

# LIDAR MAPPING CHECK POINTS



Stantec

## The Santa Cruz County Flood Control District DFIRM Conversion and Floodplain Map Modernization Project

### SURVEY REPORT

Prepared by:

Bryan P. Gale, RLS 39467

This survey was prepared by me or under  
my direct supervision.



# LIDAR MAPPING CHECK POINTS



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## The Santa Cruz County Flood Control District DFIRM Conversion and Floodplain Map Modernization Project

**HORIZONTAL COORDINATE SYSTEM:** STATE PLANE COORDINATE SYSTEM OF 1983  
(SPCS 83) ARIZONA CENTRAL ZONE 0202

**HORIZONTAL DATUM:** NORTH AMERICAN DATUM OF 1983 | NAD 83(2011) EPOCH (2010)

**VERTICAL DATUM:** NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

**GEOID MODEL:** GEOID 12

**PROJECT UNITS:** INTERNATIONAL FEET

**FIELD SURVEY:** 05/14/2012 - 05/31/2012

### NGS HORIZONTAL CONTROL POINTS HELD FIXED DURING FINAL ADJUSTMENT

NAME	PID#	
OLS B	AA3528	PACS
NN 73	CG1225	
FHU A	AA3525	PACS

### NGS VERTICAL CONTROL POINTS HELD FIXED DURING FINAL ADJUSTMENT

NAME	PID#	ORDER	
K 334	CG0504	1	
SCA_1_2	CG0620	1	
SAGEBRUSH	DH5754	*	HEIGHT MODERNIZATION CONTROL POINT



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# LIDAR MAPPING CHECK POINT

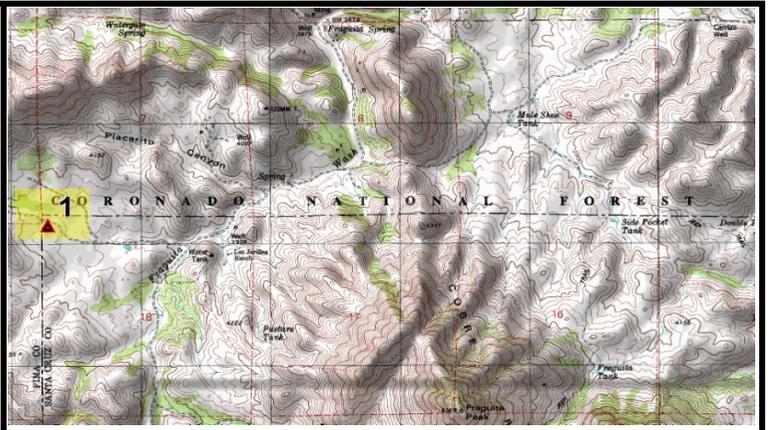
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>1</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 31' 13.90355"</b>	Northing:	<b>189759.05</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 21' 58.68826"</b>	Easting:	<b>871488.21</b>	Scale Factor:	<b>0.99993369</b>
Ellipsoid Ht:	<b>3980.76</b>	Elevation:	<b>4079.07</b>	Elevation Factor:	<b>0.99980951</b>
				Combined Factor:	<b>0.99974321</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Access using Tres Bellotas Rd ~5 miles south of Arivaca. Continue southwest from a sign that reads "Entering Private Property Las Jarillas Ranch" for 0.6 miles to FS Road #4119. Continue west on FS Road for ~1.1 miles. ~200' north of the road is a barbed wire fence gate. Continue northerly 245' to the point. 84' east of a dirt road.

\* Difficult access due to locked gates.



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# LIDAR MAPPING CHECK POINT

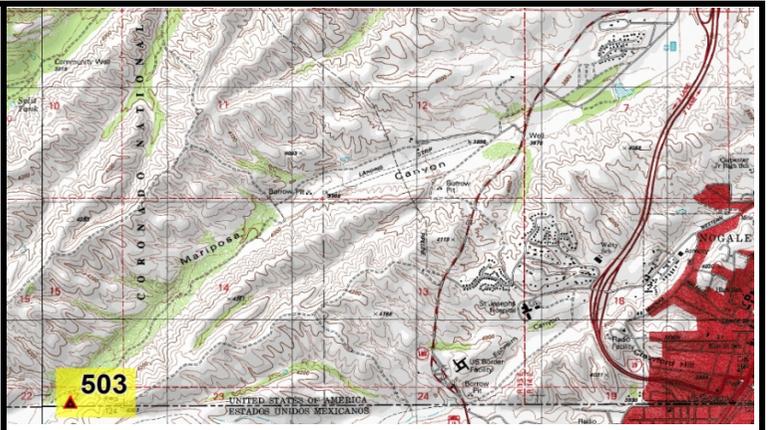
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>503</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 19' 58.19870"</b>	Northing:	<b>122252.55</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 59' 53.59206"</b>	Easting:	<b>986753.37</b>	Scale Factor:	<b>0.99999419</b>
Ellipsoid Ht:	<b>4020.12</b>	Elevation:	<b>4117.16</b>	Elevation Factor:	<b>0.99980763</b>
				Combined Factor:	<b>0.99980182</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Travel ~1.8 miles SW along FS #4214 from Mariposa Rd, then ~0.5 miles west and down a steep graded road to a pullout area to the south near the steel US-Mexico border fence. A 5/8" rebar + 2" aluminum cap was set in-line with a row of reflector posts. 80.7' east-southeast of an angle point in the fence that runs west & southeast. 94.5' north-northwest of an angle point in the fence that runs northwest & east. 40.5' northeast of the NW-SE section of the fence. \* Note: this replaces point #3 due to the fence and road construction.



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# LIDAR MAPPING CHECK POINT

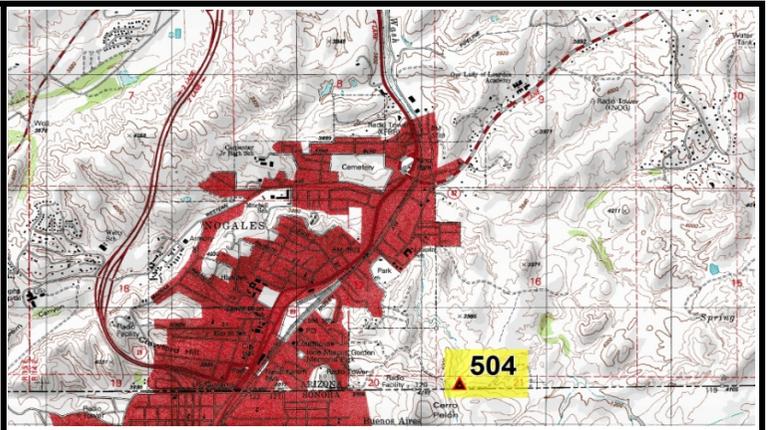
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>504</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 19' 59.91297"</b>	Northing:	<b>122627.29</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 55' 25.71402"</b>	Easting:	<b>1009984.98</b>	Scale Factor:	<b>1.00001007</b>
Ellipsoid Ht.:	<b>3911.49</b>	Elevation:	<b>4008.18</b>	Elevation Factor:	<b>0.99981282</b>
				Combined Factor:	<b>0.99982289</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Follow Hudgins St. east from Morley Ave for ~0.4 miles to its end. Continue easterly ~0.6 miles along the gravel road that parallels the steel US-Mexico border fence. A 5/8" rebar + 2" aluminum cap was set ~160' east of the "E14" marker on top of the border fence. 11.2' west of the east end of the guard rail on the south side of the gravel road.

\* Note: this replaces point #4 due to the fence and road construction.



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# LIDAR MAPPING CHECK POINT

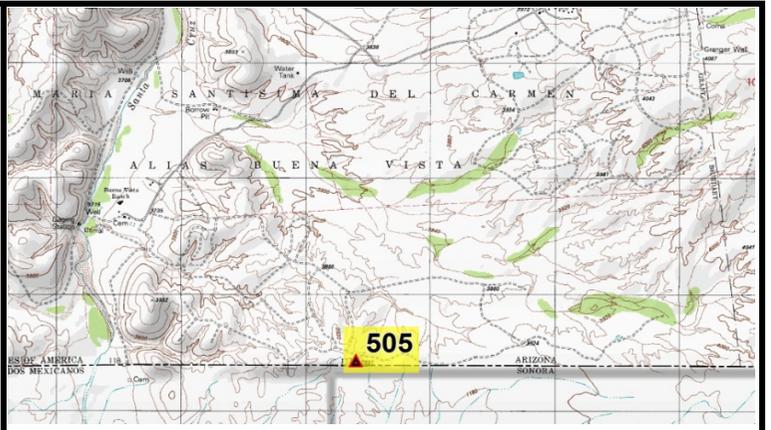
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>505</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 20' 02.29176"</b>	Northing:	<b>123149.73</b>	Monument:	<b>5/8" Rebar+2" AC</b>
Longitude:	<b>110° 49' 41.41687"</b>	Easting:	<b>1039843.85</b>	Scale Factor:	<b>1.0000323</b>
Ellipsoid Ht.:	<b>3836.85</b>	Elevation:	<b>3932.77</b>	Elevation Factor:	<b>0.99981639</b>
				Combined Factor:	<b>0.99984868</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Access to the point thru the Buena Vista Ranch to the graded road that parallels the US-Mexico border fence.  
 A 5/8" rebar + 2" aluminum cap was set north of the border monument #117 in a cleared area north of the graded road. 37' north of the top of slope of the road. 100.5' north of the steel fence.

\* Note: this replaces point #5 due to the fence and road construction.



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# LIDAR MAPPING CHECK POINT

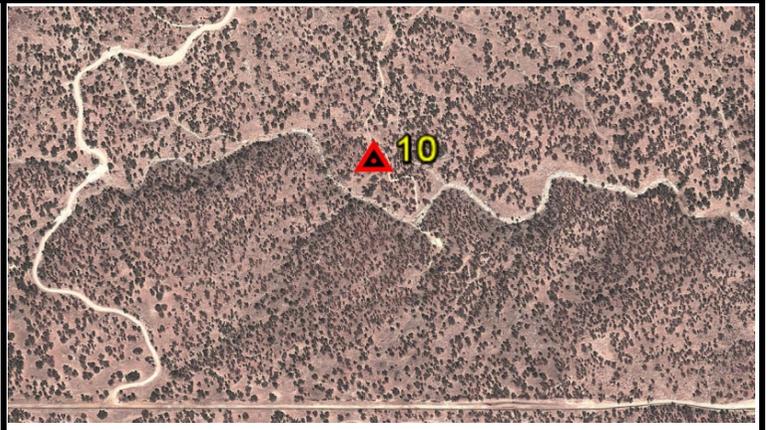
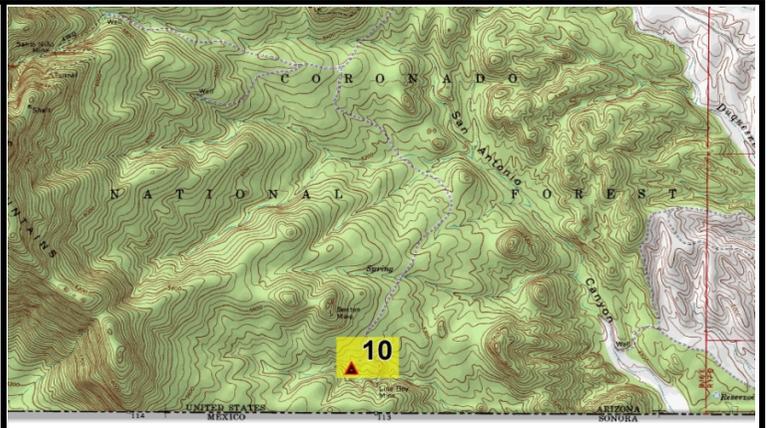
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>10</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 20' 12.11623"</b>	Northing:	<b>124584.64</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 41' 35.55252"</b>	Easting:	<b>1081972.80</b>	Scale Factor:	<b>1.00006714</b>
Ellipsoid Ht:	<b>5234.74</b>	Elevation:	<b>5328.93</b>	Elevation Factor:	<b>0.99974952</b>
				Combined Factor:	<b>0.99981664</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Travel west along the graded road that parallels the US-Mexico border fence from Lochiel for ~2 miles to a graded road leading northwest. Continue northwesterly for ~2.8 miles to an unmarked and faint road (4 x 4 req'd) leading south to the Line Boy Mine, as indicated on the quad map. 27' southwest of the centerline of the road in a clearing where the road starts to descend to the wash & Line Boy Mine.

\* See point #11 for detail view of access to graded road.



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# LIDAR MAPPING CHECK POINT

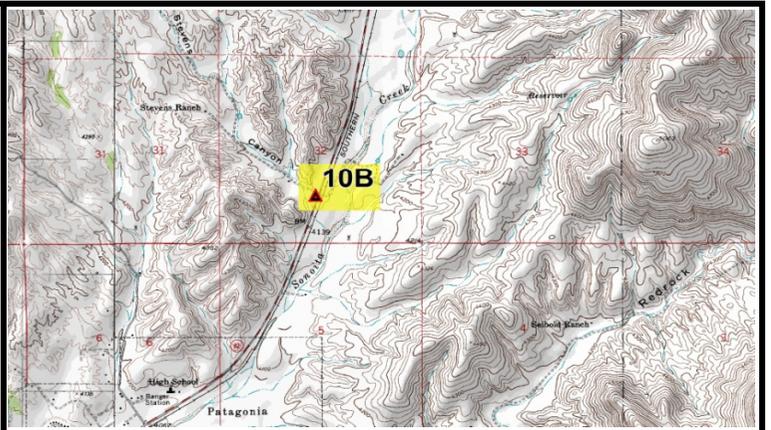
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>10B</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 33' 41.85168"</b>	Northing:	<b>206268.19</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 44' 01.09536"</b>	Easting:	<b>1068468.28</b>	Scale Factor:	<b>1.00005552</b>
Ellipsoid Ht.:	<b>4059.98</b>	Elevation:	<b>4154.06</b>	Elevation Factor:	<b>0.99980572</b>
				Combined Factor:	<b>0.99986123</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~1.9 miles north of Patagonia along SR82 at Stevens Canyon Rd, leading to the west. Point is also opposite to the Rail X Estates entrance to the east. 45.5' east of a cattle guard and near the southerly edge of the pavement.



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# LIDAR MAPPING CHECK POINT

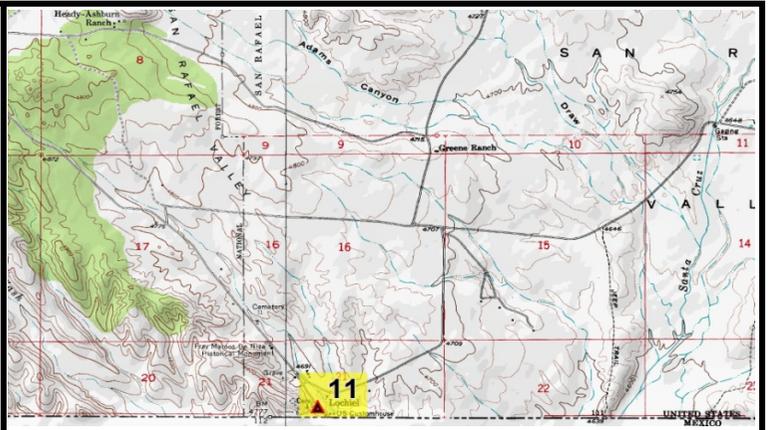
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>11</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 20' 01.74320"</b>	Northing:	<b>123787.20</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 37' 22.53988"</b>	Easting:	<b>1103929.14</b>	Scale Factor:	<b>1.00008691</b>
Ellipsoid Ht:	<b>4591.62</b>	Elevation:	<b>4685.55</b>	Elevation Factor:	<b>0.99978028</b>
				Combined Factor:	<b>0.99986717</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in Lochiel, AZ. ~800' southeast along a dirt road from Duquesne Rd that leads to a private residence and also to the graded road that parallels the US-Mexico border fence. 77.5' southwest of a power pole. 43.1' southwest of the centerline of the road.



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# LIDAR MAPPING CHECK POINT

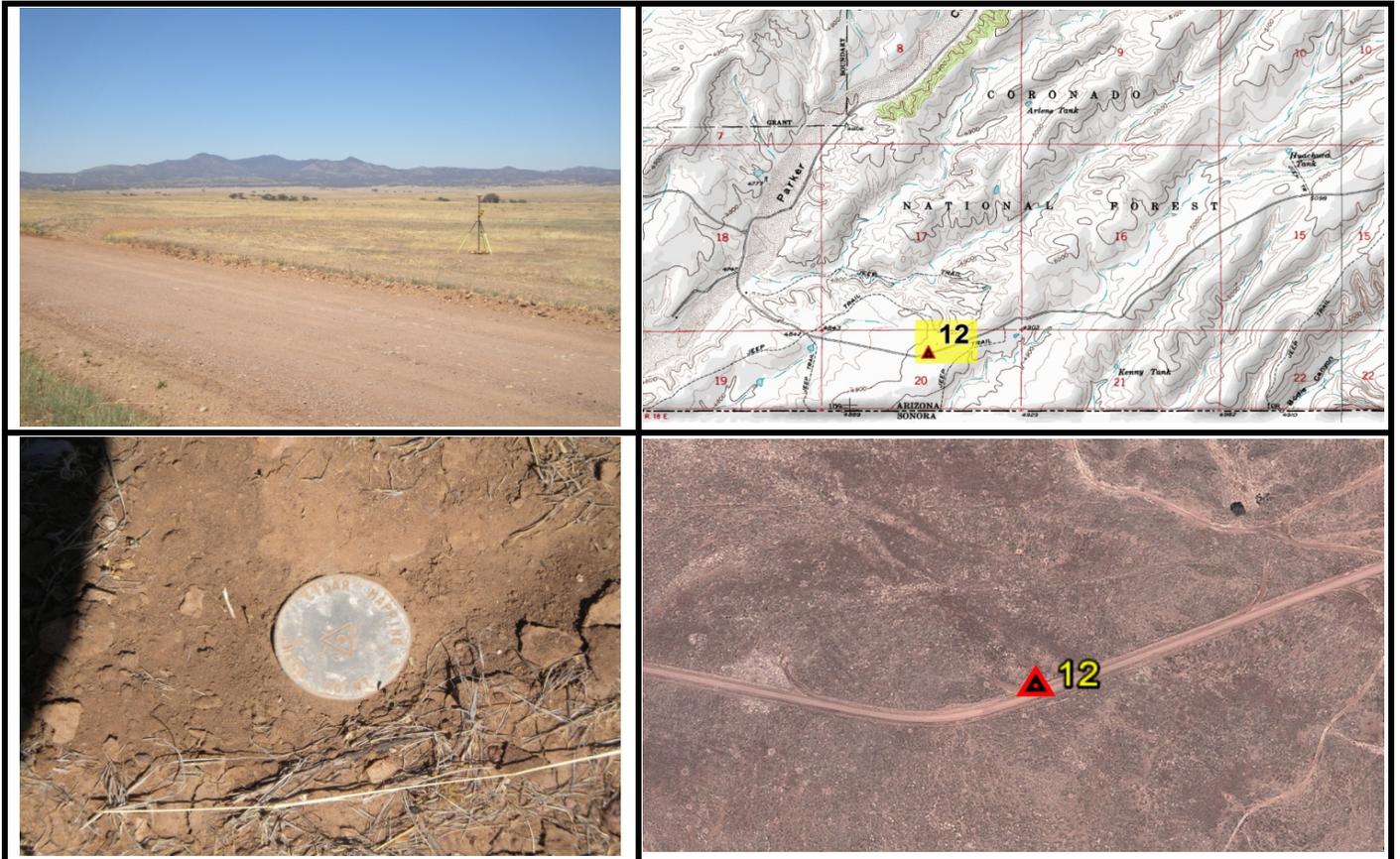
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>12</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 20' 14.90571"</b>	Northing:	<b>125448.35</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 32' 08.12559"</b>	Easting:	<b>1131183.15</b>	Scale Factor:	<b>1.00011298</b>
Ellipsoid Ht:	<b>4811.9469</b>	Elevation:	<b>4905.34</b>	Elevation Factor:	<b>0.99976974</b>
				Combined Factor:	<b>0.99988269</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~1.4 miles south-southeasterly along a graded road from the junction of Parker Canyon Rd. ~0.6 miles east of a cattle guard. 48' north of the centerline of the road.



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# LIDAR MAPPING CHECK POINT

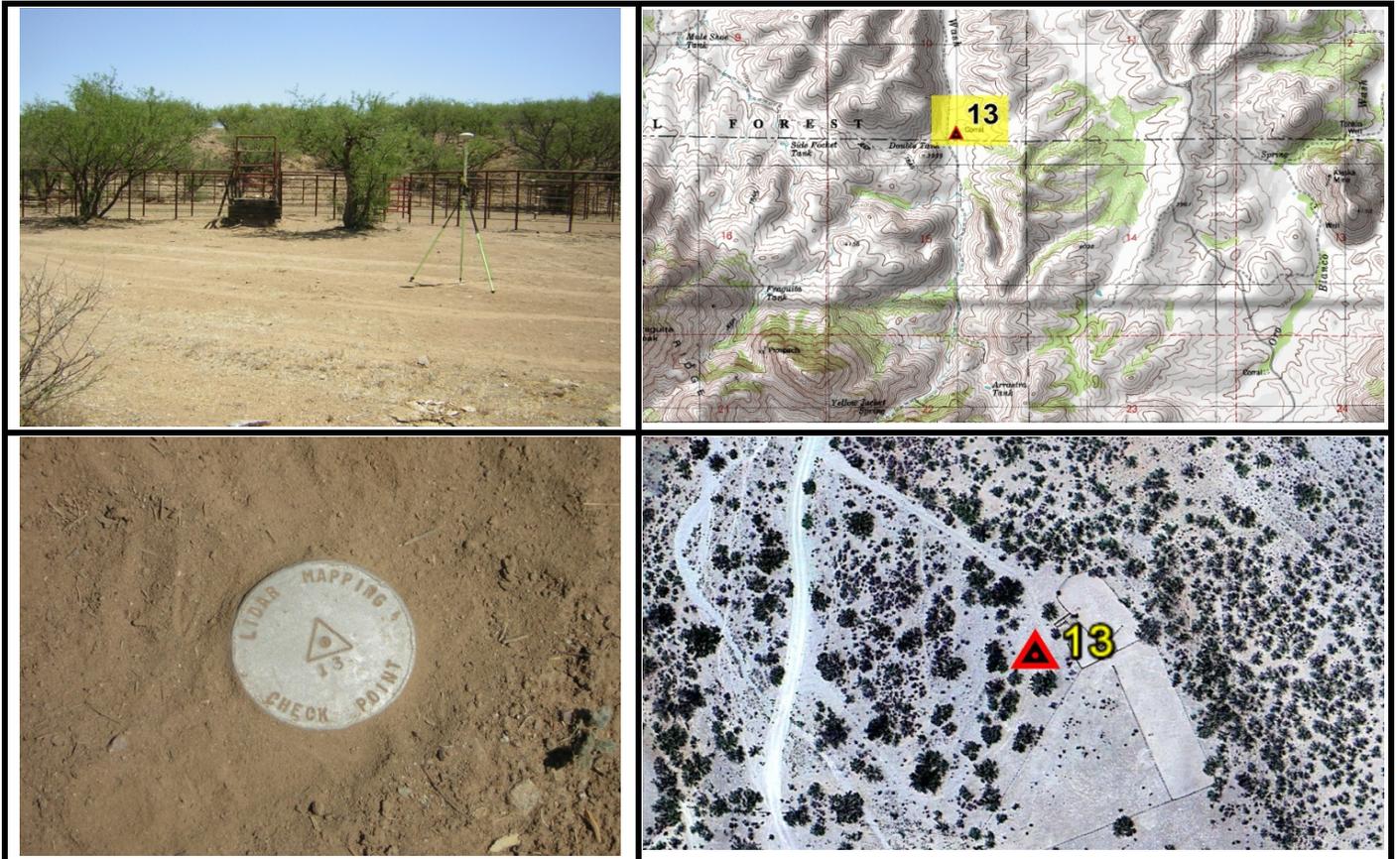
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>13</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 31' 18.14961"</b>	Northing:	<b>190287.35</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 18' 22.13997"</b>	Easting:	<b>890229.00</b>	Scale Factor:	<b>0.99994145</b>
Ellipsoid Ht:	<b>3769.60</b>	Elevation:	<b>3867.72</b>	Elevation Factor:	<b>0.99981961</b>
				Combined Factor:	<b>0.99976107</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Travel west along Yellow Jacket Mine Rd (FS Road #4157) for ~0.7 miles from Ruby Rd to a road leading south. Continue south for ~ 0.9 miles to a corral east of the road. 37' southwest of the cattle ramp. 50.8' northwest of the southwest corner of the corral.



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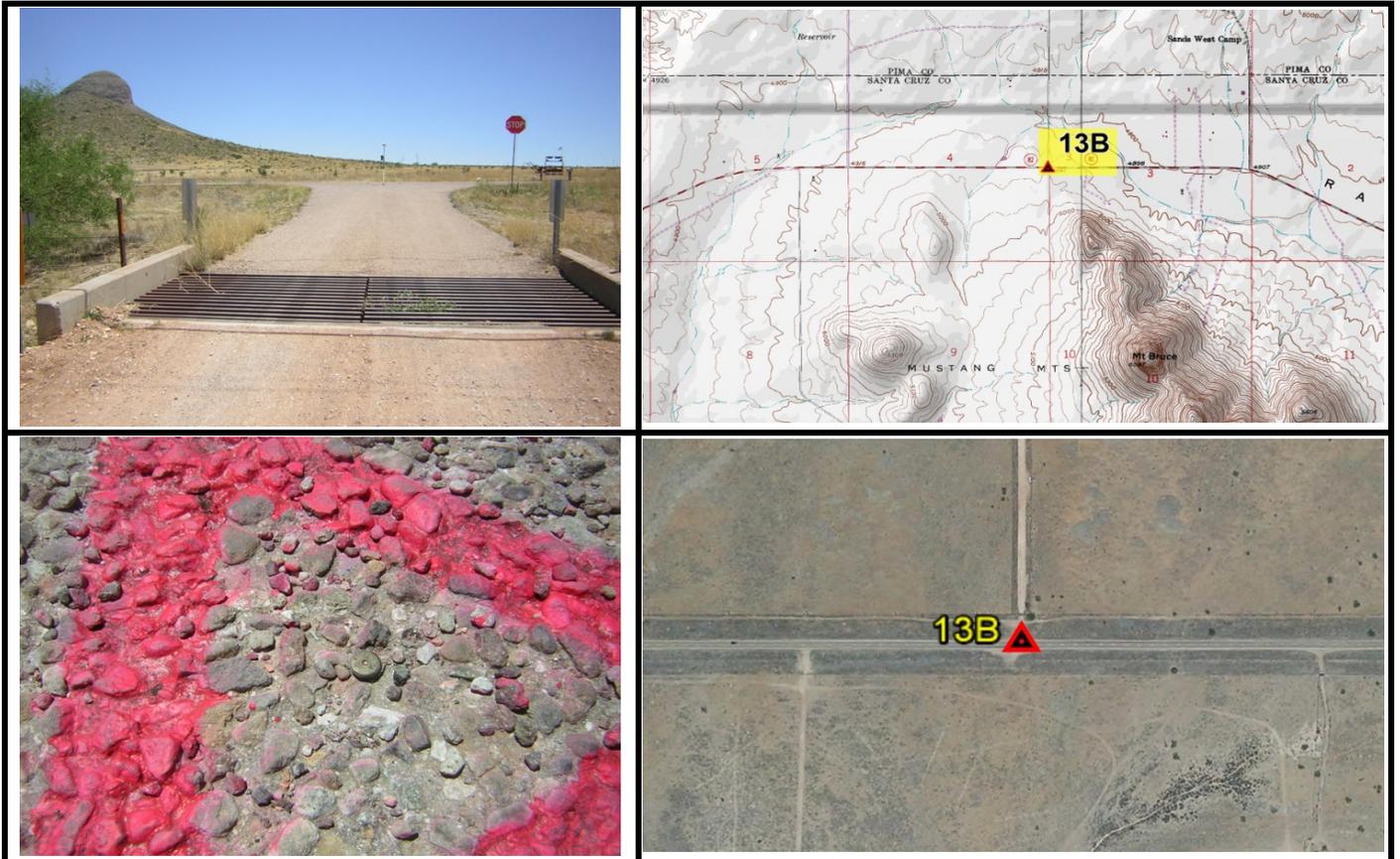
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>13B</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 43' 26.55514"</b>	Northing:	<b>266205.65</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 30' 12.16346"</b>	Easting:	<b>1139426.41</b>	Scale Factor:	<b>1.00012118</b>
Ellipsoid Ht:	<b>4852.4837</b>	Elevation:	<b>4944.25</b>	Elevation Factor:	<b>0.99976781</b>
				Combined Factor:	<b>0.99988896</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~350' east of milepost 42 along SR82 in the centerline of East Rain Valley Loop Rd. 23.8' north of the centerline of SR82. 72.8' south of a cattle guard.



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# LIDAR MAPPING CHECK POINT

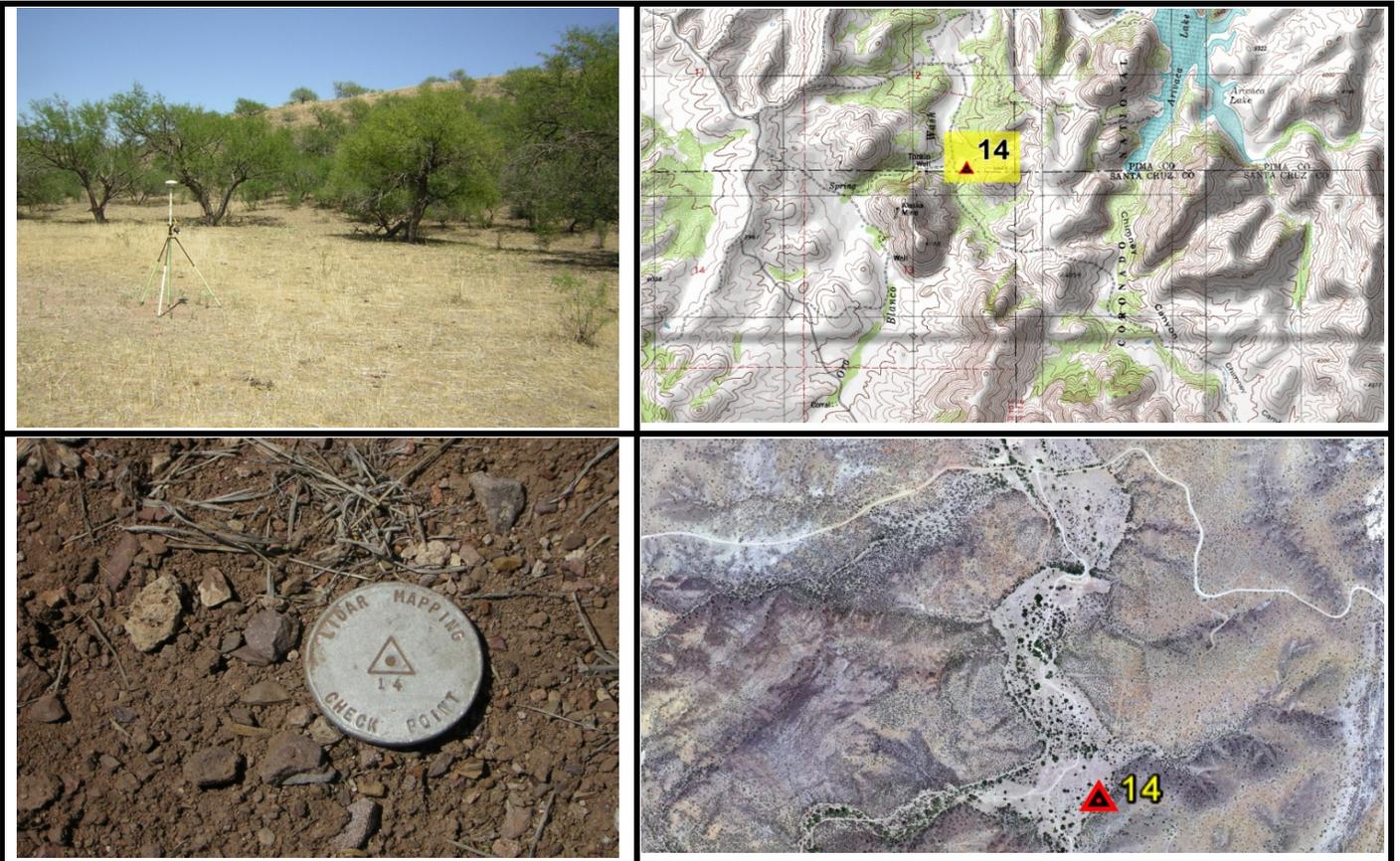
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>14</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 31' 17.29112"</b>	Northing:	<b>190265.04</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 16' 12.33989"</b>	Easting:	<b>901464.17</b>	Scale Factor:	<b>0.99994649</b>
Ellipsoid Ht.:	<b>3708.04</b>	Elevation:	<b>3806.09</b>	Elevation Factor:	<b>0.99982256</b>
				Combined Factor:	<b>0.99976906</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Follow FS Road #4130 to Arivaca Lake from Ruby Rd for ~1.0 mile to a dirt road leading south. Continue south along the dirt road for ~0.6 mile to a large clearing. ~350' southeasterly of the road. ~75' west of the base of a hill to the east.



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# LIDAR MAPPING CHECK POINT

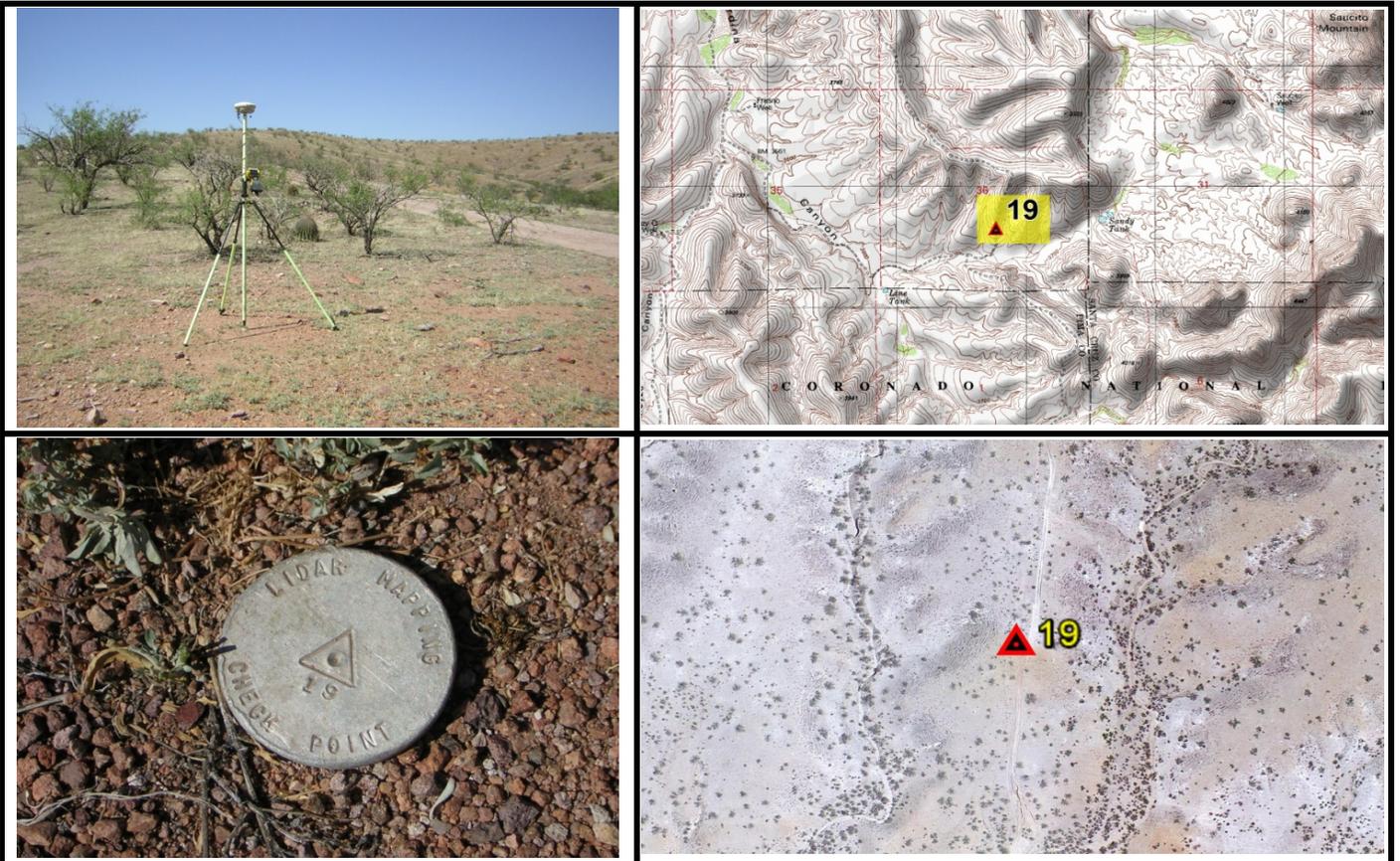
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>19</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 38' 33.77605"</b>	Northing:	<b>234563.31</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 10' 18.52217"</b>	Easting:	<b>931788.32</b>	Scale Factor:	<b>0.99996154</b>
Ellipsoid Ht:	<b>3627.9635</b>	Elevation:	<b>3725.42</b>	Elevation Factor:	<b>0.99982639</b>
				Combined Factor:	<b>0.99978794</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Access to the point thru the entrance road to KX Ranch (as shown on quad map). ~450' from Arivaca Rd along the entrance drive, follow the trail road across the wash to the southeast. Continue ~1.1 miles to a gate. Continue southerly ~2.6 miles to a 2nd gate. Continue south ~0.7 mile to the point located 25.5' west of the centerline of the road.



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# LIDAR MAPPING CHECK POINT

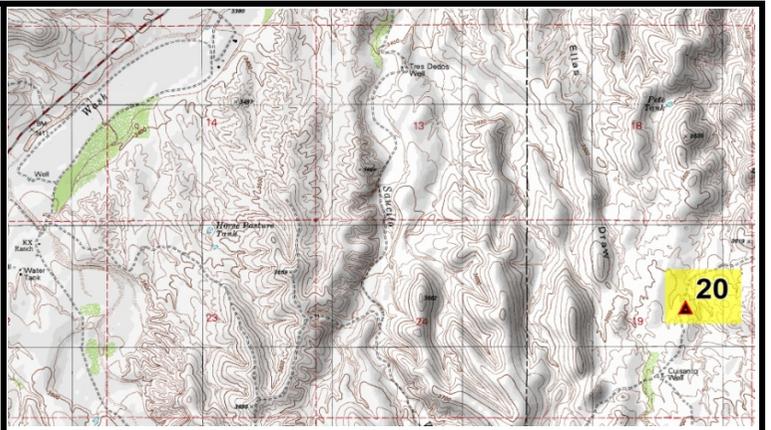
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>20</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 40' 32.93897"</b>	Northing:	<b>246648.07</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 09' 04.92775"</b>	Easting:	<b>938065.61</b>	Scale Factor:	<b>0.99996492</b>
Ellipsoid Ht:	<b>3519.21</b>	Elevation:	<b>3616.60</b>	Elevation Factor:	<b>0.9998316</b>
				Combined Factor:	<b>0.99979653</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Access to the point thru the entrance road to KX Ranch (as shown on quad map). ~450' from Arivaca Rd along the entrance drive, follow the trail road across the wash to the southeast. Continue ~1.1 miles to a gate. Continue ~0.9 miles south to a trail road leading northeast. Continue northeast (meanders east, south, and northeast) for ~4.2 miles to a well & cattle tank. Continue north ~1900' to the point located ~115' east of the trail road.



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# LIDAR MAPPING CHECK POINT

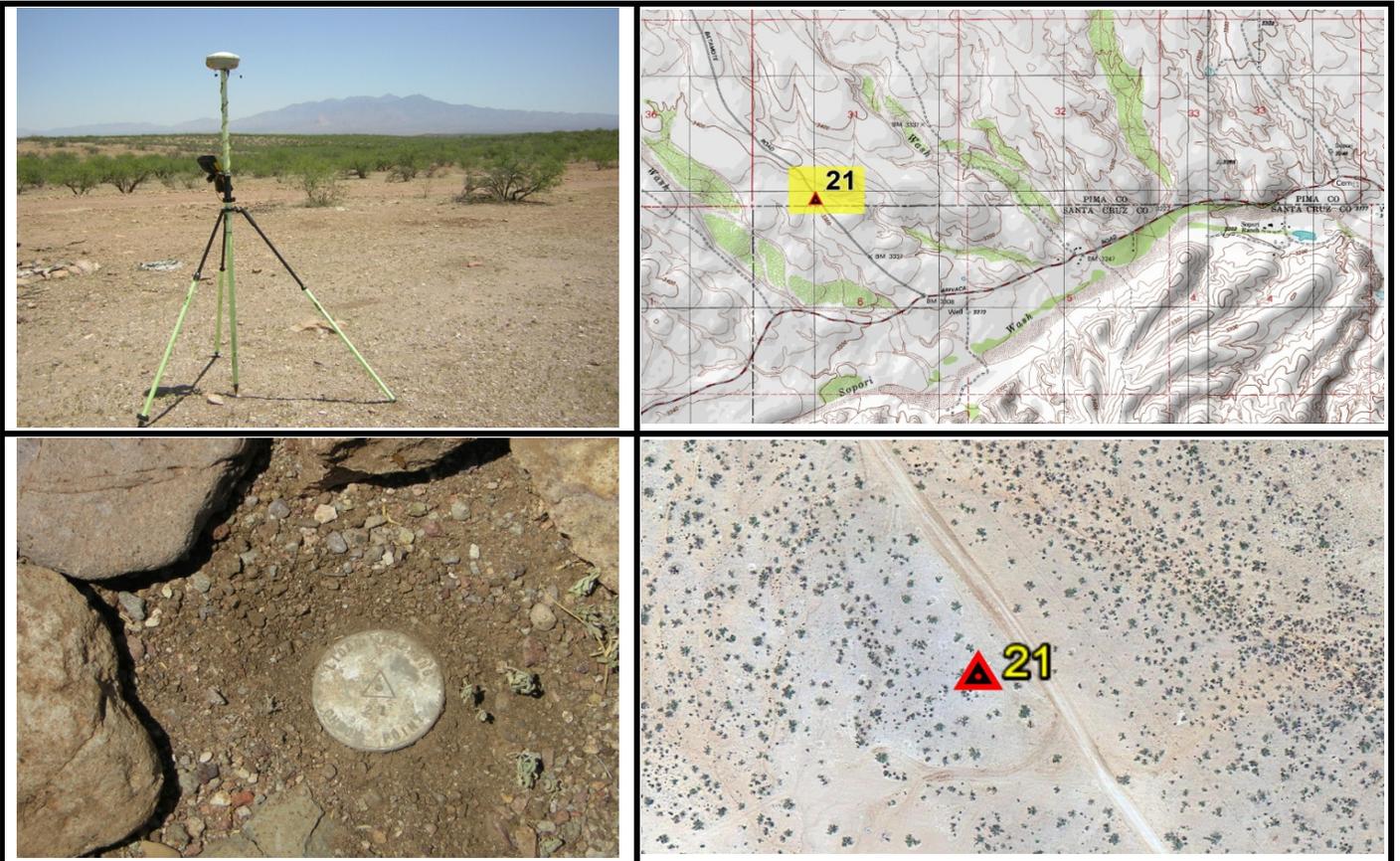
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>21</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 35.36967"</b>	Northing:	<b>265065.54</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 09' 31.90982"</b>	Easting:	<b>935605.91</b>	Scale Factor:	<b>0.99996358</b>
Ellipsoid Ht:	<b>3273.62</b>	Elevation:	<b>3371.08</b>	Elevation Factor:	<b>0.99984335</b>
				Combined Factor:	<b>0.99980694</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~0.8 miles northwest along Batamote Rd from Arivaca Rd. 64' west of the centerline of the road.

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Stantec

# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>22</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 35.32508"</b>	Northing:	<b>265582.99</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 56' 49.57180"</b>	Easting:	<b>1001446.22</b>	Scale Factor:	<b>1.00000409</b>
Ellipsoid Ht:	<b>3542.19</b>	Elevation:	<b>3638.05</b>	Elevation Factor:	<b>0.9998305</b>
				Combined Factor:	<b>0.99983459</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the centerline of Elephant Head bike trail at the intersection of a trail leading to the east. 16.5' north of a carsonite post trail marker (#4073).



Stantec

# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>525</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 52.12161"</b>	Northing:	<b>267850.88</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 45' 32.85210"</b>	Easting:	<b>1059875.48</b>	Scale Factor:	<b>1.00004835</b>
Ellipsoid Ht:	<b>5230.93</b>	Elevation:	<b>5324.06</b>	Elevation Factor:	<b>0.99974971</b>
				Combined Factor:	<b>0.99979805</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the centerline of FS Road #4085. ~300' north of a cattle pond. Access using Gardner Canyon Rd and Fish Canyon Rd west of SR83.

\* Note: The original rebar was found with the cap missing. A new cap was installed.



Stantec

# LIDAR MAPPING CHECK POINT

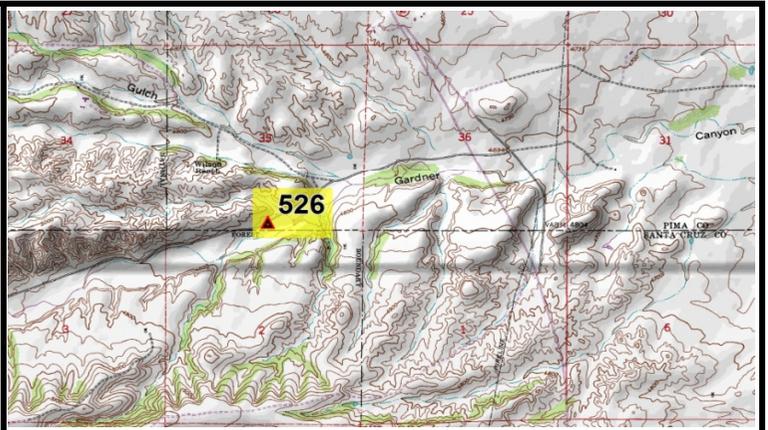
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>526</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 55.41813"</b>	Northing:	<b>268451.72</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 40' 50.71105"</b>	Easting:	<b>1084239.09</b>	Scale Factor:	<b>1.00006911</b>
Ellipsoid Ht:	<b>4672.55</b>	Elevation:	<b>4765.52</b>	Elevation Factor:	<b>0.99977642</b>
				Combined Factor:	<b>0.99984551</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~1.1 miles west along Gardner Canyon Rd from SR83 on the south side of the road. Set a new 5/8" rebar and 2" aluminum cap 71' southwest of the southwest corner of a cattle guard. 31' south of the intersection of a road leading north.

\* Note: This point replaces #26 which was found damaged due to road grading.



Stantec

# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>27</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 55.33016"</b>	Northing:	<b>268647.49</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 37' 26.55429"</b>	Easting:	<b>1101871.42</b>	Scale Factor:	<b>1.00008499</b>
Ellipsoid Ht:	<b>4532.77</b>	Elevation:	<b>4625.57</b>	Elevation Factor:	<b>0.99978311</b>
				Combined Factor:	<b>0.99986808</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the middle of the intersection of Curly Horse Rd and a road leading to the west. 39.5' northeast of a T-post at the southwest corner of the intersection.



Stantec

# LIDAR MAPPING CHECK POINT

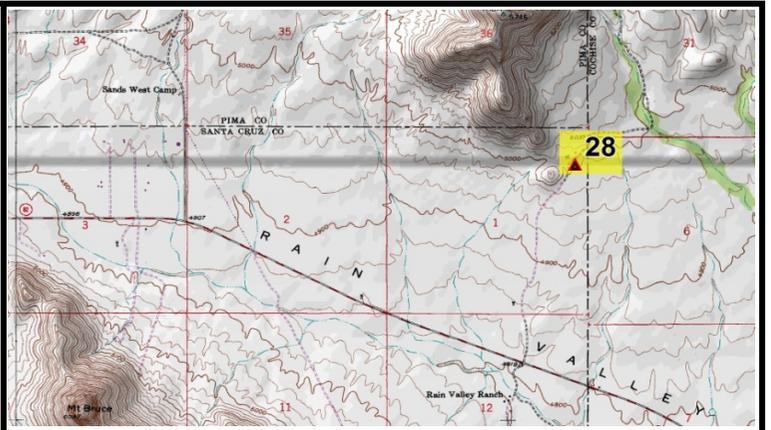
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>28</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 41.65744"</b>	Northing:	<b>267937.82</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 11.55524"</b>	Easting:	<b>1155006.18</b>	Scale Factor:	<b>1.00013715</b>
Ellipsoid Ht:	<b>4917.10</b>	Elevation:	<b>5008.52</b>	Elevation Factor:	<b>0.99976472</b>
				Combined Factor:	<b>0.99990184</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~1.1 miles north along a drive leading to a private residence from SR82. East of the drive near a gate. 16.7' south of the north gate post. 15' northwest of the south gate post.

\* Permission is required to access this point from the owner of the local gas station in Sonoita.



Stantec

# LIDAR MAPPING CHECK POINT

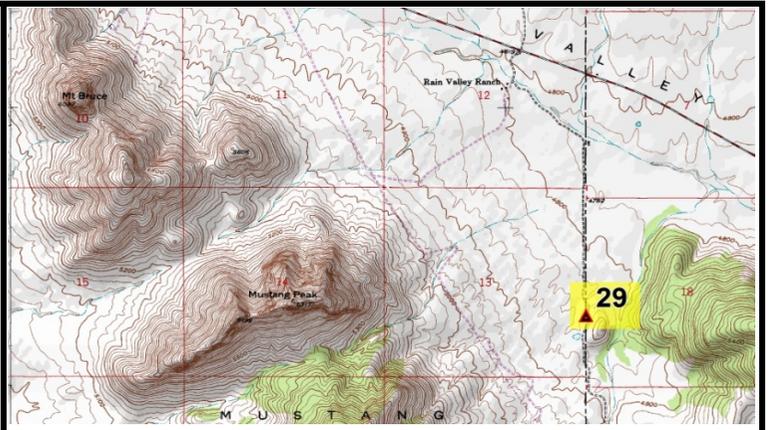
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>29</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 41' 32.42728"</b>	Northing:	<b>254882.88</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 07.60770"</b>	Easting:	<b>1155522.65</b>	Scale Factor:	<b>1.00013769</b>
Ellipsoid Ht:	<b>4780.10</b>	Elevation:	<b>4871.76</b>	Elevation Factor:	<b>0.99977127</b>
				Combined Factor:	<b>0.99990893</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the centerline of a trail road on the Rain Valley Ranch south of SR82. Continue ~850' south of the main ranch house area. Turn east and proceed ~0.5 miles to a trail road leading south. Continue south ~0.9 miles to the point in the centerline.

\* Permission is required to access this point.



Stantec

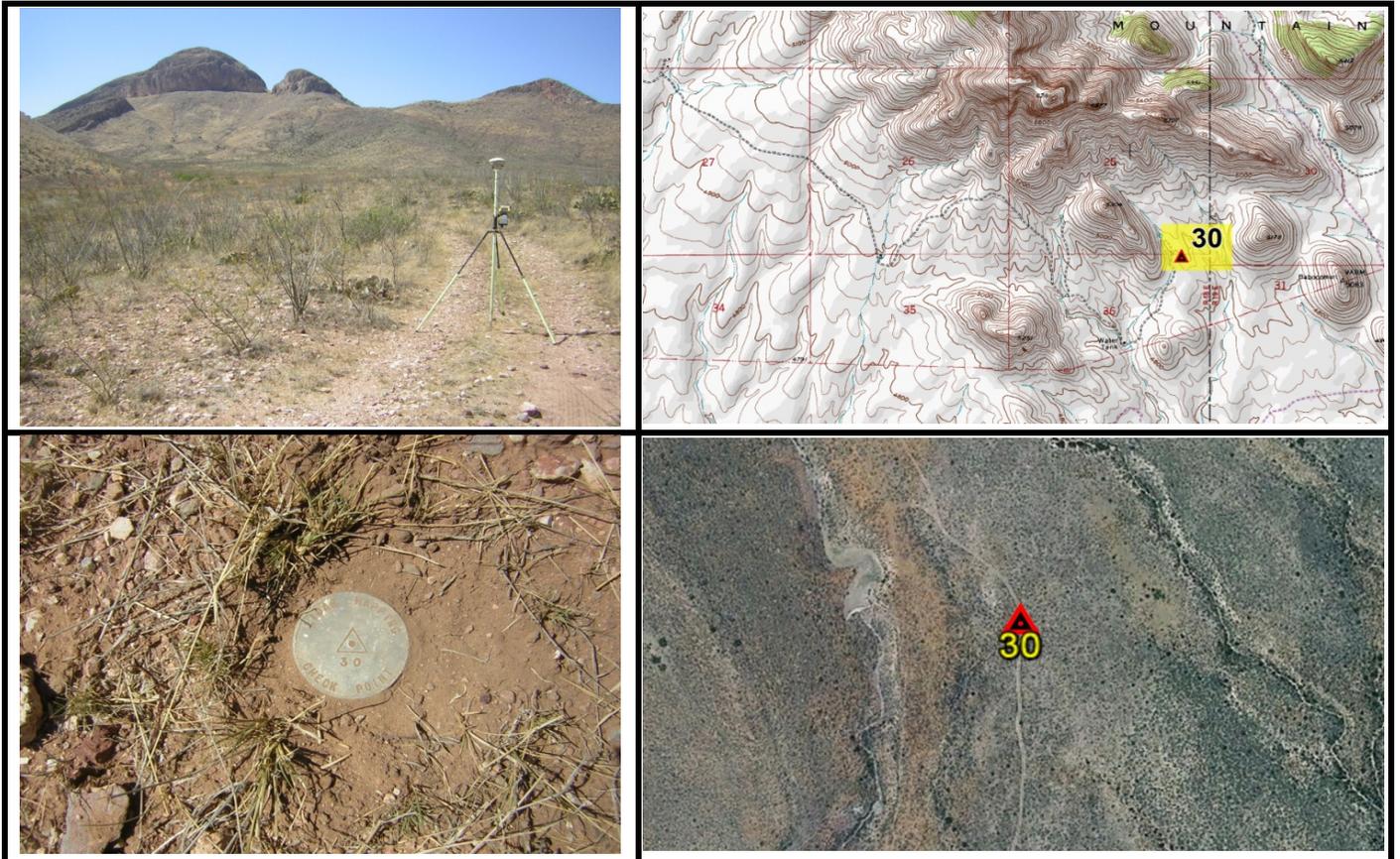
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>30</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 39' 30.59600"</b>	Northing:	<b>242560.92</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 16.42539"</b>	Easting:	<b>1154925.76</b>	Scale Factor:	<b>1.00013706</b>
Ellipsoid Ht:	<b>4804.28</b>	Elevation:	<b>4896.18</b>	Elevation Factor:	<b>0.99977012</b>
				Combined Factor:	<b>0.99990715</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~5.5 miles east of Upper Elgin Rd inside the Rose Tree Ranch. 4x4 is required to access this point and requires ~40min of travel. Located in the centerline of the trail road.

\* Permission is required to access this point.



Stantec

# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>31</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 37' 47.77877"</b>	Northing:	<b>232181.16</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 07.39772"</b>	Easting:	<b>1155845.46</b>	Scale Factor:	<b>1.00013803</b>
Ellipsoid Ht:	<b>4492.50</b>	Elevation:	<b>4584.61</b>	Elevation Factor:	<b>0.99978503</b>
				Combined Factor:	<b>0.99992303</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located inside the Bobocomari Ranch near a private residence. 31' northwest from the front west corner of a car port. 62.2' southwest of the northwest corner of a stone pillar wall.

\* Permission required to access this point.



Stantec

# LIDAR MAPPING CHECK POINT

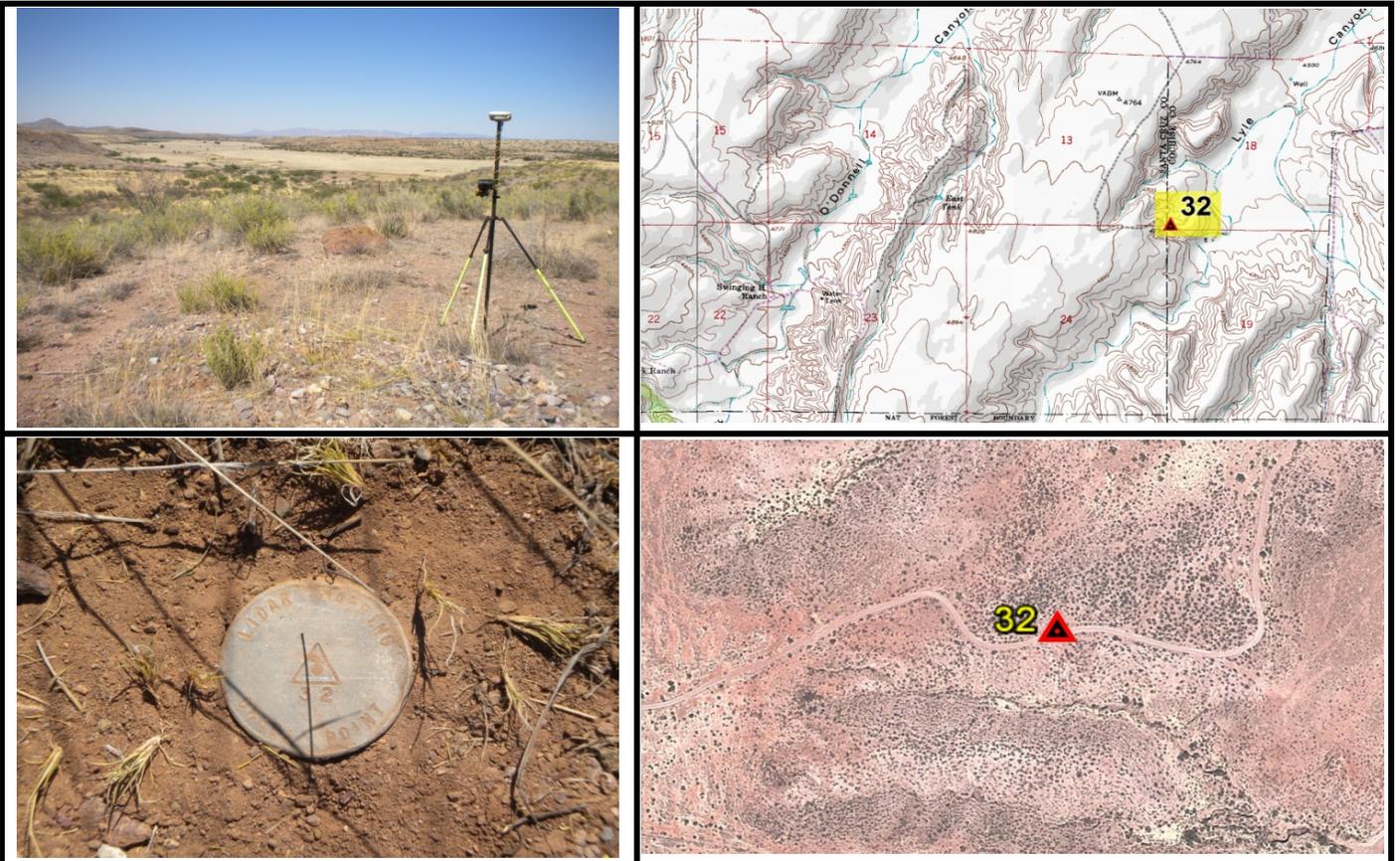
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>32</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 36' 03.14546"</b>	Northing:	<b>221572.51</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 37.63829"</b>	Easting:	<b>1153371.65</b>	Scale Factor:	<b>1.00013545</b>
Ellipsoid Ht:	<b>4644.13</b>	Elevation:	<b>4736.30</b>	Elevation Factor:	<b>0.99977778</b>
				Combined Factor:	<b>0.99991320</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located inside the Babocomari Ranch. ~ 0.35 miles east from a T-intersection in the road and a barbed wire crossing. 22.3' north of the centerline of the road.



Stantec

# LIDAR MAPPING CHECK POINT

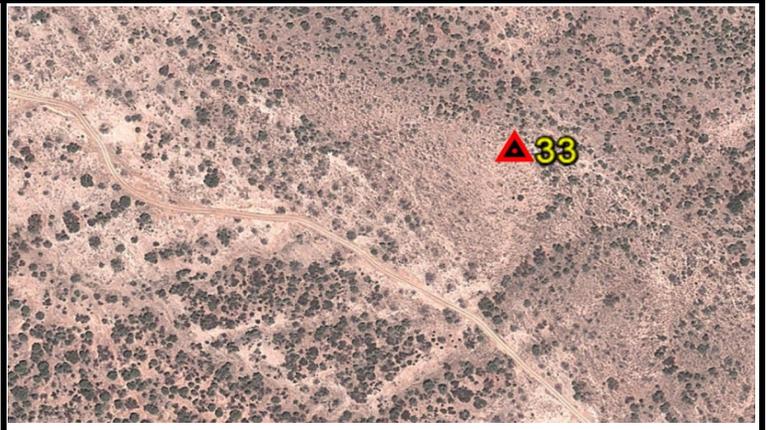
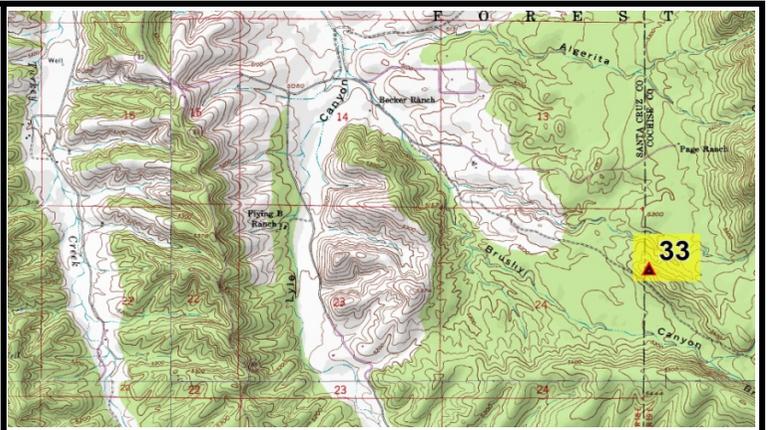
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>33</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 30' 31.30534"</b>	Northing:	<b>188039.36</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 37.16630"</b>	Easting:	<b>1153858.62</b>	Scale Factor:	<b>1.00013596</b>
Ellipsoid Ht:	<b>5321.88</b>	Elevation:	<b>5413.7145</b>	Elevation Factor:	<b>0.99974535</b>
				Combined Factor:	<b>0.99988128</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Follow Lyle Canyon Rd ~0.6 miles southeast from SR83 to Brushy Canyon Rd (FS Road #202). Continue ~2.1 miles southeast along Brushy Canyon Rd to the point on top of the first large hill to the northeast of the road.



Stantec

# LIDAR MAPPING CHECK POINT

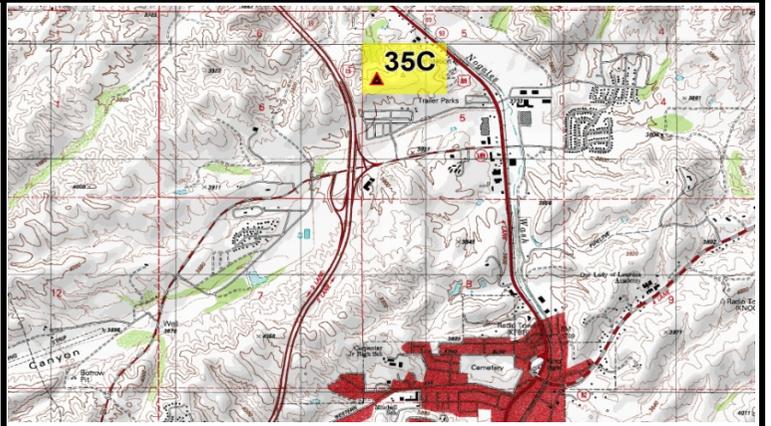
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>35C</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 22' 20.62849"</b>	Northing:	<b>136795.73</b>	Monument:	<b>1.5" COPPER BOLT</b>
Longitude:	<b>110° 56' 30.01215"</b>	Easting:	<b>1004282.48</b>	Scale Factor:	<b>1.00000606</b>
Ellipsoid Ht.:	<b>3787.98</b>	Elevation:	<b>3884.82</b>	Elevation Factor:	<b>0.99981873</b>
				Combined Factor:	<b>0.99982479</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located on top of the hill directly west of the Santa Cruz County Complex. ~400' west along the paved hiking trail from the parking lot to the top of the hill.



Stantec

# LIDAR MAPPING CHECK POINT

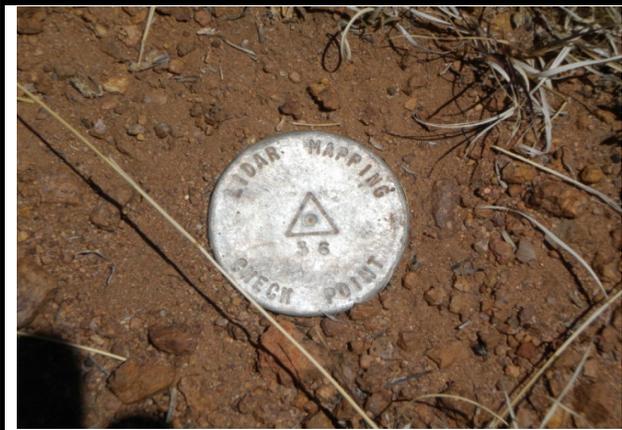
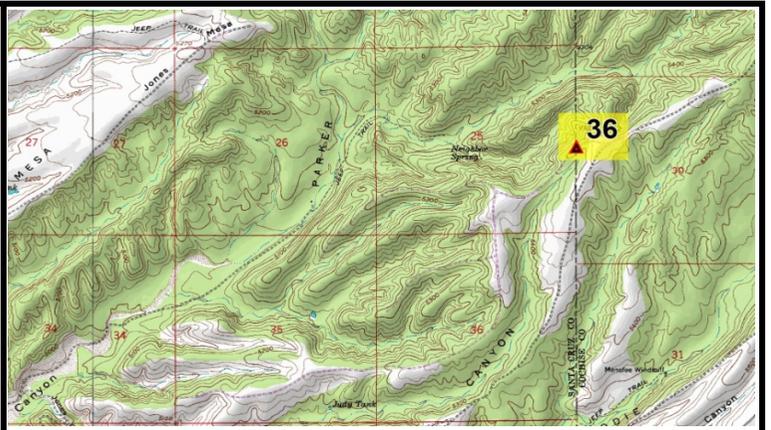
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>36</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 24' 14.52260"</b>	Northing:	<b>149966.48</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 35.51958"</b>	Easting:	<b>1154506.49</b>	Scale Factor:	<b>1.00013664</b>
Ellipsoid Ht:	<b>5420.30</b>	Elevation:	<b>5512.56</b>	Elevation Factor:	<b>0.99974064</b>
				Combined Factor:	<b>0.99987724</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~2.1 miles south of Parker Canyon Lake along FS Road #4771. 0.15 miles southwest of a cattle guard.  
 40' northwest of the trail road.



Stantec

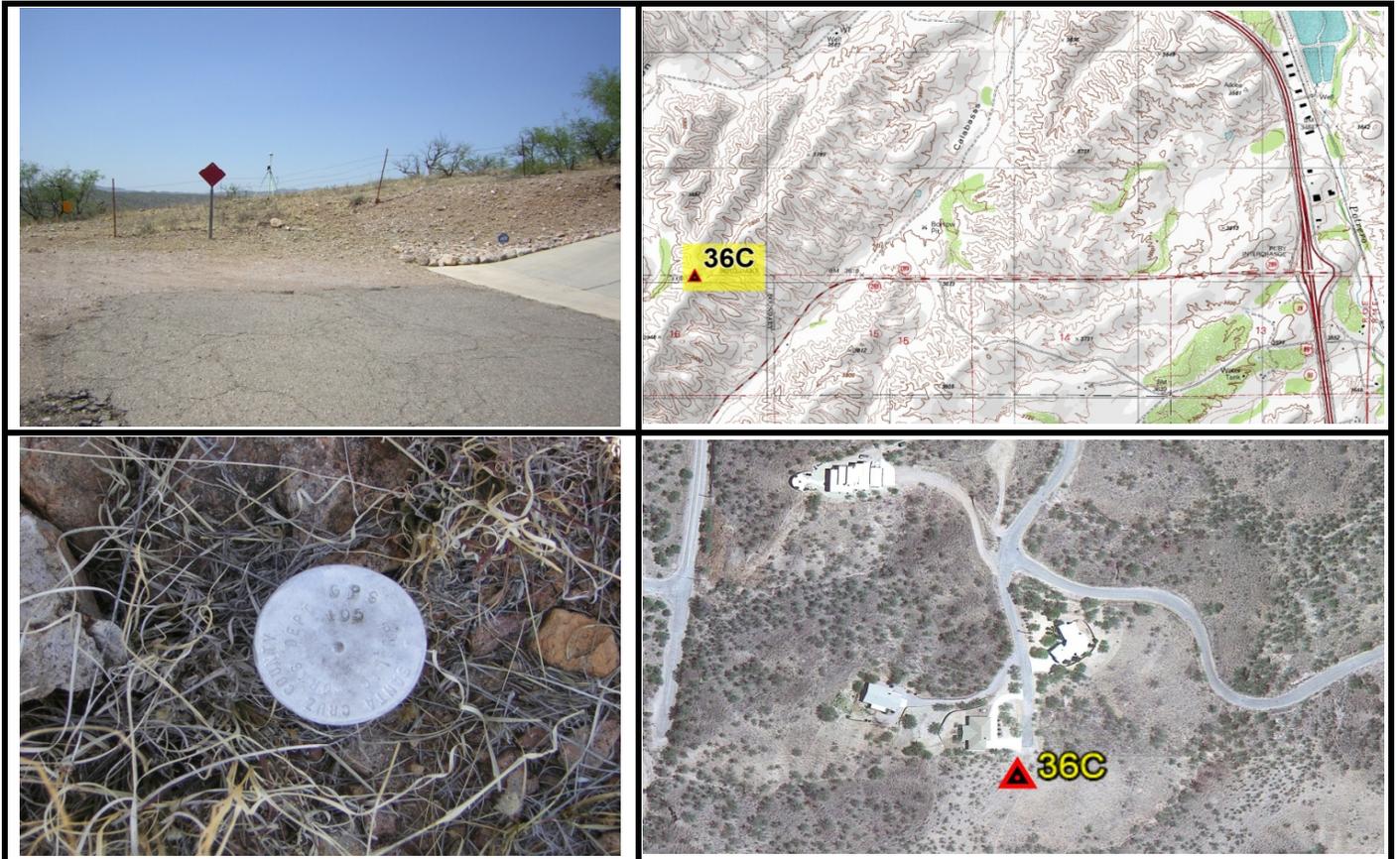
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>36C</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 25' 47.78257"</b>	Northing:	<b>157526.08</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 01' 02.19732"</b>	Easting:	<b>980514.49</b>	Scale Factor:	<b>0.99999014</b>
Ellipsoid Ht:	<b>3813.35</b>	Elevation:	<b>3910.67</b>	Elevation Factor:	<b>0.99981752</b>
				Combined Factor:	<b>0.99980766</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located at the end of Via Mandan Rd on the U.S. Forest Service property past house #860. 50' southwest of a carsonite post "US Forest Service Entering Public Lands". 39' south of a barbed wire fence. Cap is stamped "Santa Cruz County Public Works GPS Pt 105"



Stantec

# LIDAR MAPPING CHECK POINT

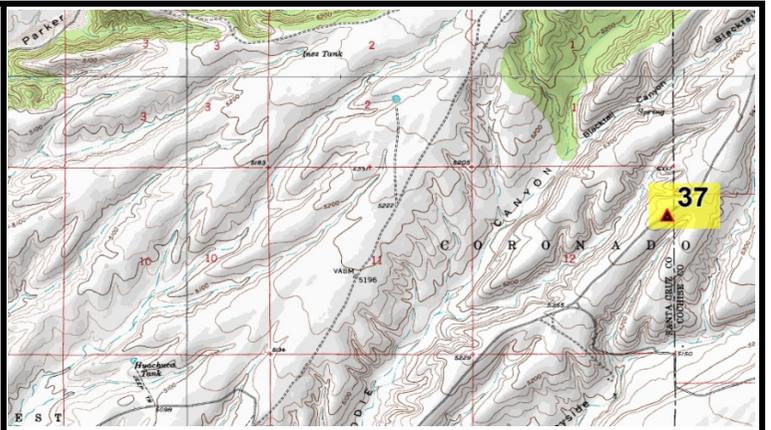
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>37</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 21' 51.60065"</b>	Northing:	<b>135522.08</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 27' 37.22367"</b>	Easting:	<b>1154550.01</b>	Scale Factor:	<b>1.00013669</b>
Ellipsoid Ht:	<b>5243.20</b>	Elevation:	<b>5335.73</b>	Elevation Factor:	<b>0.99974911</b>
				Combined Factor:	<b>0.99988577</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located near the county line along Sunnyside Rd. 25' southeast from the centerline of the road. 5' south of the wood sign that reads "Cochise County" on the south face.



Stantec

# LIDAR MAPPING CHECK POINT

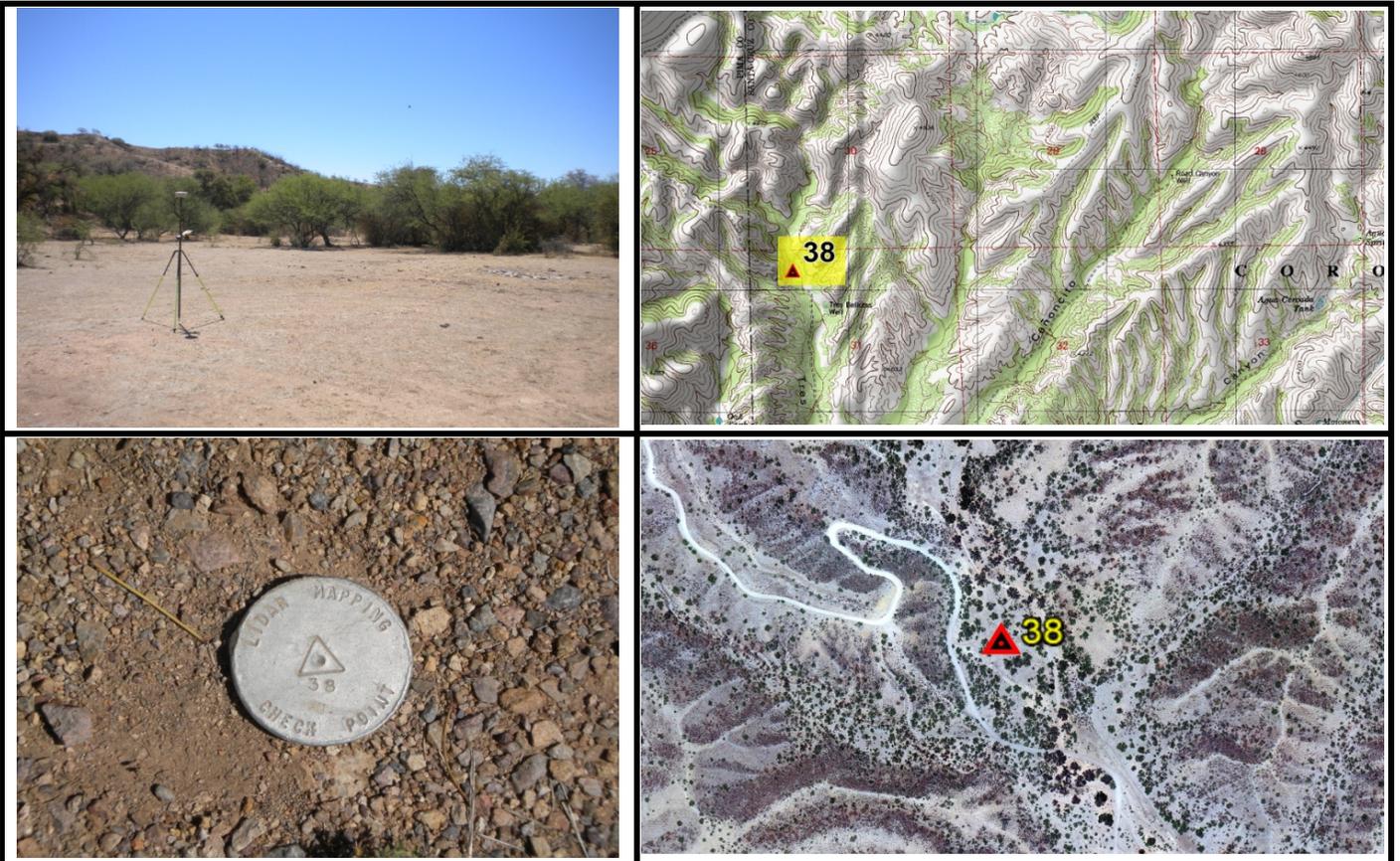
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>38</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 28' 31.63395"</b>	Northing:	<b>173368.34</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 21' 47.13162"</b>	Easting:	<b>872571.25</b>	Scale Factor:	<b>0.99993411</b>
Ellipsoid Ht.:	<b>3851.89</b>	Elevation:	<b>3950.34</b>	Elevation Factor:	<b>0.99981568</b>
				Combined Factor:	<b>0.99974980</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Access to point using Yellow Jacket Mine Rd (FS Road #4157) heading west and south ~8.0 miles from Ruby Rd. ~0.8 miles south of a cattle guard. ~215' east of the centerline of the trail road. 113' southwest of an angle iron in the barbed wire fence.

\* This is an alternate point for points #2 and #39 due to denied access from the Tres Bellotas Ranch.



Stantec

# LIDAR MAPPING CHECK POINT

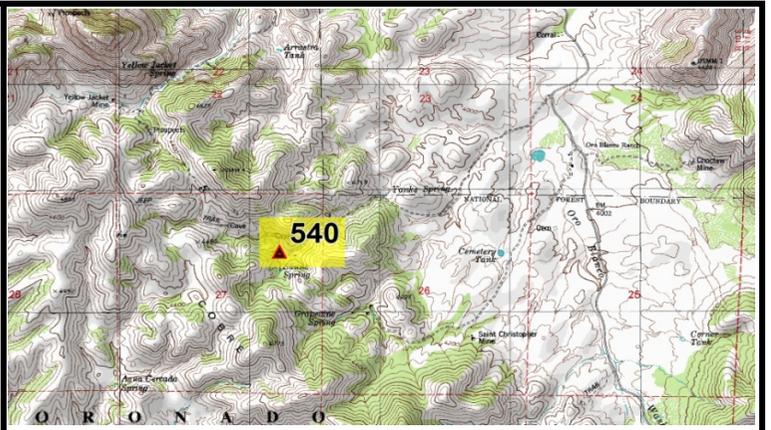
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>540</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 29' 15.45335"</b>	Northing:	<b>177894.60</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 18' 12.67870"</b>	Easting:	<b>891117.24</b>	Scale Factor:	<b>0.99994184</b>
Ellipsoid Ht:	<b>4105.83</b>	Elevation:	<b>4203.92</b>	Elevation Factor:	<b>0.99980353</b>
				Combined Factor:	<b>0.99974538</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12



Description:

Follow FS Road #4158 ~0.5 miles west from Ruby Rd to a fork with FS Road #4125. Continue northwest along FS Road #4158 ~0.7 miles to a cattle guard. Continue west and south ~0.7 miles to the point. Located ~75' southwest of the centerline of the road on top of a knoll running parallel to the road.



Stantec

# LIDAR MAPPING CHECK POINT

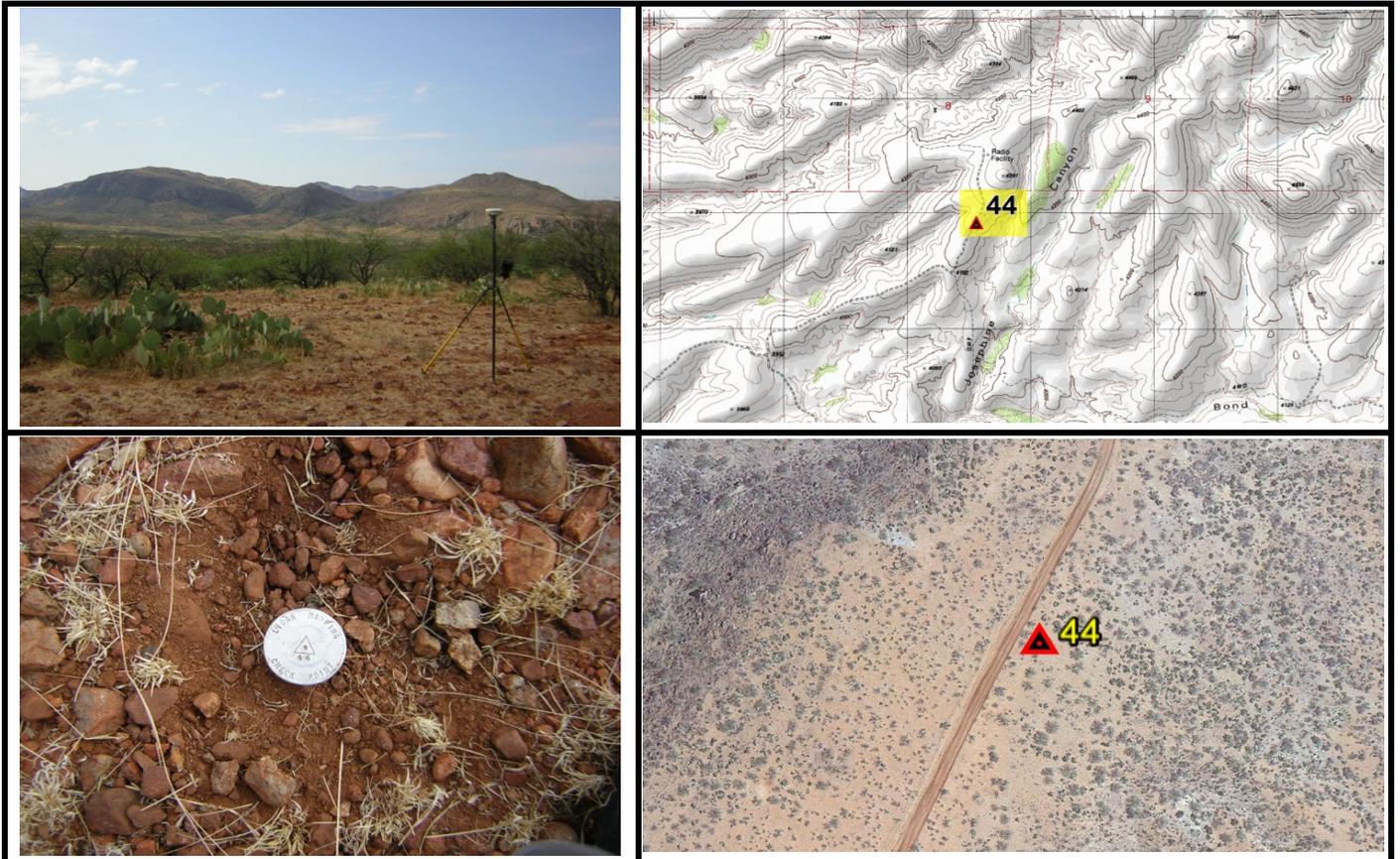
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>44</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 36' 32.58460"</b>	Northing:	<b>222909.75</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 55' 53.29108"</b>	Easting:	<b>1006692.70</b>	Scale Factor:	<b>1.00000774</b>
Ellipsoid Ht.:	<b>4155.42</b>	Elevation:	<b>4251.03</b>	Elevation Factor:	<b>0.99980116</b>
				Combined Factor:	<b>0.99980890</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the Josephine Canyon area. ~0.2 miles northeast along Camino Sepulveda from Camino Tango. 42' southeast of the centerline of the road.



Stantec

# LIDAR MAPPING CHECK POINT

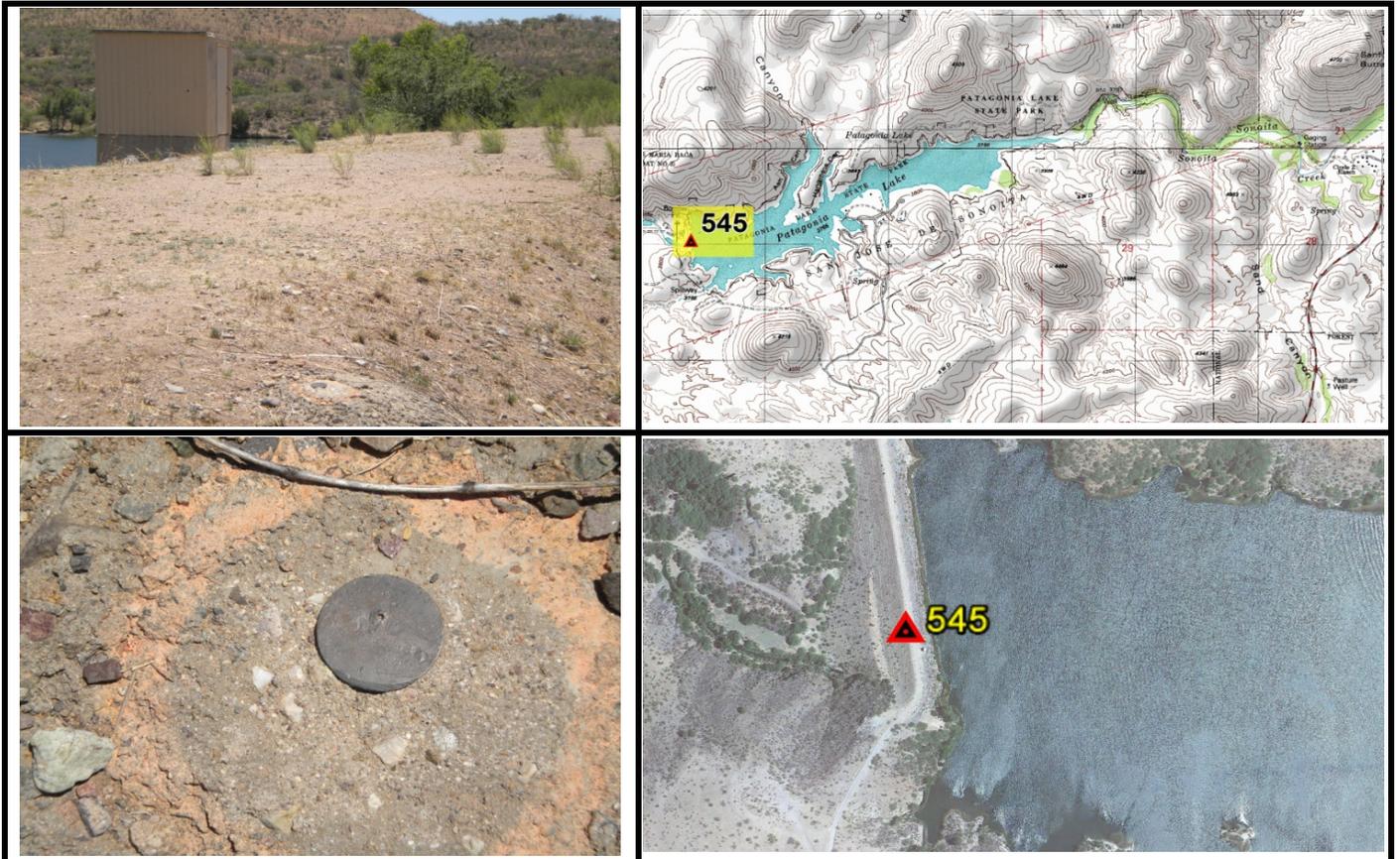
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>545</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 29' 34.06085"</b>	Northing:	<b>180797.13</b>	Monument:	<b>2" BRASS DISK</b>
Longitude:	<b>110° 52' 12.13168"</b>	Easting:	<b>1026222.11</b>	Scale Factor:	<b>1.00002190</b>
Ellipsoid Ht:	<b>3699.70</b>	Elevation:	<b>3795.39</b>	Elevation Factor:	<b>0.99982296</b>
				Combined Factor:	<b>0.99984486</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located at the west end of Patagonia Lake on the west side of the earthen dam. The 4th brass cap north of the south end of the dam. South of a capped pipe marked "1".

\* Note: This point replaces point #45 which was found damaged.



Stantec

# LIDAR MAPPING CHECK POINT

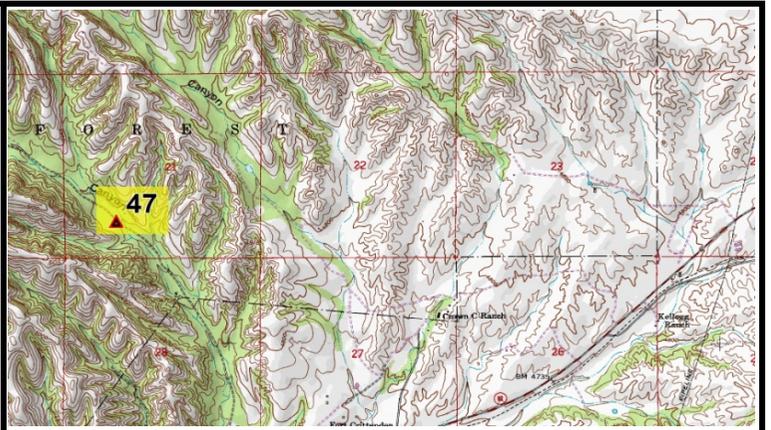
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>47</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 40' 34.21123"</b>	Northing:	<b>247988.66</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 43' 06.30858"</b>	Easting:	<b>1072751.65</b>	Scale Factor:	<b>1.00005915</b>
Ellipsoid Ht:	<b>4672.62</b>	Elevation:	<b>4765.80</b>	Elevation Factor:	<b>0.99977642</b>
				Combined Factor:	<b>0.99983556</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Follow Hog Canyon Dr ~1.4 miles north from SR82 to where it meets FS Road #627. Continue northwest ~0.4 miles to the point in the centerline of the road. 20' southwest of a sign that reads "Fuelwood Cutting by Permit Only".



Stantec

# LIDAR MAPPING CHECK POINT

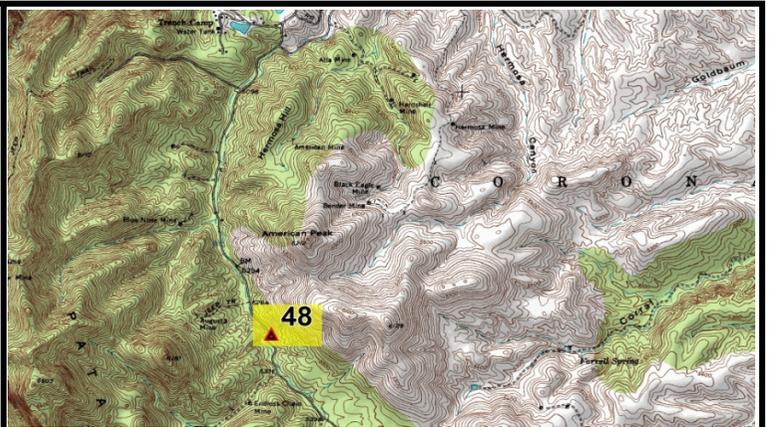
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>48</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 26' 22.55599"</b>	Northing:	<b>161907.34</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 43' 30.07204"</b>	Easting:	<b>1071634.97</b>	Scale Factor:	<b>1.00005821</b>
Ellipsoid Ht:	<b>5198.76</b>	Elevation:	<b>5292.83</b>	Elevation Factor:	<b>0.99975124</b>
				Combined Factor:	<b>0.99980944</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~10.5 miles east and south along Harshaw Rd from Patagonia. ~1.6 miles south of Trench Camp on the east side of Harshaw Rd. 25' east of the centerline of the road.



Stantec

# LIDAR MAPPING CHECK POINT

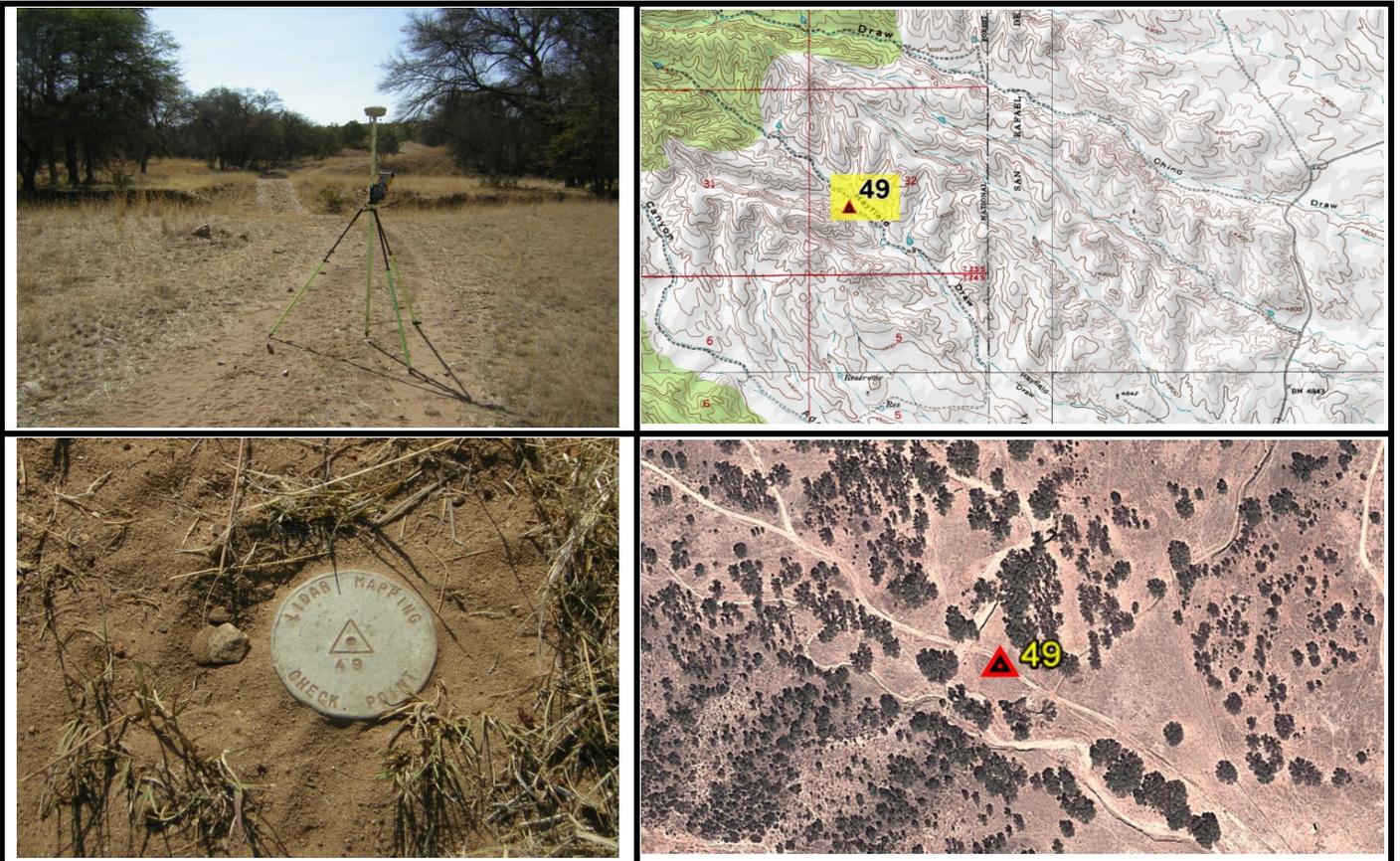
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>49</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 23' 16.51599"</b>	Northing:	<b>143396.23</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 38' 34.02324"</b>	Easting:	<b>1097501.34</b>	Scale Factor:	<b>1.00008100</b>
Ellipsoid Ht:	<b>4841.67</b>	Elevation:	<b>4935.55</b>	Elevation Factor:	<b>0.99976832</b>
				Combined Factor:	<b>0.99984930</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located inside of the San Antonio Ranch (shown as Heady-Ashburn Ranch on quad map) near milepost 16 of Duquesne Rd. ~2.2 miles north of the main ranch house through several gates leading to Hayfield Draw. ~75' southeast of a wash crossing in the centerline of a lightly traveled road.

\* Permission is required to access this point.



Stantec

# LIDAR MAPPING CHECK POINT

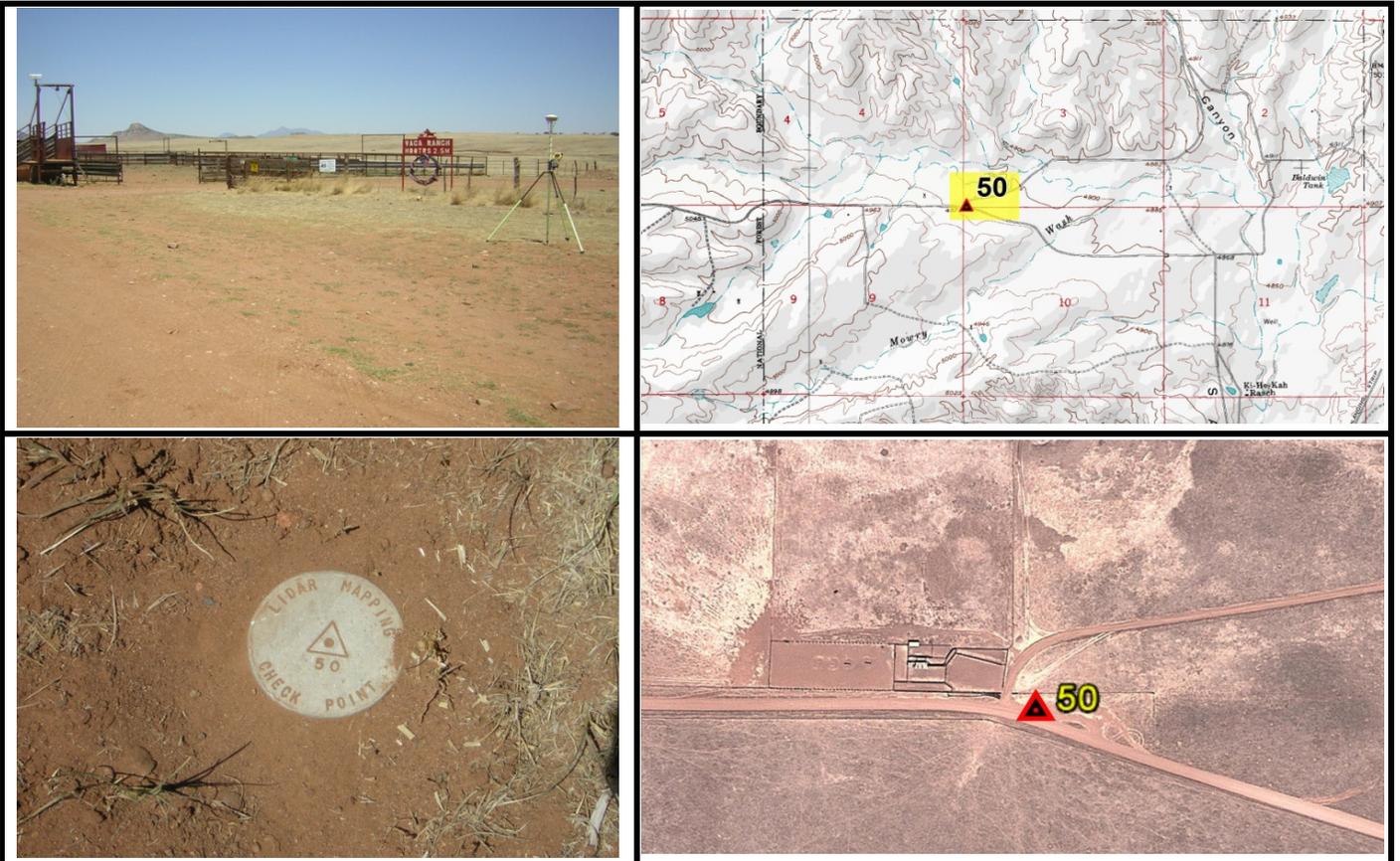
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>50</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 27' 19.60136"</b>	Northing:	<b>168071.25</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 36' 44.24712"</b>	Easting:	<b>1106725.63</b>	Scale Factor:	<b>1.0000895</b>
Ellipsoid Ht.:	<b>4831.39</b>	Elevation:	<b>4924.81</b>	Elevation Factor:	<b>0.99976882</b>
				Combined Factor:	<b>0.99985830</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located along the north side of FS Road #58 at a cattle corral. ~1.3 miles west of the intersection of FS Roads #58, #799, and San Rafael Valley Rd. 23' south of a barbed wire fence. 28.5' southeast of the east leg of a steel sign "Vaca Ranch Hdqtrs 2.5M"



Stantec

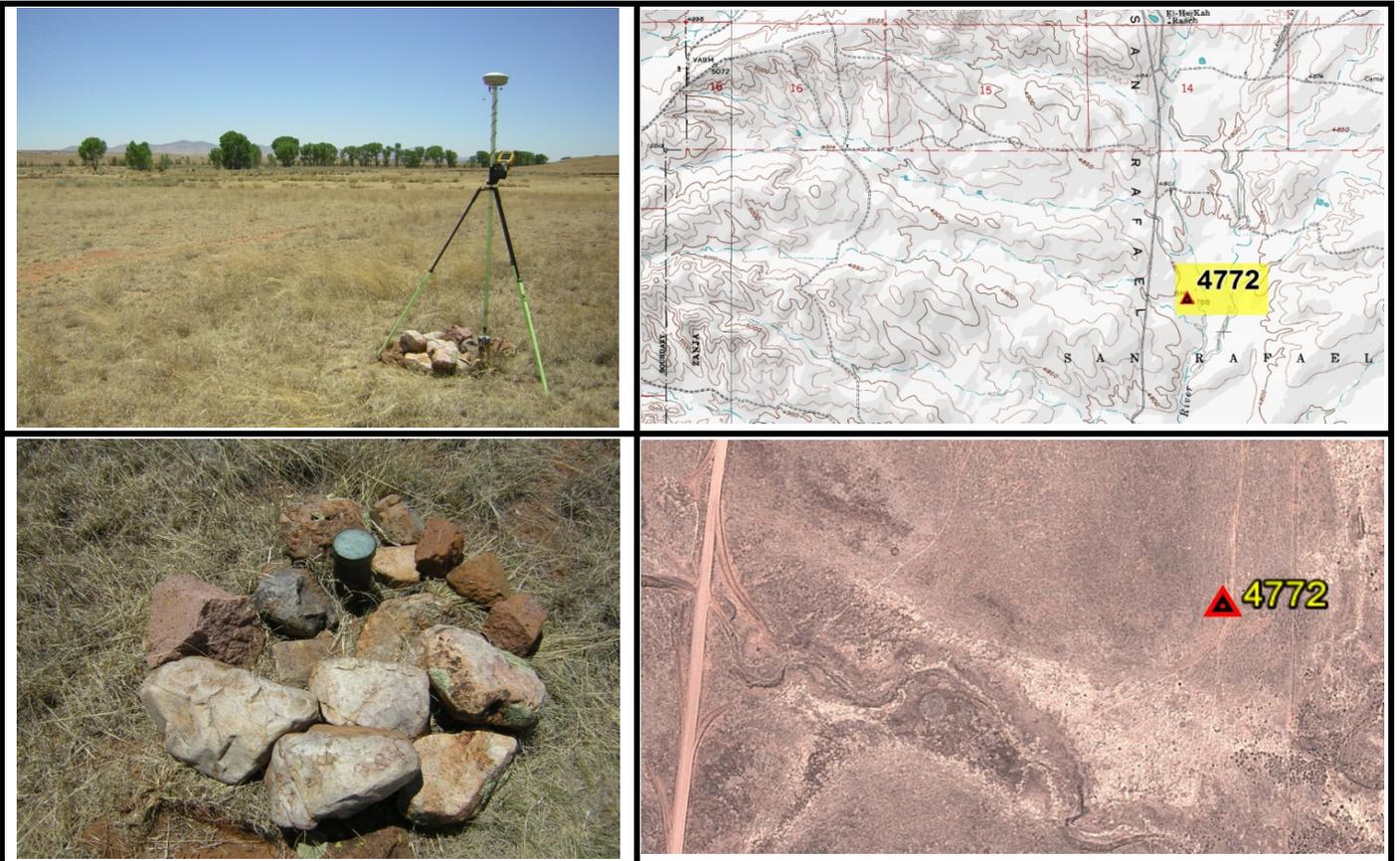
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>4772</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 25' 09.79050"</b>	Northing:	<b>155048.43</b>	Monument:	<b>3.75" USGS DISK</b>
Longitude:	<b>110° 35' 13.30724"</b>	Easting:	<b>1114761.89</b>	Scale Factor:	<b>1.00009706</b>
Ellipsoid Ht:	<b>4698.00</b>	Elevation:	<b>4791.53</b>	Elevation Factor:	<b>0.99977520</b>
				Combined Factor:	<b>0.99987224</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located east of San Rafael Valley Rd ~2.2 miles south of the intersection with FS Roads #58 & #799. ~1000' east of the road in a grassy area. ~150' west of a north-south barbed wire fence (San Rafael Valley Ranch). Existing 3.75" USGS Benchmark Disk on a 3" iron pipe. Up 0.65' above ground and surrounded by several rocks.

\* This is an alternate point for point #51 due to denied access from the San Rafael Ranch.



Stantec

# LIDAR MAPPING CHECK POINT

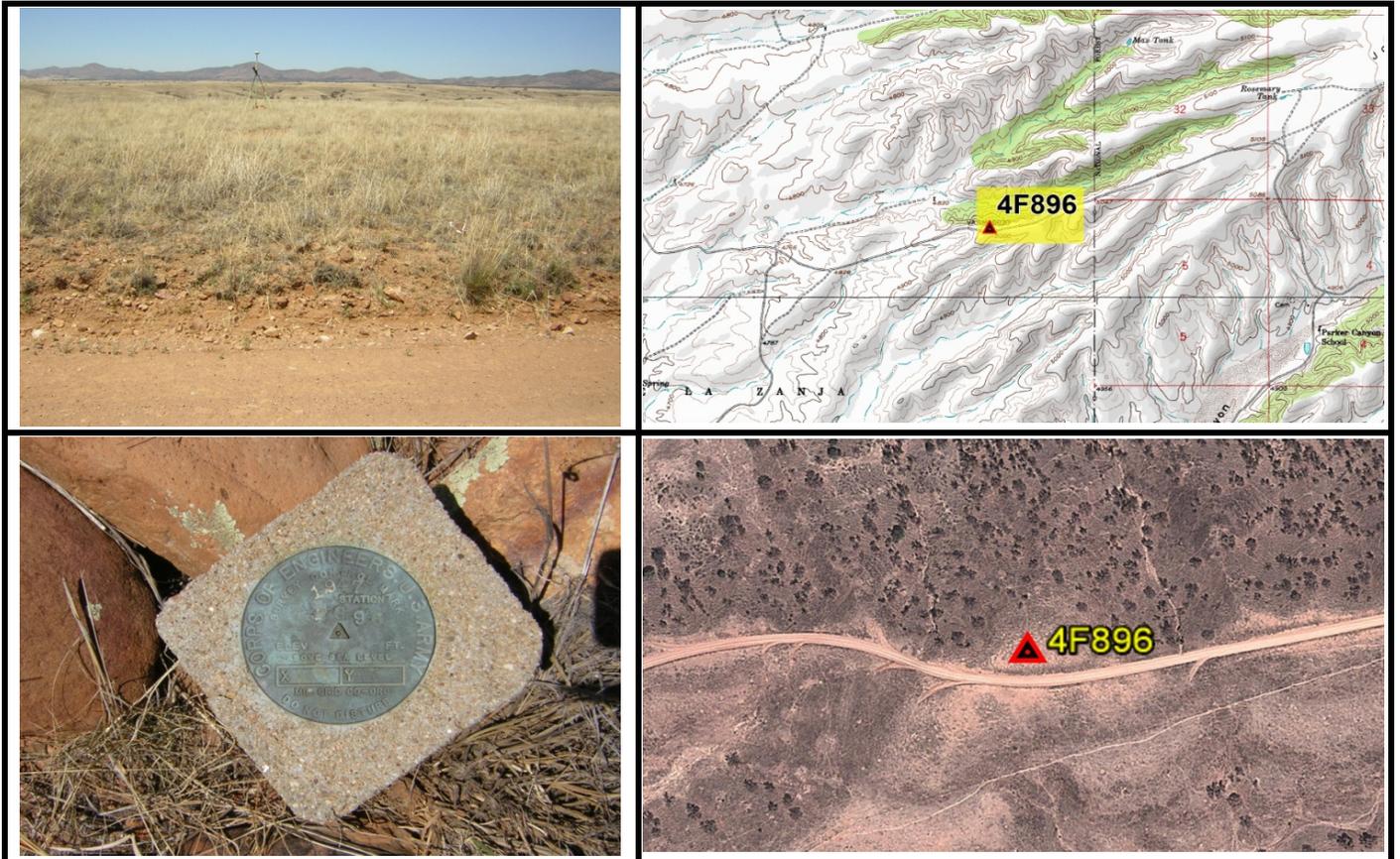
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>4F896</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 22' 50.01547"</b>	Northing:	<b>141060.41</b>	Monument:	<b>4" USCOE DISK</b>
Longitude:	<b>110° 33' 05.12687"</b>	Easting:	<b>1126044.91</b>	Scale Factor:	<b>1.00010793</b>
Ellipsoid Ht.:	<b>4930.01</b>	Elevation:	<b>5023.41</b>	Elevation Factor:	<b>0.99976410</b>
				Combined Factor:	<b>0.99987200</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~1.1 miles east of the intersection of FS Road #813 (leads south) and a sign that reads "Po Ranch" pointing east. Follow the graded road east to where it levels out at the top of a hill. An existing 4" USACE disk in the top of a 6" x 6" concrete post is 82' north of the road overlooking the valley to the north.

\* This is an alternate point for point #51 due to denied access from the San Rafael Ranch.



Stantec

# LIDAR MAPPING CHECK POINT

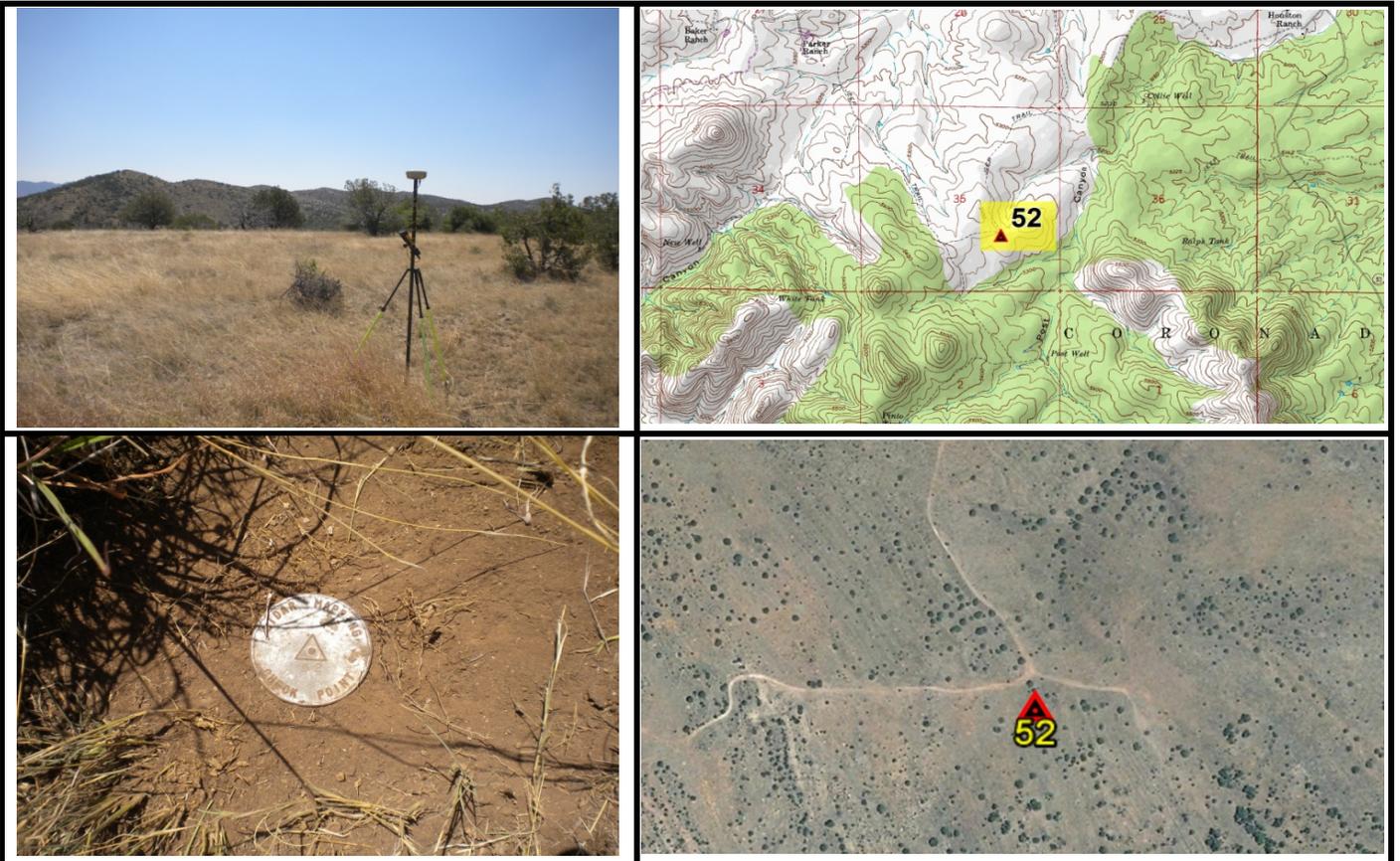
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>52</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 33' 41.63435"</b>	Northing:	<b>206783.57</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 35' 00.81136"</b>	Easting:	<b>1115216.00</b>	Scale Factor:	<b>1.00009749</b>
Ellipsoid Ht:	<b>5267.52</b>	Elevation:	<b>5360.11</b>	Elevation Factor:	<b>0.99974795</b>
				Combined Factor:	<b>0.99984542</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Follow Vaughn Loop Rd ~0.9 miles west from SR83 to FS Road #4615. Continue south on FS Road #4615 to a sharp curve to the west and an intersection with a road leading east. Point is located ~45' west and ~111' south of the intersection.



Stantec

# LIDAR MAPPING CHECK POINT

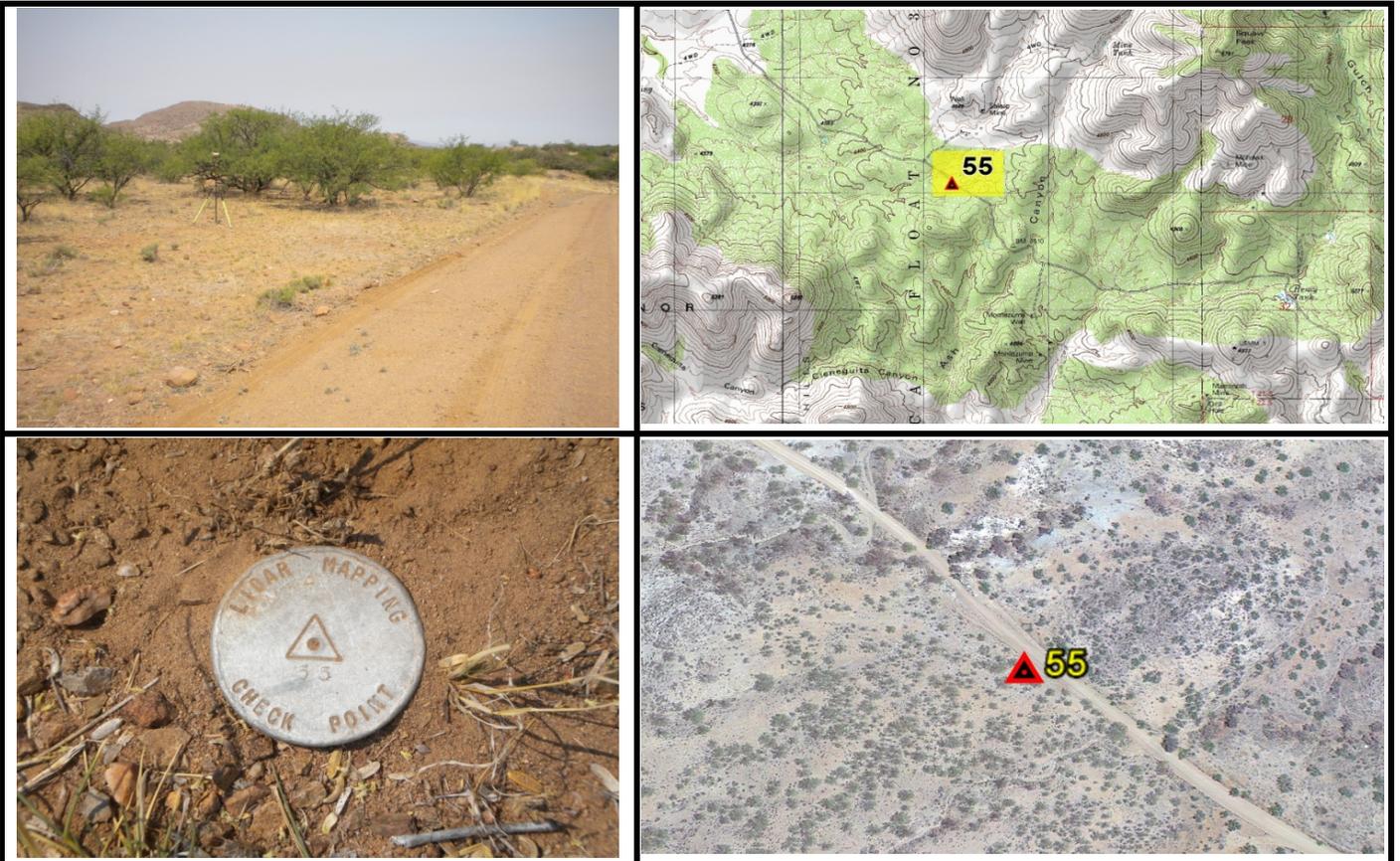
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>55</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 34' 28.01505"</b>	Northing:	<b>210526.37</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 51' 40.52208"</b>	Easting:	<b>1028672.83</b>	Scale Factor:	<b>1.00002374</b>
Ellipsoid Ht:	<b>4364.52</b>	Elevation:	<b>4459.40</b>	Elevation Factor:	<b>0.99979115</b>
				Combined Factor:	<b>0.99981489</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~6.9 miles northwesterly along Salero Ranch Rd/FS Road #143 from SR82. ~250' southeast of a wash crossing. 36' southwest of the centerline of the road.



Stantec

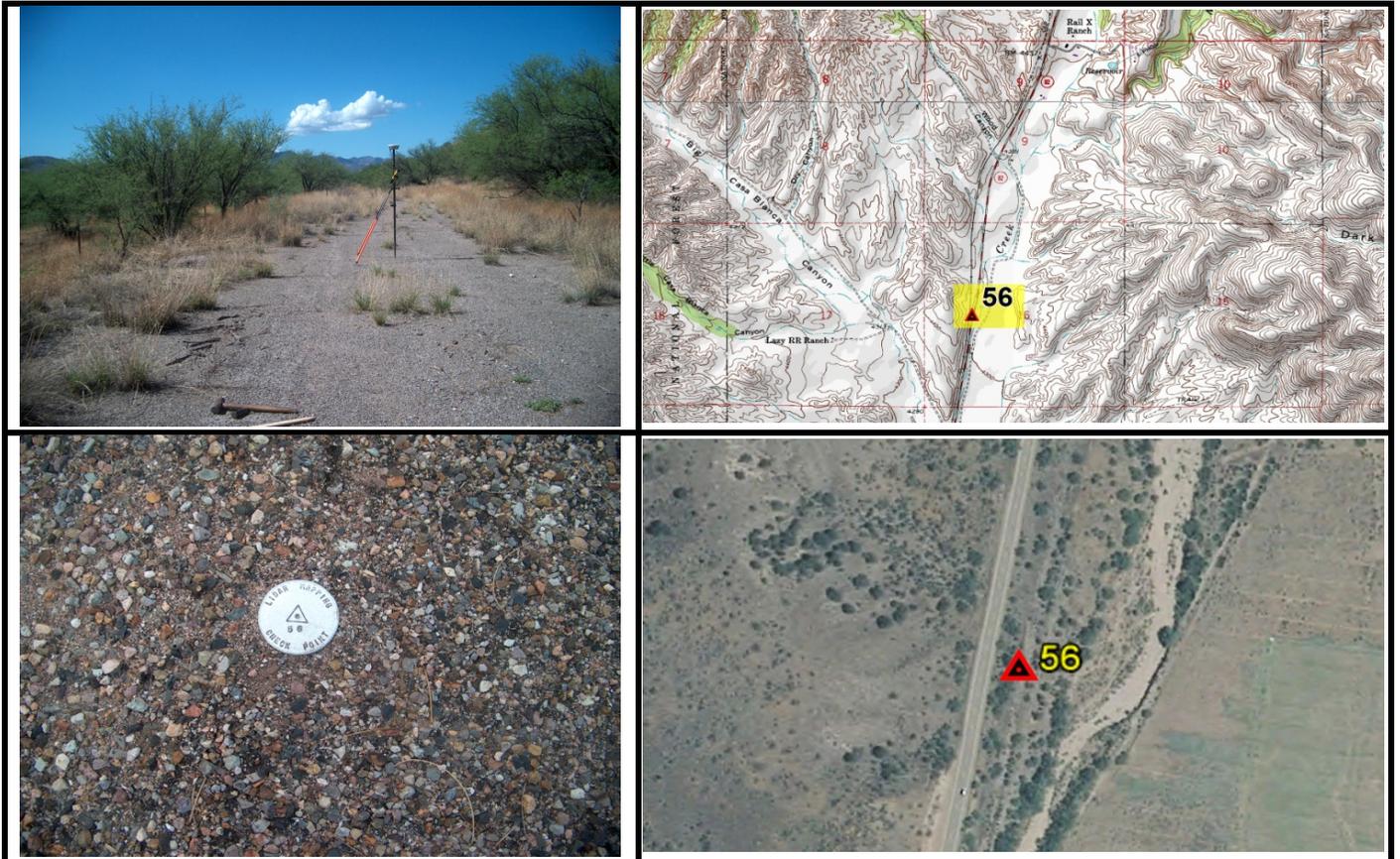
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>56</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 36' 30.17699"</b>	Northing:	<b>223320.23</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 43' 15.49606"</b>	Easting:	<b>1072227.71</b>	Scale Factor:	<b>1.00005871</b>
Ellipsoid Ht:	<b>4230.09</b>	Elevation:	<b>4323.73</b>	Elevation Factor:	<b>0.99979759</b>
				Combined Factor:	<b>0.99985629</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the centerline of the old abandoned SR82 pavement that is east of the current SR82 highway. ~900' north of mile post 25.



Stantec

# LIDAR MAPPING CHECK POINT

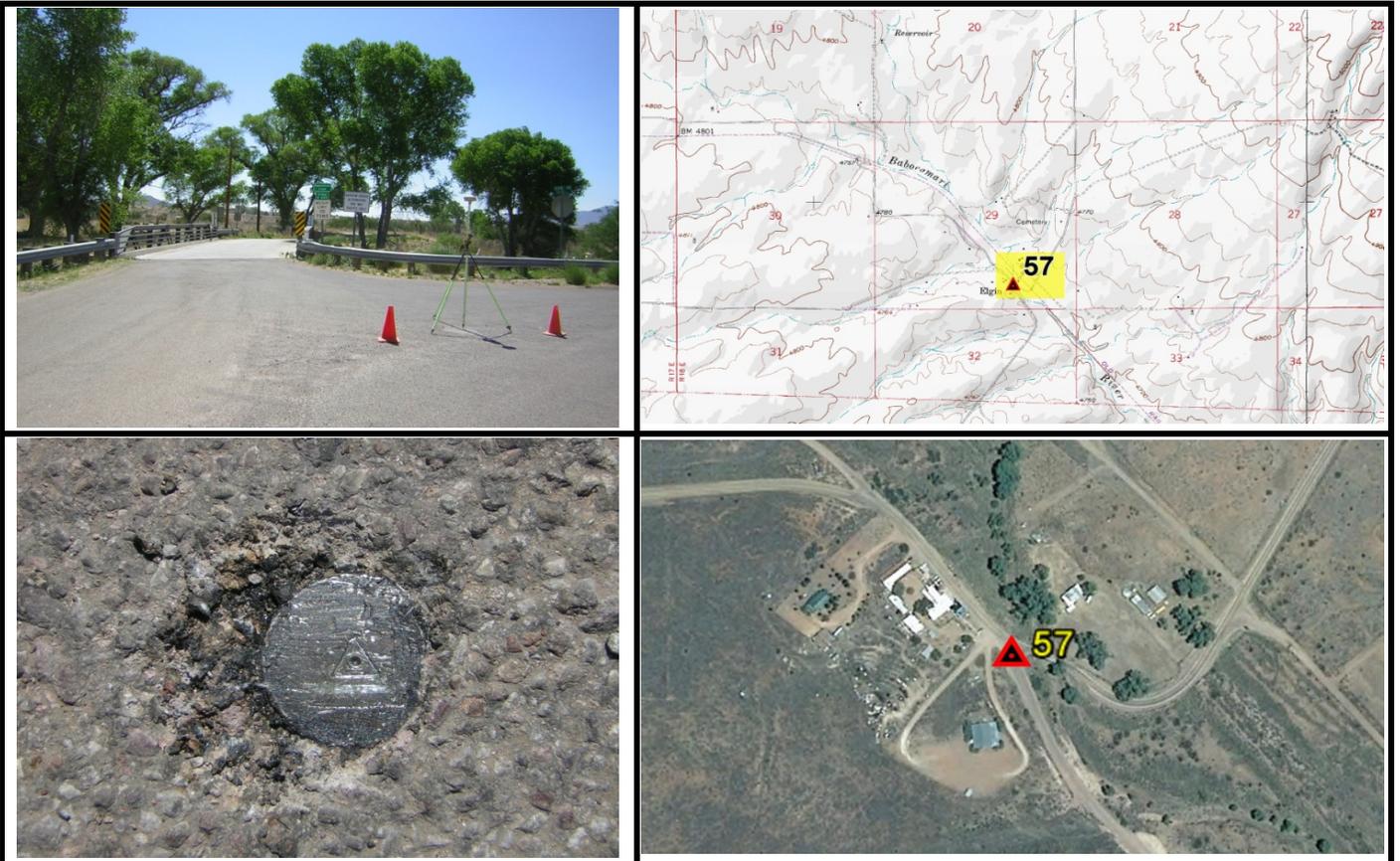
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>57</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 39' 37.35703"</b>	Northing:	<b>242955.88</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 31' 31.55876"</b>	Easting:	<b>1132864.10</b>	Scale Factor:	<b>1.00011463</b>
Ellipsoid Ht:	<b>4630.49</b>	Elevation:	<b>4722.86</b>	Elevation Factor:	<b>0.99977843</b>
				Combined Factor:	<b>0.99989303</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the intersection of Elgin Rd, Upper Elgin Rd, and Elgin Canelo Rd. 42.5' east of a wood sign that reads "Sonoita Vineyards & Winery 3mi". 41.5' southwest of the northwest corner of the bridge crossing Babocomari Creek (Bridge #8165). 32.5' south of the west end of guard rail near (2) power poles and a telephone pedestal.



Stantec

# LIDAR MAPPING CHECK POINT

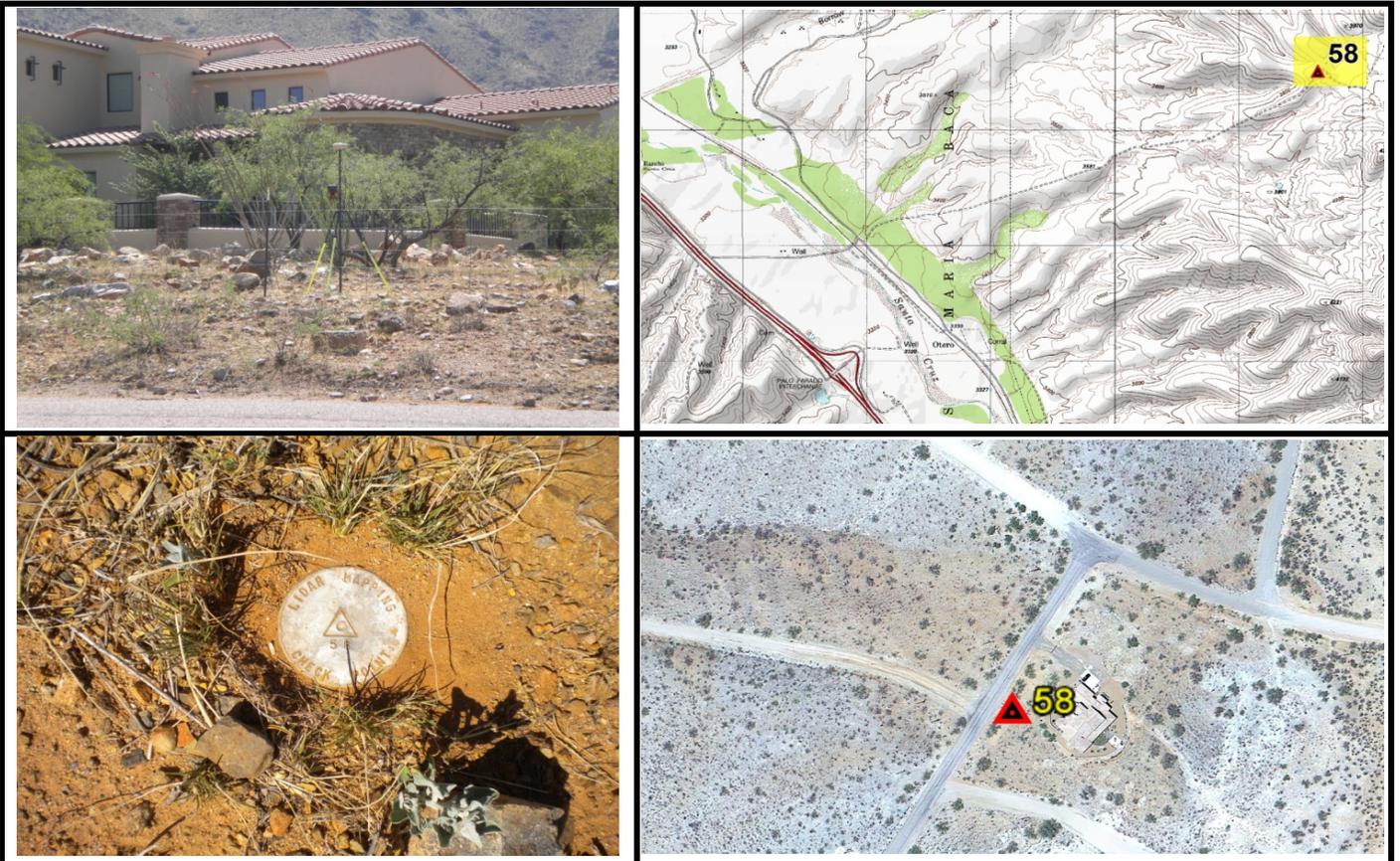
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>58</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 33' 04.59537"</b>	Northing:	<b>201751.72</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 58' 59.98016"</b>	Easting:	<b>990727.87</b>	Scale Factor:	<b>0.99999682</b>
Ellipsoid Ht:	<b>3857.14</b>	Elevation:	<b>3953.77</b>	Elevation Factor:	<b>0.99981543</b>
				Combined Factor:	<b>0.99981225</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Follow Cam Mar northeast ~ 2.5 miles from Pendleton Dr to Ruta Caravela that leads west. Point is ~33' southeast of the centerline of Cam Mar. 2.6' south of a barbed wire fence.

\* Improvements in this area now indicate that this point is on or near private property.



Stantec

# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>60</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 43' 33.64664"</b>	Northing:	<b>265115.10</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 03' 42.02258"</b>	Easting:	<b>965825.52</b>	Scale Factor:	<b>0.99998094</b>
Ellipsoid Ht:	<b>2974.85</b>	Elevation:	<b>3072.14</b>	Elevation Factor:	<b>0.99985764</b>
				Combined Factor:	<b>0.99983858</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located along the west side of the frontage road and south of the road leading to the I-19 interchange at Arivaca Junction. 12.4' southeast of the south corner of the culvert headwall on the west side of the road. 4' west of the white lane striping.



Stantec

# LIDAR MAPPING CHECK POINT

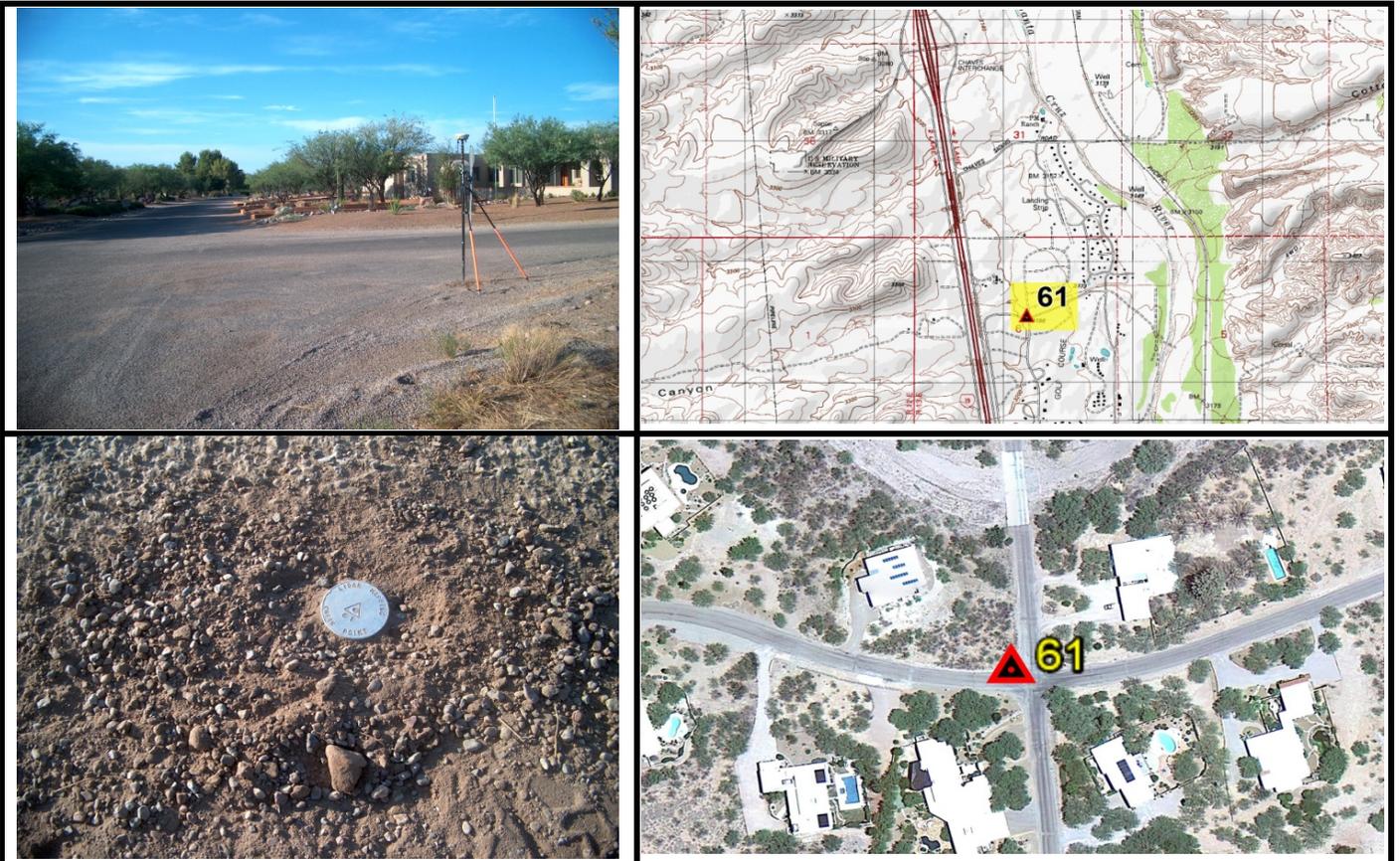
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>61</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 37' 58.35550"</b>	Northing:	<b>231260.33</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 03' 05.22541"</b>	Easting:	<b>969272.27</b>	Scale Factor:	<b>0.99998305</b>
Ellipsoid Ht.:	<b>3102.92</b>	Elevation:	<b>3200.13</b>	Elevation Factor:	<b>0.99985151</b>
				Combined Factor:	<b>0.99983456</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located at the northwest corner of Circula de Anza and C. Belderrain. 0.3' north of the edge of pavement. 27.4' south of a stop sign.



Stantec

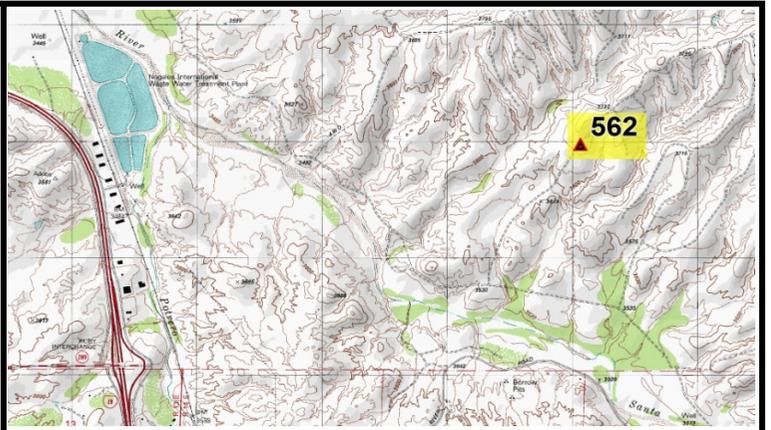
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>562</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 26' 50.04265"</b>	Northing:	<b>164061.13</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 55' 34.68115"</b>	Easting:	<b>1008834.12</b>	Scale Factor:	<b>1.00000926</b>
Ellipsoid Ht:	<b>3599.20</b>	Elevation:	<b>3695.75</b>	Elevation Factor:	<b>0.99982777</b>
				Combined Factor:	<b>0.99983703</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

A new 5/8" rebar + 2" aluminum cap was set 18.5' southeast of the edge of Pasco Guebabi on-line with the projected centerline of Circulo Mendez leading to the northwest.

\* This point replaces #62 which was found damaged.



Stantec

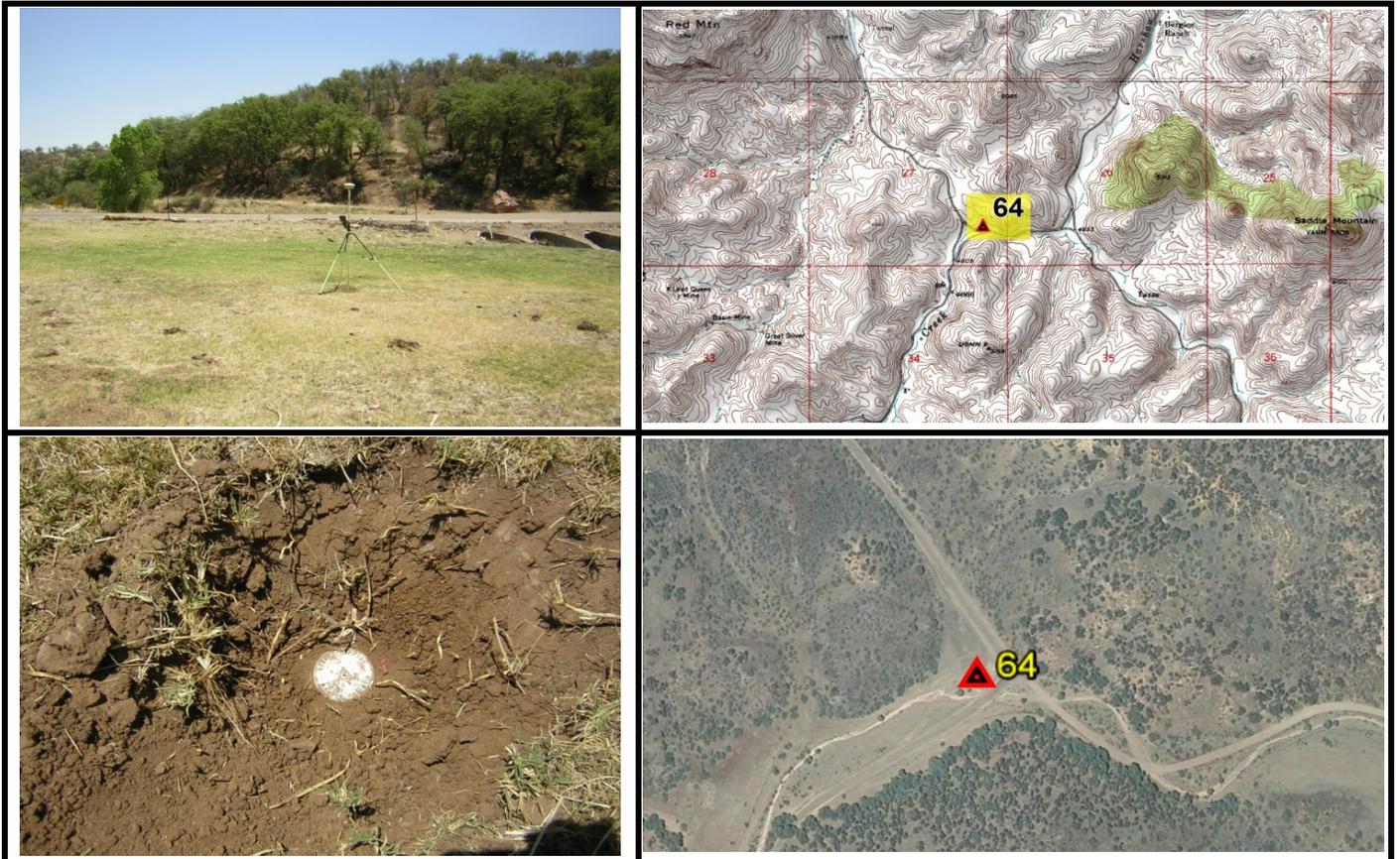
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>64</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 29' 19.54165"</b>	Northing:	<b>179901.75</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 41' 34.23085"</b>	Easting:	<b>1081471.52</b>	Scale Factor:	<b>1.00006669</b>
Ellipsoid Ht:	<b>4511.14</b>	Elevation:	<b>4604.98</b>	Elevation Factor:	<b>0.99978414</b>
				Combined Factor:	<b>0.99985082</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located ~5.9 miles east and south along Harshaw Rd from Patagonia. ~125' southwest of the intersection of Harshaw Rd (FS Road #49) leading southwest and Patagonia-San Raphael Rd leading east. 71' northeast of the eastern most of (4) corrugated metal pipes crossing under Harshaw Rd. Found 0.4' below the ground.



Stantec

# LIDAR MAPPING CHECK POINT

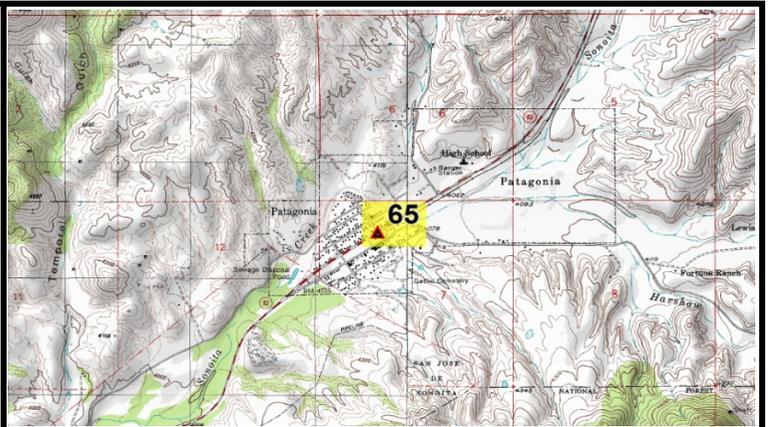
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>65</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 32' 27.69097"</b>	Northing:	<b>198709.31</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 45' 11.24395"</b>	Easting:	<b>1062478.48</b>	Scale Factor:	<b>1.00005051</b>
Ellipsoid Ht.:	<b>3963.29</b>	Elevation:	<b>4057.66</b>	Elevation Factor:	<b>0.99981035</b>
				Combined Factor:	<b>0.99986085</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located at the intersection of SR82 (Naugle Ave) and 3rd Ave in Patagonia. An existing 2" brass disk in concrete down 6" inside a monument well.



Stantec

# LIDAR MAPPING CHECK POINT

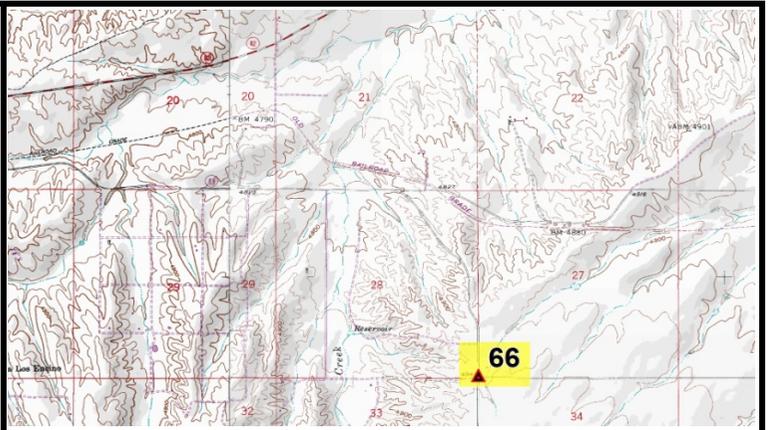
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>66</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 39' 32.83370"</b>	Northing:	<b>242193.56</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 36' 16.69518"</b>	Easting:	<b>1108224.13</b>	Scale Factor:	<b>1.00009089</b>
Ellipsoid Ht:	<b>4851.17</b>	Elevation:	<b>4944.00</b>	Elevation Factor:	<b>0.99976787</b>
				Combined Factor:	<b>0.99985874</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located in the paved shoulder along the north side of Elgin Rd. 83' east of SR83. 10.5' south of a barbed wire fence. 87' west of a cattle guard. 15.7' north of the centerline of Elgin Rd.



Stantec

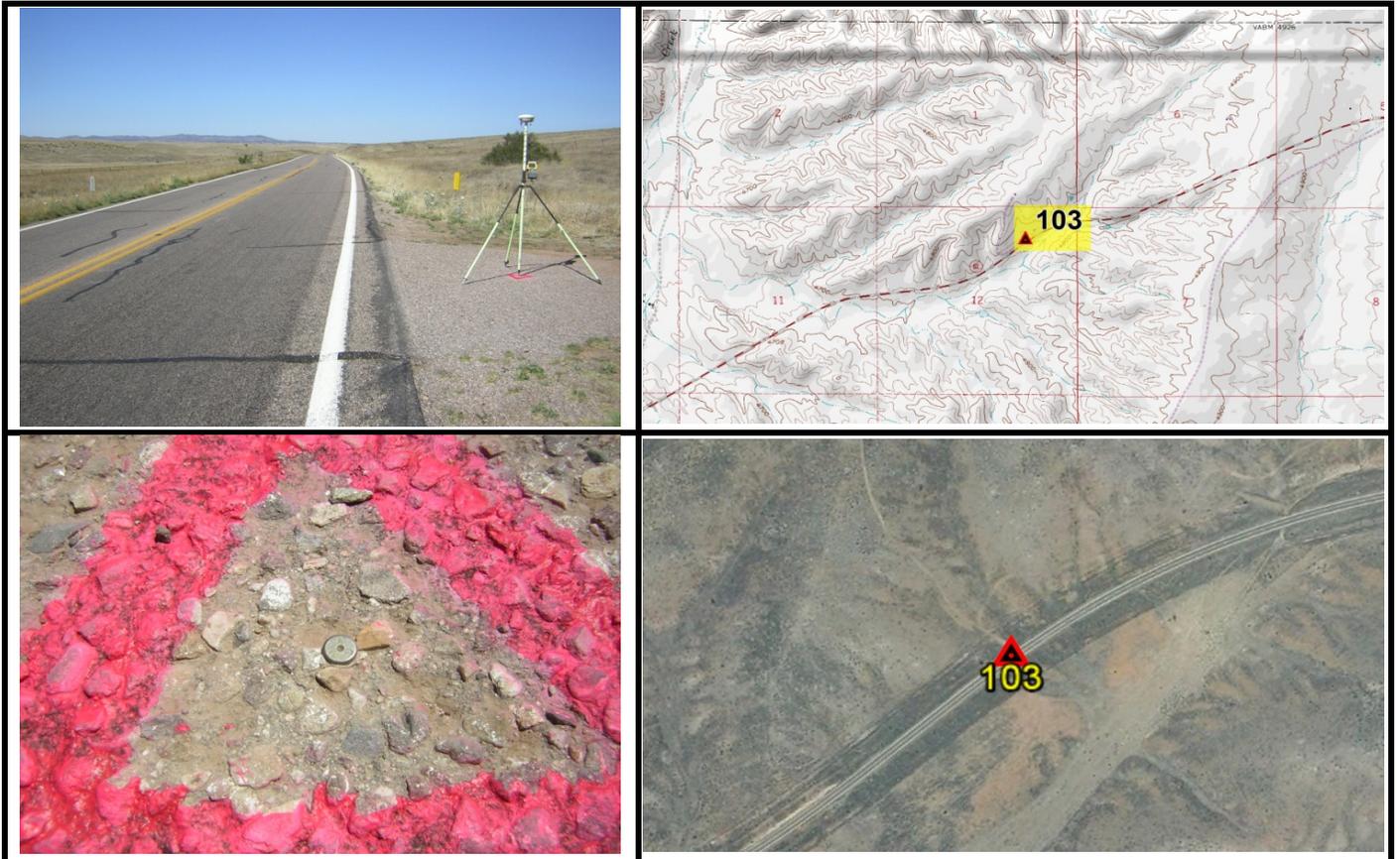
# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>103</b>	Date	<b>5/31/2012</b>
Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>

Latitude:	<b>31° 42' 51.57425"</b>	Northing:	<b>262452.51</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 33' 30.74102"</b>	Easting:	<b>1122318.24</b>	Scale Factor:	<b>1.0001043</b>
Ellipsoid Ht:	<b>4679.25</b>	Elevation:	<b>4771.63</b>	Elevation Factor:	<b>0.9997761</b>
				Combined Factor:	<b>0.99988038</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing mag nail located in a paved entrance leading northwest to a trail road from SR82.  
 ~1900' west-southwest of mile post 39. 18.9' north of the centerline of SR82.



Stantec

# LIDAR MAPPING CHECK POINT

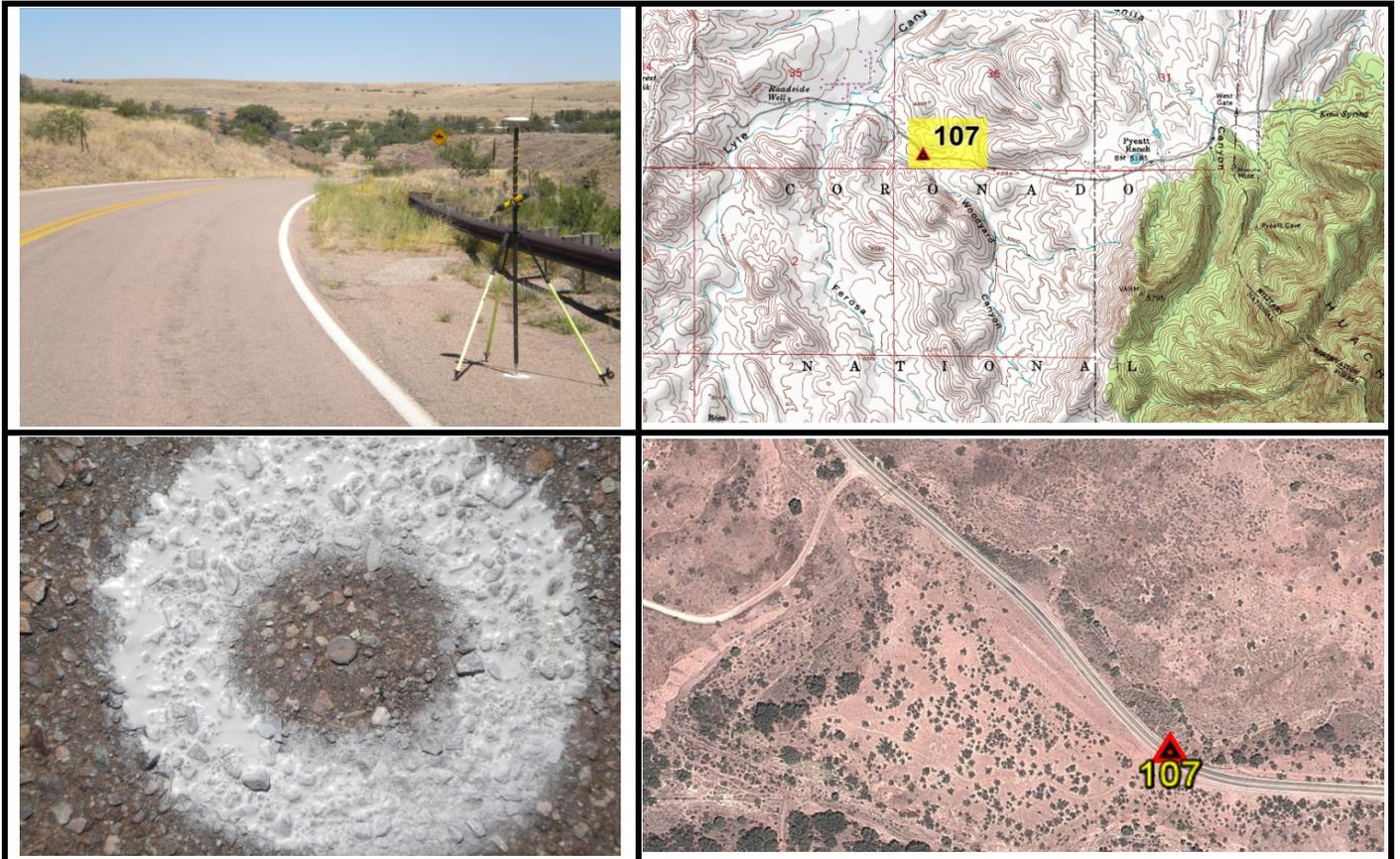
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>107</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 33' 29.28161"</b>	Northing:	<b>205962.43</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 28' 31.33986"</b>	Easting:	<b>1148931.83</b>	Scale Factor:	<b>1.00013086</b>
Ellipsoid Ht:	<b>4818.27</b>	Elevation:	<b>4910.39</b>	Elevation Factor:	<b>0.99976945</b>
				Combined Factor:	<b>0.99990028</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing mag nail located ~2.9 miles along Winrow Ave from SR83 in the paved shoulder on the north side of the road. 5.7' southwest of the guardrail. 74.5' southeast of the northwest end of the guardrail.



Stantec

# LIDAR MAPPING CHECK POINT

Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>113</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 23' 08.11442"</b>	Northing:	<b>141807.22</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 52' 02.47587"</b>	Easting:	<b>1027430.72</b>	Scale Factor:	<b>1.00002281</b>
Ellipsoid Ht.:	<b>3567.04</b>	Elevation:	<b>3663.20</b>	Elevation Factor:	<b>0.9998293</b>
				Combined Factor:	<b>0.99985211</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing mag nail located in the oil chipped surface of Duquesne Rd ~ 0.4 miles southeast from SR82. 32.9' northwest of a wood fence post. 64.5' southeast of a power pole in the curve of the road.



Stantec

# LIDAR MAPPING CHECK POINT

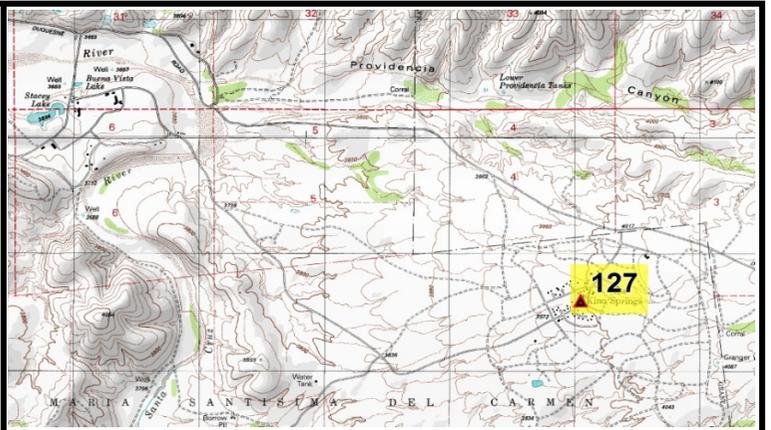
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>127</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 21' 44.90296"</b>	Northing:	<b>133571.89</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 48' 39.03638"</b>	Easting:	<b>1045150.07</b>	Scale Factor:	<b>1.00003647</b>
Ellipsoid Ht:	<b>3893.66</b>	Elevation:	<b>3989.21</b>	Elevation Factor:	<b>0.99981368</b>
				Combined Factor:	<b>0.99985014</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing mag nail in the pavement of Kino Springs Dr at Skylark Ct. 10.2' southeast of a sewer manhole.

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Stantec

# LIDAR MAPPING CHECK POINT

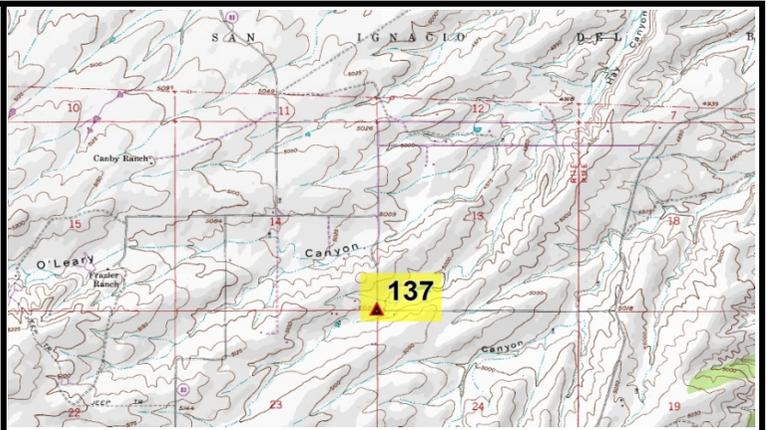
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>137</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 36' 03.35316"</b>	Northing:	<b>221123.30</b>	Monument:	<b>MAG NAIL</b>
Longitude:	<b>110° 34' 43.03145"</b>	Easting:	<b>1116579.23</b>	Scale Factor:	<b>1.00009879</b>
Ellipsoid Ht:	<b>4941.90</b>	Elevation:	<b>5034.55</b>	Elevation Factor:	<b>0.99976353</b>
				Combined Factor:	<b>0.99986230</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing mag nail located in the paved shoulder along the west side of SR83 at a sharp curve to the east where Crestview Dr continues to the south. 66.5' north-northwest of a row of mailboxes. 12' southwest of the centerline of SR83.



Stantec

# LIDAR MAPPING CHECK POINT

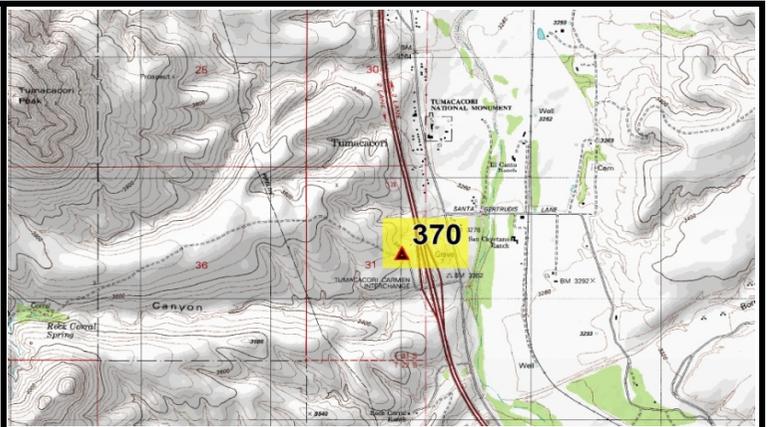
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>370</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 33' 32.86981"</b>	Northing:	<b>204429.99</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>111° 03' 11.66741"</b>	Easting:	<b>968927.16</b>	Scale Factor:	<b>0.99998284</b>
Ellipsoid Ht:	<b>3310.93</b>	Elevation:	<b>3408.23</b>	Elevation Factor:	<b>0.99984156</b>
				Combined Factor:	<b>0.99982440</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing aluminum cap marked "Santa Cruz County Public Works GPS 106" located at the trailhead of FS Road #4145 ~1000' north along the dirt road from the end of pavement on the west side of the I-19 & Tumacacori interchange. 12.5' north of the centerline of FS Road. 50' west of the carsonite post marking "4145".



Stantec

# LIDAR MAPPING CHECK POINT

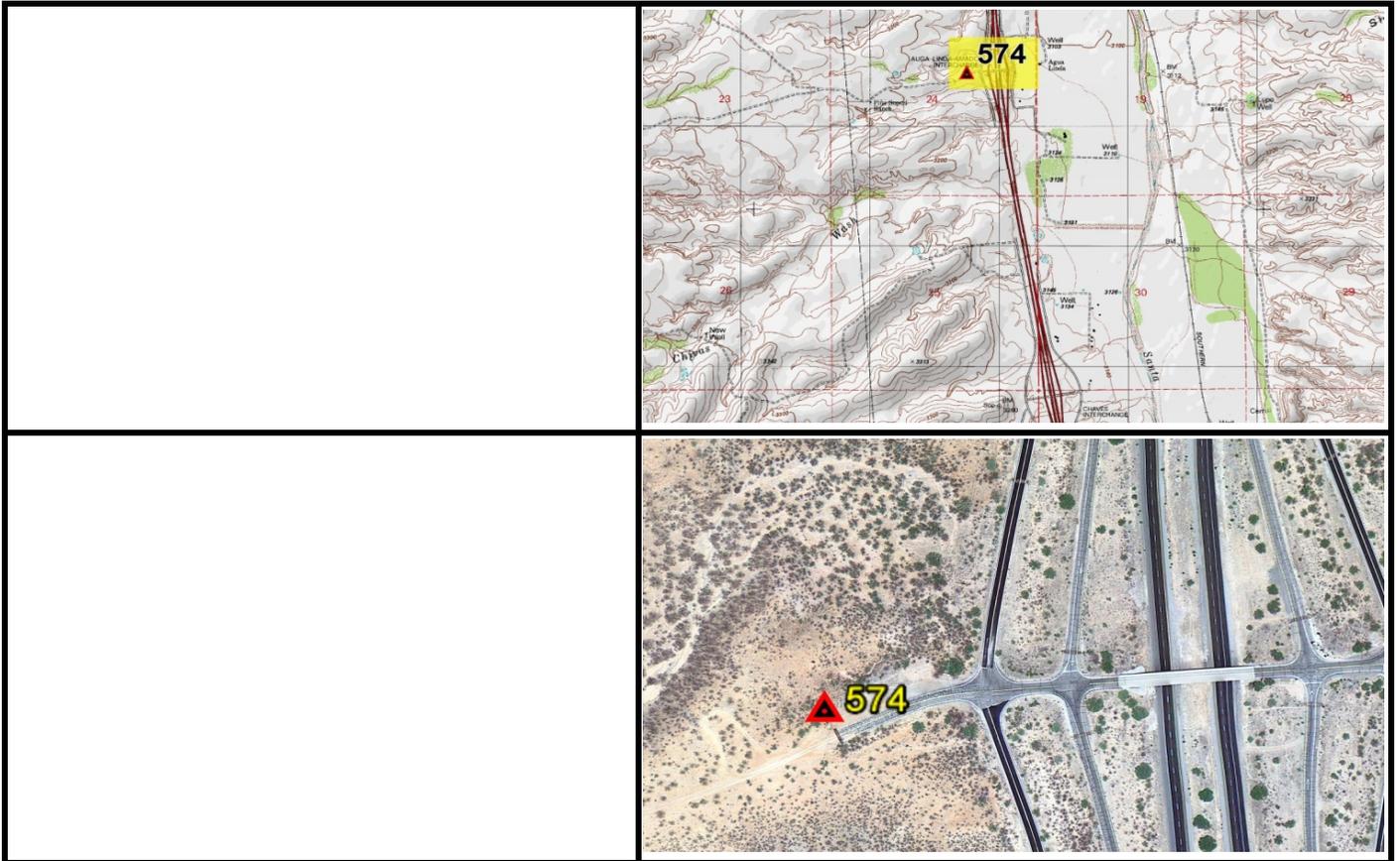
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>574</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 40' 37.19272"</b>	Northing:	<b>247273.31</b>	Monument:	<b>3" AZHD DISK</b>
Longitude:	<b>111° 03' 59.45753"</b>	Easting:	<b>964458.76</b>	Scale Factor:	<b>0.99998011</b>
Ellipsoid Ht:	<b>3069.61</b>	Elevation:	<b>3166.88</b>	Elevation Factor:	<b>0.99985311</b>
				Combined Factor:	<b>0.99983322</b>

Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

Located on the west side of the I-19 and Agua Linda interchange. A standard 3" AZHD disk in concrete located at the barbed wire fence corner 52.2' north of a cattle guard at the end of pavement. 2' north of an angle iron marked P.O.C. 1402+90.

\* Note: this replaces point 374 which was found damaged.



Stantec

# LIDAR MAPPING CHECK POINT

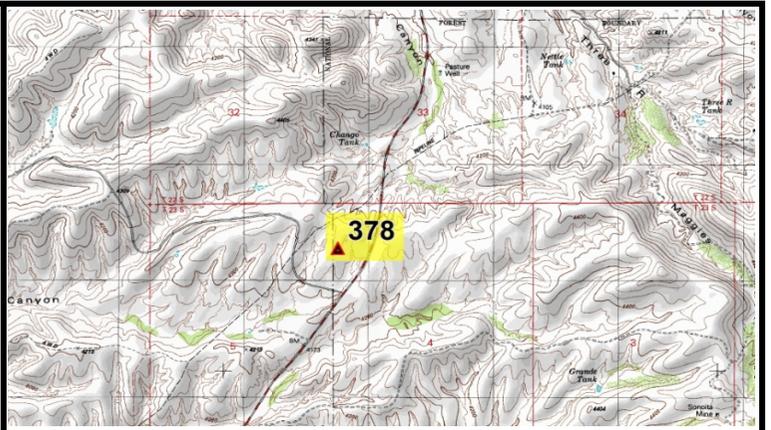
Project	<b>SANTA CRUZ COUNTY LIDAR MAPPING</b>	Point Name	<b>378</b>	Date	<b>5/31/2012</b>
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Project No.	<b>186806008</b>	County	<b>SANTA CRUZ</b>	Field Crew	<b>BPG / RCC</b>
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Latitude:	<b>31° 28' 04.20574"</b>	Northing:	<b>171856.79</b>	Monument:	<b>5/8" REBAR+2" AC</b>
Longitude:	<b>110° 49' 27.31874"</b>	Easting:	<b>1040582.81</b>	Scale Factor:	<b>1.00003287</b>
Ellipsoid Ht.:	<b>4192.35</b>	Elevation:	<b>4287.65</b>	Elevation Factor:	<b>0.99979939</b>
				Combined Factor:	<b>0.99983225</b>

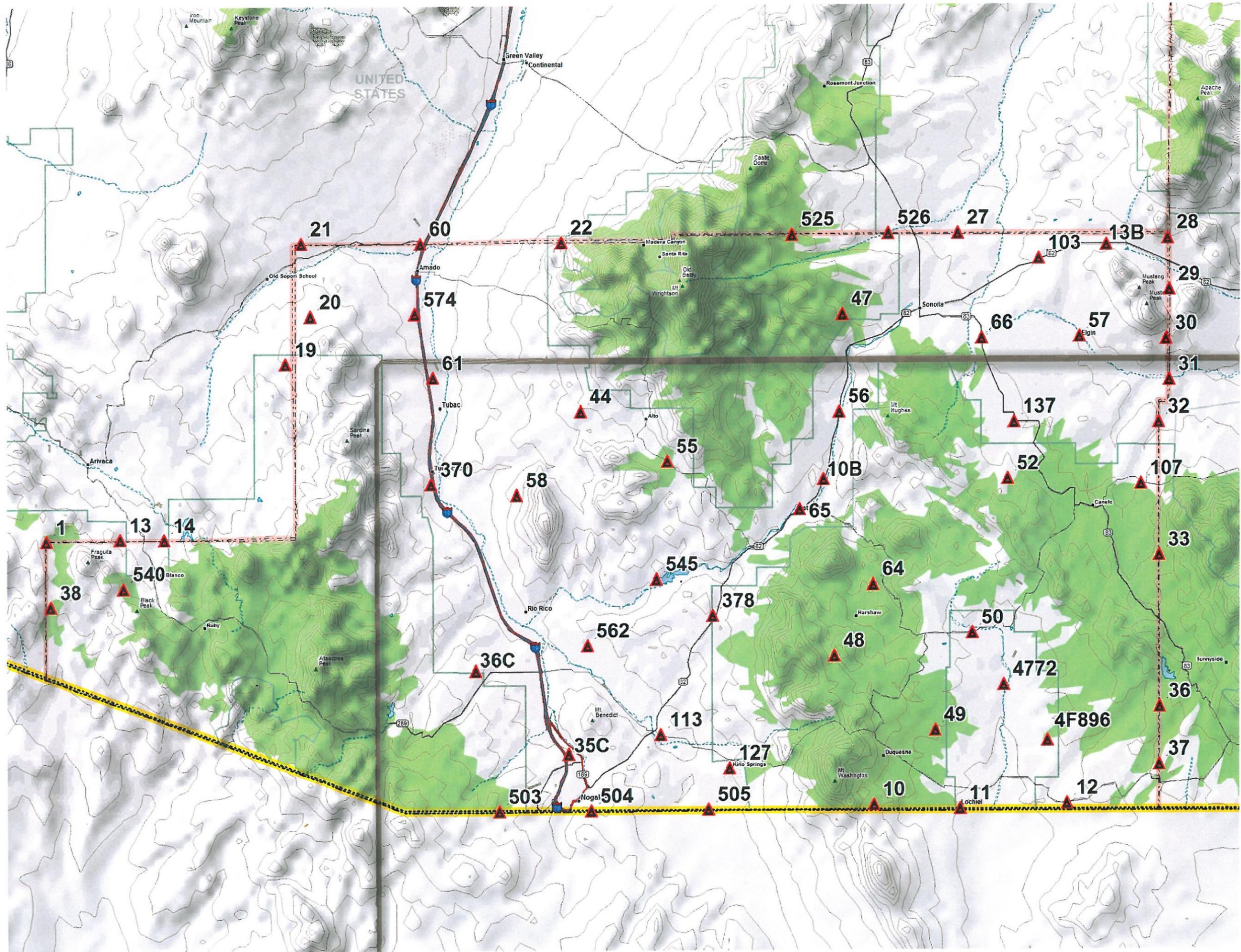
Geodetic Datum: North American Datum of 1983 (2011)  
 Coordinate System: State Plane Coordinate System of 1983  
 Zone: Arizona Central (0202)

Vertical Datum: North American Vertical Datum of 1988  
 Geoid Model: Geoid 12  
 Units: International Feet



Description:

An existing 2" aluminum cap marked "Santa Cruz County Public Works GPS 103" located ~1100' north of Patagonia Lake Dr and ~750' west of SR82. Proceed north along Azteca Ct and continue along a dirt road ~0.1 mile to a gate & barbed wire fence. 209' north of the gate. 19' east of the dirt road.



# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 7.89.2
1      National Geodetic Survey,      Retrieval Date = JULY 20, 2012
AA3528 *****
AA3528 PACS          - This is a Primary Airport Control Station.
AA3528 DESIGNATION - OLS B
AA3528 PID          - AA3528
AA3528 STATE/COUNTY- AZ/SANTA CRUZ
AA3528 COUNTRY      - US
AA3528 USGS QUAD    - CUMERO CANYON (1981)
AA3528
AA3528                      *CURRENT SURVEY CONTROL
AA3528
AA3528* NAD 83(2011) POSITION- 31 25 20.16444(N) 110 50 37.16167(W)  ADJUSTED
AA3528* NAD 83(2011) ELLIP HT- 1167.518 (meters)          (06/27/12)  ADJUSTED
AA3528* NAD 83(2011) EPOCH   - 2010.00
AA3528* NAVD 88 ORTHO HEIGHT - 1196.69 (meters)      3926.1 (feet) GPS OBS
AA3528
AA3528 NAVD 88 orthometric height was determined with geoid model  GEOID96
AA3528 GEOID HEIGHT      -      -29.03 (meters)                GEOID96
AA3528 GEOID HEIGHT      -      -29.18 (meters)                GEOID12
AA3528 NAD 83(2011) X    - -1,938,761.244 (meters)            COMP
AA3528 NAD 83(2011) Y    - -5,092,133.845 (meters)            COMP
AA3528 NAD 83(2011) Z    -  3,306,543.961 (meters)            COMP
AA3528 LAPLACE CORR      -           5.37 (seconds)            DEFLEC09
AA3528
AA3528 FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
AA3528 Type                      Horiz  Ellip  Dist(km)
AA3528 -----
AA3528 NETWORK                      1.37   4.41
AA3528 -----
AA3528 MEDIAN LOCAL ACCURACY AND DIST (004 points)  0.87   2.97   43.34
AA3528 -----
AA3528 NOTE: Click here for information on individual local accuracy
AA3528 values and other accuracy information.
AA3528
AA3528
AA3528.This mark is at Nogales Intl Airport (OLS)
AA3528
AA3528.The horizontal coordinates were established by GPS observations
AA3528.and adjusted by the National Geodetic Survey in June 2012.
AA3528
AA3528.NAD 83(2011) refers to NAD 83 coordinates where the reference
AA3528.frame has been affixed to the stable North American tectonic plate. See
AA3528.www.ngs.noaa.gov/web/surveys/NA2011 for more information.
AA3528
AA3528.The horizontal coordinates are valid at the epoch date displayed above
AA3528.which is a decimal equivalence of Year/Month/Day.
AA3528
AA3528.The orthometric height was determined by GPS observations and a
AA3528.high-resolution geoid model.
AA3528
AA3528.GPS derived orthometric heights for airport stations designated as
AA3528.PACS or SACS are published to 2 decimal places. This maintains
AA3528.centimeter relative accuracy between the PACS and SACS. It does

```

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 7.89.2
1      National Geodetic Survey,      Retrieval Date = JULY 20, 2012
CG1225 *****
CG1225 DESIGNATION - NN 73
CG1225 PID - CG1225
CG1225 STATE/COUNTY- AZ/PIMA
CG1225 COUNTRY - US
CG1225 USGS QUAD - AMADO (1981)
CG1225
CG1225 *CURRENT SURVEY CONTROL
CG1225
CG1225* NAD 83(2011) POSITION- 31 44 08.85908(N) 111 01 08.39400(W) ADJUSTED
CG1225* NAD 83(2011) ELLIP HT- 925.569 (meters) (06/27/12) ADJUSTED
CG1225* NAD 83(2011) EPOCH - 2010.00
CG1225* NAVD 88 ORTHO HEIGHT - 955.09 (meters) 3133.5 (feet) LEVELING
CG1225
CG1225 GEOID HEIGHT - -29.57 (meters) GEOID12
CG1225 NAD 83(2011) X - -1,947,730.946 (meters) COMP
CG1225 NAD 83(2011) Y - -5,068,988.138 (meters) COMP
CG1225 NAD 83(2011) Z - 3,336,037.884 (meters) COMP
CG1225 LAPLACE CORR - 4.05 (seconds) DEFLEC09
CG1225 VERT ORDER - THIRD ?
CG1225
CG1225 FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
CG1225 Type Horiz Ellip Dist(km)
CG1225 -----
CG1225 NETWORK 0.48 1.18
CG1225 -----
CG1225 MEDIAN LOCAL ACCURACY AND DIST (052 points) 0.69 1.46 147.43
CG1225 -----
CG1225 NOTE: Click here for information on individual local accuracy
CG1225 values and other accuracy information.
CG1225
CG1225
CG1225.The horizontal coordinates were established by GPS observations
CG1225.and adjusted by the National Geodetic Survey in June 2012.
CG1225
CG1225.NAD 83(2011) refers to NAD 83 coordinates where the reference
CG1225.frame has been affixed to the stable North American tectonic plate. See
CG1225.www.ngs.noaa.gov/web/surveys/NA2011 for more information.
CG1225
CG1225.The horizontal coordinates are valid at the epoch date displayed above
CG1225.which is a decimal equivalence of Year/Month/Day.
CG1225
CG1225.The orthometric height was determined by differential leveling.
CG1225.The vertical network tie was performed by a horz. field party for horz.
CG1225.obs reductions. Reset procedures were used to establish the elevation.
CG1225
CG1225.The X, Y, and Z were computed from the position and the ellipsoidal ht.
CG1225
CG1225.The Laplace correction was computed from DEFLEC09 derived deflections.
CG1225
CG1225.The ellipsoidal height was determined by GPS observations
CG1225.and is referenced to NAD 83.

```

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 7.89.2
1      National Geodetic Survey,      Retrieval Date = JULY 20, 2012
AA3525 *****
AA3525 PACS          - This is a Primary Airport Control Station.
AA3525 DESIGNATION - FHU A
AA3525 PID          - AA3525
AA3525 STATE/COUNTY- AZ/COCHISE
AA3525 COUNTRY     - US
AA3525 USGS QUAD   - FORT HUACHUCA (1983)
AA3525
AA3525                                *CURRENT SURVEY CONTROL
AA3525
AA3525* NAD 83(2011) POSITION- 31 35 08.11175(N) 110 20 56.30209(W) ADJUSTED
AA3525* NAD 83(2011) ELLIP HT- 1396.098 (meters) (06/27/12) ADJUSTED
AA3525* NAD 83(2011) EPOCH   - 2010.00
AA3525* NAVD 88 ORTHO HEIGHT - 1424.17 (meters) 4672.5 (feet) LEVELING
AA3525
AA3525 GEOID HEIGHT   - -28.03 (meters) GEOID12
AA3525 NAD 83(2011) X - -1,891,501.376 (meters) COMP
AA3525 NAD 83(2011) Y - -5,099,991.596 (meters) COMP
AA3525 NAD 83(2011) Z - 3,322,105.883 (meters) COMP
AA3525 LAPLACE CORR   - 0.00 (seconds) DEFLEC09
AA3525 VERT ORDER    - THIRD ?
AA3525
AA3525 FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
AA3525 Type                               Horiz Ellip Dist(km)
AA3525 -----
AA3525 NETWORK                               0.52 1.49
AA3525 -----
AA3525 MEDIAN LOCAL ACCURACY AND DIST (048 points) 1.14 2.68 28.56
AA3525 -----
AA3525 NOTE: Click here for information on individual local accuracy
AA3525 values and other accuracy information.
AA3525
AA3525.This mark is at Libby Aaf-Sierra Vista Mun Airport (FHU)
AA3525
AA3525.The horizontal coordinates were established by GPS observations
AA3525.and adjusted by the National Geodetic Survey in June 2012.
AA3525
AA3525.NAD 83(2011) refers to NAD 83 coordinates where the reference
AA3525.frame has been affixed to the stable North American tectonic plate. See
AA3525.www.ngs.noaa.gov/web/surveys/NA2011 for more information.
AA3525
AA3525.The horizontal coordinates are valid at the epoch date displayed above
AA3525.which is a decimal equivalence of Year/Month/Day.
AA3525
AA3525.The orthometric height was determined by differential leveling.
AA3525.The vertical network tie was performed by a horz. field party for horz.
AA3525.obs reductions. Reset procedures were used to establish the elevation.
AA3525
AA3525.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AA3525
AA3525.The Laplace correction was computed from DEFLEC09 derived deflections.

```

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 7.89.2
1      National Geodetic Survey,      Retrieval Date = JULY 20, 2012
CG0504 *****
CG0504 DESIGNATION - K 334
CG0504 PID - CG0504
CG0504 STATE/COUNTY- AZ/PIMA
CG0504 COUNTRY - US
CG0504 USGS QUAD - AMADO (1981)
CG0504
CG0504 *CURRENT SURVEY CONTROL
CG0504
CG0504* NAD 83(1986) POSITION- 31 43 35. (N) 111 04 37. (W) SCALED
CG0504* NAVD 88 ORTHO HEIGHT - 957.37 (+/-2cm) 3141.0 (feet) VERTCON
CG0504
CG0504 GEOID HEIGHT - -29.67 (meters) GEOID12
CG0504 VERT ORDER - FIRST CLASS II (See Below)
CG0504
CG0504.The horizontal coordinates were scaled from a topographic map and have
CG0504.an estimated accuracy of +/- 6 seconds.
CG0504.
CG0504.The NAVD 88 height was computed by applying the VERTCON shift value to
CG0504.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)
CG0504
CG0504.The vertical order pertains to the NGVD 29 superseded value.
CG0504
CG0504; North East Units Estimated Accuracy
CG0504;SPC AZ C - 80,840. 292,940. MT (+/- 180 meters Scaled)
CG0504
CG0504 SUPERSEDED SURVEY CONTROL
CG0504
CG0504 NGVD 29 (??/??/92) 956.575 (m) 3138.36 (f) ADJ UNCH 1 2
CG0504
CG0504.Superseded values are not recommended for survey control.
CG0504
CG0504.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
CG0504.See file dsdata.txt to determine how the superseded data were derived.
CG0504
CG0504_U.S. NATIONAL GRID SPATIAL ADDRESS: 12RVA927101(NAD 83)
CG0504
CG0504_MARKER: DB = BENCH MARK DISK
CG0504_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
CG0504_SP_SET: SET IN TOP OF CONCRETE MONUMENT
CG0504_STAMPING: K 334 1953
CG0504_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
CG0504+STABILITY: SURFACE MOTION
CG0504
CG0504 HISTORY - Date Condition Report By
CG0504 HISTORY - 1953 MONUMENTED CGS
CG0504 HISTORY - 1976 GOOD USGS
CG0504
CG0504 STATION DESCRIPTION
CG0504
CG0504'DESCRIBED BY COAST AND GEODETIC SURVEY 1953
CG0504'2.4 MI NW FROM AMADO.

```

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 7.89.2
1      National Geodetic Survey,      Retrieval Date = JULY 20, 2012
CG0620 *****
CG0620 DESIGNATION -   SCA 1 2
CG0620 PID           -   CG0620
CG0620 STATE/COUNTY-  AZ/SANTA CRUZ
CG0620 COUNTRY       -   US
CG0620 USGS QUAD     -   PENA BLANCA LAKE (1981)
CG0620
CG0620                      *CURRENT SURVEY CONTROL
CG0620
CG0620* NAD 83(1992) POSITION- 31 29 06.11368(N) 111 00 14.88249(W) NO CHECK
CG0620* NAVD 88 ORTHO HEIGHT - 1038.532 (meters) 3407.25 (feet) ADJUSTED
CG0620
CG0620 LAPLACE CORR      -           2.76 (seconds) DEFLEC09
CG0620 GEOID HEIGHT     -           -29.63 (meters) GEOID12
CG0620 DYNAMIC HEIGHT   -           1036.945 (meters) 3402.04 (feet) COMP
CG0620 MODELED GRAVITY   -           979,077.7 (mgal) NAVD 88
CG0620
CG0620 HORZ ORDER       -   THIRD
CG0620 VERT ORDER       -   FIRST      CLASS II
CG0620
CG0620.The horizontal coordinates were established by classical geodetic methods
CG0620.and adjusted by the National Geodetic Survey in August 1993.
CG0620.
CG0620.No horizontal observational check was made to the station.
CG0620.
CG0620.The orthometric height was determined by differential leveling and
CG0620.adjusted in June 1991.
CG0620
CG0620.The Laplace correction was computed from DEFLEC09 derived deflections.
CG0620
CG0620.The dynamic height is computed by dividing the NAVD 88
CG0620.geopotential number by the normal gravity value computed on the
CG0620.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
CG0620.degrees latitude (g = 980.6199 gals.).
CG0620
CG0620.The modeled gravity was interpolated from observed gravity values.
CG0620
CG0620. The following values were computed from the NAD 83(1992) position.
CG0620
CG0620;
CG0620;SPC AZ C      -           North           East           Units Scale Factor Converg.
CG0620;SPC AZ C      -   54,132.449   300,059.536   MT   0.99999268   +0 28 35.8
CG0620;SPC AZ C      -   177,599.90   984,447.30   iFT  0.99999268   +0 28 35.8
CG0620;UTM 12       -   3,483,357.649  499,607.353   MT   0.99960000   -0 00 07.8
CG0620
CG0620!
CG0620!SPC AZ C      -   Elev Factor x Scale Factor = Combined Factor
CG0620!SPC AZ C      -   0.99984160 x 0.99999268 = 0.99983428
CG0620!UTM 12       -   0.99984160 x 0.99960000 = 0.99944166
CG0620
CG0620:
CG0620:SPC AZ C      -   Primary Azimuth Mark           Grid Az
CG0620:SPC AZ C      -   ADOBE                       144 02 41.2
CG0620:UTM 12       -   ADOBE                       144 31 24.8
CG0620

```

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 7.89.2
1      National Geodetic Survey,      Retrieval Date = JULY 20, 2012
DH5754 *****
DH5754 HT_MOD      - This is a Height Modernization Survey Station.
DH5754 DESIGNATION - SAGEBRUSH
DH5754 PID        - DH5754
DH5754 STATE/COUNTY- AZ/COCHISE
DH5754 COUNTRY    - US
DH5754 USGS QUAD  - MILLER PEAK (1978)
DH5754
DH5754                                *CURRENT SURVEY CONTROL
DH5754
DH5754* NAD 83(2011) POSITION- 31 26 57.43141(N) 110 15 28.51945(W) ADJUSTED
DH5754* NAD 83(2011) ELLIP HT- 1460.921 (meters) (06/27/12) ADJUSTED
DH5754* NAD 83(2011) EPOCH - 2010.00
DH5754* NAVD 88 ORTHO HEIGHT - 1488.81 (meters) 4884.5 (feet) GPS OBS
DH5754
DH5754 NAVD 88 orthometric height was determined with geoid model GEOID09
DH5754 GEOID HEIGHT - -27.87 (meters) GEOID09
DH5754 GEOID HEIGHT - -27.87 (meters) GEOID12
DH5754 NAD 83(2011) X - -1,886,149.618 (meters) COMP
DH5754 NAD 83(2011) Y - -5,110,456.132 (meters) COMP
DH5754 NAD 83(2011) Z - 3,309,253.554 (meters) COMP
DH5754 LAPLACE CORR - -4.06 (seconds) DEFLEC09
DH5754
DH5754 FGDC Geospatial Positioning Accuracy Standards (95% confidence, cm)
DH5754 Type Horiz Ellip Dist(km)
DH5754 -----
DH5754 NETWORK 1.12 2.70
DH5754 -----
DH5754 MEDIAN LOCAL ACCURACY AND DIST (028 points) 1.45 3.46 18.59
DH5754 -----
DH5754 NOTE: Click here for information on individual local accuracy
DH5754 values and other accuracy information.
DH5754
DH5754
DH5754.The horizontal coordinates were established by GPS observations
DH5754.and adjusted by the National Geodetic Survey in June 2012.
DH5754
DH5754.NAD 83(2011) refers to NAD 83 coordinates where the reference
DH5754.frame has been affixed to the stable North American tectonic plate. See
DH5754.www.ngs.noaa.gov/web/surveys/NA2011 for more information.
DH5754
DH5754.The horizontal coordinates are valid at the epoch date displayed above
DH5754.which is a decimal equivalence of Year/Month/Day.
DH5754
DH5754.The orthometric height was determined by GPS observations and a
DH5754.high-resolution geoid model using precise GPS observation and
DH5754.processing techniques.
DH5754
DH5754.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DH5754
DH5754.The Laplace correction was computed from DEFLEC09 derived deflections.
DH5754

```