# 010010X SURVEY REQUIREMENTS DURING CONSTRUCTION (AGIS)

**PART 1 - GENERAL**

* 1. **DESCRIPTION**

This item shall consist of all labor and materials necessary to provide required construction survey data in accordance with the current issue of FAA Advisory Circulars 150/5300-16/17/18. Work shall be completed in accordance with the Project Specifications and the Contract Drawings. The efforts described in this specification section are in addition to the Record Drawings/As-Built Drawings required under SP-8.08 of the MAA Standard Provisions for Constructions Contracts, Volume 1, December 1993.

* 1. **SURVEY AND QUALITY CONTROL PLAN REQUIREMENTS DOCUMENTATION**

It is the Contractor’s responsibility to become familiar with the various aspects of the current issued Advisory Circulars 150/5300-16/17/18, Federal Aviation Administration, Department of Transportation.

* 1. A copy of the project specific Statement of Work (SOW) approved by FAA for this project is included in this section. The SOW defines the overall project intent and scope. It shall be the Contractor’s responsibility to provide a Survey and Quality Control Plan to the Engineer for upload to the Federal Aviation Administration’s (FAA) Airports GIS (AGIS) website for approval. The Contractor shall be responsible for revising the plan as necessary to obtain FAA approval, based on comments from the FAA or MAA. Additionally, a Geodetic Control Plan shall also be provided for upload to AGIS and FAA approval. Additional plans may be required depending on the nature of the survey.

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| ***Designer shall provide the approved Statement of Work (SOW) in this specification section. Designer shall coordinate with MAA Task Manager to create the required FAA-AGIS project and submit the SOW for approval during the design process.*** |

* 1. **RELATED DOCUMENTS**

Drawings and general provisions of the Contract, including Maryland Department of Transportation/Maryland Aviation Administration Standard Provisions for Construction Contracts Volume 1, December 1993, and Interim Standard Provisions Addenda (ISPA) dated February 2004 for Construction Contracts; and other Division 01 Specification Sections, apply to this Section.

* 1. **DEFINITIONS**
1. **Airports GIS (AGIS) -** The Airports Surveying-GIS program helps the Federal Aviation Administration (FAA) collect airport and aeronautical data to meet the demands of the Next Generation National Airspace System.
2. **Statement of Work (SOW) –** Defines the Scope of Services that will be required for the completion of the project. The SOW identifies the types of survey to be accomplished.
3. **Geodetic Control Plan –** A plan for establishment or verification of the required geodetic control for the project. Geodetic control consists of the Primary Airport Control Station (PACS) and Secondary Airport Control Station (SACS).
4. **Imagery Plan –** A plan for acquiring data describing the physical infrastructure of an airport (mapping) through remote sensing technologies (i.e.: aerial photogrammetric mapping or LIDAR).
5. **Survey and Quality Control Plan –** A plan requiredfor submission and approval through the AGIS site prior to the start of any data acquisition efforts. The plan details the methodologies for data collection, data safeguarding and quality assurance. It also documents methods for checking all data.

**PART 2 – PRODUCTS**

Not Used.

**PART 3 - EXECUTION**

* 1. **GENERAL REQUIREMENTS**

All federally funded airfield construction projects require submission of geometric data to the FAA through the AGIS website portal. Depending on the nature of the construction involved field survey and location of various features is required. It shall be the Contractor’s responsibility to survey the necessary features and in the format prescribed as defined herewith and in conjunction with the requirements of the current issued Advisory Circular 150/5300-18.

The data shall be provided to the Engineer in a manner and time specified in the contract documents and will serve as the basis for the required submission to FAA.

The Contractor shall be required to provide required Plans specific to the type of survey and equipment to be used as required by FAA and shall be responsible for any revisions required for FAA approvals.

* 1. **REQUIRED TASKS**

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| ***The following list is a compilation of the types of projects that must utilize the AGIS process if the project is Federally Funded, with corresponding activities and items. The Designer shall edit this section to provide only the project type and activities applicable to the proposed project and delete the other types that are not applicable. Designer shall refer to the latest version of AC 150/5300-18 to verify the project types and required data.*** |

* + 1. **SURVEYS FOR NAVIGATIONAL AID SITING (PRECISION)**

The following summarizes construction survey requirements for alterations to NAVAIDS, refer to the current issued FAA AC 150/5300-18; for additional details and all required elements.

1. Provide a Survey and Quality Control Plan.
2. Validate Airport Geodetic Control.
3. Perform, document and report the tie to National Spatial Reference System (NSRS).
4. Survey and monument runway end(s)/threshold(s). Document runway end(s) and threshold(s) locations.
5. Identify, survey, and monument displaced threshold(s). Document runway displaced threshold(s) locations.
6. Determine runway profile using 10 foot (50 foot) stations. All CFR Part 139 Airports require 10 foot stations. At all other airports the distance between stations is between 10 and 50 feet to meet local requirements.
7. Determine the touchdown zone elevation (TDZE).
8. Determine runway true azimuth.
9. Determine or validate and document the position of navigational aids.
10. Determine or validate and document the position of runway abeam points of navigational aids.
11. Determine potential navigational aid screening objects.
12. Perform or validate and document an airport airspace analysis.
13. Perform or validate a topographic survey.
14. Document features requiring digital photographs or sketches.
15. Provide a final Project Report.
	* 1. **SURVEYS FOR AIRSIDE CONSTRUCTION PROJECTS**

The following summarizes construction survey requirements for Airside Construction Projects, refer to the current issued FAA AC 150/5300-18; for additional details and all required elements.

1. Provide a Survey and Quality Control Plan.
2. Validate Airport Geodetic Control.
3. Survey and monument runway end(s)/threshold(s). Document runway end(s) and threshold(s) locations.
4. Identify, survey, and monument displaced threshold(s). Document runway displaced threshold(s) locations.
5. Determine or validate runway width and length.
6. Determine runway profile using 10 foot stations, including 10-foot off-set profiles on each side of runway centerline.
7. Perform or validate and document an airport airspace analysis if new runway or runway extension construction is involved.
8. Collect and validate helicopter touchdown lift off area (TLOF) if applicable.
9. Collect and validate helicopter final approach and takeoff area (FATO) if applicable.
10. Collect or validate and document airport planimetric data.
11. Determine or validate the elevation of the Air Traffic Control Tower Cab Floor if applicable.
12. Perform or validate a topographic survey.
13. Document features requiring digital photographs or sketches.
14. Provide a final Project Report.
	* 1. **SURVEYS FOR PAVEMENT DESIGN PROJECTS**

This section includes survey requirements for all Pavement Design projects including construction, rehabilitation, and/or roughness.Refer to the current issued FAA AC 150/5300-18; for additional details and all required elements.

1. Provide a Survey and Quality Control Plan.
2. Validate Airport Geodetic Control.
3. Survey and monument runway end(s)/threshold(s). Document runway end(s) and threshold(s) locations.
4. Identify and survey displaced threshold(s). Document runway displaced threshold(s) locations.
5. Determine or validate runway width and length.
6. Determine runway profile using 10 foot stations, including 10-foot off-set profiles on each side of centerline.
7. Determine the touchdown zone elevation (TDZE).
8. Collect and validate helicopter touchdown lift off area (TLOF) if applicable.
9. Collect and validate helicopter final approach and takeoff area (FATO) if applicable.
10. Provide a final Project Report.
	* 1. **SURVEYS FOR AIRPORT TOPOGRAPHY**
11. Provide a Survey and Quality Control Plan.
12. Validate Airport Geodetic Control and tie topographic surveys to the National Spatial Reference System.
13. Survey and monument runway end(s)/threshold(s). Document runway end(s)/threshold(s).
14. Obtain topographic shots sufficient to provide 1-foot contour intervals (see Table 2-5, AC 150/5300-18 for Map Accuracies) and 1” = 50’ mapping.
15. Provide spot elevations covering the entire survey limits showing high points, low points, and grade changes.
16. Location and elevation of major permanent features, including structures for underground utilities.
17. Location of visual aids such as runway and taxiway lights and signage, and NAVAIDS facilities within the survey area.
18. Document the location of piers, culverts and docks if applicable.
19. Document the location of airfield pavement, pavement markings, roads, parking areas and sidewalks, if applicable.
20. Location and elevation of any water (lakes, streams, etc.) within the survey area.
21. Outline the perimeter outline of wooded areas.
22. Develop contours at 1-foot intervals and mapping at 1” = 50’, using Map Accuracies shown in Table 2-5 of AC 150/5300-18.
	* 1. **SURVEYS FOR CATEGORY II/III OPERATION AREAS**
23. Provide a Survey and Quality Control Plan.
24. Validate Airport Geodetic Control and tie topographic surveys to the National Spatial Reference System.
25. Survey and monument runway end(s)/threshold(s). Document runway end(s)/threshold(s).
26. Obtain topographic shots sufficient to provide 1-foot contour intervals (see Table 2-5, AC 150/5300-18 for Map Accuracies) and 1” = 50’ mapping within the CAT II/III Operations Area affected by this project.
27. Provide spot elevations covering the entire survey limits showing high points, low points, and grade changes.
28. Location and elevation of major permanent features, including structures for underground utilities.
29. Location of visual aids such as runway and taxiway lights and signage, and NAVAIDS facilities within the survey area.
30. Develop contours at 1-foot intervals and mapping at 1” = 50’, using Map Accuracies shown in Table 2-5 of AC 150/5300-18.
	1. **FORMAT OF DELIVERABLES**

The following deliverables are required as part of this project. Further descriptions of these deliverables can be found in AC 150/5300-18. All survey shall comply with the requirements of FAA Advisory Circulars 150/5300-16/17/18, latest editions, as necessary. The contractor shall be responsible for any edits or revisions necessary until the data is accepted by FAA.

1. Survey and Quality Control Plan and other Plans as described above.
2. Weekly Project Status Reports.
3. Final Project Report.
4. Field Note Information and Data.
5. Digital Files.
6. Documentation required for each feature.
7. Raw observational data.
8. Final processing, adjustment or reduction files.
9. Digital photographs to document monuments used and data collected.
10. Documents or sketches in PDF or similar format.
11. Geospatial Vector Files in any of the following formats:
	1. DWG/DXF (Autodesk AutoCAD)
	2. SHP (ESRI Shapefile)
	3. DGN (MicroStation Design File)

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| ***If applicable, the Designer shall establish milestones and liquidated damages in the contract to ensure that required survey data is received in a timely manner in order to allow the AGIS process enough time and ensure that FAA is able to commission required facilities as necessary.*** |

**PART 4 – METHOD OF MEASUREMENT**

No direct measurement will be made for Survey Requirements During Construction (AGIS) as payment will be made on a lump sum basis.

**PART 5 - BASIS OF PAYMENT**

Payment will be made at the lump sum bid price for “Survey Requirements During Construction.” This payment shall be full compensation for all costs associated with the survey requirements identified in this Specification and shall include all labor, materials, training, and equipment required to complete the work specified. This cost shall include research, establishment and maintenance of all survey controls and monumentation.

Payment for these items will be made at such time as all deliverables have been deemed accepted and complete by the engineer. This shall include approvals by FAA, MAA and the designer as necessary to ensure completeness and accuracy.

Payment for the Base Bid will be made under:

 Item 010010 Survey Requirements During Construction (AGIS) – per lump sum

**END OF SECTION 01 00 10X**