

# Oroville\_Spillway\_02-28-2017\_Project\_Metadata

## Shapefile



## Tags

Oroville Dam Spillway, Airborne LiDAR Data, Orthophoto Imagery

## Summary

The purpose of this project was to provide aerial survey documentation of site conditions following damage to the Oroville Dam Spillway. The February 28 flight was timed to be flown following the end of water releases down the damaged spillway. This work was performed by Towill, Inc. under DWR Contract 4600011239 Task Order 10.

## Description

Survey Control – Ground control survey for this project was provided by DWR. A network of aerial targets were marked and surveyed for use by Towill, Inc. and for use with unmanned aerial systems (UAS) being operated at Oroville Dam by others. Survey control values were supplied by the file "Staked Flight Panels To Date\_170228.csv" which we received on 03/01/2017 via email.

Airborne Data Acquisition - The LiDAR survey was accomplished using an Riegl VUX-1 LiDAR system operating from a rotary wing aircraft (Bell Long Ranger Tail # N60VJ). The airborne mission was conducted on February 28, 2017.

The mission plan was based on the following:

Aircraft Flight Altitude: 500' AMT

Aircraft Speed: 40 knots

Number of Flight lines: 28

Nominal Point Density: 50 PPM<sup>2</sup>

### LiDAR Data Post-Acquisition Processing

Airborne GPS Data Processing - Using Novatel, Inc.'s Grafnav version 8.20 software, the differential kinematic data was processed from two base stations, and the solutions compared. This procedure is intended to verify the integrity of the base station coordinates and elevations. Each processing session was computed in both the forward and reverse temporal directions. The comparison of these solutions is intended to provide insight into the quality of the kinematic ambiguity resolution. The horizontal and vertical datums of the LiDAR data set were realized by adjusting the coordinates of the base station points and the relative application of the geoid model to the final data set.

IMU Data Processing and Best Estimated Trajectory - The post-processed ABGPS trajectory was combined with the raw, high-frequency IMU observations in a loosely-coupled Kalman filter-based processing algorithm to produce the final high-frequency Smoothed Best Estimated Trajectory (SBET) using Applanix's POSPac software, version 4.3.

Riegl's suite of LiDAR processing tools was employed to calibrate the dataset.

#### LiDAR Data Classification

Terrasolid's Terrascan V.1.2 software was used to tile the LAS strip files into manageable size files and to run macro routines which assist in the ground classification. Shaded relief terrain surfaces were reviewed visually for artefacts which were manually reclassified as non-ground features.

Following a thorough QA/QC review by an analyst, ground points comprising the "bare-earth" surface were used to generate three separate deliverables:

ArcGIS DEM –all ground points are used with ArcGIS 10.2 to develop a 32-bit raster DEM with a 1ft GSD.

InRoads Terrain Surface – "bare-earth" ground is keypointed and MicroStation is used to create an InRoads TIN surface.

Civil 3D Surfaces - "bare-earth" ground is keypointed and AutoCAD is used to create an Civil 3D TIN surface.

#### Aerial Imagery

Aerial imagery was acquired for the study area simultaneously with the LiDAR using a Phase One iXU 1000 (100 megapixel) camera system. This was used to generate orthophoto imagery with a 0.1ft pixel resolution. The imagery was delivered as GeoTIF tiles and MrSID mosaics.

#### Credits

Towill, Inc. extends thanks to the California Department of Water Resources.

#### Use limitations

There are no access and use limitations for this item.

#### Extent

<b>West</b>	-121.515255	<b>East</b>	-121.485324
<b>North</b>	39.543677	<b>South</b>	39.530916

#### Scale Range

<b>Maximum (zoomed in)</b>	1:5,000
<b>Minimum (zoomed out)</b>	1:150,000,000

## ArcGIS Metadata ►

### Topics and Keywords ►

\* CONTENT TYPE Downloadable Data  
EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

[Hide Topics and Keywords ▲](#)

### Citation ►

\* TITLE Oroville\_Spillway\_02-28-2017\_Project\_Metadata  
CREATION DATE 2017-02-28 00:00:00  
PUBLICATION DATE 2017-03-31 00:00:00

PRESENTATION FORMATS \* digital map

[Hide Citation ▲](#)

### Citation Contacts ►

#### RESPONSIBLE PARTY

INDIVIDUAL'S NAME Dan Mardock, PLS  
ORGANIZATION'S NAME Department of Water Resources  
CONTACT'S POSITION Contract Manager  
CONTACT'S ROLE originator

#### CONTACT INFORMATION ►

PHONE  
VOICE 916-704-6914

#### ADDRESS

TYPE both  
DELIVERY POINT 1416 9th Street, Room 150  
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POSTAL CODE 95814  
COUNTRY US  
E-MAIL ADDRESS [daniel.mardock@water.ca.gov](mailto:daniel.mardock@water.ca.gov)

[Hide Contact information ▲](#)

[Hide Citation Contacts ▲](#)

### Resource Details ►

DATASET LANGUAGES \* English (UNITED STATES)  
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed  
SPATIAL REPRESENTATION TYPE \* vector

\* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.4.1.5686

CREDITS

Towill, Inc. extends thanks to the California Department of Water Resources.

#### ARCGIS ITEM PROPERTIES

\* NAME Oroville\_Spillway\_02-28-2017\_Project\_Metadata  
 \* SIZE 0.001  
 \* LOCATION file:///\\ADMBRY\C\$\_towill\jobs\2017\14750-0110 DWR Oroville Spillway and River\Metadata\Oroville\_Spillway\_02-28-2017\_Project\_Metadata.shp  
 \* ACCESS PROTOCOL Local Area Network

[Hide Resource Details ▲](#)

## Extents ►

#### EXTENT

##### DESCRIPTION

The flight mission was performed bewteen 12 noon and 1:30pm on February 28, 2017.

##### TEMPORAL EXTENT

BEGINNING DATE 2017-02-28 00:00:00

ENDING DATE 2017-02-28 00:00:00

##### VERTICAL EXTENT

\* MINIMUM VALUE 0.000000

\* MAXIMUM VALUE 0.000000

#### EXTENT

##### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

\* WEST LONGITUDE -121.515255

\* EAST LONGITUDE -121.485324

\* NORTH LATITUDE 39.543677

\* SOUTH LATITUDE 39.530916

\* EXTENT CONTAINS THE RESOURCE Yes

##### EXTENT IN THE ITEM'S COORDINATE SYSTEM

\* WEST LONGITUDE 6698390.520830

\* EAST LONGITUDE 6706806.853722

\* SOUTH LATITUDE 2319780.078405

\* NORTH LATITUDE 2324381.850652

\* EXTENT CONTAINS THE RESOURCE Yes

[Hide Extents ▲](#)

## Resource Maintenance ►

#### RESOURCE MAINTENANCE

UPDATE FREQUENCY unknown

[Hide Resource Maintenance ▲](#)

## Spatial Reference ►

#### ARCGIS COORDINATE SYSTEM

\* TYPE Projected

\* GEOGRAPHIC COORDINATE REFERENCE GCS\_NAD\_1983\_2011

\* PROJECTION NAD\_1983\_2011\_StatePlane\_California\_II\_FIPS\_0402\_Ft\_US

**\* COORDINATE REFERENCE DETAILS****PROJECTED COORDINATE SYSTEM**

WELL-KNOWN IDENTIFIER 103004

X ORIGIN -115211800

Y ORIGIN -93821500

XY SCALE 36983428.057351544

Z ORIGIN -100000

Z SCALE 10000

M ORIGIN -100000

M SCALE 10000

XY TOLERANCE 0.0032808333333333331

Z TOLERANCE 0.001

M TOLERANCE 0.001

HIGH PRECISION true

LATEST WELL-KNOWN IDENTIFIER 6418

WELL-KNOWN TEXT PROJCS

["NAD\_1983\_2011\_StatePlane\_California\_II\_FIPS\_0402\_Ft\_US",GEOGCS

["GCS\_NAD\_1983\_2011",DATUM["D\_NAD\_1983\_2011",SPHEROID

["GRS\_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT

["Degree",0.0174532925199433]],PROJECTION["Lambert\_Conformal\_Conic"],PARAMETER

["False\_Easting",6561666.666666666],PARAMETER

["False\_Northing",1640416.666666667],PARAMETER["Central\_Meridian",-

122.0],PARAMETER["Standard\_Parallel\_1",38.33333333333334],PARAMETER

["Standard\_Parallel\_2",39.83333333333334],PARAMETER

["Latitude\_Of\_Origin",37.66666666666666],UNIT

["Foot\_US",0.3048006096012192],AUTHORITY["EPSG",6418]]

**REFERENCE SYSTEM IDENTIFIER****\* VALUE** 6418**\* CODESPACE** EPSG**\* VERSION** 8.2.10(10.3.1)*Hide Spatial Reference ▲***Spatial Data Properties ►****VECTOR ►****\* LEVEL OF TOPOLOGY FOR THIS DATASET** geometry only**GEOMETRIC OBJECTS**

FEATURE CLASS NAME Oroville\_Spillway\_02-28-2017\_Project\_Metadata

**\* OBJECT TYPE** composite**\* OBJECT COUNT** 2*Hide Vector ▲***ARCGIS FEATURE CLASS PROPERTIES ►**

FEATURE CLASS NAME Oroville\_Spillway\_02-28-2017\_Project\_Metadata

**\* FEATURE TYPE** Simple**\* GEOMETRY TYPE** Polygon**\* HAS TOPOLOGY** FALSE**\* FEATURE COUNT** 2**\* SPATIAL INDEX** TRUE**\* LINEAR REFERENCING** TRUE*Hide ArcGIS Feature Class Properties ▲*

[Hide Spatial Data Properties ▲](#)

## Data Quality ►

SCOPE OF QUALITY INFORMATION ►  
RESOURCE LEVEL    **dataset**

[Hide Scope of quality information ▲](#)

DATA QUALITY REPORT - ABSOLUTE EXTERNAL POSITIONAL ACCURACY ►  
DIMENSION    **vertical**

MEASURE DESCRIPTION

QA/QC checkpoints were used to verify the dataset meets horizontal and vertical accuracy standards.

[Hide Data quality report - Absolute external positional accuracy ▲](#)

[Hide Data Quality ▲](#)

## Lineage ►

SOURCE DATA ►  
DESCRIPTION  
Data developed through aerial survey methods.

SOURCE MEDIUM NAME    **hard disk**  
[Hide Source data ▲](#)

[Hide Lineage ▲](#)

## Distribution ►

DISTRIBUTION FORMAT  
\* NAME    **Shapefile**

TRANSFER OPTIONS  
\* TRANSFER SIZE    **0.001**

[Hide Distribution ▲](#)

## Fields ►

DETAILS FOR OBJECT **Oroville\_Spillway\_02-28-2017\_Project\_Metadata** ►  
\* TYPE    **Feature Class**  
\* ROW COUNT    **2**

FIELD FID ►  
\* ALIAS    **FID**

- \* DATA TYPE   OID
- \* WIDTH     4
- \* PRECISION   0
- \* SCALE     0
- \* FIELD DESCRIPTION  
Internal feature number.
- \* DESCRIPTION SOURCE  
Esri
- \* DESCRIPTION OF VALUES  
Sequential unique whole numbers that are automatically generated.

*Hide Field FID ▲*

FIELD Shape ►

- \* ALIAS   Shape
- \* DATA TYPE   Geometry
- \* WIDTH   0
- \* PRECISION   0
- \* SCALE   0
- \* FIELD DESCRIPTION  
Feature geometry.
- \* DESCRIPTION SOURCE  
Esri
- \* DESCRIPTION OF VALUES  
Coordinates defining the features.

*Hide Field Shape ▲*

FIELD Name ►

- \* ALIAS   Name
- \* DATA TYPE   String
- \* WIDTH   254
- \* PRECISION   0
- \* SCALE   0

*Hide Field Name ▲*

FIELD FolderPath ►

- \* ALIAS   FolderPath
- \* DATA TYPE   String
- \* WIDTH   254
- \* PRECISION   0
- \* SCALE   0

*Hide Field FolderPath ▲*

*Hide Details for object Oroville\_Spillway\_02-28-2017\_Project\_Metadata ▲*

## DETAILS FOR OBJECT   Attributes

[Hide Fields ▲](#)**Metadata Details ►**

- \* METADATA LANGUAGE   English (UNITED STATES)
- \* METADATA CHARACTER SET   utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA   \* dataset  
 SCOPE NAME   \* dataset

\* LAST UPDATE   2017-04-01

## ARCGIS METADATA PROPERTIES

METADATA FORMAT   ArcGIS 1.0  
 METADATA STYLE   FGDC CSDGM Metadata  
 STANDARD OR PROFILE USED TO EDIT METADATA   FGDC

CREATED IN ARCGIS FOR THE ITEM   2017-03-31   08:10:10  
 LAST MODIFIED IN ARCGIS FOR THE ITEM   2017-04-01   71:32:80

## AUTOMATIC UPDATES

HAVE BEEN PERFORMED   Yes  
 LAST UPDATE   2017-04-01   07:12:12

[Hide Metadata Details ▲](#)**Metadata Contacts ►**

## METADATA CONTACT

INDIVIDUAL'S NAME   Brian Young  
 ORGANIZATION'S NAME   Towill, Inc.  
 CONTACT'S POSITION   Vice President  
 CONTACT'S ROLE   point of contact

## CONTACT INFORMATION ►

PHONE  
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## ADDRESS

TYPE   both  
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[Hide Contact information ▲](#)[Hide Metadata Contacts ▲](#)



## Thumbnail and Enclosures ▶

THUMBNAIL

THUMBNAIL TYPE    JPG

*Hide Thumbnail and Enclosures ▲*

## FGDC Metadata (read-only) ▼