# **Enclosure 3**

(Ref. Technical Letter F500-L14-047)

# MITRE

# Center for Advanced Aviation System Development

# Photogrammetric, Satellite-Based Survey of the Texcoco Area and Its Surroundings

# Ground Validation Visit Report

MITRE is responsible for the procurement of a satellite-based survey of the Texcoco area and its surroundings. In August, a team of survey experts from MDA Geospatial Services Inc. (MDA), the company performing the survey, visited Mexico City for a three-week period to perform ground validation work. The primary objective of the visit was to collect validation points randomly situated throughout the project areas. The information will be used to ensure that all surveyed items collected meet specifications, and that the heights derived from stereoscopic satellite imagery are accurate. This enclosure describes that work.

Prepared for

Aeropuertos y Servicios Auxiliares

September 2014



# Photogrammetric, Satellite-Based Survey of the Texcoco Area and Its Surroundings: Ground Validation Visit Report

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#### Survey of the Texcoco Area and Its Surroundings: Ground Validation Visit Report



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#### **Document Information**

Document Name:

Photogrammetric, Satellite-Based Survey of the Texcoco Area and Its Surroundings:

**Ground Validation Visit Report** 

Configuration:

GSI-RP-53-6986

Date:

8 September, 2014



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# **Acronyms**

AGL Above Ground Level

ARP Antenna Reference Point

ASA Aeropuertos y Servicios Auxiliares

CORS Continuously Operating Reference Stations

CP Check Point

EGM96 Earth Gravitational Model 1996

GCP Ground Control Point

GIS Geographic Information System

GPS Global Positioning System

INEGI Instituto Nacional de Estadística y Geografía / National Institute of

Statistics and Geography

km kilometre

MDA MDA Geospatial Services Inc.

MITRE The MITRE Corporation

MSL Mean Sea Level

ORI Orthorectified Image

PSA Photogrammetric Survey Area

QC Quality Control

WGS84 World Geodetic System 1984



#### 1 INTRODUCTION

The Ground Validation Visit Report provides an overview of the process and collection of Obstructions and validation measurement within the Project area. Both strategic and random approaches were used to cover all of Area A and the Photogrammetric Survey Area (PSA) for validation purposes.

The project titled the Photogrammetric, Satellite-Based Survey of the Texcoco Area and Its Surroundings (hereafter referred to as the "Project") began on 17 March 2014. The survey will be used to support The MITRE Corporation (hereafter referred to as "MITRE") in conducting aeronautical analyses in support of Aeropuertos y Servicios Auxiliares (hereafter referred to as "ASA"). To summarize in-country progress to date: the first component of the Project was to hold a Kick-Off meeting which took place 28 April 2014; the second was to perform the Site Assessment Visit from 29 April through 2 May 2014; and the third was the Ground Truth Visit which took place from 9 through 20 June 2014.

This report details the fourth component, the Ground Validation Visit, which took place in Mexico City from 4 through 22 August 2014. MDA had two teams in country over the course of three weeks. Team One included Mr. Gyan Verma and Mr. Shane McConachie. Team Two consisted of Mr. Geoff Johnston and Mr. Ian MacCulloch. The Project Manager, Ms. Suzanne Brunke, participated for four work days (15, 16, 18 and 19 August) working with Mr. McConachie on 15, 18 and 19 August and with Mr. Johnston on 16 August.

Ing. Jorge Nevárez Jacobo facilitated and coordinated the visit. Ing. Nevárez assigned Ing. David de Jesús Zúñiga as the principle translator and main point of contact for MDA Geospatial Services Inc. (hereafter referred to as "MDA") during the Ground Validation Visit. Also assigned to help with the team were translator Ing. Joaquín Edmundo Ramírez Reyes, as well as drivers Sr. Victor Espinoza and Sr. Salvador Castro Barrios. All ASA personnel were very helpful in ensuring the success of the Ground Validation Visit during the three-week period.

The primary objective of the Ground Validation Visit was to collect Validation points randomly situated throughout the project areas. The points collected will be used during analysis to ensure that all items are collected to survey specifications, and to ensure that the heights derived from stereoscopic satellite imagery are accurate. The secondary objectives were to collect Check Points ("CP") that tied into the Instituto Nacional de Estadística y Geografía ("INEGI") benchmark system, which will be used to help calculate final accuracies, and to visit the few remaining sites that required permission to access.

The final height measurement, whether acquired in the field or via stereoscopy will reflect the top-height of any feature, including any antennas on the tops of buildings. These features included buildings, towers, power-line towers (including the power line running between towers), trees, bridges, poles, posts, and antennas (the "Obstructions").



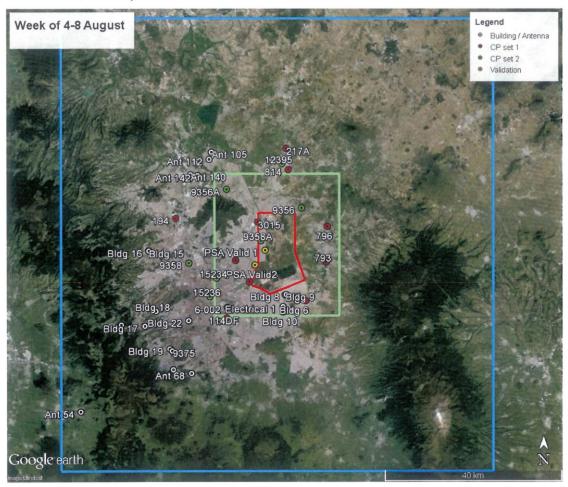
#### 2 COORDINATION AND PLANNING

Coordination and planning are critical to the objective of the Project.

#### 2.1 Planning

In July and early August, Ms. Brunke provided MITRE and ASA with a list of coordinates that outlined the daily areas that each team was to visit. For example, week one is depicted in Figure 1. These daily areas could be modified in the field as required, and some of the points were altered depending on circumstances.

Ing. de Jesús worked with Mr. Verma and Mr. McConachie in the morning of Monday, 4 August 2014 to prepare a plan for the entire Ground Validation Visit. Each morning, MDA personnel would be in the Lobby of the hotel with that day's points loaded in GoogleEarth on a laptop computer. These points were discussed briefly with the ASA personnel and then saved and loaded into the vehicle navigation system, which assisted in determining the best route to access the required areas.



Source: GoogleEarth

Figure 1 – Week 1, Team 1: Areas to Visit as Planned with ASA



Ms. Brunke requested that ASA prepare an official letter on company letterhead, in Spanish, to state the purpose of the survey and description of the equipment that was being brought into Mexico for the Ground Validation Visit. This letter was prepared in Mr. Verma's name as he was the sole importer of the equipment.

ASA arranged for the use of a fifteen-passenger Toyota van (Figure 2) and professional drivers, Srs. Espinoza and Castro, for the first week of the Ground Validation Visit. Ing. Ramírez also accompanied Ing. de Jesús and the team to learn the procedures and ease the transition between weeks for the logistics support.



Figure 2 – Toyota Van Provided by ASA for Ground Validation Visit

MDA arranged for the rental of a 2011 Ford F-150 4x4 truck from Oxus Servicios de Logistica, with driver Sr. José Luis Hinojosa Sandoval. The truck was used to access locations that were in steep terrain or along rough roads. A photograph of the truck is shown in Figure 3.



Figure 3 – Ford F-150 Truck Rented by MDA for Ground Validation Visit



#### 2.2 Survey Equipment

To execute the Ground Validation Visit, MDA brought the following survey equipment from Canada to Mexico (Table 1).

Table 1 – MDA Equipment used during the Ground Validation Visit

Quantity	Equipment	
2	Trimble GeoXT Explorer 6000 Global	
	Positioning Systems	
2	Trimble Hurricane Antennas	
2	TruPulse 360B Laser Range Finders	
1	Canon SX280 GPS Digital Camera	
1	Canon PowerShot D30 GPS Digital Camera	
2	Dell E6430 Laptops	
1	TomTom GPS Navigation System	
1	Mio GPS Navigation System	

The Trimble GeoXT Explorer 6000 is a high performance Global Positioning System ("GPS") receiver with an on-board computer. The Trimble Hurricane Antenna was used to obtain a higher yield of GPS satellite positions and to improve performance and accuracy. The TruPulse Laser Range Finders are used to take height measurements of objects up to 2 km away while performing fieldwork. Also included were two Canon GPS equipped digital cameras for taking photographs of the Obstructions that were measured, and two Dell laptops equipped with ArcGIS and GoogleEarth Pro. Two vehicle navigation systems were used to assist the drivers in accessing little known roads; one was a TomTom Car GPS and the other a Mio Car GPS, both outfitted with Mexico street maps.



#### 3 DATA INVENTORY

A well-organized data inventory is essential to the success of the survey.

Building a data inventory is a key component and contributor to the success of the survey. It provides vital information relevant to the measurement of the terrain and Obstructions, and assists with evaluation, planning, execution, and quality assurance of the survey. Data to be integrated into the Project inventory include: geospatial data in the public domain, MDA collected CPs, INEGI Benchmarks, Third Party CPs, MDA collected Obstruction features, and satellite imagery and information that MDA will derive from the satellite imagery.

#### 3.1 Check Points

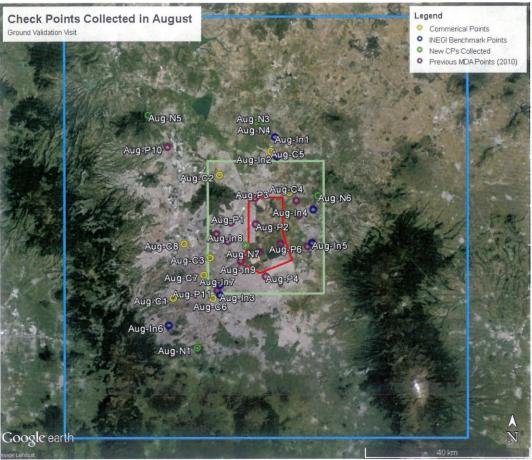
36 CPs were collected during the Ground Validation Visit for use as elevation validation points and to assist in the final accuracy assessment of the project. Of these, nine were INEGI Benchmarks, eight were Commercial Points that were purchased by MDA from a third party source, twelve were points collected for use the 2010 Texcoco Survey, and seven were new CPs. The seven new CPs were collected in areas that did not have Ground Control Points ("GCP") in the immediate vicinity. The locations of the seven new CPs are included in Appendix A. The third party Commercial CPs were located throughout areas visited during the trip in locations that were previously selected and measured by the company that acquired them (Figure 4).

MDA chose to measure additional points, either collected by commercial third parties or Mexico's own INEGI Geodetic Network of benchmarks, to ensure that the final Project accuracies have an independent validation reference. The breakdown of the sources of CPs is listed in Table 2.

Table 2 – MDA Collected CPs during Ground Validation Visit

Quantity	Equipment	
9	INEGI Benchmarks	
8	Third Party Commercial Points	
12	2010 MDA GCPs	
7	CPs collected in New Areas	





Source: GoogleEarth

Figure 4 – Thirty-Six CPs were Collected during Ground Validation Visit

#### 3.2 Obstructions

530 Obstructions were measured during the Ground Validation Visit (see details in Section 4). Some of the Obstructions were measured to be less than 60 m Above Ground Level (AGL), but will remain in the database to avoid confusion when all the data for Quality Control ("QC") is amalgamated. Once the complete dataset is ingested into the Project Geographic Information System ("GIS"), filters will be applied to ensure that only Obstructions that meet the specification are delivered in the Obstruction dataset. Note that a list of Obstruction heights measured in the field, even if the final height is less than in 60 m AGL, will be provided in a separate Excel spreadsheet.

The Obstructions were differentially post-processed at the MDA office in Vancouver using Continuously Operating Reference Stations ("CORS") to calculate the difference between the positions transmitted by the satellite systems and the known fixed locations. The CORS system enables positioning accuracies that approach a few centimetres relative to the National Spatial Reference System, both horizontally and vertically. The Toluca CORS site location was used, as shown in Table 3 and Figure 5, which transmits at a 15 second interval. The Toluca station was operational for the majority of the Ground Validation Visit, as shown in the data availability profile in Figure 6, for Julian days 216 through 235. There



were two significant outages during the Ground Validation Visit, one on Tuesday 5 August and one on Tuesday 19 August, both from approximately 2pm until midnight. The accuracies of any CPs collected during these outages may have a lower final accuracy than those with complete coverage by the base station.

Table 3 – Antenna Reference Point ("ARP") Data Used in Processing CPs and Obstructions

ARP: TOLUCA CORS ARP

PID = DH8722

Latitude and Longitude = 19° 17 35.64360 N, 99° 38 36.49913 W

Note: The PID is the Permanent Identifier, which is assigned to each CORS station as a unique code.



Source: GoogleEarth and National Oceanic and Atmospheric Administration

Figure 5 – Location of CORS Site Used to Post Process CPs and Obstructions



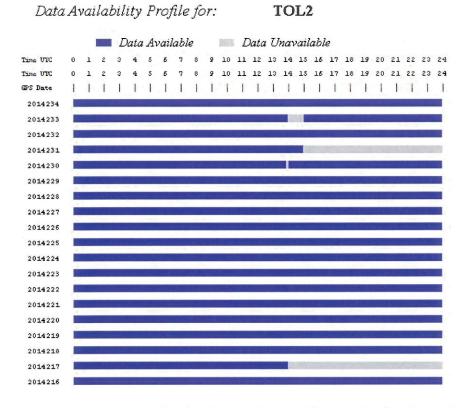


Figure 6 – Data Availability Profile for 15 Second Toluca CORS Base Station

Post-processing was used to improve the accuracies of the CPs collected. Table 4 shows the accuracy results for the post-processed CPs.

Table 4 – Accuracy Results for Post-Processed CPs

Toluca "TOL2" CORS Base Station Accuracies
A total of 3556 (99.6%) of 3572 positions were differentially
corrected
Estimated accuracies (68%) for 3572 positions are as follows:
0 - 15cm 0%
15 - 30cm 5.7%
30 - 50cm 66.6%
0.5 - 1m 21.5%
1 - 2m 2.1%
2 - 5m 4.1%
> 5m 0.1%



#### 3.2.1 Field Checks

MDA collected both CPs and validation points as part of the Ground Validation Visit. A validation point is where the Team would set up the GPS and Laser RangeFinder, wait for the GPS instrument to reach the accuracy threshold (< 1 m X, Y, Z), and then proceed to measure and record all Obstructions within sight (the "Validation Point").

At each CP and Validation Point, a GPS reading was acquired for latitude, longitude, and elevation in meters above Mean Sea Level ("MSL"). At every CP location, multiple reference photographs attributed with the camera's GPS coordinates were taken including: (1) a detailed photograph of the ground position of the GPS instrument, and (2) several perspective and overview photographs of the location from each direction. Notes were taken on the location and surrounding features, including a sketch map and data from the GPS instrument.

Table 5 shows an example of the field validation table that was used for taking notes. At every Validation Point location, all Obstructions within sight of that location were measured and recorded in the field note tables (Table 6). The GPS data sheets were also tabulated into Excel format to be incorporated into the Project GIS database.

Table 5 - Field Validation Table for Obstructions Observed and Measured

DATE:		GPS UNIT:		CAMERA	A:	TEAM:		
POINT ID	OTHER ID	HT OBSERVED	OBSTAC	LE TYPE	LATITUDE	LONGITUDE	PHOTO No.	COMMENTS

#### Table 6 - Field Table for CP points

POINT ID:	REF:
DATE:	STAFF:
START TIME:	END TIME:
GPS INSTRUMENT:	No OF POINTS:
PDOB/HDOB:	SATELLITES:
ACCURACY:	POST PROCESS ACCURACY:
LATITUDE:	LONGITUDE:
PHOTO Numbers:	
COMMENTS:	



#### 3.2.2 Ground Validation Survey

This report documents the Ground Validation Visit, which has the key objectives to verify and validate measurements from the stereoscopic satellite imagery using randomly selected locations, as well as to visit locations that require special permission to access.

A two stage cluster sampling technique was chosen to select geographic areas for sampling. The stereoscopic area of interest, Area A, was divided into 1 km by 1 km grid cells. A simple random sample was performed using a random selection tool in MDAs ArcGIS database. Sampling was limited by cost and availability, so only cells that included 100 or more points of interest from the 2010 survey were included in the sampling selection (Figure 7).

From the 1 km by 1 km cell, the randomly selected cells were then subdivided into 100 m by X 100 m cells. Cells with more than five points of interest were identified and added to the list of those that could be randomly selected for sampling. Those selected are illustrated in Figure 7. The MDA team entered each grid cell and collected Obstructions from all points in view from the base point.

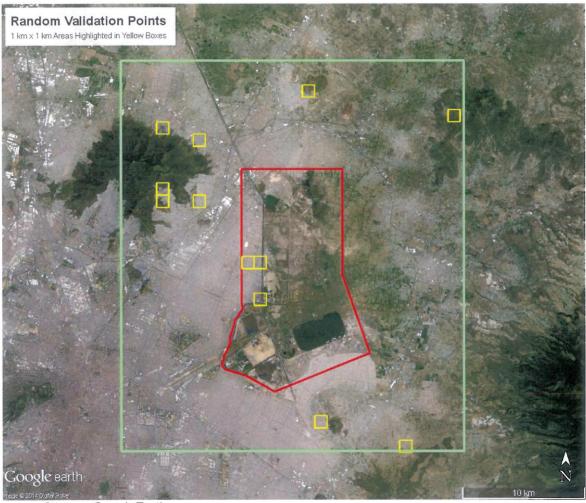


Figure 7 – Randomly Selected Validation Areas in Blue based on Volume of Points Collected in 2010 Survey



The MDA team entered each grid cell and collected Obstructions from all points in view from the base point. There are twelve official randomly selected validation areas. MDA measured and documented between five and ten Obstructions at each area with a variety of profiles, i.e. buildings, antennas, poles, trees.

In addition to the twelve random validation areas, MDA also collected and measured visible features from each stop that the teams made whether it was at a CP location or any Obstruction along the route. The twelve locations can be seen outlined in Figure 8 below. This validation approach was selected to satisfy the accuracy achieved with random sampling, and make the most out of MDA and ASA personnel's time in the field.



Source: GoogleEarth

Figure 8 - Randomly Selected Validation Areas Outlined in Yellow



#### 4 OBSTRUCTION COLLECTION

Field measurements of valid Obstructions provide accurate height and location information to ensure a comprehensive, accurate survey.

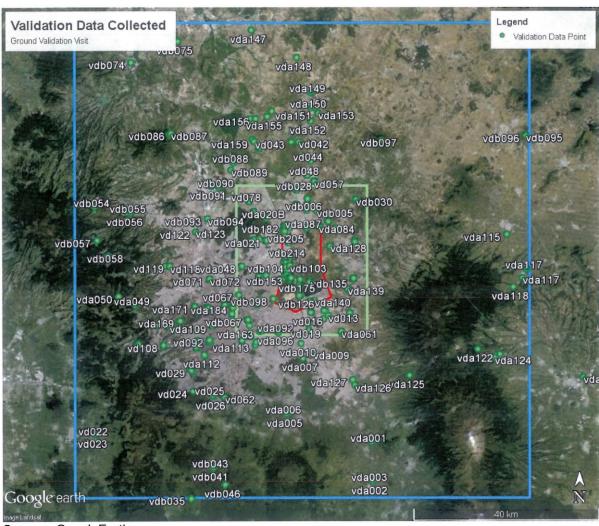
Obstruction data collection within the stereoscopic image area was the primary task for the duration of the Ground Validation Visit. The teams systematically went to each assigned daily area to measure all visible Obstructions using a GPS and a Laser Range Finder (Figure 9). During week two of the Ground Validation Visit, two teams of MDA personnel were in the field collecting data. One team used the ASA van to drive to the easily accessible areas, and the second team used the Oxus Ford F-150 Truck for the difficult areas; both teams had the task of collecting CPs that had been previously selected and to collect Obstructions at all locations. The collection was always conducted by a team of two MDA personnel, with team members alternating between the ASA van and the Ford F-150 truck.



Figure 9 – Mr. McConachie Measuring the Height of a Church on Cerro de Las Promesas (vdb030)



The locations of the 530 validation points that were measured during the Ground Validation Visit are provided in Figure 10. The green dots illustrate the locations where the team measured heights AGL using the Laser Range Finder. The naming convention is "vd" for validation data, "vda" for validation data collected by Team 1, and "vdb" for validation data collected by Team 2.



Source: GoogleEarth

Note: Some Obstructions are located too close to each other for the map scale, resulting in some of the 530 Obstructions overlapping.

Figure 10 – Location of 530 Obstructions Measured during Ground Validation Visit



#### 4.1 Week of 4-8 August

On Monday, 4 August Mr. Verma and Mr. McConachie met Ing. de Jesús, Srs. Ramirez, Espinoza and Castro in the lobby of the Hilton Airport Doubletree Hotel. Mr. Verma introduced Mr. McConachie to the ASA Team, who would provide support and drive the MDA personnel in the ASA supplied van during the first week of the Ground Validation Visit. Mr. Verma and Ing. de Jesús then discussed the overall Ground Validation Visit Survey Plan to ensure both parties were in agreement.

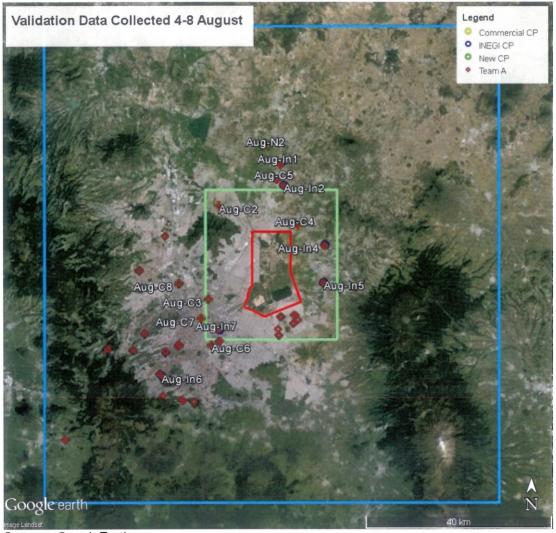
The team then proceeded to drive to each days allotted points and/or areas to collect Obstructions and CPs as per the weekly plan. The team followed public roads in the region, stopping to measure several INEGI Benchmarks (Figure 11) and validation areas.



Figure 11 – Collecting and Measuring INEGI Benchmark 793 Located South of Texcoco along Highway 136 (inset shows an actual INEGI marker at this location)

During the week of 4-8 August, the team collected 123 validation points and 16 CPs. The locations of these points, collected by Team A, are shown in Figure 12 in red diamonds.





Source: GoogleEarth

Note: Some validation points and CPs are located too close to each other for the map scale, resulting in some points overlapping and not visible.

Figure 12 – Validation Points and CPs Collected 4-8 August

On Thursday and Friday the team visited both the Santa Lucía Military Base (Figure 13) and the Military College (Figure 14). These two locations took some time to access and discuss logistics and requirements with the Military personnel, which necessitated some of the points planned for those days to be moved to later that week and the following week.





Figure 13 - Collecting CPs at Santa Lucía Military Base



Figure 14 - The Survey Team at the Military College with General Benjamín Romero



#### 4.2 Week of 11-16 August

Two full teams performed fieldwork during the week of 11-15 August. One team went in the ASA van with translator Ing. Ramírez and driver Sr. Castro, and the other team went in the Ford F-150 truck with translator Ing. de Jesús and driver Sr. Hinojosa.

The Ford F-150 truck and driver Sr. Hinojosa were a beneficial addition to the team in that it enabled the team to access some Obstructions in very steep terrain, and saved many hours relative to the time it would have taken if required to access these sites on-foot. One of the mountains that the Ford F-150 truck drove to the top of was Cerro Gordo which is situated to the northeast of Area A as shown in Figure 15.

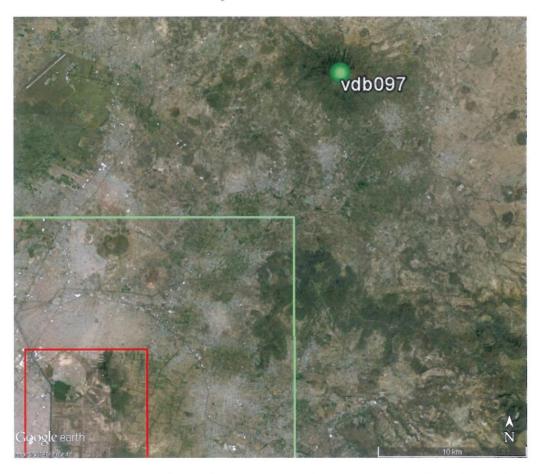


Figure 15 - Location of Cerro Gordo in Area B, Accessed by Ford F-150 Truck

12 antennas were measured on Cerro Gordo having heights ranging from 21 m to 65 m in height AGL. The tallest of the antennas, and the only one greater than 60 m AGL, is numbered vdb097 and can be seen in Figure 16.



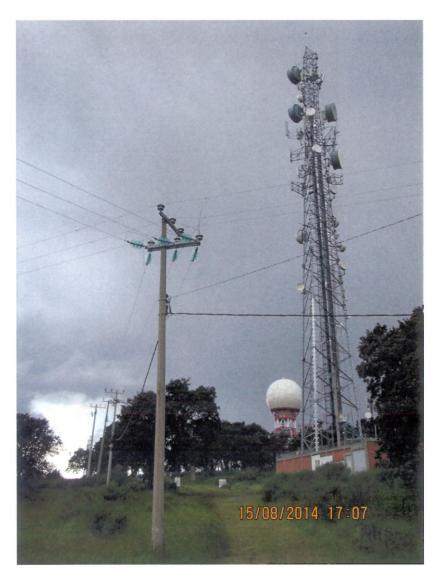


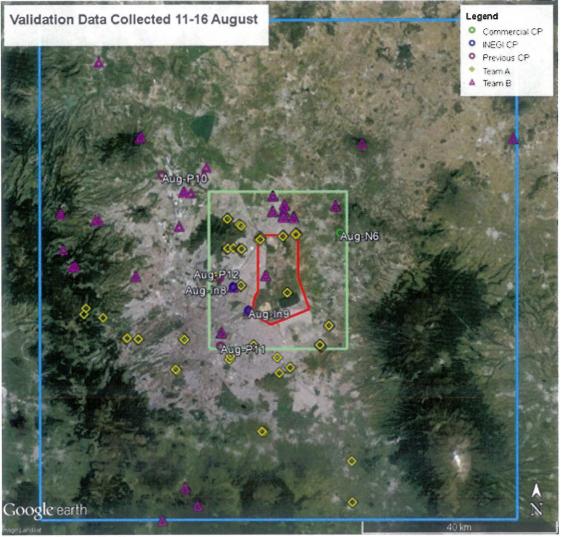
Figure 16 – Collecting Antenna Heights on Cerro Gordo, Antenna Pictured (vdb097)

Measured to be 65 m AGL

The Project Manager, Ms. Brunke, arrived in Mexico City on Thursday 14 August and joined the Ford F-150 truck crew for the acquisition of data on 15 August. MDA requested that ASA provide personnel and a van for one Saturday work day (16 August) and ASA generously granted this request. Ms. Brunke and Mr. Johnston worked with Ing. de Jesús and driver Sr. Castro for the day. This additional work day enabled the team to acquire data over three CP and five validation areas.

During the week of 11-15 August, Teams A and B collected 224 validation points and six CPs. The locations of these points are shown in Figure 17. The points from Team A are depicted in yellow diamonds, and the points from Team B are depicted in pink triangles.





Source: GoogleEarth

Note: Some validation points and CPs are located too close to each other for the map scale, resulting in some of the points overlapping and not visible.

Figure 17 - Validation Points and CPs Collected 11-15 August



#### 4.3 Week of 18-22 August

The final week of the Ground Validation Visit had two teams in the field for Monday and Tuesday, and then one team completing the data collection for the rest of the week. ASA supplied the vans used to navigate to the areas required, as well as ASA translators lngs. de Jesús and Ramírez along with drivers Srs. Espinoza and Castro.

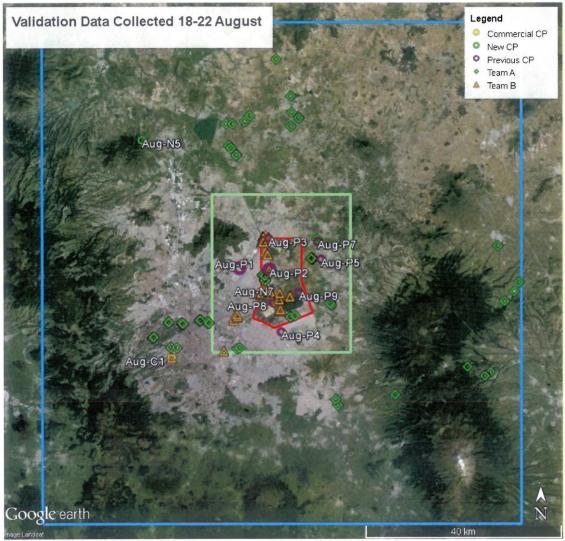
Having two teams for the first two days of week three ensured that all target areas would be validated and all CPs would be collected. Team 1 had two longer days collecting data in the far west and northern central parts of Area B, while Team 2 focussed on acquiring additional validation data on and in the PSA. Some of the validation points collected in the PSA were of particular interest to MITRE for completing their Aeronautical analyses. These included cranes, such as the one shown in Figure 18 (with a height of 45 m AGL), plus highway overpasses and tall light stanchions.



Figure 18 - Collecting Obstruction (OBS 06) near town of Guadalupe

During the week of 11-15 August, the team collected 193 validation points and eleven CPs. The locations of these points are shown in Figure 19. The points from Team A are depicted in green diamonds, and the points from Team B are depicted in orange triangles.





Source: GoogleEarth

Note: Some validation points and CPs are located too close to each other for the map scale, resulting in some of the points overlapping and not visible.

Figure 19 - Validation Points and CPs Collected 11-15 August



#### 5 CONCLUSION

The next steps towards completion of the survey.

MDA will utilize the validation data and independent CPs collected during the Ground Validation Visit in conjunction with the all of the previously collected data and the WorldView-2 satellite imagery to build a comprehensive GIS model. MDA will use ESRI ArcGIS software to build a File GeoDatabase, which will link information collected in the field (i.e. field photos, sketches, measurements) as an attribute to each spatial data component.

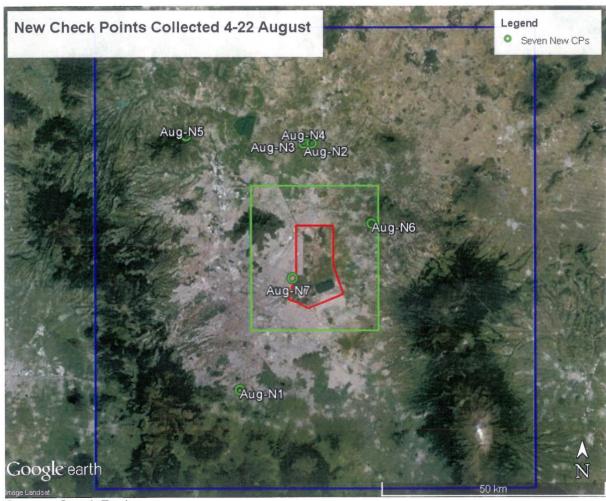
This GIS database will be used to perform QC for completeness, verification and accuracy. Planimetric data collected in stereographic models will be ingested as an additional data layer that can be toggled on or off while scanning through the dataset with the Orthorectified Image (the "ORI") for a detailed analysis of the survey.



#### APPENDIX A

### **Description of Control Points**

36 CPs were collected during the Ground Validation Visit. The INEGI Benchmarks are copyright INEGI, and the Commercial Points were purchased by MDA from a third party source, and verified by MDA. The locations of the seven new MDA CPs are depicted in Figure A-1. Details on each of the CPs are provided in Figures A-2 through A-8.



Source: GoogleEarth

Figure A-1 – Seven CPs collected during Ground Validation Visit



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID: Aug N1	Collection Date: 7 August 2014	Instrument: Trimble GeoExplorer
Latitude: 19° 15' 32.14"N	Longitude: 99° 08' 59.13" W	Height (MSL): 2336.385 m
Project Area: Heroico C	olegio Militar	Datum: World Geodetic System 1984 (WGS84)/ Earth Gravitational Model 1996 (EGM96)







Figure A-2 - Description of CP Aug N1



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID:	Collection Date: 6 August 2014	Instrument: Trimble
Aug N2		GeoExplorer
Latitude:	Longitude:	Height (MSL):
19° 45' 02.41" N	99° 00' 48.20" W	2242.903 m
Project Area: Santa Lucía Military Base		Datum: WGS84/EGM96







Figure A-3 – Description of CP Aug N2



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID:	Collection Date: 6 August 2014	Instrument: Trimble
Aug N2		GeoExplorer
Latitude:	Longitude:	Height (MSL):
19° 45' 03.26" N	98° 59' 46.37" W	2243.304 m
Project Area: Santa Luc	ía Military Base	Datum: WGS84/EGM96





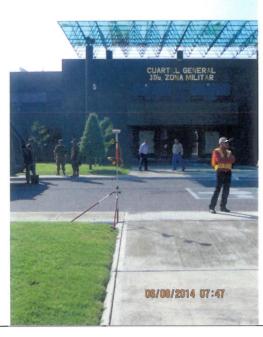


Figure A-4 – Description of CP Aug N3



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID: Aug N4	Collection Date: 6 August 2014	Instrument: Trimble GeoExplorer
Latitude: 19° 45' 06.69" N	Longitude: 99° 00' 42.47" W	Height (MSL): 2242.308 m
Project Area: Santa Lucía Military Base, Site of New Control Tower being Built		Datum: WGS84/EGM96







Figure A-5 – Description of CP Aug N4



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID: Aug N5	Collection Date: 14 August 2014	Instrument: Trimble GeoExplorer
Latitude: 19° 30' 01.59" N	Longitude: 99° 02' 27.75" W	Height (MSL): 2740.841 m
Project Area: Antennas on Sierra de Tepotzotlan		Datum: WGS84/EGM96







Figure A-6 – Description of CP Aug N5



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID: Aug N6	Collection Date: 15 August 2014	Instrument: Trimble GeoExplorer
Latitude:	Longitude:	Height (MSL): 2622.453 m
19° 35' 26.15" N	98° 52' 07.95" W	
Project Area: Church at the Summit of Cerro de Las Promesas		Datum: WGS84/EGM96



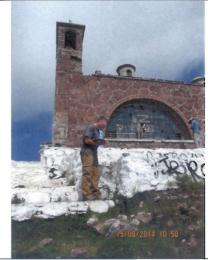




Figure A-7 - Description of CP Aug N6



Project: Texcoco Area Survey	Country: Mexico	Region: Texcoco Area, Mexico
Control Point ID: Aug N7	Collection Date: 16 August 2014	Instrument: Trimble GeoExplorer
Latitude: 19° 28' 55.01" N	Longitude: 99° 03' 14.68" W	Height (MSL): 2222.772 m
Project Area: Ciudad Nezahualcóyotl		Datum: WGS84/EGM96







Figure A-8 – Description of CP Aug N7