA2013
SOUTH PHOTO





POINT ID: CA2013

WEST PHOTO





Date: November 3, 2020 **Time:** 16:04:26 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2014

State: Utah **Latitude:** 38 30 55.80522 **Longitude:** -110 38 22.65482

Address and/or Intersection: HWY 24 North of Hanksville

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 16:04:26 UTC	End Time: 18:19:53 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:
 Intersection of fog line and
 tar stripe

Sketch or Image of Area



POINT ID: CA2014
MONUMENT PHOTO





POINT ID: CA2014

NORTH PHOTO



POINT ID: CA2014

EAST PHOTO





POINT ID: CA2014

SOUTH PHOTO





POINT ID: CA2014

WEST PHOTO



POINT ID: CA2014

OPUS REPORT

FILE: CA2014.tps OP1604528632003

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: November 04, 2020
RINEX FILE: ca20308q.20o TIME: 22:25:04 UTC

SOFTWARE: page5 2008.25 master92.pl 160321 START: 2020/11/03 16:05:00
EPHEMERIS: igr21302.eph [rapid] STOP: 2020/11/03 18:20:00
NAV FILE: brdc3080.20n OBS USED: 6080 / 6630 : 92%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 39 / 41 : 95%
ARP HEIGHT: 02.000 OVERALL RMS: 0.011(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8408)

X: -1761782.923(m) 0.010(m) -1761783.848(m) 0.010(m)
Y: -4677322.770(m) 0.027(m) -4677321.455(m) 0.027(m)
Z: 3951270.831(m) 0.005(m) 3951270.700(m) 0.005(m)

LAT: 38 30 55.80522 0.019(m) 38 30 55.82016 0.019(m)
E LON: 249 21 37.34518 0.017(m) 249 21 37.29035 0.017(m)
W LON: 110 38 22.65482 0.017(m) 110 38 22.70965 0.017(m)
EL HGT: 1437.074(m) 0.016(m) 1436.285(m) 0.016(m)
ORTHO HGT: 1456.968(m) 0.072(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4263075.021 2020586.460
Easting (X) [meters] 531417.128 575047.631
Convergence [degrees] 0.22441667 0.55113611
Point Scale 0.99961215 1.00016128
Combined Factor 0.99938680 0.99993581

US NATIONAL GRID DESIGNATOR: 12SWH3141763075(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6914	MC03 MESA CNTY 03 COOP CORS ARP	N391123.785	W1084350.180	181871.4
DI3419	P012 MONTICELLOUT2006 CORS ARP	N380550.740	W1092001.762	123309.3
DH6916	MC04 MESA CNTY 04 COOP CORS ARP	N384102.975	W1085825.823	146340.4

NEAREST NGS PUBLISHED CONTROL POINT

JN0479	MONTE	N383211.483	W1103602.090	4127.8
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Date: November 3, 2020 **Time:** 15:11:27 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2015

State: Utah **Latitude:** 38 37 50.53828 **Longitude:** -110 34 00.94206

Address and/or Intersection: Intersection of Temple Mtn Roa and HWY 24

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:11:27 UTC	End Time: 18:32:43 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

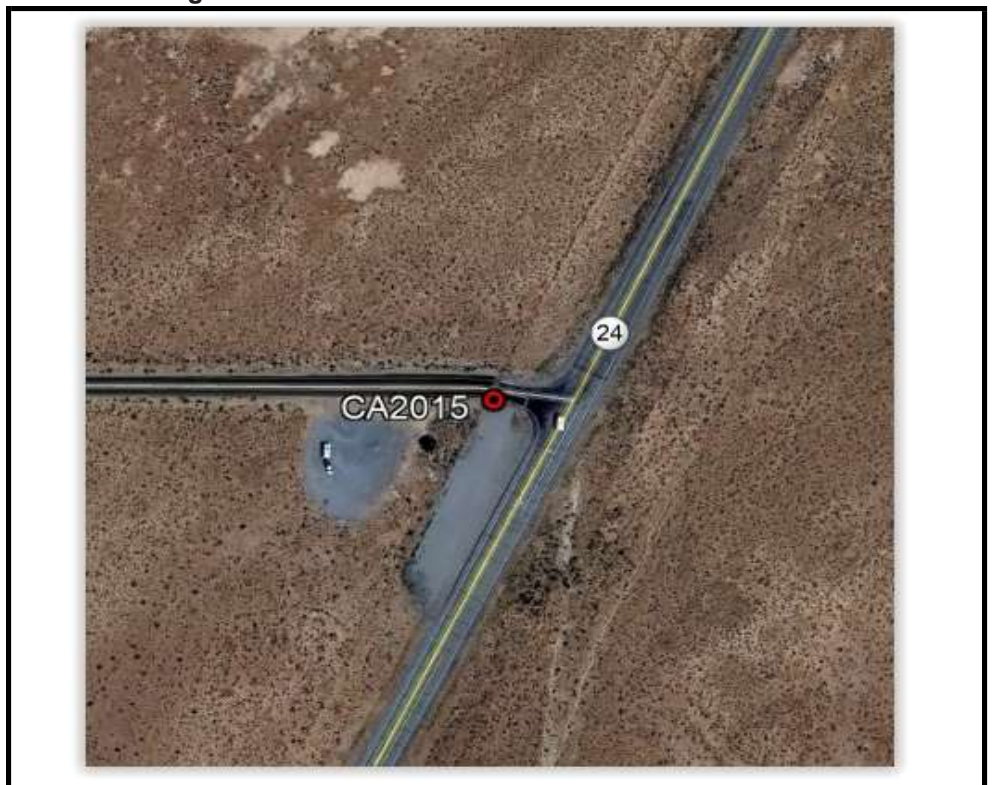
Time: _____

Pt ID: _____

Description:

Intersection of fog line and edge of concrete cattleguard frame

Sketch or Image of Area



POINT ID: CA2015
MONUMENT PHOTO





POINT ID: CA2015

NORTH PHOTO



POINT ID: CA2015

EAST PHOTO



POINT ID: CA2015

SOUTH PHOTO





POINT ID: CA2015

WEST PHOTO



POINT ID: CA2015

OPUS REPORT

FILE: CA2015.tps OP1604528671049

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: November 04, 2020
RINEX FILE: ca20308p.20o TIME: 22:25:43 UTC

SOFTWARE: page5 2008.25 master95.pl 160321 START: 2020/11/03 15:11:00
EPHEMERIS: igr21302.eph [rapid] STOP: 2020/11/03 18:32:00
NAV FILE: brdc3080.20n OBS USED: 9516 / 10096 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 47 / 52 : 90%
ARP HEIGHT: 02.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8407)

X: -1753061.096(m) 0.014(m) -1753062.021(m) 0.014(m)
Y: -4672130.051(m) 0.026(m) -4672128.737(m) 0.026(m)
Z: 3961307.878(m) 0.019(m) 3961307.748(m) 0.019(m)

LAT: 38 37 50.53850 0.021(m) 38 37 50.55355 0.021(m)
E LON: 249 25 59.05787 0.016(m) 249 25 59.00300 0.016(m)
W LON: 110 34 0.94213 0.016(m) 110 34 0.99700 0.016(m)
EL HGT: 1495.708(m) 0.024(m) 1494.920(m) 0.024(m)
ORTHO HGT: 1515.310(m) 0.076(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4275885.772 2033439.573
Easting (X) [meters] 537694.664 581255.196
Convergence [degrees] 0.27036944 0.59770556
Point Scale 0.99961750 1.00011756
Combined Factor 0.99938296 0.99988291

US NATIONAL GRID DESIGNATOR: 12SWH3769475885(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6914	MC03 MESA CNTY 03 COOP CORS ARP	N391123.785	W1084350.180	170975.6
DI3419	P012 MONTICELLOUT2006 CORS ARP	N380550.740	W1092001.762	122984.9
	MC04		138820.4	

NEAREST NGS PUBLISHED CONTROL POINT

JN0477	GARVIN	N383810.365	W1103342.115	762.3
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Date: November 2, 2020 **Time:** 23:16:37 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2016

State: Utah **Latitude:** 38 37 48.16188 **Longitude:** -109 47 58.97493

Address and/or Intersection: Rest stop area on HWY 313

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.003 V RMS: 0.004		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

North corner of concrete sidewalk

Sketch or Image of Area



POINT ID: CA2016
MONUMENT PHOTO





POINT ID: CA2016

NORTH PHOTO





POINT ID: CA2016

EAST PHOTO



POINT ID: CA2016

SOUTH PHOTO





POINT ID: CA2016

WEST PHOTO





Date: September 13, 2020 **Time:** 17:27:24 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2017

State: Utah **Latitude:** 38 48 22.67887 **Longitude:** -111 12 19.84564

Address and/or Intersection: Co Rd 912 South of I70

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:27:24 UTC	End Time: 19:05:20 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Vinyl chevron

Sketch or Image of Area





POINT ID: CA2017
MONUMENT PHOTO



POINT ID: CA2017

NORTH PHOTO



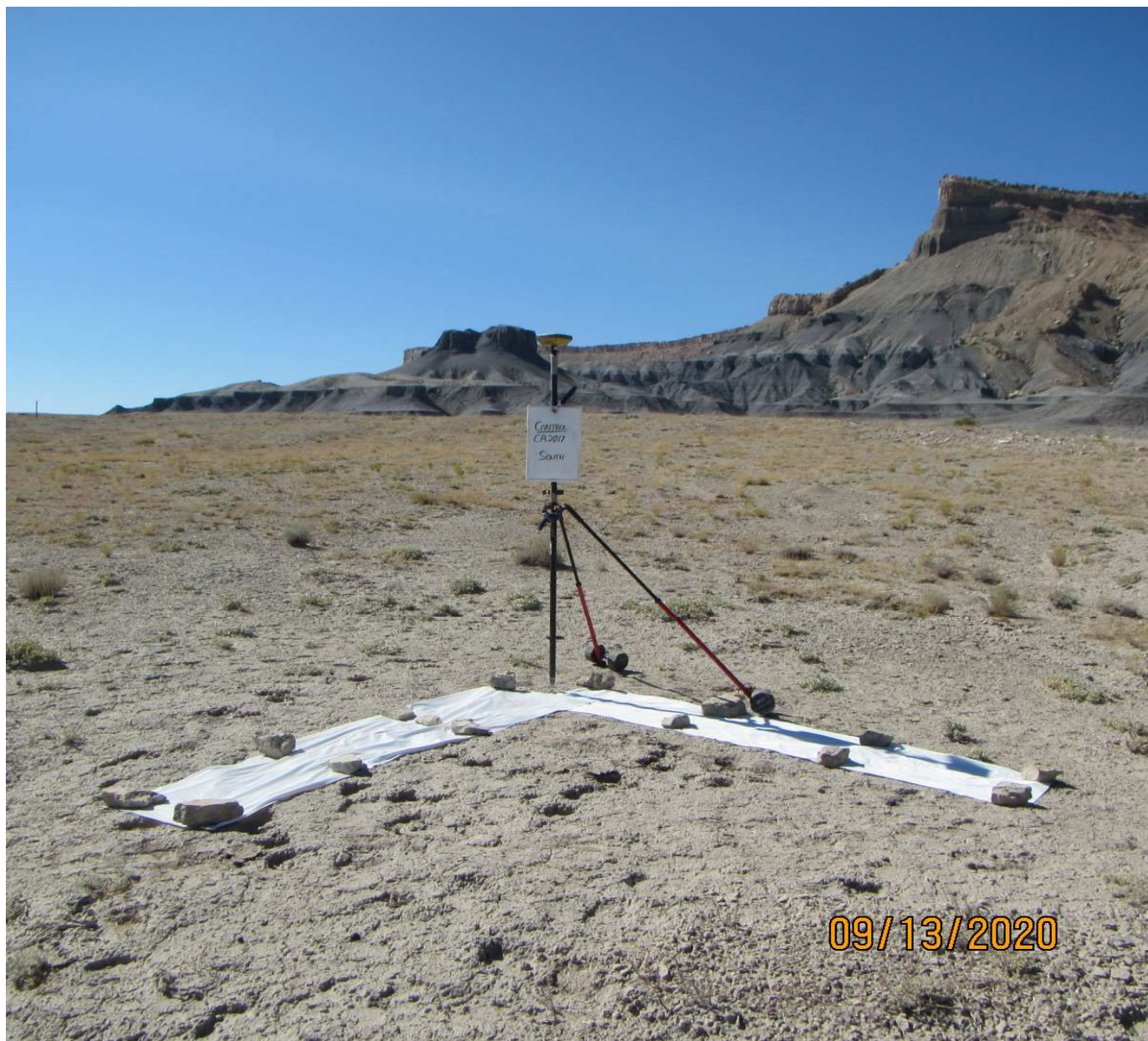
POINT ID: CA2017

EAST PHOTO



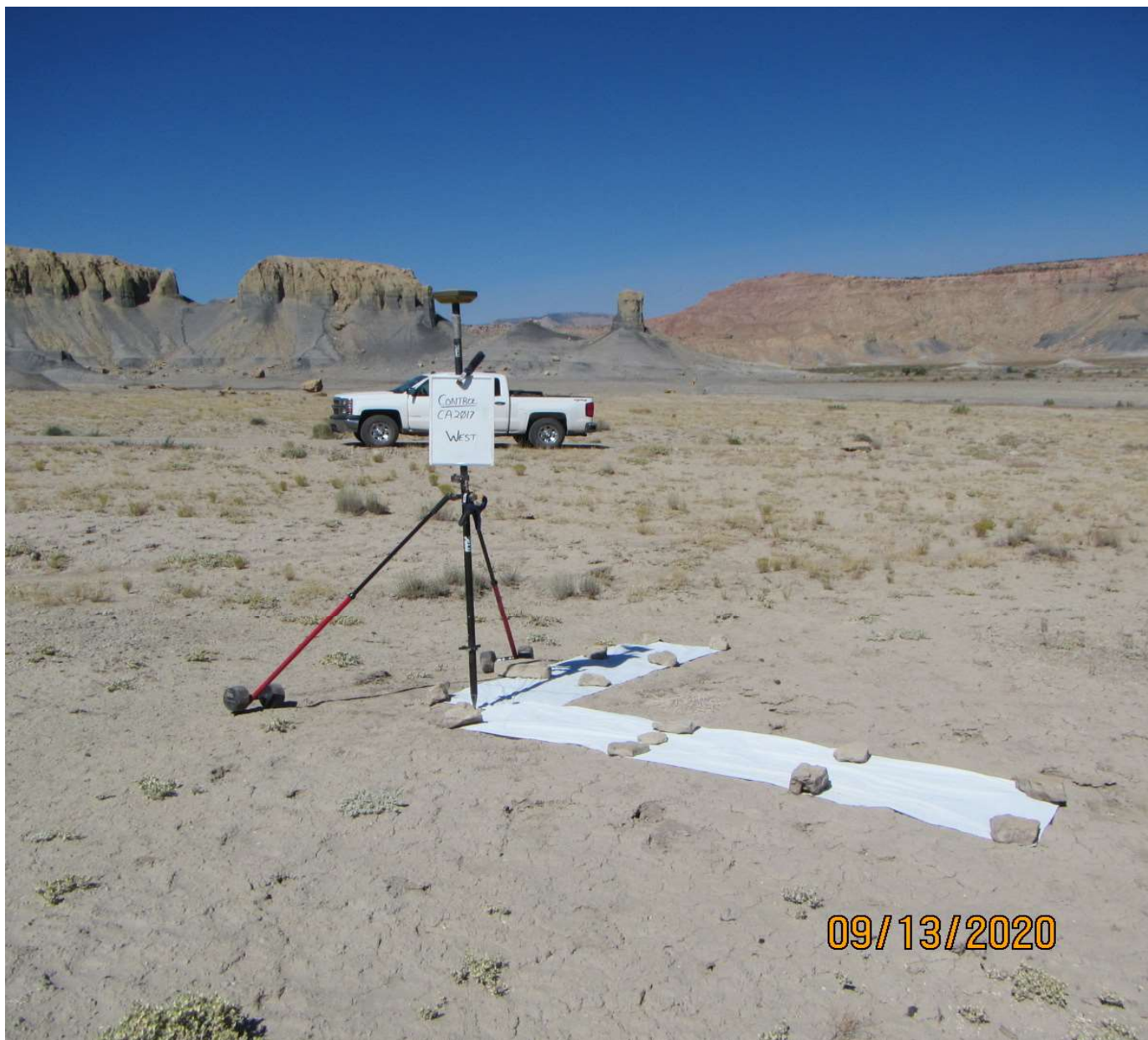
POINT ID: CA2017

SOUTH PHOTO



POINT ID: CA2017

WEST PHOTO





Date: November 3, 2020 **Time:** 16:35:35 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2018

State: Utah **Latitude:** 38 35 07.53964 **Longitude:** -110 42 31.11773

Address and/or Intersection: Goblin Valley Rd North of Wild Horse Rd

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 16:35:35 UTC	End Time: 17:31:34 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of fog line and steel
cattleguard frame

Sketch or Image of Area



POINT ID: CA2018
MONUMENT PHOTO



POINT ID: CA2018

NORTH PHOTO





POINT ID: CA2018

EAST PHOTO





POINT ID: CA2018
SOUTH PHOTO





POINT ID: CA2018

WEST PHOTO





Dewberry® GROUND CONTROL POINT DOCUMENTATION REPORT

Date: November 2, 2020 **Time:** 22:51:56 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2019

State: Utah **Latitude:** 38 40 21.34071 **Longitude:** -109 41 16.59579

Address and/or Intersection: Rest stop area at intersectoin of HWY 191 and HWY 313

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.009 V RMS: 0.013		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

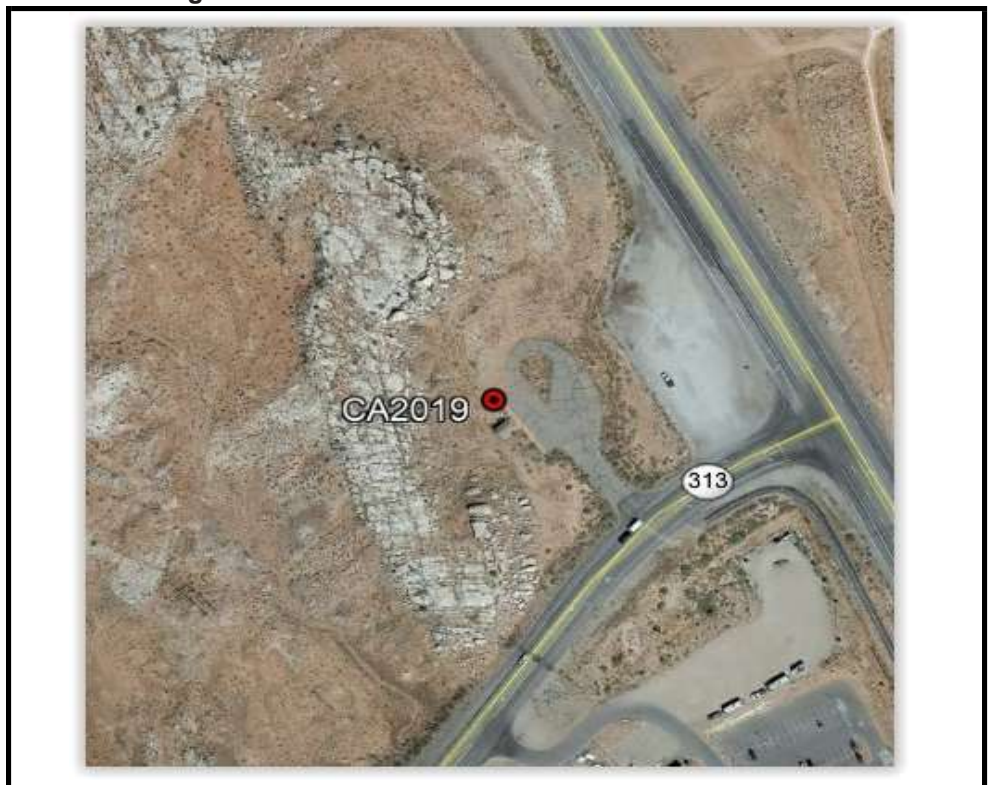
Time: _____

Pt ID: _____

Description:

West corner of concrete sidewalk

Sketch or Image of Area





POINT ID: CA2019
MONUMENT PHOTO





POINT ID: CA2019

NORTH PHOTO



POINT ID: CA2019

EAST PHOTO





POINT ID: CA2019

SOUTH PHOTO



POINT ID: CA2019

WEST PHOTO





Date: August 25, 2020 **Time:** 21:03:12 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2020

State: Utah **Latitude:** 38 56 35.77851 **Longitude:** -109 36 52.12932

Address and/or Intersection: Intersection of BLM 163 and I70

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:		V RMS:		Duration: 30 to 60 seconds	
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 21:03:12 UTC		End Time: 22:36:39 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____	
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____	
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____	
<input type="radio"/>	Back Sight Point	Distance: _____		Vertical Angle: _____		Angle: _____	
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____		

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 26, 2020
Time: 14:32:59
Pt ID: CA2020-CK

Description:
 Intersection of stop stripe and fog line

Sketch or Image of Area



POINT ID: CA2020
MONUMENT PHOTO





POINT ID: CA2020

NORTH PHOTO



POINT ID: CA2020

EAST PHOTO



POINT ID: CA2020

SOUTH PHOTO



POINT ID: CA2020

WEST PHOTO



POINT ID: CA2020

OPUS REPORT

FILE: CA2020_1.tps OP1602008752032

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: October 06, 2020
RINEX FILE: ca20239o.20o TIME: 18:27:46 UTC

SOFTWARE: page5 2008.25 master97.pl 160321 START: 2020/08/26 14:33:00
EPHEMERIS: igs21203.eph [precise] STOP: 2020/08/26 20:28:00
NAV FILE: brdc2390.20n OBS USED: 13713 / 14619 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 77 / 79 : 97%
ARP HEIGHT: 02.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6523)

X: -1667846.638(m) 0.011(m) -1667847.561(m) 0.011(m)
Y: -4680114.316(m) 0.002(m) -4680113.001(m) 0.002(m)
Z: 3988334.324(m) 0.010(m) 3988334.197(m) 0.010(m)

LAT: 38 56 35.77862 0.011(m) 38 56 35.79432 0.011(m)
E LON: 250 23 7.87099 0.010(m) 250 23 7.81656 0.010(m)
W LON: 109 36 52.12901 0.010(m) 109 36 52.18344 0.010(m)
EL HGT: 1453.303(m) 0.003(m) 1452.500(m) 0.003(m)
ORTHO HGT: 1473.261(m) 0.070(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4311394.053 2069439.445
Easting (X) [meters] 620072.808 663457.124
Convergence [degrees] 0.87097222 1.20782222
Point Scale 0.99977753 1.00001892
Combined Factor 0.99954961 0.99979095

US NATIONAL GRID DESIGNATOR: 12SXJ2007211394(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DE6238	MC01 MESA CNTY COOP CORS ARP	N390528.392	W1083141.269	95526.7
DH6916	MC04 MESA CNTY 04 COOP CORS ARP	N384102.975	W1085825.823	62650.5
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	72938.6

NEAREST NGS PUBLISHED CONTROL POINT

JM0278	P 15	N385744.000	W1093731.000	2302.6
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Date: November 3, 2020 **Time:** 20:49:21 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2021

State: Utah **Latitude:** 38 55 24.79370 **Longitude:** -111 03 07.18269

Address and/or Intersection: HWY 803 East of Moore

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.004 V RMS: 0.009		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Center of concrete cattleguard frame

Sketch or Image of Area





POINT ID: CA2021
MONUMENT PHOTO



POINT ID: CA2021
NORTH PHOTO





POINT ID: CA2021

EAST PHOTO





POINT ID: CA2021
SOUTH PHOTO



POINT ID: CA2021

WEST PHOTO





Date: August 8, 2020 **Time:** 17:28:14 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2001

State: Utah **Latitude:** 40 55 59.37730 **Longitude:** -109 42 09.60350

Address and/or Intersection: HWY44 South of Manila

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:28:14 UTC	End Time: 22:07:08 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020

Time: 20:34:27

Pt ID: FG2001-CK

Description:

Vinyl chevron

Sketch or Image of Area



POINT ID: FG2001
MONUMENT PHOTO



POINT ID: FG2001

NORTH PHOTO





POINT ID: FG2001

EAST PHOTO





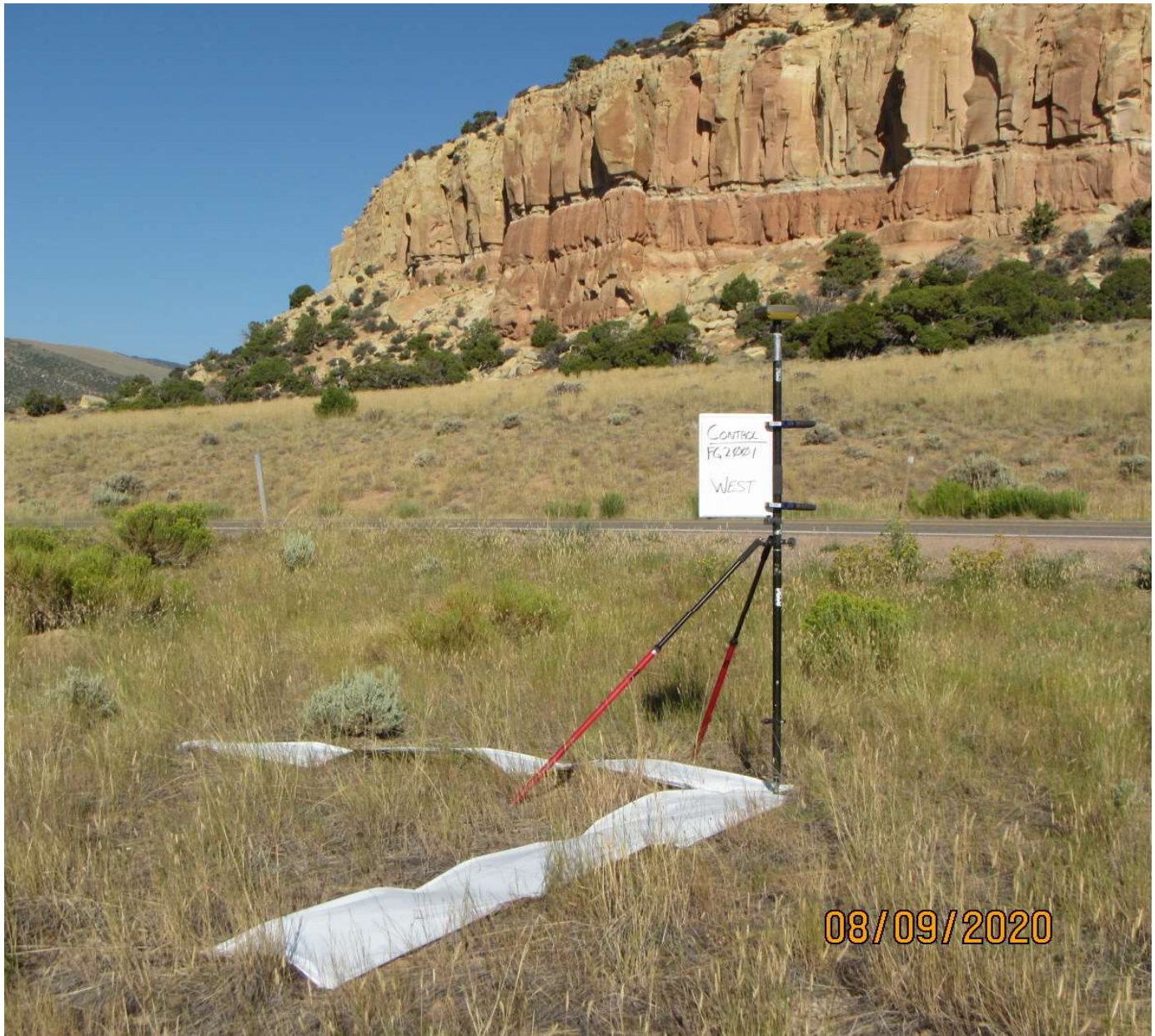
POINT ID: FG2001
SOUTH PHOTO





POINT ID: FG2001

WEST PHOTO



POINT ID: FG2001

OPUS REPORT

FILE: FG2001.tps OP1598301509917

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20225u.20o TIME: 20:40:12 UTC

SOFTWARE: page5 1801.18 master94.pl 160321 START: 2020/08/12 20:35:00
EPHEMERIS: igr21183.eph [rapid] STOP: 2020/08/12 22:38:00
NAV FILE: brdc2250.20n OBS USED: 4962 / 5298 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 37 / 37 : 100%
ARP HEIGHT: 2 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6145)

X: -1627363.070(m) 0.003(m) -1627364.005(m) 0.003(m)
Y: -4544382.113(m) 0.028(m) -4544380.819(m) 0.028(m)
Z: 4158137.219(m) 0.028(m) 4158137.111(m) 0.028(m)

LAT: 40 55 59.37762 0.026(m) 40 55 59.39418 0.026(m)
E LON: 250 17 50.39678 0.011(m) 250 17 50.34052 0.011(m)
W LON: 109 42 9.60322 0.011(m) 109 42 9.65948 0.011(m)
EL HGT: 2013.006(m) 0.029(m) 2012.253(m) 0.029(m)
ORTHO HGT: 2026.720(m) 0.078(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4532147.489 1068175.517
Easting (X) [meters] 609219.131 651356.543
Convergence [degrees] 0.85006667 1.18508056
Point Scale 0.99974682 0.99997212
Combined Factor 0.99943124 0.99965647

US NATIONAL GRID DESIGNATOR: 12TXL0921932147(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DF8974	ZLC1 SALT LAKE WAAS 1 CORS ARP	N404709.739	W1115707.786	190403.3
DJ8989	P030 KEMMERERLFWY2005 CORS ARP	N414459.315	W1103046.067	113276.8
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	203384.1

NEAREST NGS PUBLISHED CONTROL POINT

LN0426	T 385	N405610.000	W1094206.000	338.3
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Date: August 11, 2020 **Time:** 16:10:57 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2002

State: Utah **Latitude:** 40 53 48.59776 **Longitude:** -109 56 57.58213

Address and/or Intersection: Intersection of Spirit Lake Road and Hickerson Lake Trail

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 16:10:57 UTC	End Time: 18:42:14 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:
 Vinyl chevron

Sketch or Image of Area



POINT ID: FG2002
MONUMENT PHOTO





POINT ID: FG2002

NORTH PHOTO



POINT ID: FG2002

EAST PHOTO





POINT ID: FG2002

SOUTH PHOTO



POINT ID: FG2002

WEST PHOTO





Date: August 7, 2020 **Time:** 18:47:49 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2003

State: Utah **Latitude:** 40 50 31.46496 **Longitude:** -109 38 44.89440

Address and/or Intersection: Rest stop area on HWY44

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 18:47:49 UTC	End Time: 21:19:55 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020

Time: 20:11:23

Pt ID: FG2003-CK

Description:

Paint "T"

Sketch or Image of Area



POINT ID: FG2003
MONUMENT PHOTO



POINT ID: FG2003

NORTH PHOTO



POINT ID: FG2003

EAST PHOTO



POINT ID: FG2003
SOUTH PHOTO



POINT ID: FG2003

WEST PHOTO



POINT ID: FG2003

OPUS REPORT

FILE: FG2003.tps OP1598286480205

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20220s.20o TIME: 16:29:08 UTC

SOFTWARE: page5 1801.18 master52.pl 160321 START: 2020/08/07 18:48:00
EPHEMERIS: igs21175.eph [precise] STOP: 2020/08/07 21:20:00
NAV FILE: brdc2200.20n OBS USED: 6686 / 7149 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 52 / 54 : 96%
ARP HEIGHT: 2 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6007)

X: -1625190.169(m) 0.017(m) -1625191.103(m) 0.017(m)
Y: -4552544.286(m) 0.013(m) -4552542.990(m) 0.013(m)
Z: 4150773.569(m) 0.011(m) 4150773.460(m) 0.011(m)

LAT: 40 50 31.46503 0.019(m) 40 50 31.48159 0.019(m)
E LON: 250 21 15.10600 0.011(m) 250 21 15.04987 0.011(m)
W LON: 109 38 44.89400 0.011(m) 109 38 44.95013 0.011(m)
EL HGT: 2450.213(m) 0.010(m) 2449.456(m) 0.010(m)
ORTHO HGT: 2463.610(m) 0.071(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4522108.365 1058163.315
Easting (X) [meters] 614162.933 656360.237
Convergence [degrees] 0.88570833 1.22257500
Point Scale 0.99976041 0.99998213
Combined Factor 0.99937630 0.99959794

US NATIONAL GRID DESIGNATOR: 12TXL1416222108(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	192229.4
DP9024	PUC2 CARBON COUNTY UT CORS ARP	N393538.100	W1104541.525	168060.2
DJ8989	P030 KEMMERERLFWY2005 CORS ARP	N414459.315	W1103046.067	124285.3

NEAREST NGS PUBLISHED CONTROL POINT

LN0449	G 386	N405030.000	W1093854.000	218.1
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Date: August 5, 2020 **Time:** 15:57:45 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2004

State: Utah **Latitude:** 40 46 06.97238 **Longitude:** -109 28 17.54332

Address and/or Intersection: Intersection HWY191 and FR046

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:57:45 UTC	End Time: 22:01:48 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020
Time: 16:08:08
Pt ID: FG2004-CK

Description:
 Vinyl chevron

Sketch or Image of Area

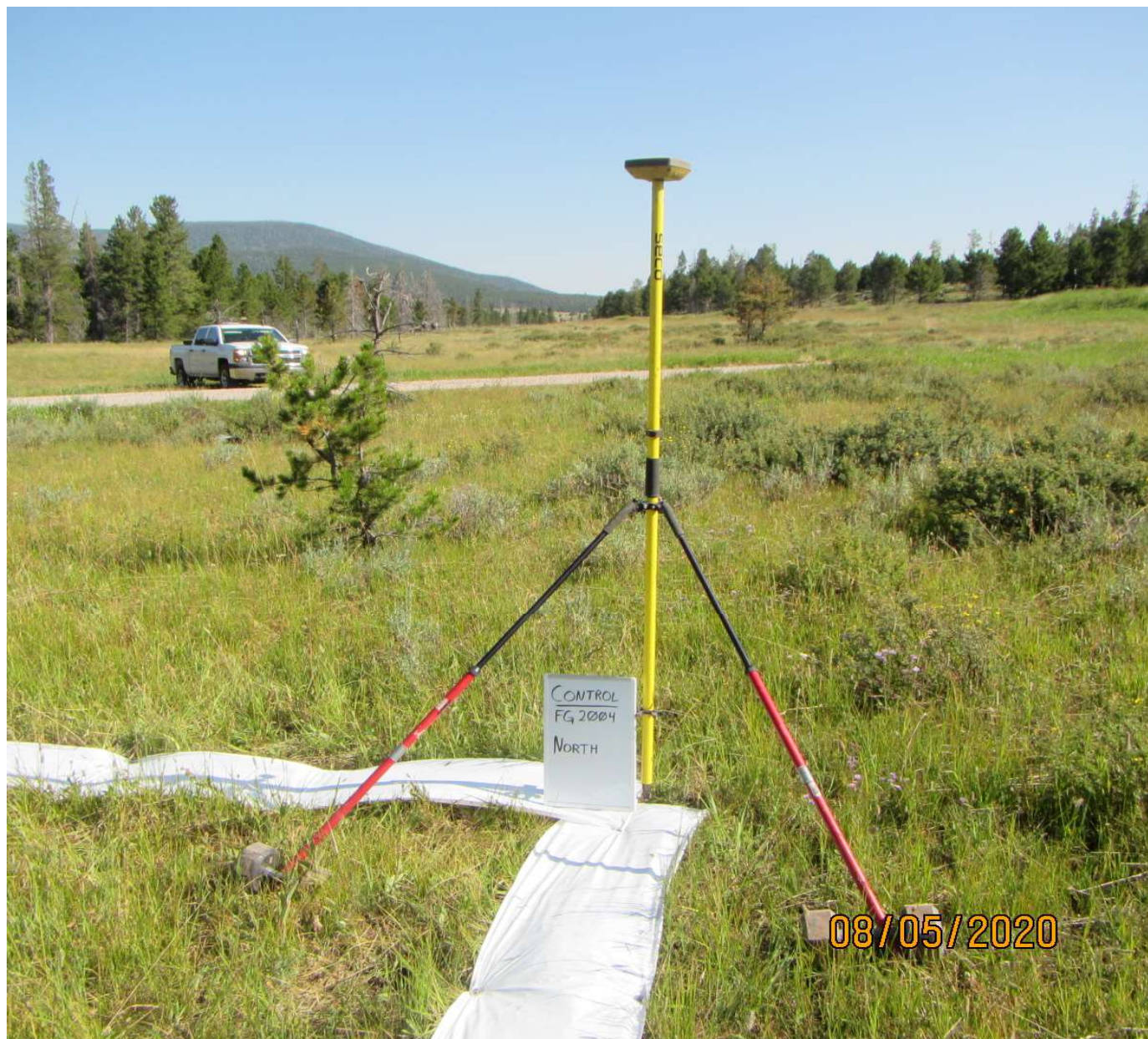


POINT ID: FG2004
MONUMENT PHOTO



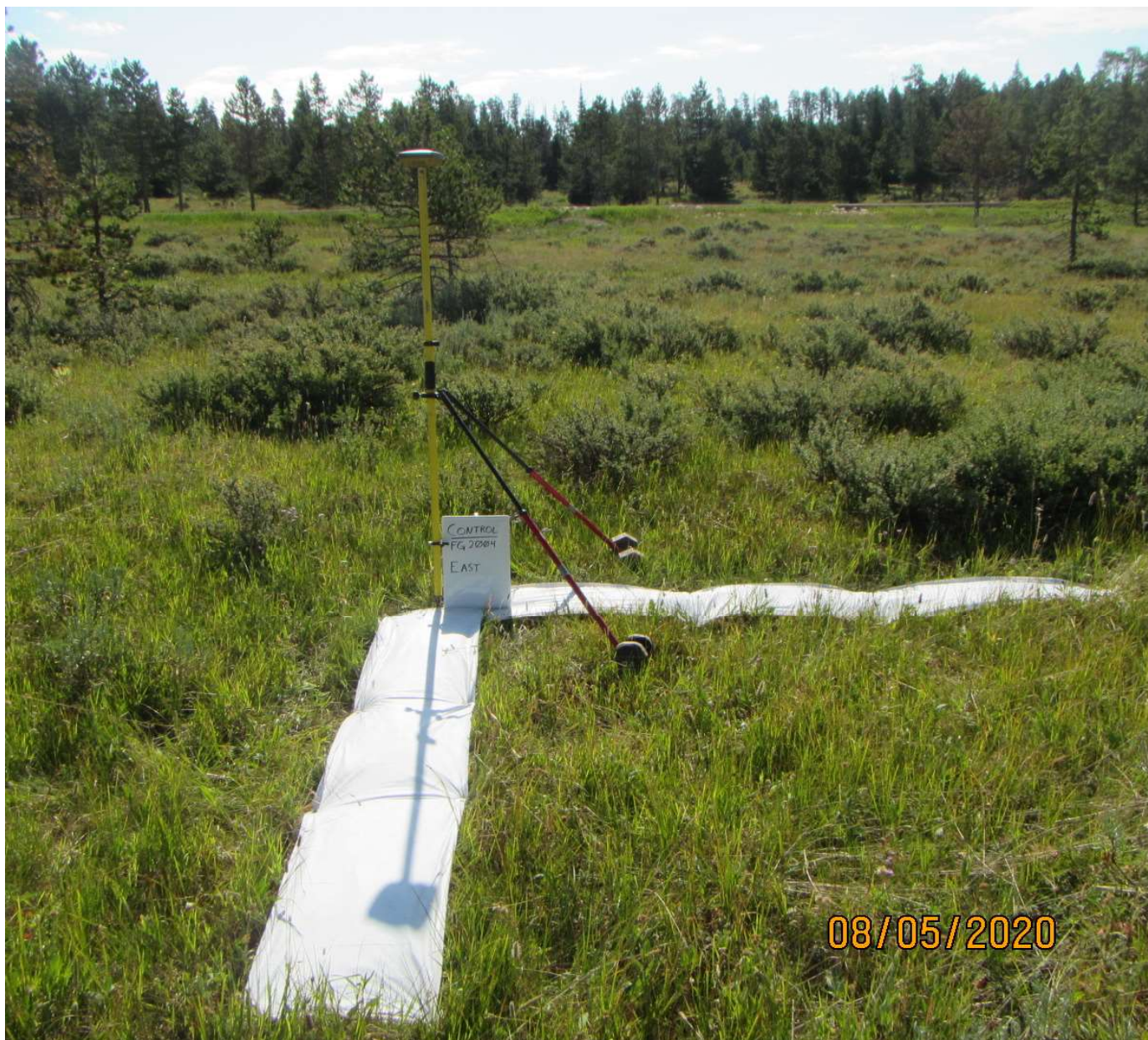
POINT ID: FG2004

NORTH PHOTO



POINT ID: FG2004

EAST PHOTO



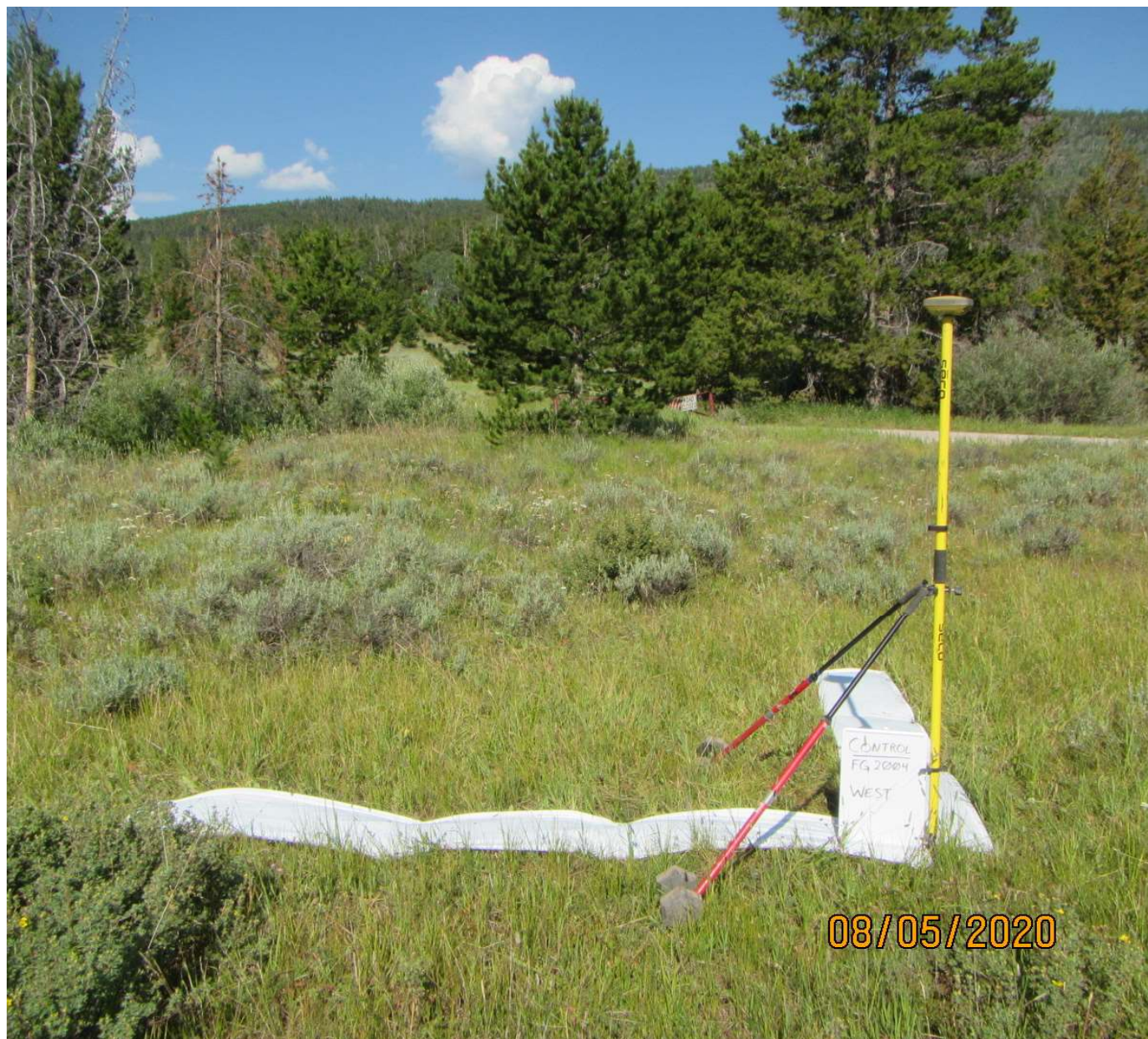
POINT ID: FG2004

SOUTH PHOTO



POINT ID: FG2004

WEST PHOTO



POINT ID: FG2004

OPUS REPORT

FILE: FG2004.tps OP1598272458688

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20218p.20o TIME: 12:36:22 UTC

SOFTWARE: page5 1801.18 master70.pl 160321 START: 2020/08/05 15:58:00
EPHEMERIS: igs21173.eph [precise] STOP: 2020/08/05 22:02:00
NAV FILE: brdc2180.20n OBS USED: 14086 / 14908 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 85 / 91 : 93%
ARP HEIGHT: 2 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.5951)

X: -1613124.735(m) 0.015(m) -1613125.668(m) 0.015(m)
Y: -4562524.882(m) 0.006(m) -4562523.585(m) 0.006(m)
Z: 4144622.827(m) 0.020(m) 4144622.717(m) 0.020(m)

LAT: 40 46 6.97238 0.019(m) 40 46 6.98898 0.019(m)
E LON: 250 31 42.45668 0.012(m) 250 31 42.40078 0.012(m)
W LON: 109 28 17.54332 0.012(m) 109 28 17.59922 0.012(m)
EL HGT: 2492.122(m) 0.014(m) 2491.359(m) 0.014(m)
ORTHO HGT: 2505.974(m) 0.066(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4514194.071 1050335.070
Easting (X) [meters] 628996.636 671243.421
Convergence [degrees] 0.99823056 1.33747500
Point Scale 0.99980481 0.99999202
Combined Factor 0.99941411 0.99960125

US NATIONAL GRID DESIGNATOR: 12TXL2899614194(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL3583	CNC1 RANGELY CORS ARP	N400437.567	W1084722.423	96188.1
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	179696.1
DJ8989	P030 KEMMERERLFWY2005 CORS ARP	N414459.315	W1103046.067	139650.8

NEAREST NGS PUBLISHED CONTROL POINT

LN0470	F 379	N404605.000	W1092813.000	122.7
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Date: August 6, 2020 **Time:** 16:28:00 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2005

State: Utah **Latitude:** 40 57 47.54783 **Longitude:** -109 33 22.55198

Address and/or Intersection: Rest stop parking area near boat ramp on Antelope Flat Rd

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 16:28:00 UTC	End Time: 18:40:29 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

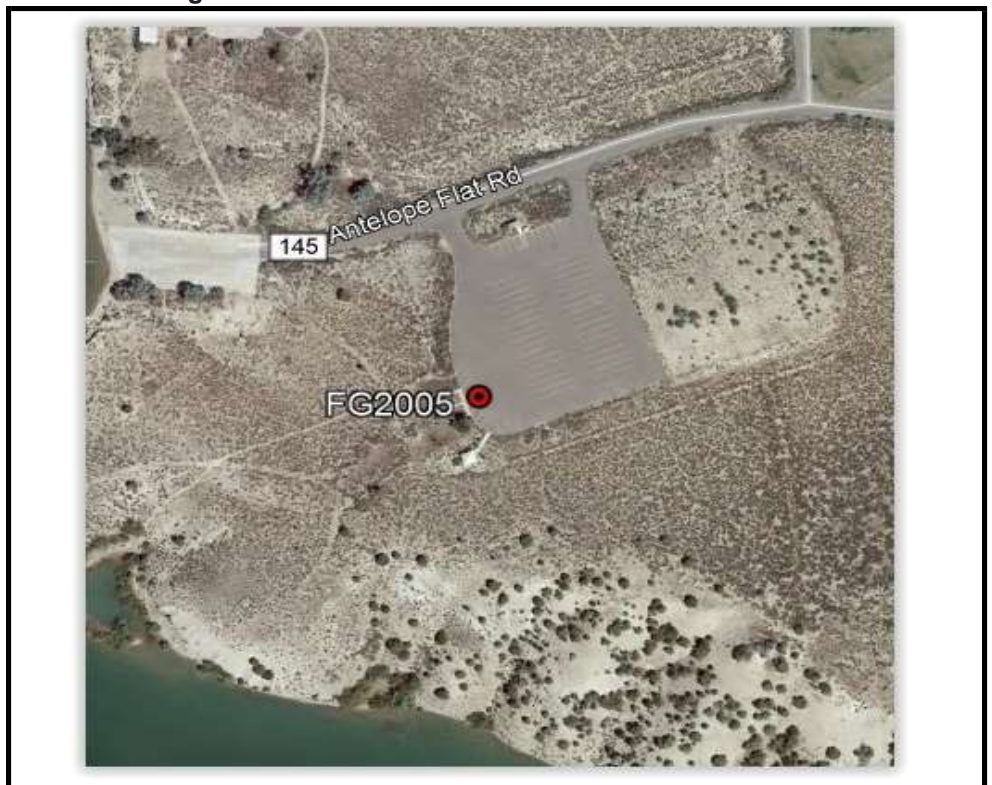
- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020
Time: 17:01:47
Pt ID: FG2005-CK

Description:
 Intersection of parking stall stripes

Sketch or Image of Area





POINT ID: FG2005
MONUMENT PHOTO



POINT ID: FG2005

NORTH PHOTO





POINT ID: FG2005

EAST PHOTO



POINT ID: FG2005
SOUTH PHOTO



POINT ID: FG2005

WEST PHOTO



POINT ID: FG2005

OPUS REPORT

FILE: FG2005.tps OP1598275947138

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20219q.20o TIME: 13:33:52 UTC

SOFTWARE: page5 1801.18 master51.pl 160321 START: 2020/08/06 16:28:00
EPHEMERIS: igs21174.eph [precise] STOP: 2020/08/06 18:40:00
NAV FILE: brdc2190.20n OBS USED: 4135 / 4257 : 97%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 22 / 24 : 92%
ARP HEIGHT: 2 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.5976)

X: -1614970.084(m) 0.004(m) -1614971.018(m) 0.004(m)
Y: -4546341.550(m) 0.021(m) -4546340.255(m) 0.021(m)
Z: 4160545.379(m) 0.013(m) 4160545.271(m) 0.013(m)

LAT: 40 57 47.54783 0.017(m) 40 57 47.56446 0.017(m)
E LON: 250 26 37.44802 0.009(m) 250 26 37.39186 0.009(m)
W LON: 109 33 22.55198 0.009(m) 109 33 22.60814 0.009(m)
EL HGT: 1840.701(m) 0.018(m) 1839.945(m) 0.018(m)
ORTHO HGT: 1854.857(m) 0.071(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4535676.350 1071776.812
Easting (X) [meters] 621489.697 663608.799
Convergence [degrees] 0.94659167 1.28161389
Point Scale 0.99978166 0.99996937
Combined Factor 0.99949307 0.99968073

US NATIONAL GRID DESIGNATOR: 12TXL2148935676(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG5942	BLW2 BOULDER CORS ARP	N424601.637	W1093328.036	200417.9
DP9024	PUC2 CARBON COUNTY UT CORS ARP	N393538.100	W1104541.525	183411.1
DL3583	CNC1 RANGELY CORS ARP	N400437.567	W1084722.423	117942.3

NEAREST NGS PUBLISHED CONTROL POINT

LN0659	TUSK	N405635.930	W1093334.098	2225.7
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Date: August 6, 2020 **Time:** 19:32:04 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2006

State: Utah **Latitude:** 40 54 37.58817 **Longitude:** -109 26 51.55677

Address and/or Intersection: Rest stop parking area south of boat ramp on FR183

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 19:32:04 UTC	End Time: 20:54:39 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020
Time: 16:32:55
Pt ID: FG2006-CK

Description:
 Intersection of parking stall stripes

Sketch or Image of Area





POINT ID: FG2006

MONUMENT PHOTO



POINT ID: FG2006
NORTH PHOTO



POINT ID: FG2006

EAST PHOTO



POINT ID: FG2006
SOUTH PHOTO



POINT ID: FG2006
WEST PHOTO



POINT ID: FG2006

OPUS REPORT

FILE: FG2006.tps OP1598301756482

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20225q.20o TIME: 20:43:47 UTC

SOFTWARE: page5 1801.18 master94.pl 160321 START: 2020/08/12 16:33:00
EPHEMERIS: igr21183.eph [rapid] STOP: 2020/08/12 18:40:00
NAV FILE: brdc2250.20n OBS USED: 3806 / 4190 : 91%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 27 / 27 : 100%
ARP HEIGHT: 2 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6140)

X: -1607626.932(m) 0.018(m) -1607627.866(m) 0.018(m)
Y: -4553013.497(m) 0.021(m) -4553012.201(m) 0.021(m)
Z: 4156114.870(m) 0.012(m) 4156114.762(m) 0.012(m)

LAT: 40 54 37.58875 0.010(m) 40 54 37.60542 0.010(m)
E LON: 250 33 8.44232 0.016(m) 250 33 8.38627 0.016(m)
W LON: 109 26 51.55768 0.016(m) 109 26 51.61373 0.016(m)
EL HGT: 1836.874(m) 0.022(m) 1836.115(m) 0.022(m)
ORTHO HGT: 1850.811(m) 0.078(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4529975.230 1066128.962
Easting (X) [meters] 630733.464 672887.447
Convergence [degrees] 1.01674167 1.35322500
Point Scale 0.99981036 0.99997438
Combined Factor 0.99952236 0.99968634

US NATIONAL GRID DESIGNATOR: 12TXL3073329975(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DQ8876	UTMN MAPLETON UT CORS ARP	N400839.699	W1113544.075	200935.8
DL3583	CNC1 RANGELY CORS ARP	N400437.567	W1084722.423	108081.8
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	194234.9

NEAREST NGS PUBLISHED CONTROL POINT

LN0459	U 386	N405219.000	W1092937.000	5768.5
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Date: August 10, 2020 **Time:** 18:07:36 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2007

State: Utah **Latitude:** 40 54 27.81572 **Longitude:** -110 01 03.51977

Address and/or Intersection: FR058

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 18:07:36 UTC	End Time: 21:11:49 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Vinyl chevron

Sketch or Image of Area



POINT ID: FG2007
MONUMENT PHOTO



POINT ID: FG2007

NORTH PHOTO



POINT ID: FG2007

EAST PHOTO





POINT ID: FG2007

SOUTH PHOTO



POINT ID: FG2007

WEST PHOTO



POINT ID: FG2007

OPUS REPORT

FILE: FG2007.tps OP1598300087582

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20223s.20o TIME: 20:15:55 UTC

SOFTWARE: page5 1801.18 master74.pl 160321 START: 2020/08/10 18:08:00
EPHEMERIS: igr21181.eph [rapid] STOP: 2020/08/10 21:12:00
NAV FILE: brdc2230.20n OBS USED: 7108 / 8198 : 87%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 61 / 67 : 91%
ARP HEIGHT: 2 OVERALL RMS: 0.019(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6088)

X: -1653179.306(m) 0.008(m) -1653180.241(m) 0.008(m)
Y: -4537724.378(m) 0.042(m) -4537723.084(m) 0.042(m)
Z: 4156572.457(m) 0.035(m) 4156572.349(m) 0.035(m)

LAT: 40 54 27.81572 0.003(m) 40 54 27.83207 0.003(m)
E LON: 249 58 56.48023 0.007(m) 249 58 56.42378 0.007(m)
W LON: 110 1 3.51977 0.007(m) 110 1 3.57622 0.007(m)
EL HGT: 2883.681(m) 0.055(m) 2882.933(m) 0.055(m)
ORTHO HGT: 2896.229(m) 0.098(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4528978.389 1064850.953
Easting (X) [meters] 582733.309 624882.814
Convergence [degrees] 0.64332500 0.97740000
Point Scale 0.99968424 0.99997466
Combined Factor 0.99923225 0.99952254

US NATIONAL GRID DESIGNATOR: 12TWL8273328978(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG5942	BLW2 BOULDER CORS ARP	N424601.637	W1093328.036	210100.3
DF8974	ZLC1 SALT LAKE WAAS 1 CORS ARP	N404709.739	W1115707.786	163749.2
DQ8876	UTMN MAPLETON UT CORS ARP	N400839.699	W1113544.075	158364.5

NEAREST NGS PUBLISHED CONTROL POINT

LO1033	WIDDOP	N405742.521	W1100410.480	7430.0
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Date: August 9, 2020

Time: 15:38:55 UTC

Employee: NG

Job Name: UT FEMA Flaming Gorge

Point ID: FG2008

State: Utah

Latitude: 40 52 25.45016

Longitude: -109 50 23.88009

Address and/or Intersection: FR221 East of Brown Lake Road

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:38:55 UTC	End Time: 19:10:21 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

<input type="checkbox"/>	PAVEMENT
<input checked="" type="checkbox"/>	VEGETATION
<input type="checkbox"/>	BARE SOIL
<input type="checkbox"/>	NGS CONTROL

PICTURES

<input checked="" type="checkbox"/>	Photos of area & setup
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POINT RE-CHECK

Date: August 12, 2020

Time: 21:12:01

Pt ID: FG2008-CK

Description:

Vinyl chevron

Sketch or Image of Area



POINT ID: FG2008
MONUMENT PHOTO



POINT ID: FG2008

NORTH PHOTO

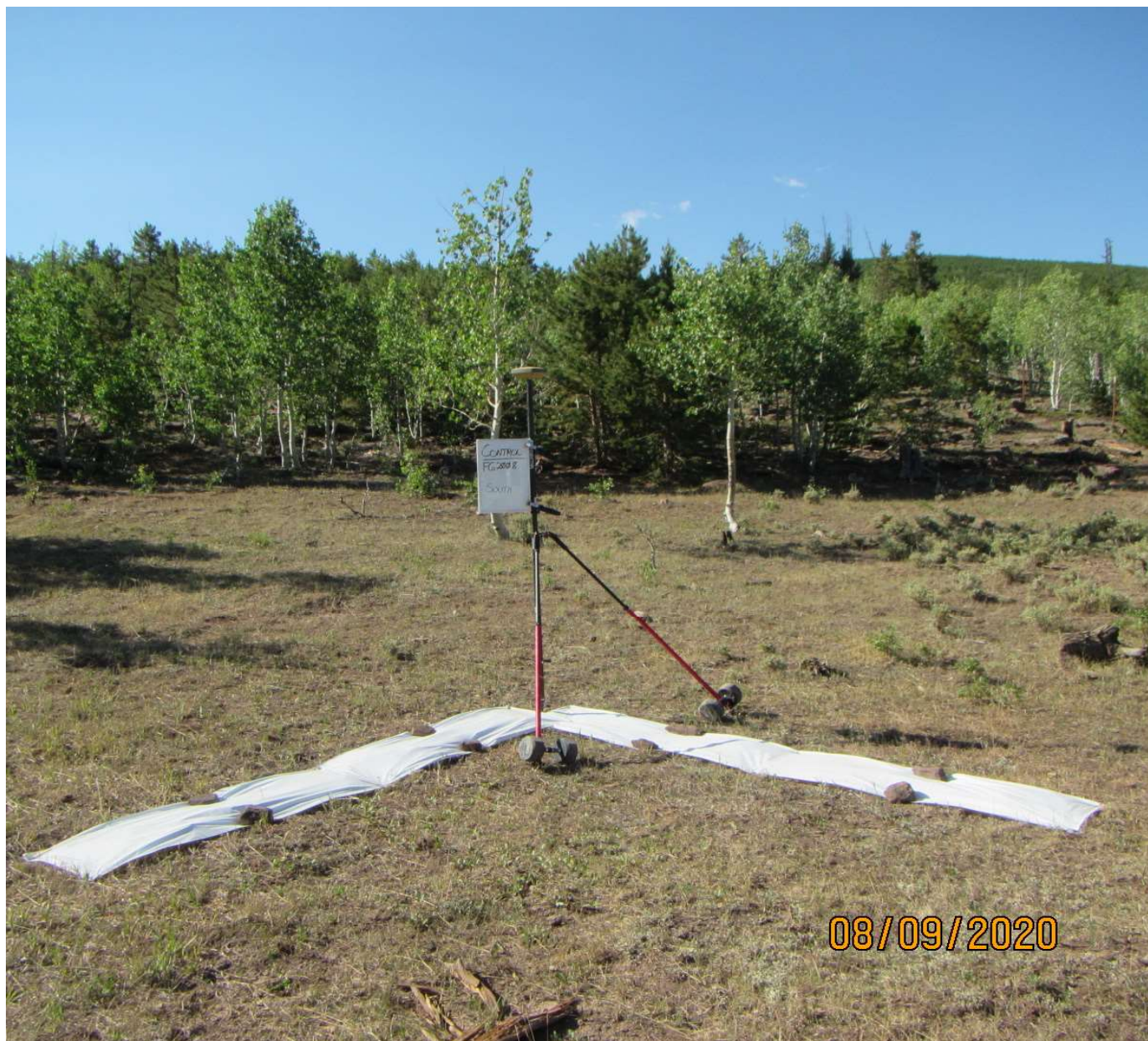


POINT ID: FG2008

EAST PHOTO



POINT ID: FG2008
SOUTH PHOTO



POINT ID: FG2008

WEST PHOTO



POINT ID: FG2008

OPUS REPORT

FILE: FG2008.tps OP1598290688474

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20222p.20o TIME: 17:39:43 UTC

SOFTWARE: page5 1801.18 master97.pl 160321 START: 2020/08/09 15:39:00
EPHEMERIS: igr21180.eph [rapid] STOP: 2020/08/09 19:10:00
NAV FILE: brdc2220.20n OBS USED: 7197 / 7894 : 91%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 55 / 56 : 98%
ARP HEIGHT: 2 OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6058)

X: -1639861.254(m) 0.005(m) -1639862.188(m) 0.005(m)
Y: -4544940.035(m) 0.008(m) -4544938.740(m) 0.008(m)
Z: 4153520.303(m) 0.021(m) 4153520.195(m) 0.021(m)

LAT: 40 52 25.45021 0.011(m) 40 52 25.46666 0.011(m)
E LON: 250 9 36.11959 0.005(m) 250 9 36.06332 0.005(m)
W LON: 109 50 23.88041 0.005(m) 109 50 23.93668 0.005(m)
EL HGT: 2582.114(m) 0.019(m) 2581.362(m) 0.019(m)
ORTHO HGT: 2594.988(m) 0.070(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4525388.315 1061347.683
Easting (X) [meters] 597747.483 639921.855
Convergence [degrees] 0.75917778 1.09455278
Point Scale 0.99971760 0.99997836
Combined Factor 0.99931284 0.99957350

US NATIONAL GRID DESIGNATOR: 12TWL9774725388(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DQ8876	UTMN MAPLETON UT CORS ARP	N400839.699	W1113544.075	169461.0
DJ8989	P030 KEMMERERLFWY2005 CORS ARP	N414459.315	W1103046.067	112472.2
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	201864.8

NEAREST NGS PUBLISHED CONTROL POINT

LN0693	UTE MTN LOT	N405217.691	W1094733.333	4000.7
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Date: August 7, 2020 **Time:** 15:38:26 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2009

State: Utah **Latitude:** 40 52 20.92966 **Longitude:** -109 29 45.63301

Address and/or Intersection: Parking area, intersection of HWY44 and FR157

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:38:26 UTC	End Time: 19:12:15 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Inside corner of concrete walkway

Sketch or Image of Area





POINT ID: FG2009

MONUMENT PHOTO





POINT ID: FG2009

NORTH PHOTO



POINT ID: FG2009

EAST PHOTO





POINT ID: FG2009

SOUTH PHOTO



POINT ID: FG2009

WEST PHOTO



POINT ID: FG2009

OPUS REPORT

FILE: FG2009.tps OP1598286503869

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20220p.20o TIME: 16:29:34 UTC

SOFTWARE: page5 1801.18 master72.pl 160321 START: 2020/08/07 15:39:00
EPHEMERIS: igs21175.eph [precise] STOP: 2020/08/07 19:12:00
NAV FILE: brdc2200.20n OBS USED: 7403 / 7860 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 45 / 47 : 96%
ARP HEIGHT: 2 OVERALL RMS: 0.011(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6003)

X: -1612492.025(m) 0.009(m) -1612492.959(m) 0.009(m)
Y: -4554545.177(m) 0.005(m) -4554543.881(m) 0.005(m)
Z: 4153191.403(m) 0.012(m) 4153191.294(m) 0.012(m)

LAT: 40 52 20.92966 0.010(m) 40 52 20.94629 0.010(m)
E LON: 250 30 14.36699 0.010(m) 250 30 14.31094 0.010(m)
W LON: 109 29 45.63301 0.010(m) 109 29 45.68906 0.010(m)
EL HGT: 2240.703(m) 0.007(m) 2239.943(m) 0.007(m)
ORTHO HGT: 2254.440(m) 0.066(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4525689.935 1061819.488
Easting (X) [meters] 626733.519 668912.073
Convergence [degrees] 0.98430833 1.32134167
Point Scale 0.99979769 0.99997851
Combined Factor 0.99944640 0.99962716

US NATIONAL GRID DESIGNATOR: 12TXL2673325689(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	191325.2
DL3583	CNC1 RANGELY CORS ARP	N400437.567	W1084722.423	106753.7
DJ8989	P030 KEMMERERLFWY2005 CORS ARP	N414459.315	W1103046.067	129436.2

NEAREST NGS PUBLISHED CONTROL POINT

LN0618	GREENDALE	N405218.821	W1092945.904	65.4
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Date: August 8, 2020

Time: 17:28:14 UTC

Employee: NG

Job Name: UT FEMA Flaming Gorge

Point ID: FG2010

State: Utah

Latitude: 40 52 40.49346

Longitude: -109 45 32.85626

Address and/or Intersection: Intersection FR218 and FR221

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:28:14 UTC	End Time: 19:50:23 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020

Time: 20:57:32

Pt ID: FG2010-CK

Description:

Paint "T"

Sketch or Image of Area



POINT ID: FG2010
MONUMENT PHOTO



POINT ID: FG2010

NORTH PHOTO



POINT ID: FG2010
EAST PHOTO



POINT ID: FG2010
SOUTH PHOTO



POINT ID: FG2010

WEST PHOTO



POINT ID: FG2010

OPUS REPORT

FILE: FG2010.tps OP1598288272451

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20221r.20o TIME: 16:58:59 UTC

SOFTWARE: page5 1801.18 master91.pl 160321 START: 2020/08/08 17:29:00
EPHEMERIS: igs21176.eph [precise] STOP: 2020/08/08 19:50:00
NAV FILE: brdc2210.20n OBS USED: 4968 / 5378 : 92%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 37 / 38 : 97%
ARP HEIGHT: 2 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6032)

X: -1633327.288(m) 0.004(m) -1633328.222(m) 0.004(m)
Y: -4546915.819(m) 0.015(m) -4546914.524(m) 0.015(m)
Z: 4153827.647(m) 0.015(m) 4153827.539(m) 0.015(m)

LAT: 40 52 40.49346 0.010(m) 40 52 40.50998 0.010(m)
E LON: 250 14 27.14374 0.003(m) 250 14 27.08754 0.003(m)
W LON: 109 45 32.85626 0.003(m) 109 45 32.91246 0.003(m)
EL HGT: 2515.372(m) 0.021(m) 2514.618(m) 0.021(m)
ORTHO HGT: 2528.508(m) 0.075(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4525945.605 1061944.967
Easting (X) [meters] 604552.854 646725.561
Convergence [degrees] 0.81216111 1.14785556
Point Scale 0.99973454 0.99997789
Combined Factor 0.99934023 0.99958349

US NATIONAL GRID DESIGNATOR: 12TXL0455225945(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DL3583	CNC1 RANGELY CORS ARP	N400437.567	W1084722.423	121146.8
DP9024	PUC2 CARBON COUNTY UT CORS ARP	N393538.100	W1104541.525	166194.3
DQ8876	UTMN MAPLETON UT CORS ARP	N400839.699	W1113544.075	175719.4

NEAREST NGS PUBLISHED CONTROL POINT

LN0336	B 29	N405251.000	W1094536.000	332.4
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Date: August 5, 2020 **Time:** 17:05:37 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2011

State: Utah **Latitude:** 40 47 04.00017 **Longitude:** -109 33 58.29492

Address and/or Intersection: FR020 South of FR021

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:05:37 UTC	End Time: 21:34:33 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020

Time: 14:58:34

Pt ID: FG2011-CK

Description:

Vinyl Chevron

Sketch or Image of Area



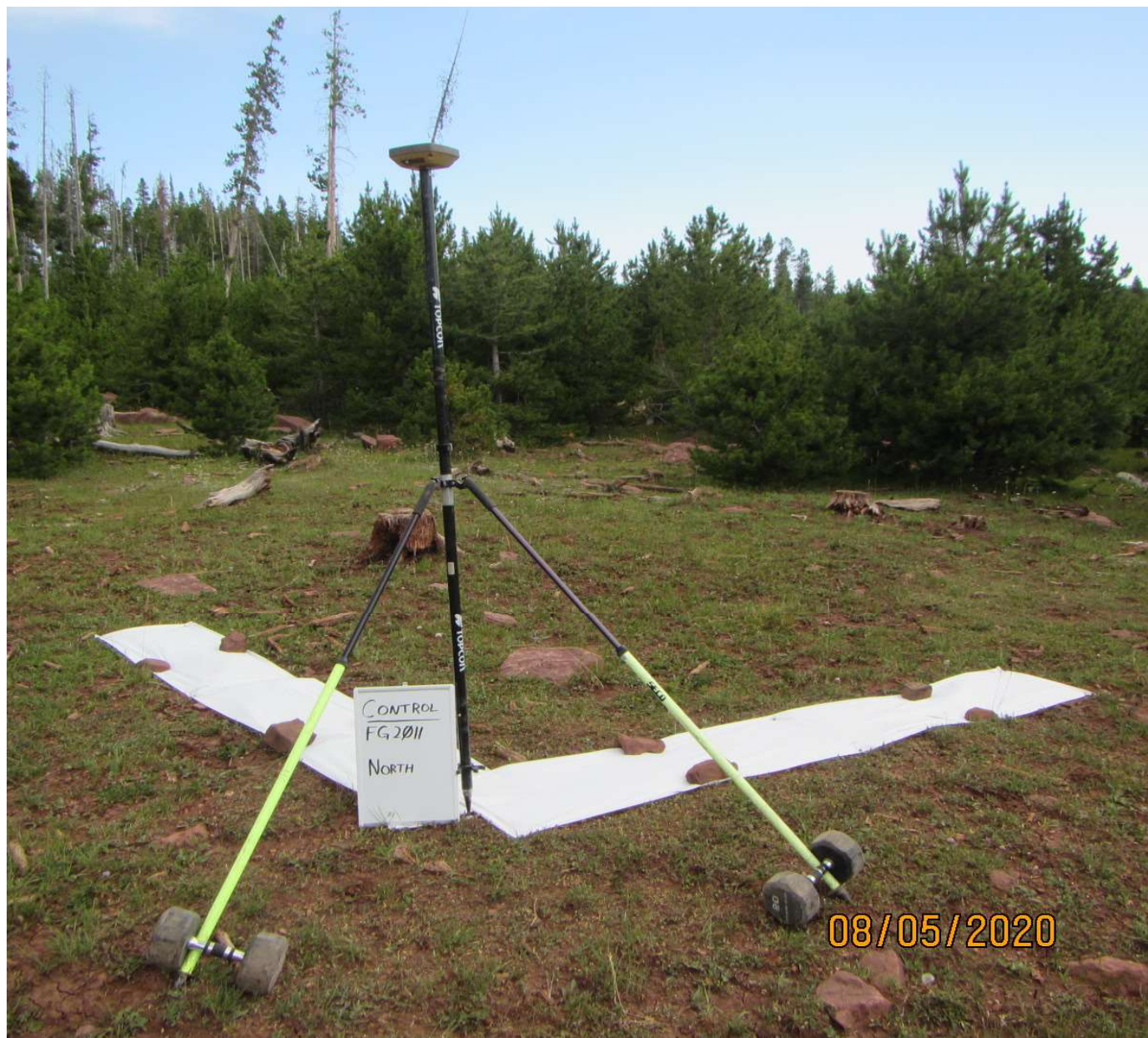


POINT ID: FG2011
MONUMENT PHOTO



POINT ID: FG2011

NORTH PHOTO



POINT ID: FG2011

EAST PHOTO



POINT ID: FG2011

SOUTH PHOTO



POINT ID: FG2011

WEST PHOTO



POINT ID: FG2011

OPUS REPORT

FILE: FG2011.tps OP1598272488418

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20218r.20o TIME: 12:36:29 UTC

SOFTWARE: page5 1801.18 master57.pl 160321 START: 2020/08/05 17:06:00
EPHEMERIS: igs21173.eph [precise] STOP: 2020/08/05 21:34:00
NAV FILE: brdc2180.20n OBS USED: 9767 / 10616 : 92%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 64 / 67 : 96%
ARP HEIGHT: 2 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.5951)

X: -1620346.167(m) 0.012(m) -1620347.100(m) 0.012(m)
Y: -4558971.110(m) 0.019(m) -4558969.814(m) 0.019(m)
Z: 4146138.940(m) 0.029(m) 4146138.831(m) 0.029(m)

LAT: 40 47 4.00078 0.021(m) 40 47 4.01734 0.021(m)
E LON: 250 26 1.70473 0.007(m) 250 26 1.64875 0.007(m)
W LON: 109 33 58.29527 0.007(m) 109 33 58.35125 0.007(m)
EL HGT: 2772.954(m) 0.026(m) 2772.195(m) 0.026(m)
ORTHO HGT: 2786.522(m) 0.073(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4515817.727 2273898.316
Easting (X) [meters] 620979.226 663223.299
Convergence [degrees] 0.93669722 1.23875556
Point Scale 0.99978015 1.00003623
Combined Factor 0.99934546 0.99960143

US NATIONAL GRID DESIGNATOR: 12TXL2097915817(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DQ8876	UTMN MAPLETON UT CORS ARP	N400839.699	W1113544.075	186269.1
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	183904.4
DJ8989	P030 KEMMERERLFWY2005 CORS ARP	N414459.315	W1103046.067	133413.5

NEAREST NGS PUBLISHED CONTROL POINT

LN0673	DYER	N404414.842	W1093426.503	5259.8
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Date: August 6, 2020 **Time:** 15:59:03 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** FG2012

State: Utah **Latitude:** 40 57 36.24541 **Longitude:** -109 28 11.85125

Address and/or Intersection: Traffic pullout at intersection of HWY191 and FR012

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:59:03 UTC	End Time: 19:00:15 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: August 12, 2020

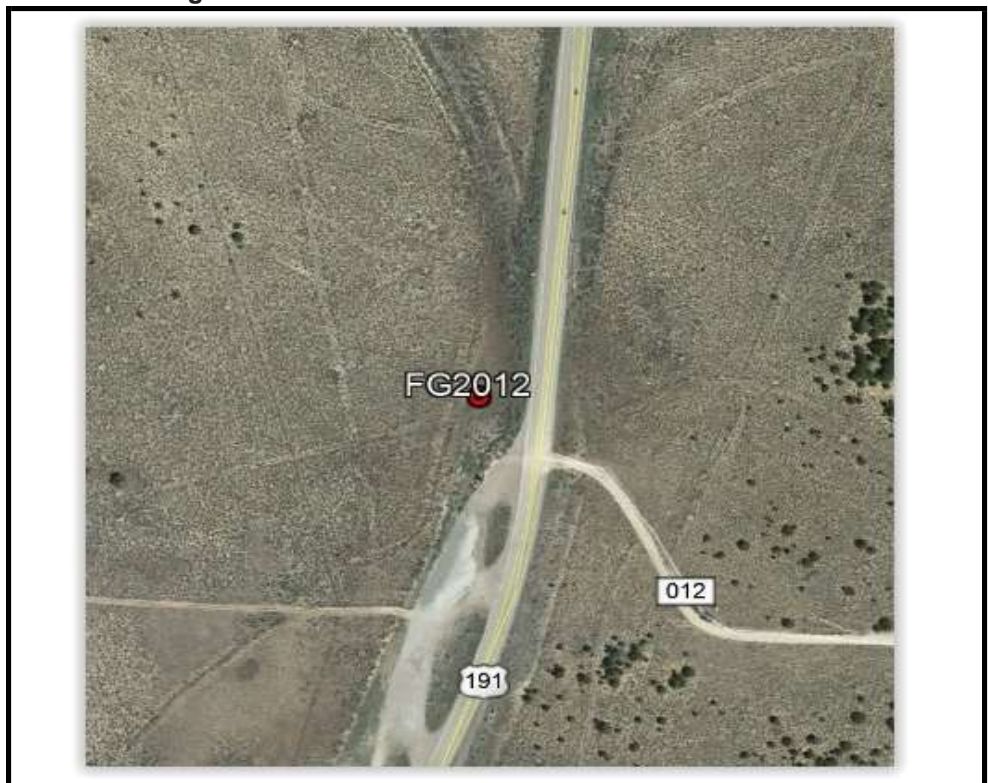
Time: 16:49:11

Pt ID: FG2012-CK

Description:

Vinyl Chevron

Sketch or Image of Area



POINT ID: FG2012
MONUMENT PHOTO



POINT ID: FG2012

NORTH PHOTO



POINT ID: FG2012

EAST PHOTO



POINT ID: FG2012

SOUTH PHOTO



POINT ID: FG2012

WEST PHOTO



POINT ID: FG2012

OPUS REPORT

FILE: FG2012.tps OP1598276020956

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: August 24, 2020
RINEX FILE: fg20219p.20o TIME: 13:36:43 UTC

SOFTWARE: page5 1801.18 master71.pl 160321 START: 2020/08/06 15:59:00
EPHEMERIS: igs21174.eph [precise] STOP: 2020/08/06 19:00:00
NAV FILE: brdc2190.20n OBS USED: 5908 / 6258 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 36 / 41 : 88%
ARP HEIGHT: 2 OVERALL RMS: 0.011(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.5976)

X: -1608232.649(m) 0.012(m) -1608233.583(m) 0.012(m)
Y: -4549087.663(m) 0.041(m) -4549086.368(m) 0.041(m)
Z: 4160376.898(m) 0.026(m) 4160376.790(m) 0.026(m)

LAT: 40 57 36.24541 0.023(m) 40 57 36.26208 0.023(m)
E LON: 250 31 48.14875 0.007(m) 250 31 48.09266 0.007(m)
W LON: 109 28 11.85125 0.007(m) 109 28 11.90734 0.007(m)
EL HGT: 1985.444(m) 0.048(m) 1984.686(m) 0.048(m)
ORTHO HGT: 1999.554(m) 0.086(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4301 UT N)

Northing (Y) [meters] 4535451.403 1071594.363
Easting (X) [meters] 628758.630 670880.209
Convergence [degrees] 1.00313056 1.33851944
Point Scale 0.99980405 0.99996964
Combined Factor 0.99949277 0.99965831

US NATIONAL GRID DESIGNATOR: 12TXL2875835451(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DG5942	BLW2 BOULDER CORS ARP	N424601.637	W1093328.036	200901.1
DP9024	PUC2 CARBON COUNTY UT CORS ARP	N393538.100	W1104541.525	187334.2
DL3583	CNC1 RANGELY CORS ARP	N400437.567	W1084722.423	113776.6

NEAREST NGS PUBLISHED CONTROL POINT

LN0255	L 102	N405922.000	W1092758.000	3278.4
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Date: October 10, 2020

Time: 18:21:44 UTC

Employee: NG

Job Name: UT FEMA Flaming Gorge

Point ID: GR2001

State: Utah

Latitude: 38 59 23.80694

Longitude: -110 11 19.27208

Address and/or Intersection: Intersection of I70 and Main Street

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.001	V RMS: 0.002	Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of stop stripe and fog line

Sketch or Image of Area





POINT ID: GR2001
MONUMENT PHOTO



POINT ID: GR2001

NORTH PHOTO





POINT ID: GR2001

EAST PHOTO



POINT ID: GR2001
SOUTH PHOTO



POINT ID: GR2001

WEST PHOTO





Date: October 10, 2020 **Time:** 16:17:38 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** GR2002

State: Utah **Latitude:** 38 58 27.32065 **Longitude:** -110 07 17.37113

Address and/or Intersection: Cattleguard on Main Street South of I70

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.002 V RMS: 0.003		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of stop stripe and north edge of cattleguard

Sketch or Image of Area





POINT ID: GR2002
MONUMENT PHOTO



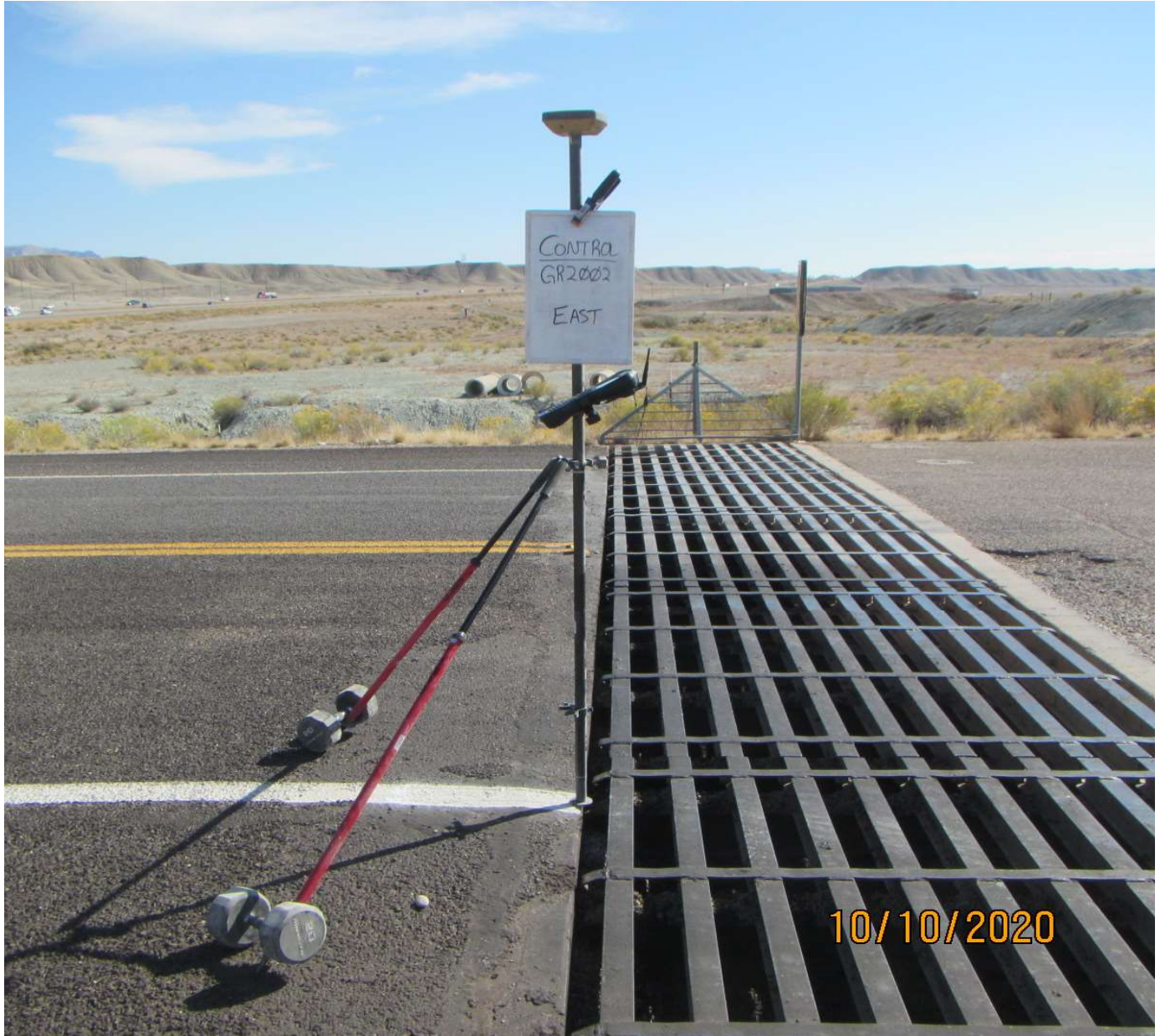


POINT ID: GR2002

NORTH PHOTO



POINT ID: GR2002
EAST PHOTO



POINT ID: GR2002
SOUTH PHOTO



POINT ID: GR2002
WEST PHOTO





Date: October 10, 2020 **Time:** 14:32:56 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** GR2003

State: Utah **Latitude:** 39 05 52.51528 **Longitude:** -110 06 54.94511

Address and/or Intersection: Beach Road North of Green River

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 14:32:56 UTC	End Time: 20:37:11 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Vinyl Chevron

Sketch or Image of Area





POINT ID: GR2003
MONUMENT PHOTO



POINT ID: GR2003

NORTH PHOTO





POINT ID: GR2003

EAST PHOTO



POINT ID: GR2003
SOUTH PHOTO



POINT ID: GR2003

WEST PHOTO



POINT ID: GR2003

OPUS REPORT

FILE: GR2003.tps OP1602531806317

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: October 12, 2020
RINEX FILE: gr20284o.20o TIME: 19:45:19 UTC

SOFTWARE: page5 2008.25 master95.pl 160321 START: 2020/10/10 14:33:00
EPHEMERIS: igr21266.eph [rapid] STOP: 2020/10/10 20:37:00
NAV FILE: brdc2840.20n OBS USED: 17049 / 18036 : 95%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 106 / 106 : 100%
ARP HEIGHT: 02.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7752)

X: -1704911.674(m) 0.005(m) -1704912.600(m) 0.005(m)
Y: -4655047.448(m) 0.005(m) -4655046.137(m) 0.005(m)
Z: 4001538.704(m) 0.010(m) 4001538.578(m) 0.010(m)

LAT: 39 5 52.51528 0.004(m) 39 5 52.53076 0.004(m)
E LON: 249 53 5.05489 0.003(m) 249 53 4.99996 0.003(m)
W LON: 110 6 54.94511 0.003(m) 110 6 55.00004 0.003(m)
EL HGT: 1235.732(m) 0.011(m) 1234.944(m) 0.011(m)
ORTHO HGT: 1255.433(m) 0.072(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4328015.594 2085812.224
Easting (X) [meters] 576505.889 619782.244
Convergence [degrees] 0.55798333 0.88703333
Point Scale 0.99967207 0.99998094
Combined Factor 0.99947829 0.99978710

US NATIONAL GRID DESIGNATOR: 12SWJ7650528015(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP9024	PUC2 CARBON COUNTY UT	CORS ARP	N393538.100 W1104541.525	78351.2
DI3419	P012 MONTICELLOUT2006	CORS ARP	N380550.740 W1092001.762	130293.9
DH6916	MC04 MESA CNTY 04 COOP	CORS ARP	N384102.975 W1085825.823	109183.1

NEAREST NGS PUBLISHED CONTROL POINT

KN0478	HARTMAN	N390149.134 W1100956.841	8686.4
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Date: October 10, 2020 **Time:** 14:26:37 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** GR2004

State: Utah **Latitude:** 39 03 39.02235 **Longitude:** -110 07 40.38569

Address and/or Intersection: Beach Road North of Hastings Road intersection

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.001 V RMS: 0.002		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Center of Northeast edge of
cattleguard

Sketch or Image of Area





POINT ID: GR2004
MONUMENT PHOTO



POINT ID: GR2004
NORTH PHOTO



POINT ID: GR2004

EAST PHOTO



POINT ID: GR2004
SOUTH PHOTO



POINT ID: GR2004

WEST PHOTO





Date: October 10, 2020 **Time:** 17:07:41 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** GR2005

State: Utah **Latitude:** 38 59 37.40066 **Longitude:** -110 09 27.11356

Address and/or Intersection: Parking lot at Green River Blvd and E 140 Street

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.001 V RMS: 0.002		Duration: 30 to 60 seconds		
<input type="radio"/>	STATIC GNSS	Start Time:	UTC	End Time:	UTC	
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of centerlines of parking stall lines

Sketch or Image of Area





POINT ID: GR2005
MONUMENT PHOTO



POINT ID: GR2005
NORTH PHOTO



POINT ID: GR2005

EAST PHOTO



POINT ID: GR2005

SOUTH PHOTO



POINT ID: GR2005
WEST PHOTO





Date: September 12, 2020 **Time:** 14:47:38 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2001

State: Utah **Latitude:** 39 03 24.94173 **Longitude:** -111 07 34.88544

Address and/or Intersection: HWY10 South of Ferron

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 14:47:38 UTC	End Time: 16:24:53 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

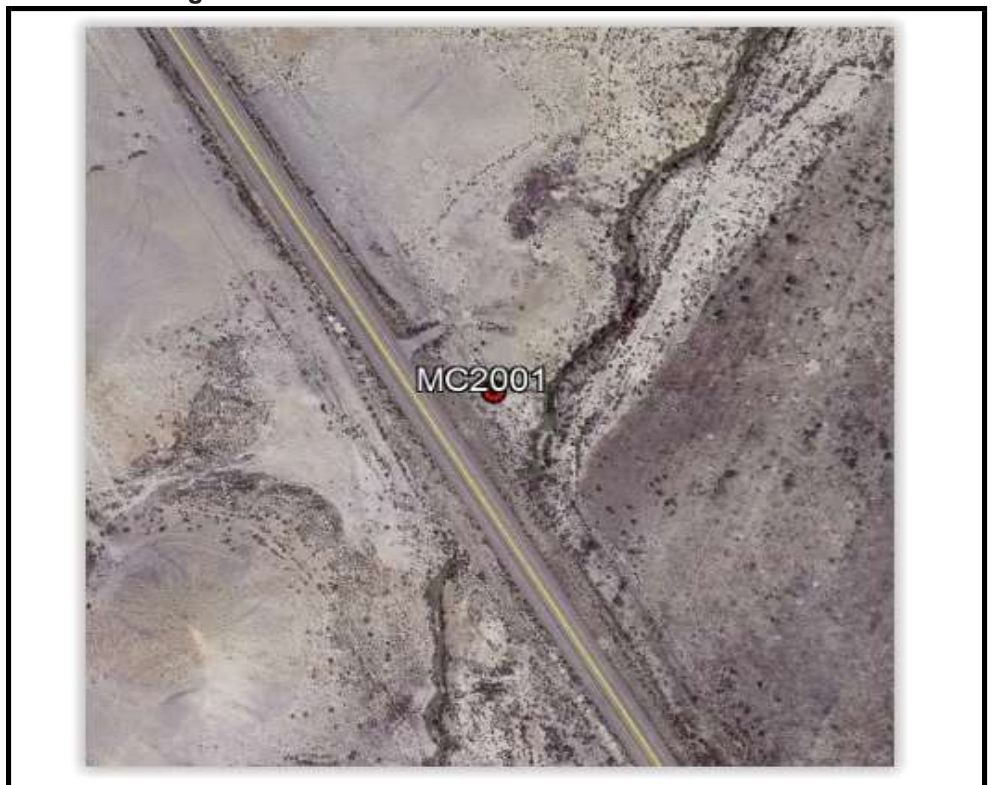
PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____
Time: _____
Pt ID: _____
Description:
 Vinyl Chevron

Sketch or Image of Area



POINT ID: MC2001
MONUMENT PHOTO



POINT ID: MC2001

NORTH PHOTO



POINT ID: MC2001

EAST PHOTO



POINT ID: MC2001

SOUTH PHOTO



POINT ID: MC2001

WEST PHOTO





Date: September 12, 2020 **Time:** 17:21:15 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2002

State: Utah **Latitude:** 38 57 32.17773 **Longitude:** -111 07 19.29896

Address and/or Intersection: CR803

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:21:15 UTC	End Time: 18:52:34 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

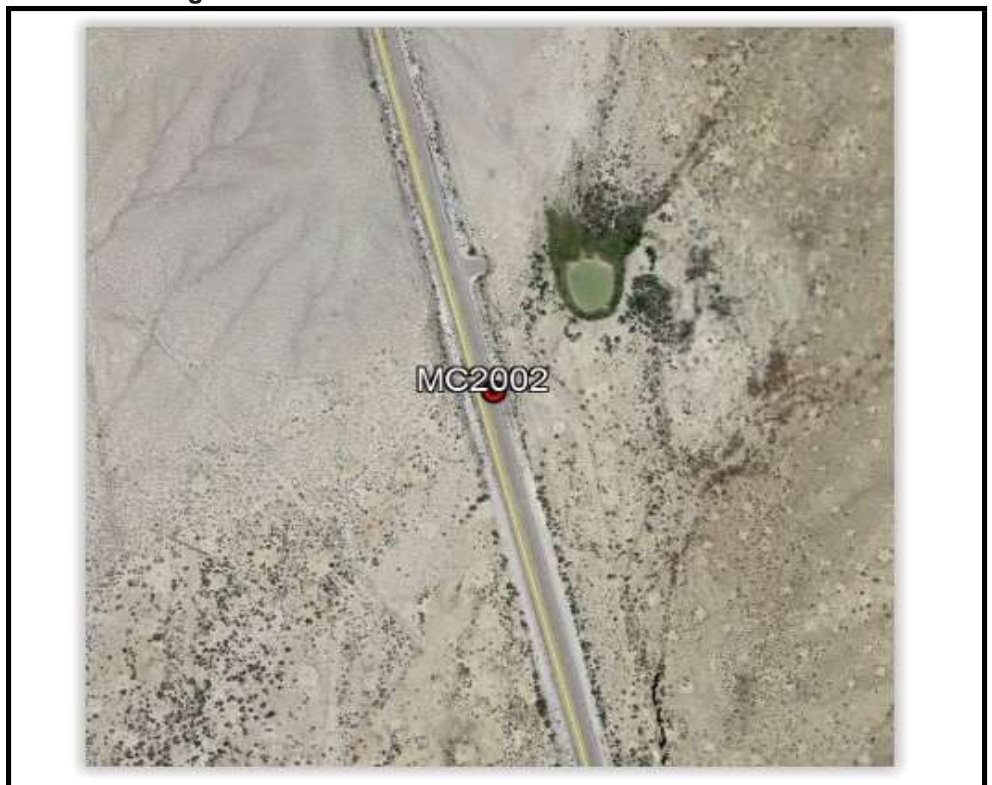
Time: _____

Pt ID: _____

Description:

Centerline intersection of fog line and crack in road

Sketch or Image of Area



POINT ID: MC2002
MONUMENT PHOTO



POINT ID: MC2002
NORTH PHOTO



POINT ID: MC2002
EAST PHOTO



POINT ID: MC2002
SOUTH PHOTO



POINT ID: MC2002

WEST PHOTO





Date: September 12, 2020 **Time:** 19:15:23 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2003

State: Utah **Latitude:** 38 55 26.23386 **Longitude:** -111 14 52.35332

Address and/or Intersection: Intersection 100N and N Center Street

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 19:15:23 UTC	End Time: 20:00:59 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: September 13, 2020

Time: 20:26:56

Pt ID: MC2003-CK

Description:

Corner of concrete pad

Sketch or Image of Area



POINT ID: MC2003
MONUMENT PHOTO



POINT ID: MC2003

NORTH PHOTO



POINT ID: MC2003

EAST PHOTO





POINT ID: MC2003

SOUTH PHOTO



POINT ID: MC2003

WEST PHOTO





Date: September 12, 2020 **Time:** 21:20:16 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2004

State: Utah **Latitude:** 38 52 37.94465 **Longitude:** -111 17 24.15566

Address and/or Intersection: Intersection HWY10 and CR907

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 21:20:16 UTC	End Time: 22:31:26 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

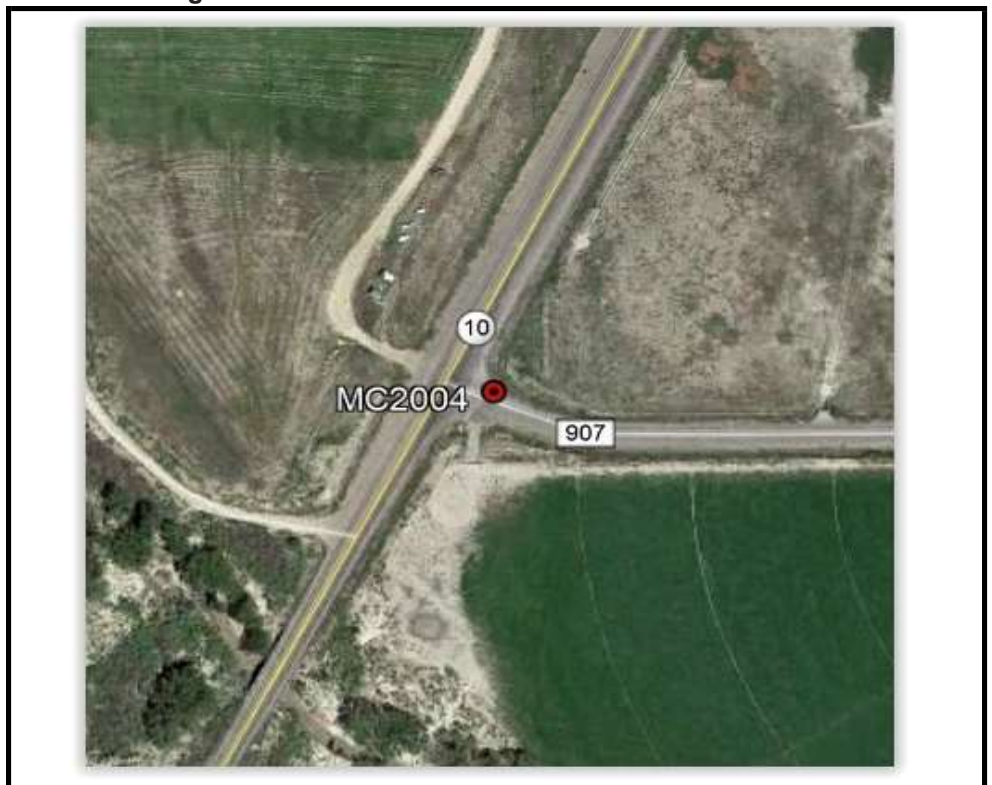
Time: _____

Pt ID: _____

Description:

Centerline intersection of fog line and tar patch

Sketch or Image of Area





POINT ID: MC2004
MONUMENT PHOTO



POINT ID: MC2004

NORTH PHOTO



POINT ID: MC2004
EAST PHOTO



POINT ID: MC2004
SOUTH PHOTO



POINT ID: MC2004
WEST PHOTO





Date: September 13, 2020 **Time:** 17:39:20 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2005

State: Utah **Latitude:** 38 48 36.03466 **Longitude:** -111 12 38.08685

Address and/or Intersection: Intersection I70 and CR912

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:39:20 UTC	End Time: 18:58:41 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of centerlines of stop stripe and fog line

Sketch or Image of Area



POINT ID: MC2005
MONUMENT PHOTO



POINT ID: MC2005

NORTH PHOTO



POINT ID: MC2005
EAST PHOTO



POINT ID: MC2005

SOUTH PHOTO



POINT ID: MC2005

WEST PHOTO





Date: September 12, 2020 **Time:** 16:54:39 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2006

State: Utah **Latitude:** 38 57 28.93666 **Longitude:** -111 11 58.79919

Address and/or Intersection: Intersection HWY10 and CR801

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 16:54:39 UTC	End Time: 20:24:59 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of centerline fog line
and west edge cattleguard

Sketch or Image of Area



POINT ID: MC2006
MONUMENT PHOTO



POINT ID: MC2006
NORTH PHOTO



POINT ID: MC2006

EAST PHOTO



POINT ID: MC2006
SOUTH PHOTO



POINT ID: MC2006
WEST PHOTO



POINT ID: MC2006

OPUS REPORT

FILE: MC2006.tps OP1602010785645

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: October 06, 2020
RINEX FILE: mc20256q.20o TIME: 19:01:10 UTC

SOFTWARE: page5 2008.25 master91.pl 160321 START: 2020/09/12 16:55:00
EPHEMERIS: igs21226.eph [precise] STOP: 2020/09/12 20:25:00
NAV FILE: brdc2560.20n OBS USED: 9241 / 9809 : 94%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 53 / 55 : 96%
ARP HEIGHT: 02.000 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6988)

X: -1796423.898(m) 0.004(m) -1796424.825(m) 0.004(m)
Y: -4631537.271(m) 0.015(m) -4631535.962(m) 0.015(m)
Z: 3989880.889(m) 0.007(m) 3989880.763(m) 0.007(m)

LAT: 38 57 28.93676 0.004(m) 38 57 28.95163 0.004(m)
E LON: 248 48 1.20067 0.006(m) 248 48 1.14512 0.006(m)
W LON: 111 11 58.79933 0.006(m) 111 11 58.85488 0.006(m)
EL HGT: 1885.021(m) 0.015(m) 1884.253(m) 0.015(m)
ORTHO HGT: 1902.683(m) 0.076(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4312138.983 2069399.493
Easting (X) [meters] 482700.314 526032.514
Convergence [degrees] -0.12554167 0.19238611
Point Scale 0.99960369 1.00001499
Combined Factor 0.99930814 0.99971932

US NATIONAL GRID DESIGNATOR: 12SVJ8270012138(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP9024	PUC2 CARBON COUNTY UT	CORS ARP	N393538.100 W1104541.525	80103.5
DI3419	P012 MONTICELLOUT2006	CORS ARP	N380550.740 W1092001.762	188715.5
DI2242	P009 MARYSVALE_UT2006	CORS ARP	N382847.732 W1121321.725	103627.2

NEAREST NGS PUBLISHED CONTROL POINT

JN0120	6193	N385714.000	W1111218.000	652.6
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Date: September 12, 2020 **Time:** 15:15:21 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2007

State: Utah **Latitude:** 39 01 11.25599 **Longitude:** -111 08 20.39169

Address and/or Intersection: Intersection HWY10 and CR801

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:15:21 UTC	End Time: 16:35:34 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of centerline fog line
and tar patch

Sketch or Image of Area



POINT ID: MC2007
MONUMENT PHOTO



POINT ID: MC2007
NORTH PHOTO



POINT ID: MC2007

EAST PHOTO



POINT ID: MC2007

SOUTH PHOTO



POINT ID: MC2007

WEST PHOTO





Date: September 12, 2020 **Time:** 20:51:39 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** MC2008

State: Utah **Latitude:** 38 49 19.08209 **Longitude:** -111 17 32.65082

Address and/or Intersection: West Hidden Valley Mine Road East of HWY10

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 20:51:39 UTC	End Time: 23:13:43 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of grass-grown cracks
in asphalt

Sketch or Image of Area



POINT ID: MC2008
MONUMENT PHOTO





POINT ID: MC2008

NORTH PHOTO





POINT ID: MC2008

EAST PHOTO



POINT ID: MC2008
SOUTH PHOTO





POINT ID: MC2008

WEST PHOTO



POINT ID: MC2008

OPUS REPORT

FILE: MC2008.tps OP1602010842908

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: October 06, 2020
RINEX FILE: mc20256u.20o TIME: 19:01:43 UTC

SOFTWARE: page5 2008.25 master93.pl 160321 START: 2020/09/12 20:52:00
EPHEMERIS: igs21226.eph [precise] STOP: 2020/09/12 23:14:00
NAV FILE: brdc2560.20n OBS USED: 6222 / 6839 : 91%
ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 39 / 39 : 100%
ARP HEIGHT: 02.000 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6992)

X: -1807342.016(m) 0.002(m) -1807342.942(m) 0.002(m)
Y: -4637409.314(m) 0.012(m) -4637408.004(m) 0.012(m)
Z: 3978073.849(m) 0.006(m) 3978073.722(m) 0.006(m)

LAT: 38 49 19.08199 0.006(m) 38 49 19.09675 0.006(m)
E LON: 248 42 27.34938 0.005(m) 248 42 27.29390 0.005(m)
W LON: 111 17 32.65062 0.005(m) 111 17 32.70610 0.005(m)
EL HGT: 1811.621(m) 0.012(m) 1810.852(m) 0.012(m)
ORTHO HGT: 1829.544(m) 0.080(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters] 4297061.001 2054270.521
Easting (X) [meters] 474616.964 518029.318
Convergence [degrees] -0.18330833 0.13298333
Point Scale 0.99960793 1.00005374
Combined Factor 0.99932388 0.99976956

US NATIONAL GRID DESIGNATOR: 12SVH7461697061(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6916	MC04 MESA CNTY 04 COOP CORS ARP	N384102.975	W1085825.823	202162.1
DI2242	P009 MARYSVALE_UT2006 CORS ARP	N382847.732	W1121321.725	89466.0
DI3419	P012 MONTICELLOUT2006 CORS ARP	N380550.740	W1092001.762	188962.9

NEAREST NGS PUBLISHED CONTROL POINT

JN0129	D 36	N384923.000	W1111700.000	796.8
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Date: September 10, 2020 **Time:** 15:09:00 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2001

State: Utah **Latitude:** 39 43 35.21104 **Longitude:** -111 09 41.63440

Address and/or Intersection: Scofield, Utah

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:09:00 UTC		End Time: 21:22:37 UTC		
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of C\L's of parking
stall ines

Sketch or Image of Area





POINT ID: CA2001
MONUMENT PHOTO



POINT ID: CA2001
NORTH PHOTO





POINT ID: CA2001

EAST PHOTO





POINT ID: CA2001

SOUTH PHOTO





POINT ID: CA2001

WEST PHOTO





POINT ID: CA2001

OPUS REPORT

FILE: CA2001.tps OP1602009926354

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com	DATE: October 06, 2020
RINEX FILE: ca20254p.20o	TIME: 18:47:49 UTC

SOFTWARE: page5 2008.25 master92.pl 160321	START: 2020/09/10 15:09:00
EPHEMERIS: igs21224.eph [precise]	STOP: 2020/09/10 21:22:00
NAV FILE: brdc2540.20n	OBS USED: 14656 / 15667 : 94%
ANT NAME: TPSHIPER_SR NONE	# FIXED AMB: 66 / 66 : 100%
ARP HEIGHT: 02.000	OVERALL RMS: 0.013(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6934)

X: -1773937.656(m) 0.004(m)	-1773938.589(m) 0.004(m)
Y: -4582599.746(m) 0.010(m)	-4582598.445(m) 0.010(m)
Z: 4056161.018(m) 0.015(m)	4056160.898(m) 0.015(m)

LAT: 39 43 35.21104 0.008(m)	39 43 35.22619 0.008(m)
E LON: 248 50 18.36560 0.002(m)	248 50 18.30937 0.002(m)
W LON: 111 9 41.63440 0.002(m)	111 9 41.69063 0.002(m)
EL HGT: 2329.902(m) 0.014(m)	2329.151(m) 0.014(m)
ORTHO HGT: 2345.831(m) 0.067(m) [NAVD88 (Computed using GEOID18)]	

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters]	4397408.763	2154716.190
Easting (X) [meters]	486153.973	529012.300
Convergence [degrees]	-0.10326111	0.21679444
Point Scale	0.99960236	0.99990061
Combined Factor	0.99923712	0.99953526

US NATIONAL GRID DESIGNATOR: 12SVJ8615397408(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP9024	PUC2 CARBON COUNTY UT	CORS ARP	N393538.100 W1104541.525	37366.4
DI2242	P009 MARYSVALE_UT2006	CORS ARP	N382847.732 W1121321.725	166105.9
DL7737	P113 KNOLLSWESTUT2006	CORS ARP	N404016.678 W1131640.872	208566.1

NEAREST NGS PUBLISHED CONTROL POINT

KN0163	7702	N394335.000	W1110945.000	80.4
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Date: September 21, 2020 **Time:** 17:44:08 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2002

State: Utah **Latitude:** 39 18 16.52263 **Longitude:** -111 16 22.90487

Address and/or Intersection: Joes Valley Reservoir

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:44:08 UTC	End Time: 20:42:44 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Parking area, Joes Valley Reservoir

Sketch or Image of Area





POINT ID: CA2002
MONUMENT PHOTO



POINT ID: CA2002
NORTH PHOTO



POINT ID: CA2002

EAST PHOTO



POINT ID: CA2002
SOUTH PHOTO





POINT ID: CA2002

WEST PHOTO





Date: September 5, 2020 **Time:** 19:22:35 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2003

State: Utah **Latitude:** 39 47 54.95323 **Longitude:** -110 47 05.16613

Address and/or Intersection: Intersection of US-191 & Emma Park Road

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 19:22:35 UTC	End Time: 21:45:23 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

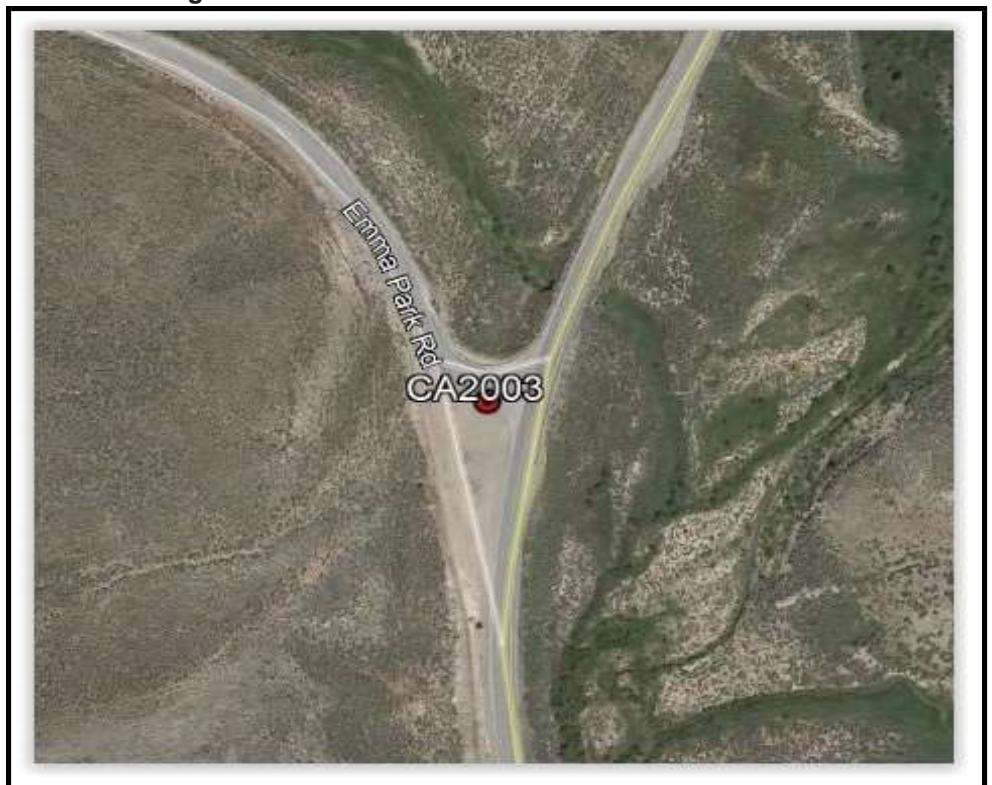
Time: _____

Pt ID: _____

Description:

Intersection of centerlines of stop stripe and fog line

Sketch or Image of Area





POINT ID: CA2003
MONUMENT PHOTO



POINT ID: CA2003

NORTH PHOTO



POINT ID: CA2003
EAST PHOTO



POINT ID: CA2003
SOUTH PHOTO



POINT ID: CA2003
WEST PHOTO





POINT ID: CA2003

OPUS REPORT

FILE: CA2003.tps OP1602801536702

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: October 15, 2020
 RINEX FILE: ca20249t.20o TIME: 22:40:11 UTC

SOFTWARE: page5 2008.25 master73.pl 160321 START: 2020/09/05 19:23:00
 EPHEMERIS: igs21216.eph [precise] STOP: 2020/09/05 21:45:00
 NAV FILE: brdc2490.20n OBS USED: 6201 / 6702 : 93%
 ANT NAME: TPSHIPER_SR NONE # FIXED AMB: 47 / 48 : 98%
 ARP HEIGHT: 02.000 OVERALL RMS: 0.015(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.6799)

X: -1741896.964(m) 0.007(m) -1741897.895(m) 0.007(m)
 Y: -4589250.906(m) 0.029(m) -4589249.604(m) 0.029(m)
 Z: 4062211.144(m) 0.022(m) 4062211.026(m) 0.022(m)

LAT: 39 47 54.95323 0.018(m) 39 47 54.96871 0.018(m)
 E LON: 249 12 54.83387 0.017(m) 249 12 54.77785 0.017(m)
 W LON: 110 47 5.16613 0.017(m) 110 47 5.22215 0.017(m)
 EL HGT: 2157.872(m) 0.033(m) 2157.115(m) 0.033(m)
 ORTHO HGT: 2173.894(m) 0.087(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters]	4405426.122	2162916.272
Easting (X) [meters]	518425.977	561248.608
Convergence [degrees]	0.13776944	0.45816111
Point Scale	0.99960418	0.99989902
Combined Factor	0.99926590	0.99956064

US NATIONAL GRID DESIGNATOR: 12SWK1842505426(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6914	MC03 MESA CNTY 03 COOP CORS ARP	N391123.785	W1084350.180	189222.2
DF8974	ZLC1 SALT LAKE WAAS 1 CORS ARP	N404709.739	W1115707.786	147938.5
DQ8876	UTMN MAPLETON UT CORS ARP	N400839.699	W1113544.075	79219.3

NEAREST NGS PUBLISHED CONTROL POINT

KN0112	Z 65	N3947000057	W11047000004	76.7
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Date: September 19, 2020 **Time:** 15:42:24 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2004

State: Utah **Latitude:** 39 33 49.71200 **Longitude:** -110 30 03.18740

Address and/or Intersection: Along canyon road near East Carbon, Utah

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:42:24 UTC	End Time: 18:12:33 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

North corner concrete cattleguard
frame

Sketch or Image of Area





POINT ID: CA2004
MONUMENT PHOTO





POINT ID: CA2004

NORTH PHOTO



POINT ID: CA2004

EAST PHOTO



POINT ID: CA2004
SOUTH PHOTO



POINT ID: CA2004
WEST PHOTO





POINT ID: CA2004

OPUS REPORT

FILE: CA2004.tps OP1602011652799

NGS OPUS SOLUTION REPORT

=====

All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com	DATE: October 06, 2020
RINEX FILE: ca20263p.20o	TIME: 19:16:41 UTC

SOFTWARE: page5 2008.25 master73.pl 160321	START: 2020/09/19 15:43:00
EPHEMERIS: igs21236.eph [precise]	STOP: 2020/09/19 18:12:00
NAV FILE: brdc2630.20n	OBS USED: 6647 / 6955 : 96%
ANT NAME: TPSHIPER_SR NONE	# FIXED AMB: 41 / 41 : 100%
ARP HEIGHT: 02.000	OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.7178)

X: -1724865.496(m) 0.011(m)	-1724866.425(m) 0.011(m)
Y: -4613145.011(m) 0.028(m)	-4613143.706(m) 0.028(m)
Z: 4041898.326(m) 0.026(m)	4041898.205(m) 0.026(m)

LAT: 39 33 49.71200 0.036(m)	39 33 49.72752 0.036(m)
E LON: 249 29 56.81260 0.016(m)	249 29 56.75701 0.016(m)
W LON: 110 30 3.18740 0.016(m)	110 30 3.24299 0.016(m)
EL HGT: 1775.374(m) 0.004(m)	1774.605(m) 0.004(m)
ORTHO HGT: 1792.761(m) 0.078(m) [NAVD88 (Computed using GEOID18)]	

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters]	4379465.043	2137085.098
Easting (X) [meters]	542874.220	585849.115
Convergence [degrees]	0.31790833	0.64001111
Point Scale	0.99962263	0.99990996
Combined Factor	0.99934428	0.99963153

US NATIONAL GRID DESIGNATOR: 12SWJ4287479465(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6914	MC03 MESA CNTY 03 COOP CORS ARP	N391123.785	W1084350.180	158115.2
DP9024	PUC2 CARBON COUNTY UT CORS ARP	N393538.100	W1104541.525	22648.3
DL3522	MC06 MACK CORS ARP	N391321.091	W1085105.904	147071.1

NEAREST NGS PUBLISHED CONTROL POINT

AI5829	VALLEY VIEW CEMETERY	N393257.351	W1102402.602	8758.5
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Date: September 11, 2020 **Time:** 17:27:37 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2005

State: Utah **Latitude:** 39 32 54.05161 **Longitude:** -110 24 31.00281

Address and/or Intersection: Intersection concrete gutters inside corner

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 17:27:37 UTC	End Time: 18:35:08 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:
 Intersection concrete gutters inside corner

Sketch or Image of Area



POINT ID: CA2005
MONUMENT PHOTO



POINT ID: CA2005
NORTH PHOTO



POINT ID: CA2005

EAST PHOTO



POINT ID: CA2005

SOUTH PHOTO



POINT ID: CA2005

WEST PHOTO





Date: September 19, 2020 **Time:** 22:43:54 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2006

State: Utah **Latitude:** 39 24 38.25237 **Longitude:** -110 25 56.27185

Address and/or Intersection: US-6 and Horse Canyon Road

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 22:43:54 UTC	End Time: 23:16:34 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: _____

Time: _____

Pt ID: _____

Description:

Intersection of centerlines of stop stripe and fog line

Sketch or Image of Area





POINT ID: CA2006
MONUMENT PHOTO



POINT ID: CA2006

NORTH PHOTO





POINT ID: CA2006

EAST PHOTO



POINT ID: CA2006

SOUTH PHOTO



POINT ID: CA2006

WEST PHOTO





Date: October 31, 2020 **Time:** 15:16:40 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2007

State: Utah **Latitude:** 38 52 54.22022 **Longitude:** -110 39 33.72358

Address and/or Intersection: I-70 WB exit ramp

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 15:16:40 UTC	End Time: 19:58:01 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: November 5, 2020
Time: 22:50:00
Pt ID: CA2007-CK

Description:

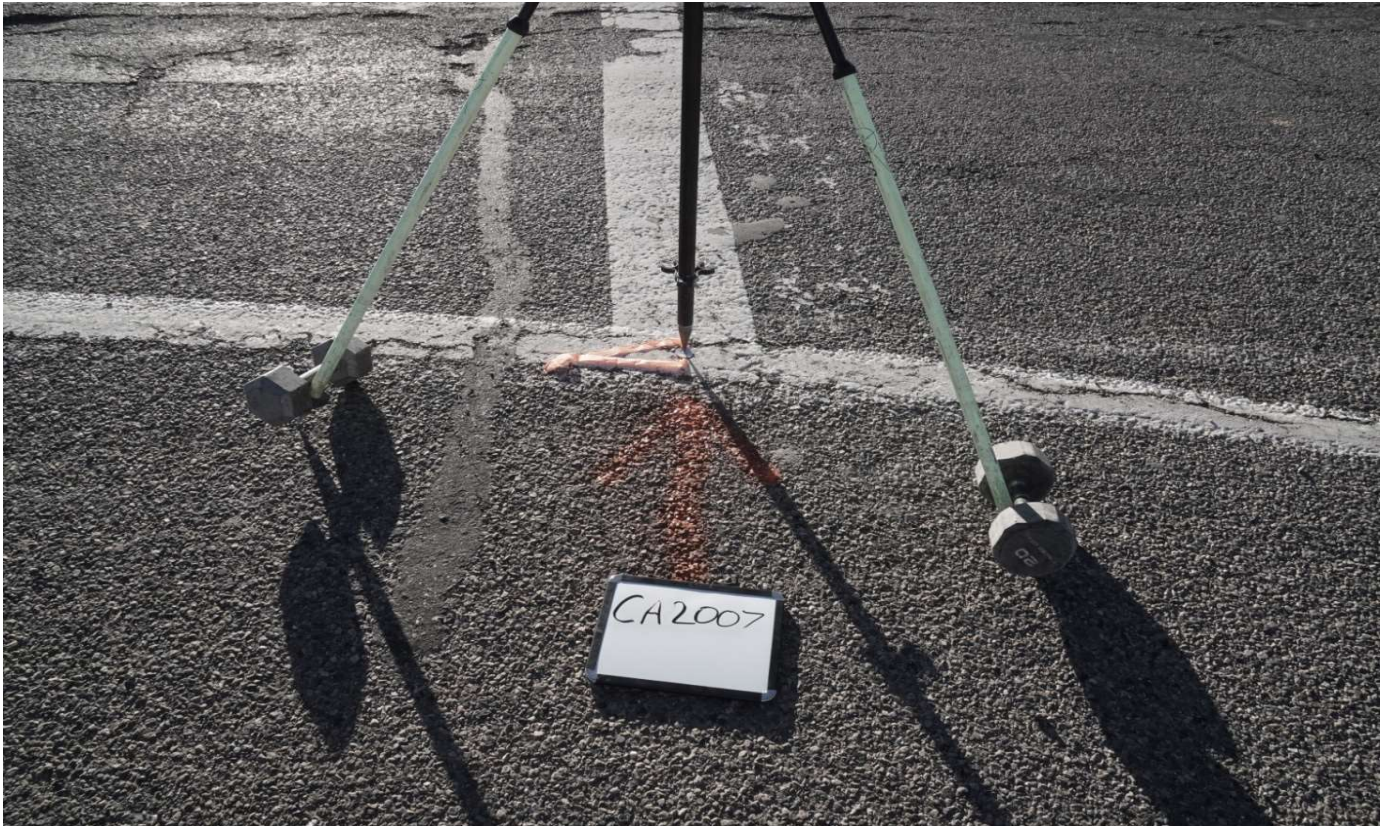
North end stop stripe centerline
meets centerline of fog line

Sketch or Image of Area





POINT ID: CA2007
MONUMENT PHOTO





POINT ID: CA2007

NORTH PHOTO



POINT ID: CA2007

EAST PHOTO



POINT ID: CA2007

SOUTH PHOTO



POINT ID: CA2007

WEST PHOTO





POINT ID: CA2007

OPUS REPORT

FILE: CA2007.tps OP1604447124148

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com	DATE: November 03, 2020
RINEX FILE: ca20305p.20o	TIME: 23:47:33 UTC

SOFTWARE: page5 2008.25 master51.pl 160321	START: 2020/10/31 15:17:00
EPHEMERIS: igr21296.eph [rapid]	STOP: 2020/10/31 19:58:00
NAV FILE: brdc3050.20n	OBS USED: 13153 / 14500 : 91%
ANT NAME: TPSHIPER_GD NONE	# FIXED AMB: 72 / 74 : 97%
ARP HEIGHT: 02.000	OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8326)

X: -1754579.060(m) 0.005(m)	-1754579.987(m) 0.005(m)
Y: -4653336.233(m) 0.005(m)	-4653334.921(m) 0.005(m)
Z: 3983359.921(m) 0.005(m)	3983359.793(m) 0.005(m)

LAT: 38 52 54.22022 0.007(m)	38 52 54.23534 0.007(m)
E LON: 249 20 26.27642 0.004(m)	249 20 26.22127 0.004(m)
W LON: 110 39 33.72358 0.004(m)	110 39 33.77873 0.004(m)
EL HGT: 1999.751(m) 0.004(m)	1998.970(m) 0.004(m)
ORTHO HGT: 2018.168(m) 0.072(m) [NAVD88 (Computed using GEOID18)]	

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters]	4303707.057	2061226.861
Easting (X) [meters]	529545.031	572943.588
Convergence [degrees]	0.21382222	0.53849167
Point Scale	0.99961075	1.00003603
Combined Factor	0.99929721	0.99972236

US NATIONAL GRID DESIGNATOR: 12SWJ2954503707(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP9024	PUC2 CARBON COUNTY UT	CORS ARP	N393538.100 W1104541.525	79580.9
DH6916	MC04 MESA CNTY 04 COOP	CORS ARP	N384102.975 W1085825.823	148124.4
DI3419	P012 MONTICELLOUT2006	CORS ARP	N380550.740 W1092001.762	144792.6

NEAREST NGS PUBLISHED CONTROL POINT

JN0475	INDIAN	N385317.022	W1104028.798	1502.1
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Date: October 30, 2020 **Time:** 2:29:21 UTC **Employee:** NG

Job Name: UT FEMA Flaming Gorge **Point ID:** CA2008

State: Utah **Latitude:** 38 55 13.54530 **Longitude:** -110 22 31.45773

Address and/or Intersection: I-70 EB exit ramp and UT-24

OBSERVATION METHOD

<input type="radio"/>	VRS GNSS	H RMS:	V RMS:	Duration:		
<input checked="" type="radio"/>	STATIC GNSS	Start Time: 2:29:21 UTC	End Time: 1:53:40 UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____
<input type="radio"/>	Back Sight Point	Distance: _____	Vertical Angle: _____	Angle: _____		
<input type="radio"/>	F.S. Point	Angle: _____	Vertical Angle: _____	Slope Dist: _____	Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: November 5, 2020

Time: 20:54:03

Pt ID: CA2008-CK

Description:

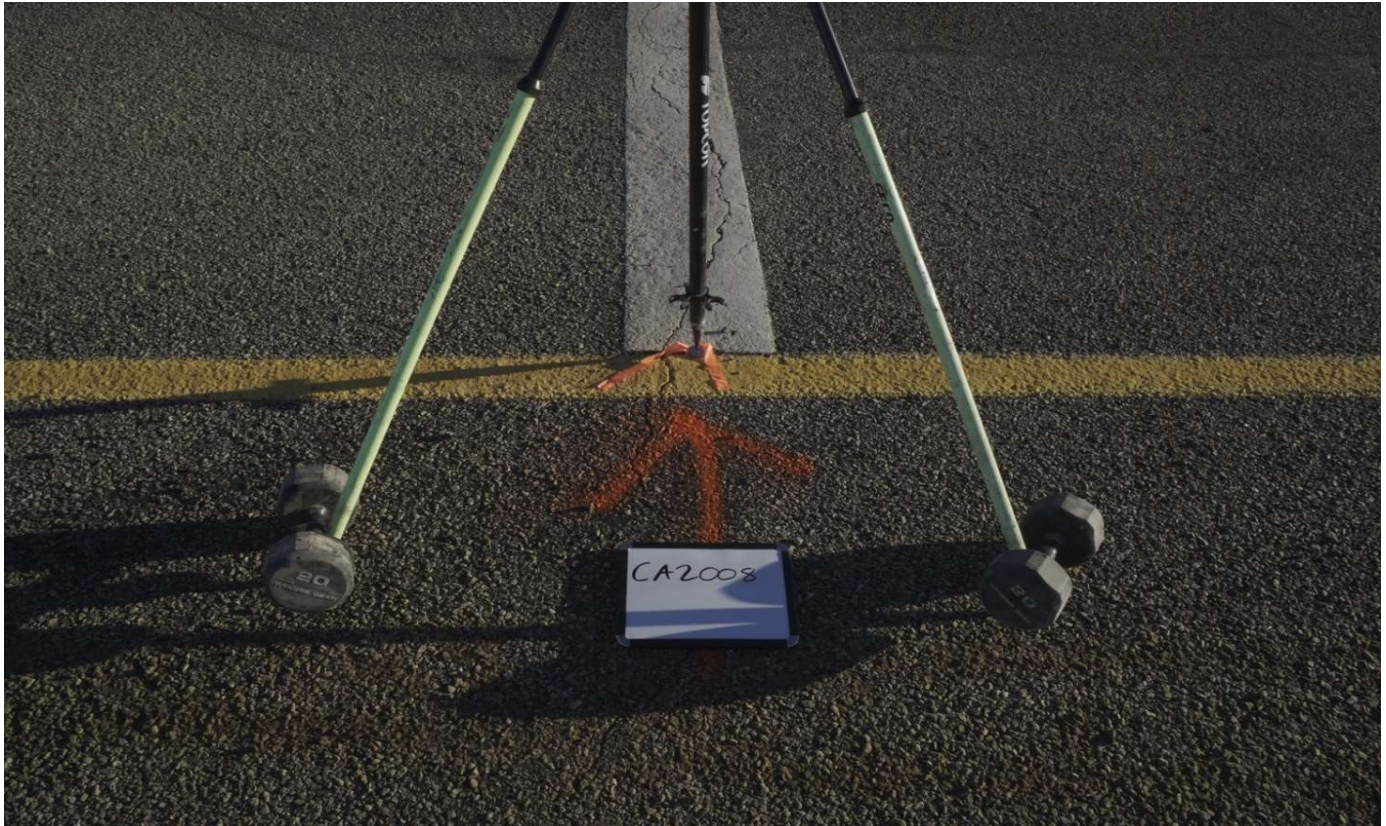
Asphalt road, north end centerline stop stripe

Sketch or Image of Area





POINT ID: CA2008
MONUMENT PHOTO





POINT ID: CA2008

NORTH PHOTO



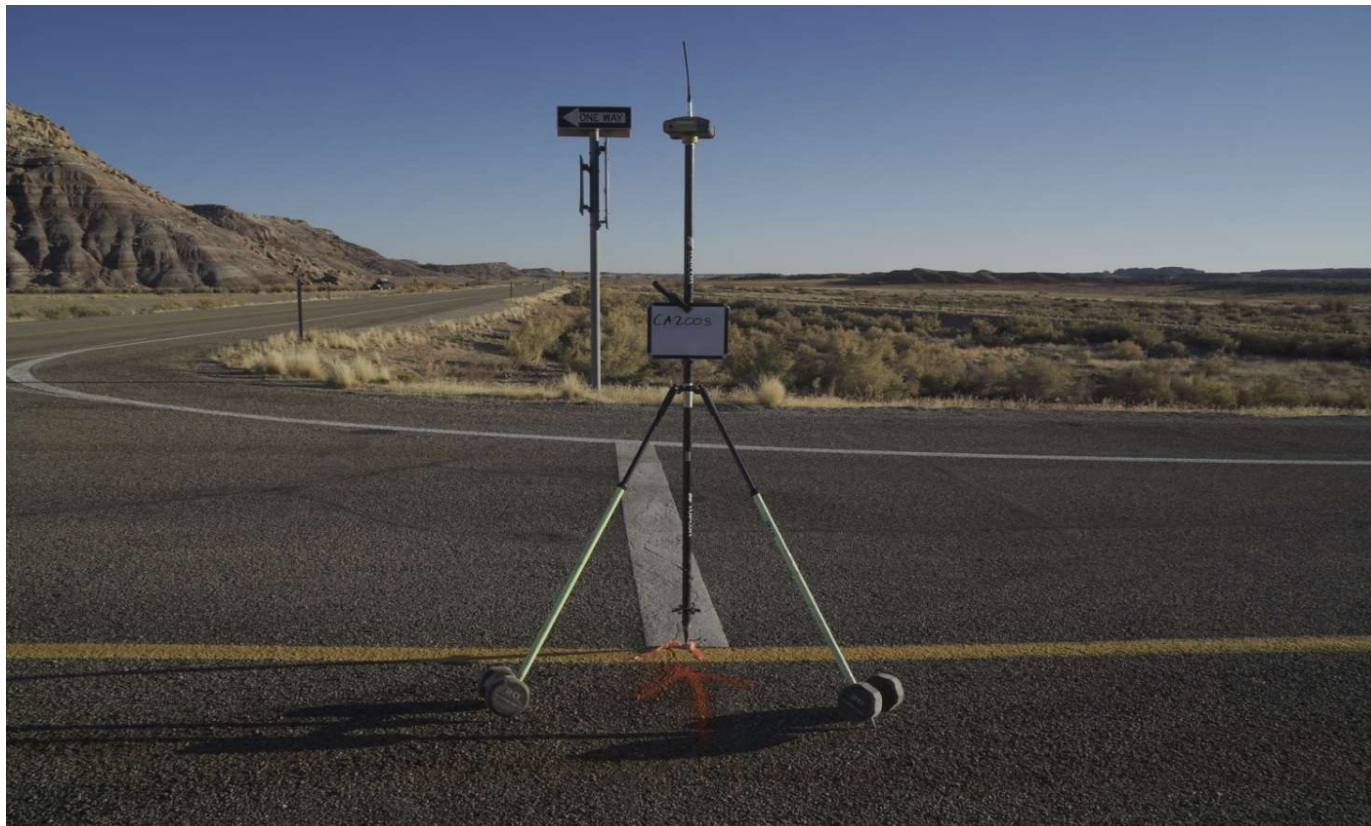
POINT ID: CA2008
EAST PHOTO





POINT ID: CA2008

SOUTH PHOTO





POINT ID: CA2008

WEST PHOTO





POINT ID: CA2008

OPUS REPORT

FILE: CA2008.tps OP1604446042134

NGS OPUS SOLUTION REPORT

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All computed coordinate accuracies are listed as peak-to-peak values.

For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: kjensen@aero-graphics.com DATE: November 03, 2020
 RINEX FILE: ca20304x.20o TIME: 23:30:53 UTC

SOFTWARE: page5 2008.25 master56.pl 160321 START: 2020/10/30 23:25:00
 EPHEMERIS: igr21295.eph [rapid] STOP: 2020/10/31 01:53:00
 NAV FILE: brdc3040.20n OBS USED: 5575 / 5698 : 98%
 ANT NAME: TPSHIPER_GD NONE # FIXED AMB: 38 / 38 : 100%
 ARP HEIGHT: 02.000 OVERALL RMS: 0.011(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.8307)

X: -1730360.637(m) 0.012(m) -1730361.563(m) 0.012(m)
 Y: -4658919.926(m) 0.031(m) -4658918.614(m) 0.031(m)
 Z: 3986252.346(m) 0.014(m) 3986252.219(m) 0.014(m)

LAT: 38 55 13.54472 0.019(m) 38 55 13.55999 0.019(m)
 E LON: 249 37 28.54236 0.014(m) 249 37 28.48735 0.014(m)
 W LON: 110 22 31.45764 0.014(m) 110 22 31.51265 0.014(m)
 EL HGT: 1279.977(m) 0.025(m) 1279.191(m) 0.025(m)
 ORTHO HGT: 1299.620(m) 0.084(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

UTM (Zone 12) SPC (4302 UT C)

Northing (Y) [meters]	4308131.989	2065793.708
Easting (X) [meters]	554145.539	597528.532
Convergence [degrees]	0.39240556	0.72039167
Point Scale	0.99963610	1.00002514
Combined Factor	0.99943539	0.99982435

US NATIONAL GRID DESIGNATOR: 12SWJ5414508131(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH6914	MC03 MESA CNTY 03 COOP CORS ARP	N391123.785	W1084350.180	145507.2
DI3419	P012 MONTICELLOUT2006 CORS ARP	N380550.740	W1092001.762	128868.2
DH6916	MC04 MESA CNTY 04 COOP CORS ARP	N384102.975	W1085825.823	124565.7

NEAREST NGS PUBLISHED CONTROL POINT

JN0424	HATT	N385333.056	W1102105.558	3726.4
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Date: October 13, 2020

Time: 18:02:23 UTC

Employee: NG

Job Name: UT FEMA Flaming Gorge

Point ID: CA2009

State: Utah

Latitude: 38 55 18.37936

Longitude: -109 56 07.59687

Address and/or Intersection: I-70 W exit ramp, Ruby Ranch Road

OBSERVATION METHOD

<input checked="" type="radio"/>	VRS GNSS	H RMS: 0.002		V RMS: 0.002		Duration: 30-60 sec.	
<input type="radio"/>	STATIC GNSS	Start Time: UTC		End Time: UTC			
<input type="radio"/>	Conventional Pairs VRS	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____	
<input type="radio"/>	Conventional Pairs STATIC	Point Number: _____	RMS: _____	H: _____	V: _____	Duration: _____	
<input type="radio"/>	Occupied Point	Pt.# / HT: _____ / _____	B.S	Pt.# / HT: _____ / _____	F.S.	Pt.# / HT: _____ / _____	
<input type="radio"/>	Back Sight Point	Distance: _____		Vertical Angle: _____		Angle: _____	
<input type="radio"/>	F.S. Point	Angle: _____		Vertical Angle: _____		Slope Dist: _____ Horizontal Dist: _____	

TYPE OF SURFACE

- PAVEMENT
- VEGETATION
- BARE SOIL
- NGS CONTROL

PICTURES

- Photos of area & setup

POINT RE-CHECK

Date: November 7, 2020

Time: 23:04:23 UTC

Pt ID: CA2009-CK

Description:

Intersection of stop stripe and fog line

Sketch or Image of Area





POINT ID: CA2009
MONUMENT PHOTO





POINT ID: CA2009

NORTH PHOTO



POINT ID: CA2009
EAST PHOTO





POINT ID: CA2009
SOUTH PHOTO



POINT ID: CA2009

WEST PHOTO

