Referenced to Nigeria Regulations

Advisory Circular

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NIGERIAN CIVIL AVIATION AUTHORITY (NCAA)

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GUIDANCE MATERIALS FOR COORDINATION WITH LAND USE AUTHORITIES FOR OBSTACLE CONTROL

1.0 GENERAL

Nigerian Civil Aviation Authority Advisory Circulars from Aerodrome Standards Department contain information about standards, practices and procedures that the Authority has found to be an Acceptable Means of Compliance (AMC) with the associated Regulations.

An AMC is not intended to be the only means of compliance with a regulation, and consideration will be given to other methods of compliance that may be presented to the Authority.

2.0 PURPOSE

This Advisory Circular provides methods, acceptable to the Authority, for showing compliance with the Guidance Materials for Coordination with Land Use Authorities for Obstacle Control requirements of Nig. CARs Part 12 as well as explanatory and interpretative material to assist in showing compliance.

3.0 REFERENCE

The Advisory Circular relates specifically to Nig. CARs Part 12.1.7

4.0 STATUS OF THIS AC

This is the first AC to be issued on this subject.

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FOREWORD

Nigeria as a Contracting State to the Convention on International Civil Aviation has an obligation to the international community to ensure that civil aviation activities under its jurisdiction are carried out in strict compliance with the Standards and Recommended Practices contained in the eighteen Annexes to the Convention on International Civil Aviation in order to maintain the required aviation standards.

As per the Nigeria Civil Aviation Authority (NCAA), Nig.CARs Part 12 requires to have a mechanism to protect Obstacle Limitation Surfaces (OLS) within and in the vicinity of any certified aerodrome.

The compatible land use planning is essential for relationship between airports and their community neighbours in relation to obstacle control. The planning concept may be relatively simple but the implementation requires careful study and requires co-ordinated planning with land use authorities. Coordination is required with land use authorities for the implementation of measures in the form of aviation system plans, legislation for compatible land uses, easements or land zoning. This guidance material is basically for the development of mechanism for coordination with land use authorities and other state agencies to facilitate the implementation of the requirements for obstacle control outside the airport property boundary.

Users of this Advisory Circular are reminded that the provisions of the Civil Aviation Act 2006, Nig.CARs Part 12 and other applicable regulatory documentation determine the requirements of, and the obligations imposed by or under, the civil aviation legislation. Users should refer to the applicable provisions when any doubt arises.

This Authority may, without any prior notice, change the content of this Advisory Circular as appropriate.

CHAPTER 1 INTRODUCTION

1.1 Purpose

The aim of this guidance material is for the development of a mechanism for coordination with land use authorities and other state agencies to facilitate the implementation of the requirement for obstacle control. Also this guidance will give some insight into those airport operational factors which can affect land uses outside the airport property boundary.

1.2 Requirements

1.2.1 Obstacle Limitation Surface (OLS) Type A charts has to be prepared for aerodromes. The OLS Chart Type A should be prepared based upon at least the followings:

- OLS Approach and Takeoff path
- Transition surface along both sides of the runway strip
- Inner horizontal surface of the airport
- Conical surface of the airport
- Outer horizontal surface of the airport

For preparation of OLS Type A chart, longitudinal profile of the approach / take-off flight path area and flight path area has to be prepared. Flight path area is a quadrilateral area of a funnel type with 180 meter width at 60 meter from the end of runway, which increases to a maximum of 1800 meter width at distance of 10 Km. Area enclosed within the funnel with a longitudinal slope of 1.2 % from 60 meter of the runway end to 15 Km. distance will be the flight path area. Objects (natural and manmade) that penetrates above this slope within the flight path area and beyond till 45 Km. from the ARP (Airport Reference Point) will be considered as obstructions. These obstructions may be high rise structures, towers, masts, trees and land. As per ICAO Annex 4, Aerodrome Obstruction Chart Type A is to be prepared within an area of 45 Km. radius from Aerodrome Reference Point (ARP) and obstruction are identified above 120 meter from the airport elevation. Terrain and obstacle data above 120 meter need to be collected. Objects penetrating above the horizontal, conical and transition surface will be considered as obstruction.

1.3 Legislation, Standards and Technical References

1.3.1 Section 30(3)(L) and 46 of the Civil Aviation Act 2006 empowers NCAA to prohibit, restrict or remove any structures and/or objects (mobile or immobile) that may cause obstruction or hazard to aircraft operations.

1.3.2 Definitions and standards for the establishment of the OLS are contained in the, Aerodrome Standards Manual. The separate functions of the OLS and PANS-OPS surfaces are explained in the ICAO Airport Services Manual Part 6 "Control of Obstacles."

1.3.3 Details of the surfaces used to account for obstacles in instrument procedure designs are contained in the ICAO document "Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS), Volumes I and II.

1.4 Responsibility

Responsibility for restriction and control of obstacles, must in practice, rest with the aerodrome operator. This includes the responsibility for controlling obstacles on aerodrome property and for arranging the removal or lowering of existing obstacles outside the aerodrome boundaries. And any development or proposed construction near aerodrome that is likely to create an obstacle, the aerodrome operator should coordinate with NCAA and land use authority. The aerodrome operator area of responsibility should at least include the followings:

- Surveillance of surface to carry out flight
- To control obstructions
- To inspect the height of the physical structures
- To inspect the development of the physical structures
- To give information to the Nigerian Civil Aviation Authority
- Name and role of the employees

CHAPTER 2: LAND USE PLANNING

Land use planning is an important means in ensuring that land adjacent to or in the immediate vicinity of the airport is consistent with activities and purposes compatible with normal airport operations, including aircraft landing and takeoff.

2.1 Incompatible Land Use

Incompatible land use at or near airports may result in the creation of hazards to air navigation and reductions in airport utility resulting from obstructions to flight paths. Height restrictions are necessary in the vicinity of airports and airways for the protection of aircraft in flight. Height of the infrastructures should be limited below aerodrome obstacle limitation surfaces. Residential housing and other land uses near airports must remain compatible with airports and the airport approach/departure corridors.

2.2 Compatible Land Use

Compatibility of land use is attained when the use of adjacent property neither adversely affects flight operations from the airport nor is itself adversely affected by such flight operations. In most cases, the adverse effect of flight operations on adjacent land results from exposure of noise sensitive development, such as residential areas, to aircraft noise and vibration. Land use that adversely affects flight operations is that which creates or contributes to a flight hazard. For example, any land use that might allow tall structures, block the line of sight from the control tower to all parts of the airfield, inhibit pilot visibility (such as glaring lights, smoke, etc.), produce electronic aberrations in navigational guidance systems, or that would tend to attract birds would be considered an incompatible land use. For instance, under certain circumstances, an exposed landfill may attract birds. If open incineration is regularly permitted, it can also create a smoke hazard.

CHAPTER 3: MECHANISM FOR COORDINATION

Nigerian Civil Aviation Authority has the primary responsibility to establish criteria for the limitation of obstacles and to provide guidance and assistance to those directly concerned with control of obstacles. These criteria should take the form of the obstacle limitation surfaces and should be compatible with those in Nig.CARs Part 12.

In addition to setting criteria, Aerodrome Operator will coordinate with other state Land use authorities when there is a plan to develop land in the vicinity of aerodrome so that no infringements takes place above the obstacle limitation surfaces in the interest of safety of aircraft operations (Aerodrome Operator will have a Memorandum of Understanding with Land Use Authorities). In the vicinity of aerodrome, Land Use authorities coordinate with NCAA/Aerodrome Operator for development of land use.

CHAPTER 4: LAND USE CONTROL

4.1 Enactment of Height Zoning Protection

The primary advantage of zoning is that it can promote compatible land use. Used within its limitations, zoning is the pre preferred method for controlling land use to achieve aerodrome-environs compatibility both for height and land use control. Zoning controls need careful tailoring in order to satisfy both the characteristics of the aerodrome and the special conditions affecting the land use. It is important for on-airport property and off airport property to be appropriately zoned so that required airport development can occur.

4.2 Acquisition

Acquisition strategies for land use control and compatibility are most effective if they are used in the preventative mode. As a preventative strategy, acquisition techniques are generally less controversial and costly to implement. It is important to note, however, that acquisition strategies can also be employed as "corrective' actions when incompatibilities already exist. Airport operators should consider acquisition strategies in this section as both preventative and corrective actions.

4.3 Land Purchase

Land purchase for an airport is the most positive of all forms of land use control, but is it usually the most expensive. It is preferable that land use authorities try to protect other land in the airport environs through comprehensive planning and zoning first, before outright purchasing, since the positive control method is less costly.

4.4 Easement

Easements may be used as an effective and permanent form of land use control. Easements are permanent; with title held by the purchaser until sold or released, and work equally well in zoned municipalities or un-zoned municipalities. Short of purchasing fee of simple easements, property can be acquired by negotiation or condemnation. Easements permit by the purchaser the use of another's property and property rights for the special purposes

stated in the easement agreement. Hazard easements are those which grant:

- The right of flight over the land in question
- The right to remove existing obstructions
- A restriction against the establishment of future obstruction
- Compensation to the owner for the side effects of aircraft operations over the owner's property.

One major advantage of easements is that they can be permanents, whereas zoning can be changed. Additionally, easements often may be acquired for a fraction of the total value associated with the simple purchase of the land and are, thus, less expensive. Easements can be an effective strategy for assuring compatible development around airports.

CHAPTER 5: STEPS TO FOLLOW BY THE AERODROME OPERATOR

The aerodrome operator should coordinate with land use authorities for appropriate land use/zoning controls prior to the development of land near their airport. Adequate safeguards should be incorporated to prevent incompatible land uses or height obstructions from occurring in proximity to the boundaries of the airport. Adequate control can provide space for future airport expansion. Specific efforts that aerodrome operator can undertake to control and monitor land use compatibility around their airport are described below:

- Assist surrounding municipalities in understanding how the airport operates, the airport's flight patterns, and the type of aircraft operating at the airport. Also assist surrounding municipalities in understanding how the airport benefits the local economy and community's health, welfare, and safety.
- Stay involved because land use is fluid and subject to a public process that is constantly changing. By staying involved, the airport can influence the compatibility of land and related development surrounding the airport.
- Be aware of land use actions proposed by the land use authority and all individual municipalities in the airport environs.
- Assist local municipalities in understanding Nig.CARs Part 12 Requirements and the special needs for protecting the safety and efficiency of airports operations.
- Make sure the Airport layout Plan (ALP) is up to date so that it reflects current aircraft usage relating to the critical aircraft, all current on-airport facilities and desired development within the planning period, and current information on land use and land use controls.
- Provide copies of the current Airport Layout Plan (ALP) to the land use authority.
- Attend planning meetings on land use and development issues in the vicinity of the airport.
- Invite land use authority officials and planners to be part of the airport advisory committee to keep them informed of the airport's plans and needs. By staying involved in local land use issues and local comprehensive plans, aerodrome

operator can ensure that their airport's needs are brought to the attention of the land use authority that have the authority to control surrounding land use through zoning or other controls.

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