SPECIAL PROJECT PROCEDURES
CONSTRUCTION ON AIRPORTS

TABLE OF CONTENTS

Page No.

PART 1 - GENERAL

1.1 PENALTIES FOR FAILURE TO COMPLY WITH STATED PROCEDURES C-6

1.2 APPLICABLE PUBLICATIONS C-6

1.3 DEFINITIONS C-7

a. Airport Operations Area
b. Airport Manager
c. Airport Security
d. Apron
e. Engineer
f. FAA Ground Controller
g. Runway
h. Superintendent of Operations and Safety/Airport Operations Section
i. Superintendent of Job Control
j. Taxiway
k. Unsuitable Weather
l. Air Traffic Activity

1.4 RESPONSIBILITIES AND AUTHORITIES C-8

a. Contractor
b. Airport Manager

PART 2 - SAFETY PROCEDURES IN THE AOA

2.1 GENERAL C-8

a. The Importance of Safety
b. Contractor Responsibility for Safety
c. Engineers Actions in the Event of Violations

2.2 AIRPORT OPERATIONS AREA ORIENTATION AND SAFETY BRIEFING C-9

a. Personnel to Attend
b. Purpose of the Seminar and Briefing

2.3 SAFETY PROGRAM C-9

a. Contractor Submittal
b. Review Process

2.4 REQUIREMENT FOR SAFETY TRAINED SUPERVISORS C-9

a. Supervisors who Must be Trained
b. Register of Safety Trained Supervisors
c. Identification Badges

2.5 RADIO COMMUNICATIONS C-10

2.6 CONTRACTOR VEHICLES C-10

a. General
b. Marking of Vehicles
c. Distinctive Lights and Radio Communication

2.7 RUNWAY AND TAXIWAY SAFETY AREAS C-10

a. Lateral Distances
b. Runway End Safety Area

2.8 CONSTRUCTION IN THE PROXIMITY OF NAVIGATIONAL AIDS C-11

2.9 CONSTRUCTION ACTIVITIES NEAR THE ARFF STATION C-11

2.10 MOVEMENT OF PERSONNEL, VEHICLES AND EQUIPMENT IN THE AOA C-11

a. General
b. Movement Coordination
c. Controlled Crossing Points
d. Traversing or Crossing Runway and Taxiway Safety Areas at Other Crossing Points
e. Communication Procedures

2.11 CLOSING RUNWAYS, TAXIWAYS AND APRONS C-12

2.12 SAFETY ON THE CONSTRUCTION SITES C-12

a. Open Trenches in Runway Safety Areas
b. Open Trenches in Taxiway Safety Areas
c. Open Trenches in Other Areas
d. Barricades in Taxiway Safety Areas
e. Barricades Outside the Safety Areas
f. Stockpiled Material
g. Flare Pots Prohibited
h. Runway and Taxiway Markings
i. Open Flame Welding and Torch Cutting
j. Trash or Debris in the AOA
k. Parking Equipment in the AOA
l. Hearing Protection
m. Materials or Equipment in Areas of Jet Blast or Propeller Wash
n. Damage to Airport Equipment, Facilities and Navigational Aids
o. Damage to Aircraft

2.13 EMERGENCIES C-14

a. General
b. Aircraft Emergency

PART 3 - SECURITY IN THE AOA

3.1 GENERAL C-15

3.2 PHYSICAL SECURITY C-15

a. Security Fences
b. Culverts and Drainage Structures
c. Gates
d. Secure Monitoring and Probes
e. Notification of Security Violation

3.3 PERSONNEL SCREENING C-15

a. General
b. Employee Background Checks
c. Employee Identification Badges

PART 4 - CONSTRUCTION PROCEDURES IN THE AOA

4.1 GENERAL C-17

4.2 SCHEDULES C-17

4.3 COORDINATION MEETINGS C-17

a. General
b. Preconstruction Conference
c. Weekly Coordination Meetings
d. Daily Coordination Meetings
e. Special Daily Coordination Meetings

4.4 CONSTRUCTION MATERIALS C-17

4.5 AIRFIELD LIGHTING AND CONTROL CIRCUITS AND NAVIGATION AID CIRCUITS C-18

4.6 TEMPORARY AIRFIELD LIGHTING C-18

4.7 MAXIMUM EQUIPMENT HEIGHTS C-18

4.8 HAUL ROADS C-18

a. Maximum Gross Weight and Speed Limits
b. Cleaning of Haul Roads

4.9 DUST CONTROL C-19

4.10 REOPENING CLOSED FACILITIES C-19

PART 5 - COMMUNICATIONS IN THE AOA

5.1 GENERAL C-19

5.2 CONTROL OF COMMUNICATIONS C-19

5.3 CONTRACTOR COMMUNICATIONS EQUIPMENT C-20

a. Ground Control Radios
b. Contractor Internal Frequencies
c. Maintenance of Equipment Used on Ground Control Frequency

5.4 COMMUNICATIONS PROCEDURES C-20

a. Communications Control
b. Clarity of Transmissions
c. Approved Transmission Verbiage
d. Example Acceptable Transmission Procedures

5.5 LOSS OF COMMUNICATIONS C-21

5.6 EMERGENCIES C-21

PART 6 - TRAFFIC CONTROL ON ROADWAYS NOT IN THE AOA

6.1 GENERAL C-21

6.2 TRAFFIC CONTROL PLAN C-21

a. Plan Preparation, Submittal and Approval
b. Pocket Guide to Traffic Control Devices
c. Rerouting Traffic
d. Barricades
e. Signage
f. Parking for Contractor Vehicles
g. Contractor Trailers and Storage Sites
h. Delivery of Materials and Equipment

6.3 WEEKLY COORDINATION MEETINGS C-22

6.4 CHANGES TO TRAFFIC CONTROL PLAN C-22

6.5 CONFLICTS C-22

Attachments

1.	Construction Procedure Submittals	C-22
2.	Application for Employment	C-24

SPECIAL PROJECT PROCEDURES
CONSTRUCTION ON AIRPORTS

PART 1 - GENERAL

a. The Houston airports, including Houston Intercontinental Airport, Hobby Airport and Ellington Field and the Central Business District Heliport are complex aviation facilities. They are all operated by the Department of Aviation in accordance with comprehensive federal, state and local regulations.

b. The Federal Aviation Administration (FAA) under the United States Department of Transportation closely monitors the operation of nearly all possible aspects of these facilities for compliance with regulations to ensure minimum possible hazards to the air traveling public, the airlines, the general aviation industry and all others who use the facilities. It is understood that construction and/or maintenance and repair of the facilities will require some modifications to the daily routine of an airport or heliport. Projects on the airport must meet FAA safety and security conditions.

c. It is essential that construction contractors execute contracts on the Houston aviation facilities in a manner that will result in minimum possible disruptions and absolute adherence to the procedures contained in this section. The Contractor must study the contents of this section and make appropriate provision in the bid prices for complying with the contents of this section. These procedures are to be incidental to the construction project and no additional payment will be made for them. Prior to the commencement of construction activities for FAA-funded projects, the City of Houston's Director of Aviation will have submitted the contract documents to the Airport District Office for approval. Changes to the documents will be subject to approval by the FAA to ensure that required safety and security are maintained.

1.1 - PENALTIES FOR FAILURE TO COMPLY WITH STATED PROCEDURES

The procedures stated in this section are required to minimize hazards to air travelers. A Contractor who does not comply with or demonstrates disregard for these regulations is subject to penalties depending upon the nature of the violation.

a. Major violations or flagrant disregard for safety can be considered as cause for termination for default.

b. Individuals who violate the rules can be dismissed as "objectionable" by the Director of Aviation.

c. Fines levied by the FAA for Contractor infractions against the Airport Manager or the Director of Aviation will be back charged to the Contractor without prejudicing rights under paragraphs a and b above.

1.2 - APPLICABLE PUBLICATIONS

Contractors who perform contract services on active airports should familiarize themselves with the following publications available for inspection at the Office of the Planning, Design and Construction Office, Department of Aviation or at the Federal Aviation Administration Airports District Office in Houston, located at 8800 Paul B. Koonce Drive, Houston, Texas 77061.

a. FAA Advisory Circular 150/5370-2C, "Operational Safety on Airports During Construction," current edition.

b. FAA Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports," current edition.

c. FAA Advisory Circular 150/5210-5, "Painting, Marking and Lighting of Vehicles Used on Airports," current edition.

d. Federal Aviation Regulation (FAR) Part 139, "Certification and Operation: Land Airports Serving Certain Air Carriers," current edition.

e. Federal Aviation Regulation (FAR) Part 77, "Objects Affecting Navigable Air Space."

1.3 - DEFINITIONS

Selected terms and titles used in this specification section are defined as follows:

a. Airport Operations Area (AOA). The Airport Operations Area, abbreviated AOA is that area within the airport security fence.

b. Airport Manager. The individual appointed by the Director of Aviation to manage the Operation of the airport and who is responsible to the Director for full compliance with the requirements of Federal Aviation Regulation, Part 139 for certified airports and with the provisions of Federal Aviation Regulation, agreements when applicable.

c. Airport Security. Uniformed officers employed by the City to enforce airport regulations and to prevent unauthorized entry of personnel into the airport.

d. Apron. The paved area for the positioning or parking of aircraft during ground operations. Apron is usually preceded by the word designating its use such as terminal, cargo, parking, service, hangar or holding. Such terms as "ramps," "hardstands" or "run-up areas" are synonymous with aprons.

e. Engineer. That individual appointed by the Director of Aviation of the City of Houston to administer the construction contract. His specific duties, responsibilities and authorities are further defined in this and the General Conditions of the contract documents. In all matters pertaining to safety, security, radio communications and construction procedures, the Engineer has the authority to direct the Contractor to cease activities that, in the opinion of the Engineer, are not in accordance with the provisions of this specification section or that create or could create a safety hazard.

f. FAA Ground Controller. That individual in the Air Traffic Control Tower that controls all aircraft and vehicle traffic in and around runways, taxiways, aprons and all other areas that are under positive control of the tower.

g. Runway. A clearly defined area on the airport that has been prepared and marked and is suitable for the landing and take-off of aircraft. The principal runway elements include the pavement, shoulders, blast pads and the areas as later defined, on both sides and both ends that, when open to aircraft movement, must remain clear of obstructions and personnel.

h. Superintendent of Job Control. That individual appointed by the Airport Manager to coordinate all airport facilities/ground maintenance concerns in support of construction activities. At Houston Intercontinental Airport, he is the primary contact for the Contractor for emergency situations and his telephone number is 230-3025. At Hobby Airport and at Ellington Field, this function is usually delegated to the operations officers. The Hobby telephone number is 643-4597. At Ellington Field, the telephone number is 481-2828.

i. Taxiway. A clearly defined area over which aircraft move from one part of the airport to another. The principal taxiway elements include the pavement, shoulders and safety areas on both sides that must remain clear of obstruction and personnel whenever the taxiway is open to aircraft traffic.

j. Unsuitable Weather. Atmospheric or environmental conditions that may, in the opinion of the Air Traffic Controller and the Airport Manager, prohibit the safe operation of aircraft on the airport. It is also those atmospheric or environmental conditions that may, in the opinion of the Engineer, prohibit the start of or continuance of construction activities on the AOA.

k. Air Traffic Activity. Any air traffic activity that, in the opinion of the FAA Air Traffic Controller and the Airport Manager because of safety reasons, will prohibit the start, continuation or completion of construction projects due to the necessity to utilize existing air traffic facilities without interference from construction activities.

1.4 - RESPONSIBILITIES AND AUTHORITIES

a. Contractor. In accordance with the General Conditions, the Contractor is responsible for completing the construction in accordance with the contract documents and to perform the work safely. He is responsible for the work of his subcontractors and their conduct while working in the AOA. The Contractor must carry out the instructions of the Engineer and the Airport Manager or his designated representatives in matters pertaining to airport operations and safety.

b. Airport Manager. The Airport Manager and his supervisory personnel acting explicitly for him have the authority, in the absence of the Engineer, to direct the Contractor to take or cease action that, in the opinion of the Airport Manager, directly bear on the safe operations of the airport. Depending upon the airport and the nature of the project, the Contractor will be informed at the preconstruction conference of the office or person who will represent the Airport Manager for this function.

PART 2 - SAFETY PROCEDURES IN THE AOA

2.1 - GENERAL

a. The Importance of Safety. The safe operation of the airport including the airport including the AOA and roadways surrounding the airport takes precedence over all other activities.

b. Contractor Responsibility for Safety. The prime Contractor is responsible for the safety related conduct of all personnel that are employed by or brought onto the project site by the Contractor including subcontractors at all tiers, vendors, suppliers or any other supporting those listed.

c. Engineer's Actions in the Event of Violations. Violations of the safety provisions listed in the contract documents cannot be tolerated. If the Engineer or the Airport Manager or

their representatives observe that the Contractor is not safely executing the construction activities, the Engineer will immediately direct the Contractor to institute remedies to reinstate safety procedures or stop all work under the contract until the Contractor states what actions will be taken to restore safe construction related activities. The Engineer may also take other action as already outlined in paragraph 1.1 above.

2.2 - AIRPORT OPERATIONS AREA ORIENTATION AND SAFETY BRIEFING

a. Personnel to Attend. After the contract has been awarded but before the Contractor submits the safety program and project schedule, the Engineer will schedule an airport operations area orientation and safety seminar that will be presented by the Airport Manager's staff. The Contractor shall be represented by the project managing principal, the overall project superintendent, superintendents of key subcontractors, general foreman, crew supervisors, drivers who will operate vehicles in the AOA and other participants as appropriate.

b. Purpose of the Seminar and Briefing. The seminar is not a training level of safety consciousness that the Contractor will be expected to have studied the contract documents and the applicable FAA regulations and circulates previously listed above and be prepared to seek clarification of the intent of these documents before preparing the schedule and safety program.

2.3 - SAFETY PROGRAM

a. Contractor Submittal. Before the Contractor will be permitted by the Engineer to commence any construction or construction related activities on the airport including the AOA or the surrounding roadways or property, the Contractor must develop a written safety program addressing the specific methods that will be used to implement the safety procedures and submit the names and both home and office telephone numbers of the personnel who will directly supervise the safety program and the work. Names and telephone numbers shall be submitted at the preconstruction conference to the Engineer. The Contractor will receive applicable information at the preconstruction conference to develop the safety program.

b. Review Process. The Engineer will review the safety program with the Airport Manager, and the FAA Airports District Office and the FAA Control Tower Manager for compliance with applicable regulations prior to approving the program. If the plan fails to demonstrate compliance, the plan will be returned to the Contractor for modification until compliance is reached.

2.4 - REQUIREMENT FOR SAFETY TRAINED SUPERVISORS

a. Supervisors Who Must Be Trained. The Contractor must employ at least one safety trained supervisor for each separate work crew that is working within the AOA.

b. Register of Safety Trained Supervisors. The Contractor shall submit to the Engineer the names of the safety trained supervisors and shall provide updated lists as changes occur.

c. Identification Badges. Supervisors will be required to obtain badges from Airport Management before they are permitted to work within the AOA. Application forms will be provided by the Engineer.

2.5 - RADIO COMMUNICATIONS

Contractor supervisory personnel identified in 2.4 above must have radio communications established as required by the Airport Manager while working anywhere in the AOA as further defined in Part 5 - COMMUNICATIONS IN THE AOA in this section.

2.6 - CONTRACTOR VEHICLES

a. General. On the AOA the Contractor shall use the minimum number of vehicles that, in the opinion of the Engineer, are necessary to efficiently execute the work. The Contractor shall submit with the safety plan a list of the number and identification of vehicles that are planned for use in the AOA. The Contractor must store vehicles that are not in use either in approved staging areas or off airport property. Personal vehicles will not be permitted in the AOA unless specifically authorized.

b. Marking of Vehicles. Contractor vehicles must be clearly and distinctly marked with the Contractor's corporate name and logo. Magnetically attached signs are permissible. The distinctive markings must be large enough to be read without magnification from a distance of not less than 500 feet.

c. Distinctive Lights and Radio Communication. Any vehicle that will be used in the AOA to transport personnel or escort other vehicles or equipment on or across active taxiways, runways or aprons must be equipped with the identification listed in 2.6b above, be equipped with a bright yellow or amber 360-degree strobe rapidly blinking light visible to the control tower personnel from anywhere in the AOA (when not obstructed by buildings) and be equipped with a radio capable of communicating with the Ground Traffic Controller as further explained in Part 5 - COMMUNICATIONS IN THE AOA.

2.7 - RUNWAY AND TAXIWAY SAFETY AREAS

a. Lateral Distances. Runways and taxiways include the safety area on both sides. A vehicle operator intending to cross an active runway or taxiway shall halt outside the limit of the safety area and request permission to cross from the Ground Controller in the control tower.

(1) Runway Safety Area. On both sides measured perpendicular to the centerline - 300 feet from the centerline. (In some cases this distance is less. The Contractor will be informed of such on a case by case basis.)

(2) Taxiway Safety Area. On both sides, measured perpendicular to the centerline. At Houston Intercontinental Airport, the distance is 125 feet. At W. P. Hobby Airport, the distance is 80 feet. At Ellington Field, the distance is 90 feet.

b. Runway End Safety Area. The safety area at the end of the runway extends outward from the threshold along the extended centerline for a considerable distance depending upon the glide slope surface established for the runway. Normally, the construction drawings will contain the prescribed distance for the area in which the construction activities are not permitted. Normally, construction activity will not be permitted closer than 1000 feet from the threshold of a runway that is open to air traffic.

2.8 - CONSTRUCTION IN THE PROXIMITY OF NAVIGATIONAL AIDS

There are a number of navigational aids on the airport that may be rendered inoperable if construction activities interfere with line of sight from the tower or the electronic transmissions emanating from the navigational aids. Normally, the construction drawings will show the location of each of the navigational aids.

2.9 - CONSTRUCTION ACTIVITIES NEAR THE AIRFIELD RESCUE/FIRE FIGHTING (ARFF) STATION

The entrance to the ARFF station must not be blocked during construction. The ARFF vehicles must have access to all areas of the airport throughout the construction period.

2.10 - MOVEMENT OF PERSONNEL, VEHICLES AND EQUIPMENT IN THE AOA

a. General. The presence of construction personnel, vehicles and equipment in the AOA and in the vicinity of NAVAIDS significantly increases the potential hazards to aircraft. Construction contract personnel are not accustomed to the airport layout and daily routine. It is imperative that the Contractor plan the work to be accomplished in great detail and ensure that the schedules are coordinated by the Engineer with Airport Management (Job Control, Operations, etc.), the Tower Manager and others as appropriate. Schedules must be coordinated daily with the Engineer. Changes to agreed schedules are discouraged as they will require time for the Engineer to coordinate. Schedules are discussed in more detail in Part 4 - CONSTRUCTION PROCEDURES IN THE AOA. The Contractor must at all times know what runways and taxiways are open to aircraft traffic.

b. Movement Coordination. Traveling from one point to another in the AOA must be in accordance with routes and schedules approved by the Engineer. The Contractor must coordinate with and receive approval from the Engineer before changing any routes of travel in the AOA. The Engineer is responsible to coordinate such changes with the Superintendent of Operations and Safety.

c. Controlled Crossing Points. When construction activities require the frequent, single point crossing of active runways, taxiways and aprons by Contractor vehicles, suppliers and any other contract support personnel, the Contractor must plan the activities and inform the Engineer in advance of desired crossing points. The Engineer, in turn will coordinate them with the Superintendent of Operations and Safety. The Contractor must place traffic supervisors on both sides of the safety area, erect temporary stop signs on both sides, use flagmen and establish radio communication with the Ground Controller in the tower. The Engineer will verify that these listed conditions are met before allowing crossing activities to commence. The crossing point supervisor will seek and receive approval from the Ground Controller for each and all crossings. Controllers will minimize crossing by crossing groups of vehicles rather than individual vehicles.

d. Traversing or Crossing Runway and Taxiway Safety Areas at Other Crossing Points. Sometimes construction activities will require Contractor employed supervisors to cross active runways, aprons and taxiways. Such crossings must be minimized by careful planning. The Contractor must notify the Engineer of construction activities that will require crossing these areas. No one may cross an active runway or taxiway without tower approval. The following rules are in effect:

(1) AIRCRAFT ALWAYS HAVE THE RIGHT OF WAY

(2) EACH AND ALL MOVEMENT INTO, TRAVERSING AND CROSSING RUNWAY, TAXIWAY AND APRON SAFETY AREAS MUST BE PRECEDED BY APPROVAL FROM THE GROUND CONTROLLER IN THE CONTROL TOWER BY RADIO COMMUNICATION.

(3) THE PERSON REQUESTING THE MOVEMENT, WHETHER ON FOOT OR IN A VEHICLE, MUST ACCOMPANY THE GROUP OF PERSONS OR VEHICLES UNTIL THE MOVEMENT IS COMPLETE AND THE REQUESTOR AND THE GROUP ARE AGAIN OUTSIDE THE SAFETY AREA.

(4) THE REQUESTOR MUST TELL THE GROUND CONTROLLER THE NUMBER OF PERSONS OR VEHICLES THAT ARE IN THE GROUP THAT ARE EXECUTING THE MOVEMENT BEFORE APPROVAL WILL BE GRANTED.

(5) PERSONS OR VEHICLES WITHOUT RADIO COMMUNICATION MUST BE ESCORTED AND SUPERVISED BY A PERSON WHO HAS ESTABLISHED COMMUNICATIONS WITH THE GROUND CONTROLLER.

(6) AFTER APPROVAL FOR MOVEMENT FROM THE GROUND CONTROLLER AND PRIOR TO EXECUTING THE MOVEMENT, THE PERSON SEEKING APPROVAL MUST VISUALLY VERIFY THAT NO AIRCRAFT WILL BE ENDANGERED BY THE INTENDED MOVEMENT.

(7) IF THERE IS ANY DOUBT ABOUT INSTRUCTIONS RECEIVED FROM THE GROUND CONTROLLER, THE REQUESTOR MUST ASK FOR CLARIFICATION BEFORE MOVING.

e. Communication Procedures. Movement of personnel and vehicles in the AOA requires the Contractor to adhere to special communications procedures. An explanation of the communication procedures is contained in Part 5 - COMMUNICATIONS IN THE AOA.

2.11 - CLOSING RUNWAYS, TAXIWAYS AND APRONS

Construction in the safety areas for runways, taxiways and aprons will often require the closing of these areas. The Airport Manager is the one person responsible for closing and opening these areas. Specific instructions and limitations concerning work in closed areas are contained elsewhere in the contract documents. Closing requires notification to airmen (NOTAM) and must be published well in advance of the closing. This makes changes to approved schedules very unlikely.

2.12 - CONSTRUCTION ON THE CONSTRUCTION SITES

a. Open Trenches in Runway Safety Areas. Open trenches are generally not permitted in the safety area or runways unless these facilities are closed to aircraft movement. Exceptions to leave open trenches in active taxiway safety areas may be granted on an individual basis. These must be approved in advance by the Engineer and ratified by the Airport Manager and the FAA.

b. Open Trenches in Taxiway Safety Areas. When open trenches and excavations are permitted up to the edge to active taxiways and aprons, the drop off must be barricaded, lighted and marked as directed by Airport Management.

c. Open Trenches in Other Areas. Open trenches and excavation in other areas must be adequately barricaded, lighted and marked.

d. Barricades in Taxiway Safety Areas. Barricades in the safety area of taxiways and aprons must be less than three feet in height and be constructed with a top rail secured by vertical members to a 12" x 12" timber base to minimize the possibility of an aircraft wheel entering the drop off. Barricades shall be equipped with battery operated amber flashing lights not less than 6 feet apart and at each end of the barricade. The barricades shall be painted white in color with 6-inch-wide orange stripes at 2-foot intervals. Barricades must be adequately weighted with sandbags to preclude their removal by jet blast.

e. Barricades Outside the Safety Areas. Barricades outside the safety areas shall be the standard 13-1/2-foot construction barricades of the traffic guardrail type lighted with not less than two amber flashing lights for each 13-1/2-foot section.

f. Stockpiled Material. Stockpiled materials will not be permitted in the safety areas of runways, taxiways or aprons nor in runway overruns and clear zones. In general, stockpiles will be allowed only for that day's operation. Large and long-term stockpiles shall be maintained outside the AOA.

g. Flare Pots Prohibited. Flare pots are not permitted in the AOA.

h. Runway and Taxiway Markings. Runway and taxiway markings may not be obliterated. The Contractor must restore any markings that are damaged by his operation during construction activities. Paint shall be the same type used by the airport crews.

i. Open Flame Welding and Torch Cutting. Flame welding and torch cutting in the AOA is discouraged. When unavoidable, it must be approved in advance in each instance by the Engineer. The Engineer will notify the Airport Manager and the Superintendent of Job Control. The Contractor must have equipment for fire control on hand during such work. Fire control must be adequate to prevent the spread of fires in construction equipment, materials and grass areas that could be caused by this activity.

j. Trash or Debris in the AOA. The Contractor must have a plan to continuously remove trash, debris, rock or any other materials spilled, placed, thrown or otherwise allowed to disperse in the AOA. In particular, any debris in safety areas of active runways is a severe hazard to jet engines and requires immediate removal. (This may include such small items as screws, paper clips, apple cores, etc.) When foreign material is sighted in the safety area, particularly on paved surfaces, immediately notify the Ground Controller so that he may take appropriate action. No attempt shall be made to remove the debris unless directed to do so by the Ground Controller.

k. Parking Equipment in the AOA. Normally, all equipment not required for continuous operation to construction during a workday or continuous work phase (such as extended 24 hours per day operation) must be removed to staging and parking areas so designated on the contract drawings. Exceptions must be approved in each instance by the Engineer and Airport Management.

l. Hearing Protection. It is advisable that persons working in the AOA use devices to protect against hearing injury.

m. Materials or Equipment in Areas of Jet Blast or Propeller Wash. No materials or equipment shall be placed in areas subject to movement-by jet blast or propeller wash

unless unavoidably required for the construction work. In such cases, those items shall be secured adequately to prevent movement by jet blast or propeller wash.

n. Damage to Airport Equipment, Facilities and Navigational Aids. The Contractor shall immediately report any accident or damage involving or caused by the Contractor or the Contractor's supporting subcontractor, suppliers, personnel, equipment or others to airport owned pavement, buildings, utilities, airfield lighting (including fixtures and cables) navigational aids, equipment and vehicles. The Contractor shall report the conditions without delay to the Engineer and to Airport Management (Superintendent of Job Control or Operations - as designated at the preconstruction conference).

o. Damage to Aircraft. ANY CONTACT OR COLLISION NO MATTER HOW SLIGHT, INVOLVING PARKED OR MOVING AIRCRAFT SHALL BE IMMEDIATELY REPORTED TO THE GROUND CONTROLLER. ALL CONTRACTOR PERSONNEL INVOLVED OR HAVING OBSERVED THE CONTACT MUST WITHDRAW OUTSIDE THE SAFETY AREA AND REMAIN THERE UNTIL THE ENGINEER AND THE AIRPORT MANAGER OR HIS STAFF ARRIVE AND ISSUE INSTRUCTIONS FOR DEPARTING THE SCENE OF THE INCIDENT OR CONTINUING WORK.

2.13 - EMERGENCIES

a. General. Emergency conditions pertaining to aircraft or VIP security situations can arise in the AOA that could require the Contractor and his staff to cease all construction activity or withdraw all personnel and equipment or provide assistance while the Airport Manager and his staff handle the conditions. The Airport Manager will normally contact the Engineer and issue instructions for the Contractor. Instructions may come directly from the Airport Manager, Airport Operations Officer or the Ground Controller. If any of these officials notify the Contractor that an aircraft emergency or security situation exists and issues instructions, the Contractor must comply immediately. The Contractor shall maintain a log of actions taken and manpower/equipment costs incurred. These shall be submitted to the Engineer on the following workday. Whenever such an instruction is received from the Engineer, the Contractor shall inform him immediately after complying with the instruction.

b. Aircraft Emergency. In the event of an aircraft emergency, the Contractor shall:

(1) CEASE ALL RADIO TRANSMISSIONS ON THE GROUND CONTROL FREQUENCY.

(2) STOP ALL MOVEMENTS IN RUNWAY, TAXIWAY AND APRON AREAS.

(3) STAY AWAY FROM ACCIDENT SCENES.

(4) MONITOR THE GROUND CONTROL FREQUENCY FOR INSTRUCTIONS.

(5) NOT RESUME NORMAL CONSTRUCTION OPERATIONS UNTIL INSTRUCTED TO DO SO BY THE ENGINEER.

PART 3 - SECURITY IN THE AOA

3.1 -GENERAL

The Airport Manager develops and maintains the program to maximize the security of the airport in order to protect the airlines and the traveling public from vandalism, terrorism and the inadvertent entry of people or animals into the AOA. The Contractor must do all he can to cooperate with airport security to make the program a success. This next part addresses the Contractor's responsibilities regarding physical security of the airport and screening of Contractor's employees who will be working on the airport.

3.2 - PHYSICAL SECURITY

a. When construction requires the temporary removal of portions of the airport security fencing, the Contractor shall develop a plan and submit it to the Engineer for approval prior to cutting or removing any portion of the security fence. The plan shall include the Contractor's proposed actions to prevent entry of people or animals into the AOA when the security fence is breached. The Contractor will not be permitted to leave a break in the fence unattended for any period of time. The Contractor shall restore the fence or erect equally secure temporary fencing before departing the work area.

b. Culverts and Drainage Structures. Security screens are in place to prevent unauthorized entry into the AOA through drainage ways. The same precaution listed in 3.2a above applies to these structures.

c. Gates. At the Preconstruction Conference, the Contractor will be informed which gates are assigned for his access to the AOA. These will be the only approved entry points. Gates in the security fence are to be locked when not being used for authorized entry. The Contractor will assign gate access controllers to control entry through the gates that are not otherwise controlled by airport personnel. Badges are issued by Airport Management personnel. Badges issued by Airport Management are valid only for the period of the project and are not transferable. Only those who display an approved badge are to be permitted entry into the AOA. Any exceptions will be specifically addressed in the Pre-bid conference.

d. Security Monitoring and Probes. Because security of aircraft is so important to the safety of the traveling public, the Airport Manager and the FAA monitor the effectiveness of airport security and will attempt to gain unauthorized entry to the airport. When the FAA is able to gain unchallenged access to the AOA, the City is subject to fines. When security is found to be inadequate to prevent unauthorized entry into the Contractor's area, the Contractor will be back charged for the fine and be required to increase his security measures.

e. Notification of Security Violation. The Contractor shall immediately notify the Airport Police (tel. 643-4597 at Hobby, tel. 231-3100 at Intercontinental and tel. 481-2828 at Ellington Operations) of the presence of unbadged, unidentified or unknown personnel and vehicles or any animals in his work area in the AOA. If the unauthorized entry would endanger aircraft, the Contractor must notify the Ground Controller.

3.3 - PERSONNEL SCREENING

a. General. Recent regulations (FAR Part 107, AIRPORT SECURITY) promulgated by the FAA include an amendment which reads in part as follows:

"Effective no later than December 15, 1985, procedures must be established to assure that all personnel employed by Contractors, hired after November 1, 1985, who have unescorted access, to any area of the airport controlled for security reasons, have background checks, to the extent allowable by law, including at a minimum, references and prior employment histories, to the extent necessary to verify representations made by the employee/applicant relating to employment in the preceding 5 years."

A portion of this Contract requires work within an area of the airport which is controlled for security reasons. That area is defined as all the area within the AOA security fence and all other restricted areas indicated on the contract drawings, or posted with signage.

b. Employee Background Checks, As a part of the work of this Contract, and therefore included in the Contractor's bid price, the Contractor shall conduct the "background checks" required by the above-mentioned FAA directive prior to permitting an employee unescorted access within areas controlled for security reasons. The "background checks" shall include but not be limited to the following:

(1) A sample application for employment is enclosed as Attachment No. 2. The Contractor shall obtain the information indicated on that form and have the information on file in the event of a security audit is performed.

(2) The Contractor shall verify the prospective employee's work history for the past 5 years by contacting listed employers and contacting employee furnished references.

(3) Upon completion of the "background check," the Contractor's authorized ' representative shall attest to the completion of the FAA directed requirements and submit a copy of the completed forms to the Engineer. The original of the forms shall be retained by the Contractor at the job-site office for the Contractor's subsequent use and information.

(4) Contractors short-term/temporary employees, for whom background checks would be inappropriate due to the brief as well as temporary nature of the employment, will be required to be under constant escort by an authorized badged representative of the Contractor at all times while in AOA areas. An authorized escort shall not be assigned any other task when escorting an employee within the AOA.

(5) Contractor's employees are limited to access to and from their work area and must remain in the immediate vicinity of their work while within the AOA; otherwise, they will be subject to arrest by Airport Security.

(6) "Employee under constant escort' is defined as an employee whose physical location and activities are continuously observed by Contractor's authorized representative who has received an identification badge.

(7) The maximum number of "employees under constant escort" is set by the Airport Manager.

c. All Employees will be required to obtain badges from Airport Management before they are permitted to work within the AOA. Application forms will be provided by the PDC Administrative Services Office.

PART 4 - CONSTRUCTION PROCEDURES IN THE AOA

4.1 - GENERAL

Construction procedures in the AOA are established to maximize security of the airport and safe conduct of the construction project.

4.2 - SCHEDULES

Before the Contractor will be given authority to commence construction operation of any kind in the AOA, the Contractor must develop the overall construction schedule, submit it to the Engineer and receive approval in writing. The format of the schedule is as stated in the General Conditions as modified.

4.3 - COORDINATION MEETINGS

a. General. The essential elements of safe construction operations are communication and cooperation. To promote these two elements, face-to-face meetings are used to achieve safety and security goals.

b. Preconstruction Conference. The Preconstruction Conference is intended to bring all the organizations together to start the process of communication and cooperation.

c. Coordination Meetings. A weekly coordination meeting will be held at a time and location designated by the Engineer to review progress, coordinate facility closures, discuss future work, discuss changed conditions, review safety compliance and discuss status of submittals. The meeting will include representatives of the Engineer, Contractor, other interested parties as appropriate, Department of Aviation representatives, Design Consultants, and Construction Management Consultants.

d. Daily Coordination Meetings. (Only for contracts involving work within the AOA.) A daily coordination meeting will be held each afternoon at a time and place to be designated by the Engineer to coordinate the operations for the following day, discuss specific requirements, procedures, schedule adjustments and minor details. The meeting will be attended by the designated representative of the Engineer, the Contractor, Airport Management, and others as appropriate for the circumstance (e.g., Airport Police, FAA, etc.).

e. Special Daily Coordination Meeting. (Only for contracts with work on the AOA.) In certain cases, there may be a special daily coordination meeting before start of work each day. Time and place will be designated by the Engineer. Its purpose is to confirm that the activities discussed in the daily meeting described in 4.3d above have been disseminated unchanged to the Contractor's work crews. The meeting will be attended by designated representatives of the Contractor and the Engineer.

4.4 - CONSTRUCTION MATERIALS

Vehicular movement in the AOA shall be kept to a minimum. The Contractor shall preplan his work and take all necessary tools, materials, equipment, personnel, lights, signs and barricades to the work site required for that work day.

4.5 - AIRFIELD LIGHTING AND CONTROL CIRCUITS AND NAVIGATION AID CIRCUITS

a. The AOA is crisscrossed with numerous underground lighting and control cables. Every attempt is made to provide the Contractor with as much data as is available to show the location of these cables. The Contractor is required to use extreme caution when performing work on the airfield lighting and control circuits and navigational air circuits. The Contractor must notify the Engineer in the daily coordination meetings when work involves trenching or digging in the vicinity of these circuits. The Contractor must locate and stake circuits before trenching will be permitted. The Contractor must be equipped with all necessary cable locating instruments, tools, splice kits and cable to make repairs in the event of damage to the circuits. Method of repair will be as shown in the contract drawings. The Contractor shall report all damage, location and fact of such repairs to circuits to the Engineer and effect repairs immediately. These must be observed by the Engineer before they are covered. All outages will be reported by the Engineer to Airport Management.

b. Normally, the Contractor will not be permitted access to the airfield lighting vault. When a circuit is to be deactivated, the Contractor shall discuss it in the daily/weekly coordination meeting. The airport electrician will deactivate and reactivate the circuits.

c. After work has been performed on the circuits, the Contractor shall accompany the Engineer and the airport electrician on an operation test of the lighting circuits at a time to be designated by the Engineer.

4.6 - TEMPORARY AIRFIELD LIGHTING

Temporary airfield lighting will be as required in the contract documents.

4.7 - MAXIMUM EQUIPMENT HEIGHTS

Construction that utilizes equipment taller than 15 feet in height requires FAA approval. The approval process normally takes 5 to 6 weeks. AS SOON AS POSSIBLE AFTER CONTRACT IS AWARDED, THE CONTRACTOR MUST FILE FAA FORM 7460-1, REQUESTING AUTHORITY TO USE HIS EQUIPMENT IN THE AOA. When not in use, such equipment shall be lowered to its minimum height and stored in predesignated areas away from safety areas or in designated laydown areas.

4.8 - HAUL ROADS

a. Maximum Gross Weights and Speed Limits. When using airport roadways and roadways surrounding the airport, the Contractor shall submit a plan for deliveries of material and equipment and intended haulways to the Engineer for coordination and approval. The Contractor must restrict gross weight of vehicles to conform with Texas State Highway and Public Transportation load limits and posted speed limits.

b. Cleaning of Haul Roads. Apron, taxiways, runways, airport service roads and public roads used for hauling materials or equipment must be kept clean by the Contractor. Loads shall be struck flush and covered to minimize spillage. If the Contractor is

negligent in cleanup activities, work may be stopped by the Engineer until the Contractor implements a program to maintain clean haulways.

4.9 - DUST CONTROL

Construction activity often causes dust that can create hazards to aircraft operations. The Contractor shall develop a plan to control dust in and directly adjacent to the AOA. The plan shall be submitted to the Engineer for approval prior to commencing any work in the AOA.

4.10 - REOPENING CLOSED FACILITIES

When construction requiring a facility to be closed is complete, the Contractor shall immediately notify the Engineer so that the facility may be inspected and reopened by the Airport Manager.

PART 5 - COMMUNICATIONS IN THE AOA

5.1 - GENERAL

The effectiveness of safety, security and construction procedures prescribed in Parts 2, 3 and 4 of this section is dependent upon the establishment and control of communications. Poor communication can result from defective equipment, improper procedures, inaccurate information and lack of personnel motivation to name a few causes. Poor communication in the AOA can create hazards that unacceptably compromise public safety. The Contractor must develop communication procedures that preclude poor communications. This includes provision and maintenance of radio equipment, safety briefings, training of supervisors to use correct radio procedures and quality assurance of communications by management.

5.2 - CONTROL OF COMMUNICATIONS

The Ground Controller in the Control Tower directs the movement of all aircraft and other vehicles in the AOA. The Ground Controller has absolute authority over radio transmissions on the ground control frequency. The following rules invariably apply:

a. NO ONE MAY COMMUNICATE WITH ANYONE OTHER THAN THE GROUND CONTROLLER ON THE GROUND CONTROL FREQUENCY.

b. NO VEHICLE MAY MOVE INTO OR THROUGH ACTIVE RUNWAY, TAXIWAY OR APRON SAFETY AREAS WITHOUT PRIOR APPROVAL FROM THE GROUND CONTROLLER.

c. THE ONLY CONTRACTOR PERSONNEL AUTHORIZED TO COMMUNICATE WITH THE GROUND CONTROLLER ARE SUPERVISORS WHO HAVE ATTENDED COMMUNICATIONS BRIEFINGS, ARC REQUIRED TO SUPERVISE WORK CREWS AND ESCORT OTHERS WHILE MOVING IN THE AOA, WHO HAVE DEMONSTRATED THE ABILITY TO COMMUNICATE AND ARE AUTHORIZED TO COMMUNICATE ON THE GROUND CONTROL FREQUENCY.

d. ALL COMMUNICATIONS MUST INCLUDE PROPER CALL SIGNS. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH A LIST OF APPROVED RADIO CALL SIGNS AND THE EMPLOYEE/VEHICLE/POSITION ASSOCIATED WITH THAT CALL SIGN. THE ENGINEER WILL FURNISH SUCH LIST TO THE FAA AIR TRAFFIC CONTROL TOWER MANAGER AND AIRPORT MANAGER. NO CHANGES OR SUBSTITUTIONS SHALL BE MADE WITHOUT ADVANCE WRITTEN APPROVAL BY THE ENGINEER.

e. WHILE IN THE AOA, PERSONNEL AUTHORIZED TO COMMUNICATE WITH THE TOWER MUST ALWAYS HAVE RADIOS TURNED ON, KEEP RADIOS CLOSE ENOUGH TO HEAR AND BE ATTENTIVE TO RADIO TRAFFIC.

5.3 - CONTRACTOR COMMUNICATIONS EQUIPMENT

a. Ground Control Radios. The Contractor shall obtain the hand-held and vehicle-mounted radios for communication with the Ground Controller. The required radio frequency will be provided by the Engineer. The output power shall be limited to the minimum required to communicate with the Ground Controller. Use of equipment with higher than required power rating is undesirable as it could cause interference with aircraft communications.

b. Contractor Internal Frequencies. The Contractor will be permitted to operate radios on other Federal Communications Commission approved frequencies provided that such frequencies are not being used by the airport staff, the Engineer, the Ground Controller, or aircraft. Contractor internal communications may in no way interfere with ground or air control communications. The Contractor can obtain the current frequencies used by these agencies by contacting the Engineer.

c. Maintenance of Equipment Used on the Ground Control Frequency. The Contractor must maintain, in good working condition all radios used to communicate with the Ground Controller. The Contractor must periodically talk with the FAA Control Tower Manager by telephone or in person to determine whether Contractor communications are of the quality required to be understood by the Ground Controller.

5.4 - COMMUNICATIONS PROCEDURES

a. Communications Control. The Ground Controller controls the Ground Control frequency. Communication between the Ground Controller and aircraft normally takes precedence over all other communications.

b. Clarity of Transmissions. All Contractor personnel who are authorized to communicate on the ground control frequency must be able to speak clearly in English and be understood by the Ground Controller.

c. Approved Transmission Verbiage. Radio transmissions on the ground control frequency must be clearly spoken, concise and correct. It is advisable that the Contractor personnel who have been approved to communicate on the ground control frequency monitor transmissions for several hours before attempting to communicate. The Contractor is expected to train all personnel in proper procedures, frequently monitor radio communication and counsel his personnel on correct procedures.

d. Example Acceptable Transmission Procedure. Generally, routine communication Controller by Contractor personnel is to be accomplished as follows:

(1) Caller (whose call sign in this example is CONSTRUCTION ONE) verifies his/her location on the airport and thinks through what is to be said. Caller waits for a break in transmission on the frequency. Then,

(2) "GROUND CONTROL, CONSTRUCTION ONE."

(3) "CONSTRUCTION ONE, GROUND."

(4) "CONSTRUCTION ONE, ON TAXIWAY OSCAR SHORT OF RUNWAY 4/22. REQUEST CLEARANCE ACROSS RUNWAY 4/22 TO NORTH-RAMP."

(5) "CONSTRUCTION ONE, CROSS RUNWAY 4/22."

(6) The caller must look to see that there are no aircraft that are landing, taxiing or taking off in the intended route of advance.

(7) "CONSTRUCTION ONE, ROGER" (then he proceeds to cross Runway 4/22.)

(8) "CONSTRUCTION ONE, CLEAR OF RUNWAY 4/22" (immediately upon reaching edge or safety area of Runway 4/22 on the other side).

This form of transmission is clear and concise and results in minimum airtime. Contractor personnel must remember that before the Ground Controller will permit movement into, onto or through safety areas, the Ground Controller must understand who is calling, the location of the caller and where the caller wishes to go. The above abbreviated transmission is only one example of a typical request and response. When the air traffic is heavy, there will often be delays between the call to the tower and the acknowledgement and instruction by the Ground Controller. If the caller is not sure of instructions given by the Ground Controller, the caller must hold in place and request clarification. Above all else, the key to airfield safety are patience and attention to surroundings as well as tower communications.

5.5 - LOSS OF COMMUNICATIONS

If communication is lost with the Ground Controller, no attempt shall be made to enter or cross active, runway, taxiway or apron areas. The Supervisor shall hold in place, or move to a safe area without crossing active runways, taxiways and aprons and await assistance.

5.6 - EMERGENCIES

If a Contractor Supervisor believes he/she is involved in or witnesses an emergency situation such as collision or contact with an aircraft, or an aircraft in trouble, the Supervisor shall call the Ground Controller, state that a problem exists and, when requested by the Ground Controller, provide essential details.

PART 6 - TRAFFIC CONTROL ON AIRPORT ROADWAYS NOT IN THE AOA

6.1 - GENERAL

The roadways leading to and from the airport terminals have been designed to ensure that the traveling public and airport support vehicles have uninterrupted access. Although it is understood that construction will cause some disruption to traffic, the Contractor must plan for maintaining the uninterrupted access to and from the airport terminal and parking areas.

6.2 - TRAFFIC CONTROL PLAN

a. Plan Preparation, Submittal and Approval. Prior to the start of construction that will impact on the roadways, the Contractor must develop and submit for approval a traffic control plan that addresses all elements that impact airport traffic. The plan shall be submitted to the Engineer and will require a minimum of 7 days before approval can be expected. The Engineer must coordinate the plan with the Airport Manager, Airport Job Control and Airport Police. It may be necessary for the Controller to attend coordination

meetings to discuss the plan and resolve problems and to develop plan modifications as the work progresses.

b. Pocket Guide to Traffic Control Devices. The Contractor may obtain a copy of the "The Pocket Guide to Traffic Control Devices" from the Department of Aviation at Houston Intercontinental Airport to obtain information helpful in preparing the traffic control plan.

c. Rerouting Traffic. The Contractor must include in the proposed Traffic Control Plan all proposed rerouting of traffic to include the location of the proposed route, duration of the rerouting and methods for changeover from one route to the other and return to normal traffic routes.

d. Barricades. Barricades shall be constructed as shown on the contract drawings. The Contractor shall maintain the condition of the barricades by keeping them clean of mud and grime accumulation and promptly repair any damage that may be sustained regardless of origin. Lights on the barricades shall be maintained in working order at all times.

e. Signage. The Contractor shall include in the Traffic Control Plan all signage requirements including new or temporary signs and the requirement to temporarily cover signs.

f. Parking for Contractor Vehicles. Contractor shall park vehicles in the location designated by the Engineer. No traffic lanes will be used for parking these vehicles.

g. Contractor Trailers and Storage Sites. The Traffic Control Plan shall NOT include the placement of trailers, vans, offices, and materials in airport roadways.

h. Delivery of Materials and Equipment. The Traffic Control Plan shall include provisions for delivery of materials and equipment and plans for controlling traffic during deliveries.

6.3 - WEEKLY COORDINATION MEETINGS

The subject of Traffic Control will be discussed as the need arises at weekly coordination meetings.

6.4 - CHANGES TO TRAFFIC CONTROL PLAN

Once the Contractor's Traffic Control Plan has been coordinated and approved, the Contractor must submit any desired changes for necessary study and approval. No changes will be permitted unless approved.

6.5 - CONFLICTS

If for any reason, any matter concerning traffic control cannot be resolved to the mutual satisfaction of the Engineer and the Contractor, the decision of the Engineer shall be considered binding and final.

CONSTRUCTION PROCEDURE SUBMITTALS

This is a partial list of Submittals that the Contractor is required to submit to the Engineer by this Section.

Safety Program	Section 2.3a
Emergency Telephone Numbers	Section 2.3a

Register of Safety Trainer Supervisors	Section 2.4b
List of Vehicles to be Used	Section 2.6a
Physical Security Fencing Plan	Section 3.2a
Plan for Deliveries of Equipment	Section 4.8a
Dust Control Plan	Section 4.9
Radio Call Signs and Personnel List	Section 5.2e
Traffic Control Plan	Section 6.2