



Siskiyou County, California
Weed Airport

Volume III

Construction Safety and Phasing Plan

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Taxiway and Apron Reconstruction Project - Phase 1

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Attachments

Attachment A	FAA Advisory Circular 150/5370-2G
Attachment B	Project Construction Phasing Drawings

1. Introduction

Siskiyou County, California (County) has primary responsibility for safety at Weed Airport (O46). The following document has been prepared to address construction safety and phasing for the Taxiway and Aircraft Parking Reconstruction Project.

The intent of this document is to provide the Contractor general guidance and direction on construction safety and phasing aspects of this project. In accordance with the requirements of Special Provisions No. 11 of the Contract Documents, prior to construction the Contractor shall prepare a project specific Safety Plan Compliance Document (SPCD) addressing their planned construction activities and safety measures. The SPCD shall meet the requirements of this document and the most current version of FAA Advisory Circular 150/5370-2G included herein as Attachment A.

The sections below are referenced from the requirements in AC 150/5370-2G and must be addressed in the Contractor's SPCD.

a. Operating Procedures

Safety is of primary importance at airports, especially during construction projects. The following are general safety objectives that shall be achieved to maximize safety and to minimize time and economic loss to the aviation community, construction contractors, and others directly or indirectly affected by the project. The Contractor shall be responsible for controlling his operations and the operations of subcontracts (at all levels) and suppliers as they comply with the requirements of this section as listed below:

- Maximize safety of aircraft operations.
- Keep the airport operational for all users.
- Minimize delays to aircraft operations.
- Minimize delays to construction operations.
- Minimize airport operation and construction activity conflicts

b. Potential Safety Hazards

An airport is a unique operational environment. Constant vigilance is required by all parties involved in construction activities to ensure a safe operating environment. The Contractor's attention is drawn to the following list of potential safety hazards that may be unique to an airport operating environment.

- Trenches, holes, or excavation on or adjacent to any open runway and taxiway or related safety area.
- Unmarked/unlighted holes or excavations in any apron, open taxiway, or related safety area.
- Mounds or piles of earth, construction materials, temporary structures, or other objects on or in the vicinity of any open runway, taxiway, or in a related safety, approach or departure area.

- Pavement drop-offs or pavement turf lips (either permanent or temporary) which would cause, if crossed at normal operating speeds, damage to aircraft that normally use the airport.
- Vehicle, equipment, excavations, stockpiles, or other materials which could impinge upon NAVAID critical areas and degrade or otherwise interfere with electron signals from radios or electronic NAVAIDs or interfere with visual NAVAID facilities.
- Unmarked utilities, NAVAIDs, weather service cables, runway lighting cables, or other power or signal cables that could be damaged during construction.
- Objects (whether marked/flagged or not) or activities anywhere on or in the vicinity of airport which could be distracting, confusing, or alarming to pilots during aircraft operations.
- Un-flagged unlighted low visibility items (such as tall cranes, drills, etc.) in the vicinity of an active runway, or in any approach or departure area.
- Misleading or malfunctioning obstruction lights.
- Unlighted unmarked obstruction in an approach to any open runway.
- Inadequate approach/departure surfaces (needed to assure adequate landing/takeoff clearance over obstructions or work or storage areas).
- Inadequate, confusing, or misleading (to pilots) marking/lighting of runways (including, displaced or relocated thresholds), taxiways, or taxilanes.
- Water, dirt, debris, or other transient accumulation which temporarily obscures pavement marking, pavement edges, or derogates the visibility of runway/taxiway marking, lighting, or construction and maintenance areas.
- Inadequate or improper methods of marking, barricading, or lighting temporarily closed portions of Aircraft Parking Apron Non-Movement Area.
- Trash or other materials with foreign object damage (FOD) potential, whether on runways, taxiways, aprons, or related safety areas.
- Inadequate fencing or other markings to separate construction or maintenance areas from open aircraft operating areas.
- Inadequate control of vehicle and human access, and non-essential, non-aeronautical activities, on open aircraft operating areas.
- Improper radio communication maintained between construction/maintenance vehicles and County ops/inspection or other on-field communications facility (e.g., FAA flight service stations (FSS) or UniCom radio).
- Construction/ maintenance activities or materials which could hamper airport rescue and firefighting vehicle access to all parts of the runway/taxiway system, runway approach and departure areas, or aircraft parking locations.

- Bird attractants such as edibles (food scraps, etc.), trees, brush, other trash, grass/crop seeding, or pond water on or near the airport.
- Personnel at the construction site without proper O46 identification.
- No escorts for person at the job site without paper identification.
- Vehicles involved in the project; that do not meet the safety requirements or O46 rules and regulations.
- Improperly marked, lighted and flagged vehicles involved in the project.

Note: Safety area encroachments, improper ground vehicle operations, and unmarked or uncovered holes and trenches in the vicinity of aircraft operating surfaces are the three most recurring threats to airside safety during construction.

c. Scope of Work

This project involves the pulverization and reconstruction of aircraft parking apron pavements, taxiway pavements, taxilane pavements, and the demolition of existing taxiways. Changes to the airport's pavements will necessitate modifications to the storm drain system and other utilities, subgrade preparation, placement of aggregate subbase, placement of bituminous pavement, installation of pavement markings, and installation of pavement edge reflectors. As shown in plans, pavement markings will primarily be replacements of existing with minor changes to reflect taxiway deletions and the reconfiguration of aircraft tie-down locations.

2. Coordination

a. Contractor Progress Meetings

Coordination of airfield activities is an important component of a safe operating environment during the construction of a project. Throughout the Taxiway and Aircraft Parking Apron Reconstruction Project, the County will hold the following coordination meetings to discuss airfield activities:

- **Pre-Construction Conference.** As soon as practicable after award of the Contract and prior to commencing any work, a pre-construction conference will be conducted by County personnel. The purpose of this conference is to determine and discuss procedures related to the smooth and safe progress of the project and to review safety and security issues and any items requiring clarification. The Contractor, each subcontractor, supplier, or other entity that will be involved with the project shall be represented at this meeting. The Pre-Construction Conference will be held prior to issuance of the Notice to Proceed for construction.
- **Weekly Progress Meetings.** The County will conduct a weekly Progress Meeting at a mutually agreed upon regularly scheduled time convenient for all parties involved. Progress Meetings are in addition to specific meetings held for other purposes such as coordination meetings. A Three-Week Schedule shall be developed by the Contractor prior to the start of the meeting and will be discussed during the planning portion of the agenda. Additionally, discussions will address administrative and technical issues of concern, determining resolutions, and development of deadlines for resolution within allowable time frames. Operational Safety and Security items will

also be discussed at these weekly meetings. These meetings will also address weekly construction issues, administrative issues such as changes orders and/or pay estimates, and any coordination required with the FAA or the Sponsor in relation to opening/closing sections of pavement, issuing NOTAMs, or impacting NAVAIDs during construction.

The Contractor, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. Individuals who represent the Contractor and/or suppliers shall be authorized to conclude matters relating to the project.

The meeting may review and correct or approve minutes of the previous Progress meetings. The meeting minutes will document issues of significance including submittals, schedules, quality control, safety problems encountered, the assignment of responsibilities for future action and review other items of significance that could affect the project.

- **Pre-Activity Conferences for Key Project Tasks.** These meetings will be scheduled prior to key milestones in the construction of the project. These conferences will be to coordinate major construction tasks for the project. These meeting are to include at minimum; 1) Access, closures, and demolition. 2) Utilities. 3) Grading. 4) Asphalt Pre-Paving. 5) Pre-Striping.
- In addition to the above planned meetings, daily coordination will take place between County personnel, Contractors, Sub-contractors, Project Stakeholders, Construction Manager, and all other parties involved.

b. Scope or Schedule Changes

The Contractor shall notify the County of all proposed scope and schedule changes. The County will consider all scope and schedule changes to determine whether revisions to the CSPP are necessary. All revisions to the CSPP shall require review and approval by the County and the FAA.

c. FAA Air Traffic Organization (ATO) Coordination

The Contractor shall conduct all his operations in such a manner to maintain a smooth, safe, uninterrupted flow of aircraft and vehicular traffic adjacent to the work site.

- a. FAA form 7460-1 will be filed for this project along with all crane activity associated with construction.
- b. There will be a weekly coordination meeting with County staff, and O46 Stakeholders, to discuss:
 - Project progress
 - Operational impacts and solutions, including impacts to emergency response routes
 - Future schedule
- c. No NAVAIDS shutdowns are currently planned for this project.

Prior to excavation in the vicinity of existing underground facilities, the Contractor shall notify the Construction Manager, and the authorized representative of the owners and agencies responsible for such

facilities, not less than 3 working days and not more than 5 working days, prior to excavation so that a representative of the owners or agencies can be present if they so desire.

3. Phasing

The Project is located within the Weed Airport. The project consists of the pulverization and reconstruction of the existing Taxiways ‘A’, ‘A1’, ‘A3’, ‘A5’, ‘A6’, ‘B2’, ‘B3’, ‘B4’ and ‘B5’, existing ‘South’ taxiway, and a portion of the existing aircraft parking apron and Taxiway ‘A’. The demolition of Taxiways ‘A2’, ‘A4’, ‘B1’ and ‘B6’ will also be completed as part of this project. Additional construction elements of the project include, modifications to the storm drain system and other utilities, subgrade preparation, placement of aggregate subbase, placement of bituminous pavement, installation of pavement markings, and installation of runway reflectors.

The Contractor shall perform the awarded project schedules within the periods of time specified below. Liquidated damages in the amounts specified in Special Provision 10, Phasing, Duration, and Liquidated Damages, shall be assessed if the Contractor fails to complete any work schedule within the specified allowed duration. The words “work schedule”, “work area”, “zone”, and “phase” may be used hereafter to describe either the period of time, and/or the area in which, certain work is to be done.

A notice to proceed will be issued upon which the Contractor shall commence a non-construction Procurement Phase. Only after items necessary to complete the Procurement Phase have been achieved will a notice to proceed for construction be issued. A separate notice to proceed for construction will be issued each for work schedule. The table below indicates the order and duration allowed for each work schedule.

Phase of Work	Duration from NTP (Calendar Days)
	Procurement NTP
Procurement Period	45
	Construction NTP
Base Bid - Phase I	30
Base Bid - Phase II	45
Base Bid - Phase III	15
Project Closeout	30
Overall Duration	165*

**An additional 15 calendar days will be provided for any combination of Bid Alternates 1 and/or 2 that are awarded.*

The entire work of this contract shall be complete within a period of 125 days. No additional payment will be considered if additional project phasing is required to accommodate this date restriction.

The Procurement Phase consists of a non-construction period that includes all work necessary for project startup. The Overall Project Duration includes the Procurement Phase Calendar Days. Project Calendar days will accrue during the Procurement Phase and a construction notice to proceed will not be issued until the Procurement Phase items are complete. The Procurement Phase includes submission and

acceptance of all contract and material submittals and permits, including, but not limited to, the Safety Plan Compliance Document (SPCD). The Procurement Phase, separate Construction Phases, and overall project duration shall not be extended to accommodate submittals that are rejected or that require re-submission. Unused Procurement Phase Calendar Days shall not be applied to increase the duration of Construction Phases of the work. No extension in contract time will be allowed and the Construction Notice to proceed shall not be issued if the Contractor has not completed items required under the Procurement Phase within the 45 days from the start of the procurement period.

A separate Construction Notice to Proceed will be issued for Phase 1 of the project after the completion of the Procurement Phase by the Contractor

4. Areas and Operations Affected by the Construction Activity

a. Identification of Affected Areas

Except as otherwise described in the construction safety phasing plan, no equipment or material within 44.5 feet of an active taxiway centerline, or as otherwise specified, shall be above the taxiway grade while the taxiway is being used by aircraft.

b. Mitigation of Effects

- Open graded soils, crushed aggregate, or other unbound granular materials must be covered and secured or treated in a manner approved by the Construction Manager/Airport Operations so that these materials do not result in FOD or dust due to exposure to jet blast and/or weather.
- Marking and lighting of work areas adjacent to taxiways shall be required and approved by the Construction Manager in coordination with the O46 Airport Manager.
- The Contractor shall conduct all his earthwork construction in such a manner so as to minimize any potential differential settlement between the edges of two adjacent construction phases.
- Barricades with red steady burn lights shall be installed where potential conflicts with aircraft or ground vehicular traffic exists. Stockpiles shall not penetrate the FAR Part 77 imaginary surfaces, conflict with advisory circular 150/5370-2(latest edition) or present FOD problems.

5. Navigation Aid (NAVAIDS) Protection

No scheduled work or vehicle haul routes for the project enter or cross NAVAID Critical Areas.

6. Contractor Access

a. Location of stockpiled construction material

Contractor staging areas as depicted on the contract drawings, shall be used to store all idle equipment, supplies and construction materials. Storage shall not interfere with operation areas. When not in use during working hours, and at all other times, all material and equipment shall be stored at the storage site indicated on the drawings unless prior approval is provided by the Construction Manager.

Storage of equipment and materials left overnight shall be in the contractor's staging area as shown on Construction Phasing Plans. The contractor shall be solely responsible for the security of the lay-down

area and shall be liable for any damage caused to such premises. The contractor shall restore the staging and storage areas and adjacent areas to their original condition prior to final acceptance of the work.

The contractor shall keep the work area and adjoining areas free from dirt and debris caused by the work. Noise from construction operations shall be subject to control by the Construction Manager to avoid interference with the operations of the Airport. Equipment and materials must be stored off the Aircraft Parking Apron Non-Movement Area until the time they are to be used or incorporated into the work unless otherwise approved by the Construction Manager. Materials unloaded at the work site shall be placed as to cause no greater obstruction to automobile and pedestrian traffic than is considered necessary by the Construction Manager. No roadway or passageway shall be closed or opened except by express permission of the Construction Manager. Construction equipment and material delivery vehicles shall be operated in such a manner as to avoid any hazard or apparent hazard to the public. As required by the general provisions, the contractor shall place sufficient delineator or barricades and signs closing off the work area within and adjacent to the work area, without interrupting the safe and orderly flow of aircraft, pedestrian, and vehicular traffic.

- The contractor staging area shall be used to store all idle equipment, supplies, and construction materials. Storage shall not interfere with operational areas.
- When not in use during working hours, and at all other times, all material and equipment shall be stored at the storage site unless prior approval is provided by the Construction Manager and the O46 Airport Manager.
- The contractor shall not store materials or equipment in areas in which the equipment or material will affect the operation of FAA electronics equipment.
- No materials may be stored within the Aircraft Parking Apron Non-Movement Area unless authorized by the Construction Manager and the O46 Airport Manager.
- Parking of construction workers' private vehicles shall not be allowed within the Airport's security fence unless approved by the Construction Manager and O46 Airport Manager. Any approved storage of equipment will not present a line-of-sight problem with flagman operations, vehicle traffic or aircraft.
- Stockpiling of material will only be allowed at the contractor's staging area unless otherwise approved by the Construction Manager/Airport Operations. Contractor shall be responsible for any blown debris or dust from stockpiles. The stockpile height is restricted to 20' and shall remain below the FAR part 77 imaginary surface contours. However, barricades with red flashing lights shall be installed where potential conflicts with aircraft or ground vehicular traffic exists.
- Contractor shall not park equipment, vehicles or stockpile materials within 10' of any security fence.
- Location of construction site parking access points and haul routes, see Construction Phasing Plans.

The contractor's staging area is as shown on the Construction Phasing Plans. The contractor project office shall be set up in the staging area. The contractor shall be responsible for all permitting, utility connections and cost required to operate out of this location.

b. Vehicle and Pedestrian Operations

(1) Construction Site Parking

- No parking is permitted on the airport roadway as the primary purpose of the airport roadway is for motor vehicle traffic.
- No person shall park any motor vehicle, other equipment, or materials within the Aircraft Parking Apron Non-Movement Area, except in a neat and orderly manner and at such locations prescribed or as directed by the Construction Manager.
- No person shall park any motor vehicle or other equipment or place materials within the Aircraft Parking Apron Non-Movement Area within 15 feet of any fire hydrant or standpipe.
- Parking of construction workers' private vehicles shall also be in a public parking or private parking facility outside the Aircraft Parking Apron Non-Movement Area unless otherwise approved by the Construction Manager. Under no circumstances shall vehicles or equipment be parked within 10 feet of the airport perimeter fence line.

(2) Construction Equipment Parking

- All vehicles and equipment shall be kept within the work areas established for that work shift unless traveling to or from the site. Under no circumstances shall vehicles be parked or equipment stored outside of the immediate work areas.
- All cranes shall be lowered when not in use.
- Any equipment temporarily parked at a work site for use during the current work shift shall be properly marked, parked outside all safety areas and within the barricaded work site. Equipment shall not exceed 15 feet in height and shall be left in the lowest possible profile position.
- No equipment or construction vehicles shall be parked or left unattended outside the airfield access gates or on public roadways. When equipment or vehicles are to be delivered to the work site, the contractor must be present to accept the equipment or vehicles and shall escort them inside the airfield fence and have them parked in the contractors' staging area or other approved location on the airfield. Any construction equipment or vehicles left unattended outside the airfield gates or on public roadways shall be impounded by The County.

(3) Access and Haul Roads

Haul route vehicles delivering materials to, or hauling material from the work sites shall use the gates and haul routes as shown on the plans.

- Roads designated as contractor haul routes may be used by other airport vehicles, contractors and the general public (along public roads). The contractor shall not interfere with other vehicle traffic and shall yield to emergency vehicles and aircraft along any of the airport or

public roads. The contractor shall provide all flagging, signing, lighting, etc. required by Weed Airport, Siskiyou County, and the state to provide all reasonable safety measures to protect all persons utilizing the service road, the haul road all public roads used by the contractor. The contractor shall obey all vehicular weight and speed limits established as posted on airport property and public streets.

- Any damage along the contractor access/haul routes due to the contractor's use shall be repaired immediately at no additional cost to the County. At the completion of the project, all pavements and surfaces along the access routes shall be restored to their original conditions, as determined by the Construction Manager. Contractor shall repair any damage to the haul road and public roadway due to his/her operations. The contractor shall coordinate and meet the cleaning and repair requirements set by other public agencies for use of pre-inspection and documentation of haul route conditions.
- Locations of access roads are approximate. Exact locations shall be coordinated with the Construction Manager to avoid surface utilities, navigational equipment, taxiway safety areas, etc. Access roads must be constructed and operational before any other work can begin. All vehicles and equipment must access the work area along designated access roads
- All airfield markings along haul routes and areas adjacent to the work area shall be maintained by the contractor to the satisfaction of the Construction Manager for the duration of the project.
- All surplus pavement materials designated for removal such as rock, concrete and asphalt pavement shall be hauled off to the contractor's staging area. Trucks delivering asphalt pavement or concrete shall not wash out chutes, beds, mixers, etc. on the Aircraft Parking Apron Non-Movement Area. Equipment shall not be stored between work shifts on the active Aircraft Parking Apron Non-Movement Area. Vehicles shall remain within established drive lanes. It is prohibited to use Runways or Taxiways or adjacent field areas unless specifically indicated on the plans. It is emphasized that the contractor's authority to operate does not extend to active aircraft movement areas. The contractor shall operate along established haul routes with prior approval of the Construction Manager.
- Contractor's vehicles shall not deviate from approved haul routes specified on the plans or as directed by the Construction Manager. Crossover between construction sites is prohibited. To move from one construction site to another. Vehicles must exit the Aircraft Parking Apron Non-Movement Area via the approved haul route and access point and re-enter through the approved area. If vehicles are required to travel over any portion of that area, they shall be accompanied by an approved radio-equipped escort vehicle.

(4) Marking and Lighting of Vehicles

- Vehicles entering the Aircraft Parking Apron Non-Movement Area must comply with AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport.
- All vehicles within the Aircraft Parking Apron Non-Movement Area shall be equipped with reflectors or lights on both front and rear ends and on the sides.

- Contractor's vehicles shall be equipped with operable yellow flashing beacons. Beacons must be lighted during all periods of the vehicle operation and while vehicle is within the Aircraft Parking Apron Non-Movement Area.
- Each vehicle or unit of equipment that travels or operates on any part of the Aircraft Parking Apron Non-Movement Area shall have an approved decal or painted company name applied to both sides of the vehicles in a location opposite the driver's seat. The identification should be applied to the front door panels. Magnetic or temporary signs are not acceptable. The name of the company should be spelled out in letters no less than three (3) inches high.
- Use of logos or symbols in lieu of letters is subject to approval by the Weed Airport Manager.
- Vehicles that appear at access gates without signs on both sides of the vehicle will be denied access. Vehicles found to be missing signs within the Aircraft Parking Apron Non-Movement Area will be escorted off the jobsite and not be permitted to re-enter until signs have been installed.
- All contractor vehicles shall be properly identified and equipped with operable yellow flashing beacons, beacons must be lighted during all periods of vehicle operation and while the vehicle is on the Aircraft Parking Apron Non-Movement Area. Vehicles shall be equipped with reflectors or lights on both front and rear ends and on the sides.
- Beacons and flags required on all contractor vehicles/equipment must be maintained in good working condition, and flags shall be replaced if they become faded, discolored, or ragged.

(5) Description of Proper Vehicle Operations

- Each contractor, including each contractor/subcontractor employee, who operates a ground vehicle on any portion of the Aircraft Parking Apron Non-Movement Area at O46 must be familiar with and comply with:
 - O46's rules and regulations.
 - O46's procedures for the operation of ground vehicles.
- During the duration of the work, the contractor shall recognize and abide by all rules, regulations, and controls, as modified by federal regulations.
- In addition to the federal regulations, the Construction Manager is empowered to issue such other instructions as may be deemed necessary for the safety and well-being of airport users or otherwise in the best interest of the public.
- No person shall operate any motor vehicle or motorized equipment on the aircraft movement or non-movement areas of the airport at a speed in excess of the posted (established) speed limit. Vehicles shall be operated under safe conditions at all times, weather and traffic conditions being considered. No vehicle shall at any time be permitted to interfere with or endanger aircraft traffic.

- No person shall operate any motor vehicle or motorized equipment in the Aircraft Parking Apron Non-Movement Area of the airport unless such motor vehicle or motorized equipment is in a safe and mechanically reliable condition for such operation.
- Any person operating equipment in the Air Operations Area shall, in addition to this section, abide by all existing Federal Aviation Administration and other governmental rules and regulations.
- It is emphasized that the contractor's authority to operate does not extend to active aircraft movement area. The contractor shall operate along established haul routes with prior approval of the Construction Manager.
- Motor vehicle operations within and on the airport premises shall be governed by the provisions of the Nevada state motor vehicle codes and traffic direction procedures and signs and signals for turns. Lights and safe-driving precaution shall be in the conformity therewith. In addition, motor vehicles shall conform to all special regulations prescribed by the airport.
- Traffic on perimeter roads, enplaning and deplaning areas, public thoroughfares and parking areas of the airport is limited to those vehicles properly licensed to operate on public streets and highways or as approved by the Construction Manager/Airport Operations
- Every person operating motorized equipment of any character on any area shall operate the same in a careful and prudent manner and at a speed posted or fixed by this section or the general provisions and at no time greater than is reasonable and proper under the conditions existing at the point of operating, taking into account weather, traffic and road conditions, view and obstructions, and shall be consistent with all conditions so as not to endanger the life, limb or property, or the rights others entitled to the use thereof.
- The Contractor shall be aware that the operations of aircraft in an adjacent area will result in jet blast occurring in the work area. The Contractor vehicles, equipment and supplies must remain inside the work area established for the work shift unless in transit to or from the site. All vehicles and equipment must access the work area along designated access roads.
- All motor vehicles that enter the Aircraft Parking Apron Non-Movement Area shall possess exhaust system which are protected with screens, mufflers, or other devices adequate to prevent the escape of sparks of the propagation of flame.
- No person shall operate any motor vehicle or motorized equipment with the Aircraft Parking Apron Non-Movement Area unless such motor vehicle or motorized equipment is in a safe and mechanically reliable condition for such operation.
- Any person operating equipment within the Aircraft Parking Apron Non-Movement Area shall, in addition to this section, abide by all existing federal aviation administration and other governmental rules and regulations and shall at all times comply with any lawful signals or direction of airport employees. All traffic signs, lights and signals shall be obeyed.
- No person shall operate any motor vehicle or motorized equipment on the aircraft movement or non-movement areas of the airport at a speed in excess of the posted (established) speed

limit, and less where conditions require. Designated motor vehicle drive lanes shall be utilized where provided unless specific direction is given by the Construction Manager.

- Load Limits: When using airport roadways, the contractor shall restrict the gross combination weight to 80,000 pounds, single-axle maximum weight of 20,000 pounds, and a tandem axle weight maximum of 32,000 pounds. All vehicle weights are subject to verification by the Construction Manager.

(6) Required Escorts This section not used.

(7) Training Requirements for Vehicle Drivers

- All drivers operating vehicles on airport property must carry a valid United States driver's license on his/her person, appropriately endorsed for the type of equipment being operated.
- Drivers designated to operate vehicles within the Aircraft Parking Apron Non-Movement Area shall receive special drivers training as required in the general provisions and be approved by the airport before being allowed to operate within the Aircraft Parking Apron Non-Movement Area or must be escorted by an approved escort. Drivers operating outside the Aircraft Parking Apron Non-Movement Area may operate vehicles without attending the special drivers training.
- Every driver who operates a vehicle on the Aircraft Parking Apron Non-Movement Area of the airport must be familiar with the pertinent provisions of the state of Nevada vehicle code; and, the traffic and licensing subsections of these rules and regulations. The driver must have been trained in the vehicle to be operated.
- A minimum of eight (8) supervised hours of practical driver training (behind the wheel) on the Aircraft Parking Apron Non-Movement Area is required prior to the testing of the applicant for issuance of the restricted area driver permit. Note: all drivers training should include daylight and night driving on roadways, access lanes and ramp/apron areas. Applicant must be the driver during the required training and not the passenger in the vehicle.
- The applicant must pass a written (multiple-choice) test administered by the security badge office. The test covers Aircraft Parking Apron Non-Movement Area safety rules and regulations. If the applicant fails the test, it can be re-administered in 48 hours. If the applicant fails the second test, it can be re-administered in one month.

(8) Situational Awareness

All aircraft and emergency vehicles have priority over contractor vehicles. Contractor vehicles shall yield right-of-way to aircraft and emergency vehicles. Contractor shall ensure that under no circumstances will any contractor or subcontractor or other vehicle associated with the job pass beneath any part of an aircraft, or block the access to or delay any aircraft movement.

No person operating a motor vehicle or motorized equipment within the Aircraft Parking Apron Non-Movement Area shall in any way hinder, stop, slow, or otherwise interfere with the operation of any aircraft.

(9) Two-way Radio Communication Procedures

The Contractor will be required to monitor by radio for aviation activity. All communication will be directly with the Construction Manager. The Contractor shall also not utilize any equipment that interferes with Weed or FAA radio frequencies.

(10) Maintenance of the Secured Area of the Airport This section not used.

7. Wildlife Management

a. Trash

Any food waste shall be controlled and promptly cleared to prevent attracting birds and animals. It is the responsibility of the contractor to make arrangements for trash removal from the project site as well as the contractor's staging area. Trash should be removed from the site on a weekly basis.

b. Standing Water

After a rainfall event, standing water will not be allowed on site for more than 24 hours. The contractor shall have a pump available at all times to remove standing water from the project area. The water shall be removed from the site in accordance with all federal and state regulations for Stormwater management.

c. Tall Grass and Seeds

The contractor shall maintain the parking and staging areas free of weeds and tall grasses that might attract wildlife.

d. Poorly Maintained Fences and Gates

Any contractor erected fences or gates shall be properly maintained to prevent the migration of wildlife into the Aircraft Parking Apron Non-Movement Area. Inspection of the construction area will be conducted on a daily basis by the O46 Airport Manager.

e. Disruption of Existing Wildlife Habitat

The contractor shall immediately notify the O46 Airport Manager of any wildlife sighting within the Aircraft Parking Apron Non-Movement Area. Any wildlife activity shall be noted on the airfield inspection check list. All personnel shall take immediate action to eliminate wildlife hazards whenever they are detected.

8. Foreign Object Debris (FOD) Management

It is the contractor's responsibility to maintain a clean project site free of FOD. All aircraft movement areas will be under constant surveillance by all parties to ensure they are acceptable for aircraft operations.

No loose material or waste FOD capable of causing damage to aircraft or capable of being ingested into jet engines may be left in the working area on or next to runways, taxiways, ramps, or aprons. The contractor shall direct special attention to all areas which are operational to aircraft during construction. These shall be always kept clean and clear of all materials or debris. Any food waste shall be promptly cleared to prevent attracting birds and animals.

All loose material or waste FOD located on aircraft movement areas shall be reported to the inspectors immediately; the inspectors shall coordinate with Airfield Operations to close the area to aircraft traffic if required until cleanup is accomplished.

Trucks and equipment shall have all accumulated dirt, mud, rocks and debris removed before accessing the Aircraft Parking Apron Non-Movement Area, and when leaving the work area. Loads shall be struck flush and secured to prohibit loss of material. If spillage occurs, such roadways shall be swept clean immediately after such spillage to allow for safe operation of vehicles as determined by the Construction Manager. If the contractor is negligent in cleanup and O46 resources are required to perform the work, the expense of said cleanup shall be paid by the contractor.

The contractor shall continuously sweep and wash down all access routes to the construction areas and existing adjacent paved areas and Aircraft Parking Apron Non-Movement Area pavements. These areas shall be kept free of debris at all times, at no additional cost to the owner.

The contractor shall keep at least one (1) operational vacuum sweeper truck operational at all times during working and non-working hours and shall maintain the sites free from dust and objectionable debris. During the period of time that there is no construction activity (between work shifts), the vacuum sweeper trucks and water trucks must be ready and on-site with contractor's personnel available by phone to respond immediately to a dust or debris problem as identified by O46 Airfield Operations staff or the Construction Manager. At no time shall there be more than a 10 minute response time to calls concerning dust/debris problems during work hours and a 60 minute response time at all other times on a 24-hour per day basis. The contractor shall provide whatever means necessary to prevent foreign object debris (FOD) in aircraft movement areas and provide construction area generated dust control on a 24-hour basis.

The contractor shall provide truck washes, rumble strips, shakers or other means as necessary to prevent FOD in the Aircraft Parking Apron Non-Movement Area and will be monitored by the Construction Manager. If the contractor's method does not remove debris adequately to meet safety requirements, the contractor may be shut down and will be required to utilize other methods at no additional cost to the County.

9. Hazardous Materials (HAZMAT) Management

The contractor shall comply with all USEPA regulations for hazardous waste. All construction activity involved with the handling of hazardous materials must provide the project Construction Manager with a hazardous materials removal plan. The plan will include the name of the company used for removal of hazardous materials and the names and 24-hour telephone numbers of staff authorized to handle such removals.

No fuel, oil, grease, flammable liquids, or contaminants of any kind, including detergents, shall be allowed to flow into or be placed in any sewer system or open water areas without a separator or unless connected to an industrial waste system.

10. Notification of Construction Activities

a. List of Responsible Representatives

Contractor to work with O46 to maintain a list of the responsible representatives/points of contact for all parties and procedures for contacting them 24 hours a day, seven days a week. This list includes local Airport Operations personnel and contractor including all subcontractors.

b. NOTAMs

No ramp, apron, Taxiway or Runway area shall be closed to aircraft without approval of the O46 Airport Manager and the Construction Manager. This will enable notices to airmen (NOTAMS), or other advisory communications to be issued. A minimum of 72 hours' notice of requested closing shall be directed to O46 Airfield Operations and the Construction Manager.

c. Emergency Notification Procedures

In case of an emergency caused by an accident, fire, or personal injury or illness, airport police are to be immediately notified. Police will coordinate with other emergency agencies as necessary. The contractor shall also notify the Construction Manager and Airport Operations so that any coordination or closures that may be required can be addressed immediately.

In the event of an aircraft emergency that may affect construction activities determined by the O46 Airport Manager; the contractor's personnel and/or equipment may be required to immediately vacate the area. The O46 Airport Manager will notify the County Construction Managing lead inspectors, they will coordinate with the contractor except in case imminent danger; the O46 Airport Manager will coordinate directly with the contractor. Take action to remedy any unsafe condition.

d. Coordination with ARFF

O46 does not have an Aircraft Rescue and Fire Fighting (ARFF) facility at the airport. The contractor shall coordinate with the Fire Department to mitigate the impacts to emergency vehicle access to the airport during construction. The contractor shall notify the fire department of impacts to water lines and/or hydrants, alterations to emergency access routes, and the use of hazardous materials on the airfield.

e. Notification to the FAA

(1) Part 77

If cranes or other equipment exceeding 15 feet in height are to be used, the contractor will be required to submit for approval the FAA's application form 7460-1 online at:

<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>

The airport has no control over the FAA's review and approval time. The contractor is encouraged to submit any required applications well in advance (at least 3 months) of the need for the use of the equipment or crane.

Contractor to Submit:

- Exhibit showing location of crane

- Latitude
- Longitude
- Existing ground elevation including vertical datum
- Height of crane, structure, stockpile, etc.

FAA form 7460-1 will be filed for this project along with all crane activity associated with construction.

(2) Part 157

FAA Form 7480-1 is not anticipated for this project.

(3) NAVAIDs

No reimbursable agreements for flight checks and/or design and construction of FAA-owned NAVAIDs are required for this project.

- a) The contractor shall preserve and/or protect existing and new pavements and other facilities from damage due to construction operations. Existing pavements, facilities, utilities, or equipment which are damaged shall be replaced or reconstructed to original strength and appearance at the contractor's expense. The contractor shall take immediate action to replace any damaged facilities and equipment and reconstruct any damaged area which is to remain in service.
- b) Construction may be stopped by the O46 Airport Manager or the Construction Manager, any time he considers that the intent of the regulations regarding safety or security requirements is being violated or that a hazardous condition exists. This decision to suspend the operation will be final and will only be rescinded by the O46 Airport Manager when satisfied that the contractor has taken action to correct the condition and prevent recurrence.
- c) Construction may also be stopped or suspended by the O46 Airport Manager, in consultation with the Construction Manager during periods of inclement weather, such as low visibility, or when it is necessary to provide an extra margin of safety to aircraft operations, or reduce other activities to keep the airport operational.

11. Inspection Requirements

a. Daily Inspections

The O46 Airport Manager and the Construction Manager will conduct continual inspections of the construction site to ensure that areas surrounding the sites are safe for aircraft operations. The O46 Airport Manager personnel will note any discrepancies on the daily inspection checklist. Any aircraft movement surface or adjoining Runway, Taxiway, Taxilane, or safety area that does not pass inspection must remain closed until such time cleanup is performed and approved.

b. Final Inspections

Final inspections will be made by the O46 Airport Manager and or authorized representative upon completion of critical phases of the work to ensure that no hazards exist prior to the re-opening of pavements to aircraft traffic.

12. Underground Utilities

Procedures for locating and protecting existing underground utilities/facilities in excavation areas:

The contractor will be required to mark all utility lines prior to any work in a given area. Marking shall consist of paint. The word danger or equivalent, shall be marked with red or orange paint to enhance visibility. Additionally, the contractor shall expose and verify (by survey) the depth and alignment of all underground utilities in the construction site. The contractor shall pothole and survey all utilities within a five-foot distance of any footing, work, utilities, etc. prior to excavation.

The contractor shall contact utility owners after the ID number is obtained from the Underground Service Alert (USA) but not less than fourteen (14) days before excavation work is started, to mark or identify existing utilities. The County will not mark utility lines owned and maintained by the County. The Contractor shall also employ a private utility locator to mark the existing underground utility lines.

- The contractor's attention is directed to the existence of certain underground facilities that may require special precautions by the contractor to protect the health, safety, and welfare of workers and of the public. Facilities requiring special precautions include: compressed air lines; conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than six inches in diameter, or pipelines operating at pressures greater than 60 psi (gauge); underground electric supply system conductors or cables, with the potential to ground more than 300 V, either directly buried or in duct or conduit that do not have concentric grounded or other effectively grounded metal shields or sheaths.
- All utilities encountered along the line of the work shall be maintained in service during all operations under the contract, unless other arrangements satisfactory to the utility owner, the affected agency, and the Construction Manager are made in advance. Utilities shall include, all above or below ground conduit, pipes, wet wells, ducts, cables, and appurtenances associated with oil, gas, water, steam, irrigation, sewer, storm drain, wastewater, air, electrical, power, instrumentation, communication, telephone, TV, and lighting systems, whether or not owned by the County. All valves, switches, vaults, and meters shall be maintained readily accessible for emergency shutoff.
- Any utility that is damaged by the contractor shall be immediately reported to the Construction Manager and Airport Operations and immediately repaired to a condition equal to, or better than, the condition they were in prior to such damage. Repair work shall be continuous until the utility or improvement is placed back in service.
- All existing utilities within the construction areas or the staging area that are designated to remain in place shall be maintained, accessible, and protected at all times (i.e., waterlines, fire hydrants, valves, drainage structures, electrical & FAA cables/equipment, etc.). Refer to the specifications, phasing plans, and demolition plans for additional requirements that are associated with this project.
- The existence, location and characteristics of underground utility information shown on these plans were obtained from available record data. No representation is made as to the accuracy or completeness of utility lines shown or any unknown utilities. Contractor shall make reasonable inferences as to existing underground utilities from observation of visible conditions and take

appropriate measures to protect all utilities including underground communication installation which are owned and operated by The County, FAA, DOA, AT&T and other third parties.

- Contractor shall perform site investigation to verify location and depth of all utilities. Investigate by means of vacuum or air pressure pot-holing or other means as approved by the Construction Manager. Contractor shall accurately record and stake the location of all utilities.
- The Contractor shall be responsible for and repair, at Contractor's own expense, any damages resulting from his/her failure to locate utilities as specified.
- Exercise extreme care when using any equipment to prevent contact with any nearby power lines and power sources. Safe working clearances shall conform to the national electrical code.
- All structures shall be designed to support aircraft loads specified unless otherwise noted.
- The contractor may make certain temporary connections to the existing airfield lighting system only if it is associated with keeping the required lighting systems operational and approved by the resident Construction Manager. The contractor shall provide a separate power source for other construction related power needs.
- Power and control cables for airfield lighting and navigational aids are located adjacent to the construction areas. The contractor's personnel shall be familiar with these cable locations and keep vehicles and equipment clear of any cables at all times. Mark/delineate the surface for each utility in a manner acceptable to the Construction Manager. As indicated on the phasing plans and the specifications, the contractor shall locate all utilities (operational and abandoned) prior to starting any excavation, demolition or earthwork. The Contractor shall contact the Airport Manager to facilitate locating FAA facilities and cables.
- All work shall be performed in conformance with all federal, state, and local utility and contract requirements. Sequencing of work and safety practices used in, on or around high voltage lines or other utility structures are the responsibility of the contractor, except where electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work. Assume that all such lines are energized and the contractor shall conform his operations to (among other requirements) title 29 of the code of federal regulations Part 1926, "Safety and Health Regulations for Construction," Section 1926.550 (a) (19).

13. Penalties

In the event an employee of the contractor violates a safety provision, they shall be prohibited from returning to work on the Aircraft Parking Apron Non-Movement Area without remedial safety training and the approval of the Construction Manager. Violations may be deemed as just and sufficient cause to require the employee be permanently removed from the job site. The contractor shall be responsible for all costs and delays caused by safety violation.

14. Special Conditions

Airport emergencies and closures take precedent over all other activities. If an emergency or closure occurs on Airport property that requires evacuation, stoppage of work, or clearing of work area and returning that area to service, the contractor(s) shall follow the direction of O46 Operations personnel, the Airport Manager, Airport Maintenance Personnel, Local Fire or Police to ensure the safety and

protection of all affected by the emergency. The contractor(s) will be notified by the Airport Manager via the Construction Manager as to when work can safely resume.

The Contractor shall be aware that equipment taller than 20-feet will require a Form 7460-1 issued. The Form will be submitted to the FAA as indicated previously in this document. Tall equipment shall have checkered flags attached at the top of the boom for daytime operations, and a flashing yellow light at night.

15. Runway and Taxiway Visual Aids

The Contractor shall follow all requirements in Section 218 of FAA Advisory Circular 150/5370-2G, included in this document as Attachment A. In addition, the following guidelines must be followed:

- The O46 Airport Manager will be responsible to ensure all marking, lighting, and signage meet appropriate standards: AC 150/3340-1, AC 150 5340-30, AC 150 5340-50, AC 150 5340-53, AC 150 5340-44, and AC 150 5340-18.
- Reference the Construction Phasing Plans for the Construction Phasing Details in Attachment B.
- All existing pavement markings requiring removal shall be obliterated in a manner that will not leave marking shadows at the direction of the O46 Airport Manager and the Construction Manager. All permanent pavement markings shall be restored at project completion.
- Taxiway/Taxilane closures: all lights and equipment designated to remain within the work areas, safety areas and on the Aircraft Parking Apron Non-Movement Area shall be protected at all times. The Contractor shall protect these lights and equipment from damage while working at the work site. When a taxiway or taxilane is closed, the lights shall be turned off or masked. The Contractor shall place barricades around any elevated lights and equipment that may be in the work area to delineate and protect them. Damage due to the contractor's operations shall be repaired immediately at the contractors' expense.
- For temporary closures of taxiways or taxilanes, contractor shall turn off/mask centerline lights, edge lights and signage around the work areas during the work shift. Contractor shall protect these lights from damage at all times while working at the work sites. All centerline and edge lights designated to remain shall be operational at the end of the closure. Submit proposed method for Construction Manager's approval.
- When existing edge lighting is rendered inoperable on an active runway or taxiway, the contractor must install temporary edge lights as directed by Construction Manager/Airport Operations.
- Every effort possible shall be made to construct temporary taxiway lighting to conform to the runway or taxiway safety area frangibility and height restrictions as specified in the FAA Advisory Circular 150/5370-2G.
- Temporary edge lights shall be securely fastened down and the electrical power cable shall not be driven across. Airfield lighting cables operate at high voltage. They have the potential of 5,000 volts and should have only qualified personnel handling them.
- Temporary light plants used in conjunction with nighttime work will not be located in such a manner as to be an obstruction or hazard. In addition, these light plants will not be located where the glare of the light will cause visual or physical interference to operating aircraft.
- All permanent signs affected by construction shall be replaced by temporary signs acceptable to the O46 Airport Manager and the Construction Manager. The contractor shall submit a sign

relocation plan to the O46 Airport Manager and the Construction Manager for approval prior to any relocation of any existing signs.

16. Marking and Signs for Access Routes

All haul routes conform to marking and signage in the FAA Advisory Circular 150/5340-18 and to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications.

17. Hazard Marking, Lighting, and Signing

The Contractor shall follow all requirements in Section 220 of FAA Advisory Circular 150/5370-2G, included in this document as Attachment A. In addition, the following guidelines must be followed:

- Every excavation or hazard on or adjacent to the airfield or other areas shall be marked.
- No lantern flare pots or open-flame devices shall be used.
- The contractor shall completely fence or barricade all excavations, to the satisfaction of the O46 Airport Manager and the Construction Manager, to provide protection against anyone falling into the excavation. The fencing and or barricades shall be in place at all times except when workers are present and actual construction operations are in progress.
- Continuous burning standing red barricade lights and/or other red lighted hazard devices stipulated on the phasing plans shall be operative at all times while in place. It shall be the contractor's responsibility to immediately repair or replace any light or flasher that is not operating.
- Barricades shall be in place prior to commencing construction operations, and shall be maintained for the life of the contract.
- Every excavation or hazard on or adjacent to runways, taxiways, ramps, or other areas on the airfield, shall be marked in accordance with the following conditions; lights shall be solar-powered, the contractor shall obtain the approval of the O46 Airport Manager and the Construction Manager on the condition of the work site, including lights, before leaving the work site in the evening.
- Limits of the various phases of work shall be clearly delineated with barricades, warning signs with attached steady or flashing red lights; "standing red" barricade lights and other markings as shown on the plans. Specified herein, in order to deter aircraft and vehicles from entering the construction areas.
- Contractor shall continually inspect and maintain all construction barriers, fencing, and gates in good condition, see construction phasing details in Attachment B.
- Portable lighting provided for any night work shall not interfere with air navigation. Lights shall be transported to the work areas pointed down and turned off to avoid affecting ATCT Operations.
- The contractor and subcontractor shall be required to attend a daily airfield safety coordination meeting as determined by the Construction Manager and have a representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades.

18. Protection of Runway and Taxiway Safety Areas

The Contractor shall follow all requirements in Section 221 of FAA Advisory Circular 150/5370-2G, included in this document as Attachment A. In addition, the following guidelines must be followed:

- No materials or equipment may be stored or stockpiled with the TSA or TOFA at any time.
- Prior to opening the Taxiway following the work shift, the edge of the taxiway shall be continuously barricaded for the length of the adjacent excavation with approved low profile barricades and with the approval of the O46 Airport Manager and the Construction Manager.
- No ramp, apron, taxiway or runway area shall be closed to aircraft without approval of the O46 Airport Manager and the Construction Manager.
- The use of solar powered standing reds placed at all locations in which aircraft could inadvertently enter the construction area for limited duration closures; or hard wired eighteen inch high standing red lights as approved by the O46 Airport Manager and the Construction Manager for longer duration closures.
- All pertinent airfield signage will be removed, covered and de-energized where appropriate.
- A painted yellow X may be placed on the taxiway centerline for longer duration closures.
- Removal of the taxiway markings will be determined on a case by case basis.

19. Other Limitations on Construction

a. Prohibitions

Prior to the beginning of construction, the Contractor shall disclose the specific equipment heights on Form 7460-1 and submit for FAA review and approval. A determination letter from the FAA acknowledging equipment heights within the project area is required before the start of construction. Construction activities shall not interfere with any NAVAIDs critical areas, safety areas, obstacle-free zones, object free areas and any threshold citing criteria. This includes limitations on equipment height and stockpiled material.

Contractors may not use open flame welding or torches unless adequate fire safety precautions are provided and the Construction Manager has approved their use. Under no circumstances should flare pots be used within the Aircraft Parking Apron Non-Movement Area at any time. The use of electrical blasting caps is not permitted on or within 1,000 feet (300 m) of the airport property.

b. Restrictions

The O46 Airport Manager must approve all scheduled work hours prior to the start of construction. Alternate construction hours must be discussed and approved by the O46 Airport Manager a minimum of 48 hours in advance. Restrictions may be placed on the times for certain elements of construction. Specific items of work that may be potentially disruptive to airport activity may be required to be performed at times that airport activity is reduced.

Attachment A– FAA Advisory Circular 150/5370-2G



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Operational Safety on
Airports During Construction

Date: 12/13/2017
Initiated By: AAS-100

AC No: 150/5370-2G
Change:

1 **Purpose.**

This AC sets forth guidelines for operational safety on airports during construction.

2 **Cancellation.**

This AC cancels AC 150/5370-2F, *Operational Safety on Airports during Construction*, dated September 29, 2011.

3 **Application.**

This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*. While we do not require non-certificated airports without grant agreements or airports using Passenger Facility Charge (PFC) Program funds for construction projects to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.

4 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version. [Appendix A](#) contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Notification about impacts to both airport owned and FAA-owned NAVAIDs was added. See paragraph [2.13.5.3](#), NAVAIDs.

2. Guidance for the use of orange construction signs was added. See paragraph 2.18.4.2, Temporary Signs.
3. Open trenches or excavations may be permitted in the taxiway safety area while the taxiway is open to aircraft operations, subject to restrictions. See paragraph 2.22.3.4, Excavations.
4. Guidance for temporary shortened runways and displaced thresholds has been enhanced. See Figure 2-1 and Figure 2-2.
5. Figures have been improved and a new Appendix F on the placement of orange construction signs has been added.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the “ALT” and “ ← ” keys simultaneously.

Figures in this document are schematic representations and are not to scale.

6 **Use of Metrics.**

Throughout this AC, U.S. customary units are used followed with “soft” (rounded) conversion to metric units. The U.S. customary units govern.

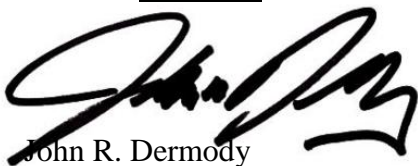
7 **Where to Find this AC.**

You can view a list of all ACs at

http://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at http://www.faa.gov/regulations_policies/faa_regulations/.

8 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.



John R. Dermody

Director of Airport Safety and Standards

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CHAPTER 1. PLANNING AN AIRFIELD CONSTRUCTION PROJECT

1.1 Overview.

Airports are complex environments, and procedures and conditions associated with construction activities often affect aircraft operations and can jeopardize operational safety. Safety considerations are paramount and may make operational impacts unavoidable. However, careful planning, scheduling, and coordination of construction activities can minimize disruption of normal aircraft operations and avoid situations that compromise the airport's operational safety. The airport operator must understand how construction activities and aircraft operations affect one another to be able to develop an effective plan to complete the project. While the guidance in this AC is primarily used for construction operations, the concepts, methods and procedures described may also enhance the day-to-day airport maintenance operations, such as lighting maintenance and snow removal operations.

1.2 Plan for Safety.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the airport operator must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities, and associated costs will be identified and their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project, and/or to airport operations to maintain operational safety. This planning effort will ultimately result in a project Construction Safety and Phasing Plan (CSPP). The development of the CSPP takes place through the following five steps:

1.2.1 Identify Affected Areas.

The airport operator must determine the geographic areas on the airport affected by the construction project. Some, such as a runway extension, will be defined by the project. Others may be variable, such as the location of haul routes and material stockpiles.

1.2.2 Describe Current Operations.

Identify the normal airport operations in each affected area for each phase of the project. This becomes the baseline from which the impact on operations by construction activities can be measured. This should include a narrative of the typical users and aircraft operating within the affected areas. It should also include information related to airport operations: the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the airplanes that operate on each runway; the ADG and Taxiway Design Group (TDG)¹ for each affected taxiway; designated approach visibility minimums;

¹ Find Taxiway Design Group information in [AC 150/5300-13, Airport Design](#).

available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System (SMGCS) plan; and others. The applicable seasons, days and times for certain operations should also be identified as applicable.

1.2.3 Allow for Temporary Changes to Operations.

To the extent practical, current airport operations should be maintained during the construction. In consultation with airport users, Aircraft Rescue and Fire Fighting (ARFF) personnel, and FAA Air Traffic Organization (ATO) personnel, the airport operator should identify and prioritize the airport's most important operations. The construction activities should be planned, through project phasing if necessary, to safely accommodate these operations. When the construction activities cannot be adjusted to safely maintain current operations, regardless of their importance, then the operations must be revised accordingly. Allowable changes include temporary revisions to approach procedures, restricting certain aircraft to specific runways and taxiways, suspension of certain operations, decreased weights for some aircraft due to shortened runways, and other changes. An example of a table showing temporary operations versus current operations is shown in Appendix E.

1.2.4 Take Required Measures to Revise Operations.

Once the level and type of aircraft operations to be maintained are identified, the airport operator must determine the measures required to safely conduct the planned operations during the construction. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also loss of revenue from impacted operations. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary widely among airports, this AC presents general guidance on those subjects.

1.2.5 Manage Safety Risk.

The FAA is committed to incorporating proactive safety risk management (SRM) tools into its decision-making processes. FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, requires the FAA to conduct a Safety Assessment for certain triggering actions. Certain airport projects may require the airport operator to provide a Project Proposal Summary to help the FAA determine whether a Safety Assessment is required prior to FAA approval of the CSPP. The airport operator must coordinate with the appropriate FAA Airports Regional or District Office early in the development of the CSPP to determine the need for a Safety Risk Assessment. If the FAA requires an assessment, the airport operator must at a minimum:

1. Notify the appropriate FAA Airports Regional or District Office during the project "scope development" phase of any project requiring a CSPP.
2. Provide documents identified by the FAA as necessary to conduct SRM.
3. Participate in the SRM process for airport projects.
4. Provide a representative to participate on the SRM panel.

5. Ensure that all applicable SRM identified risks elements are recorded and mitigated within the CSPP.

1.3 **Develop a Construction Safety and Phasing Plan (CSPP).**

Development of an effective CSPP will require familiarity with many other documents referenced throughout this AC. See Appendix A for a list of related reading material.

1.3.1 List Requirements.

A CSPP must be developed for each on-airfield construction project funded by the Airport Improvement Program (AIP) or located on an airport certificated under Part 139. For on-airfield construction projects at Part 139 airports funded without AIP funds, the preparation of a CSPP represents an acceptable method the certificate holder may use to meet Part 139 requirements during airfield construction activity. As per FAA Order 5200.11, projects that require Safety Assessments do not include construction, rehabilitation, or change of any facility that is entirely outside the air operations area, does not involve any expansion of the facility envelope and does not involve construction equipment, haul routes or placement of material in locations that require access to the air operations area, increase the facility envelope, or impact line-of-sight. Such facilities may include passenger terminals and parking or other structures. However, extraordinary circumstances may trigger the need for a Safety Assessment and a CSPP. The CSPP is subject to subsequent review and approval under the FAA's Safety Risk Management procedures (see paragraph 1.2.5).

1.3.2 Prepare a Safety Plan Compliance Document (SPCD).

The Safety Plan Compliance Document (SPCD) details how the contractor will comply with the CSPP. Also, it will not be possible to determine all safety plan details (for example specific hazard equipment and lighting, contractor's points of contact, construction equipment heights) during the development of the CSPP. The successful contractor must define such details by preparing an SPCD that the airport operator reviews for approval prior to issuance of a notice-to-proceed. The SPCD is a subset of the CSPP, similar to how a shop drawing review is a subset to the technical specifications.

1.3.3 Assume Responsibility for the CSPP.

The airport operator is responsible for establishing and enforcing the CSPP. The airport operator may use the services of an engineering consultant to help develop the CSPP. However, writing the CSPP cannot be delegated to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award are developed by the contractor and submitted for approval as the SPCD. The SPCD does not restate nor propose differences to provisions already addressed in the CSPP.

1.4 **Who Is Responsible for Safety During Construction?**

1.4.1 Establish a Safety Culture.

Everyone has a role in operational safety on airports during construction: the airport operator, the airport's consultants, the construction contractor and subcontractors, airport users, airport tenants, ARFF personnel, Air Traffic personnel, including Technical Operations personnel, FAA Airports Division personnel, and others, such as military personnel at any airport supporting military operations (e.g. national guard or a joint use facility). Close communication and coordination between all affected parties is the key to maintaining safe operations. Such communication and coordination should start at the project scoping meeting and continue through the completion of the project. The airport operator and contractor should conduct onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

1.4.2 Assess Airport Operator's Responsibilities.

An airport operator has overall responsibility for all activities on an airport, including construction. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on the responsibilities listed below can be found throughout this AC. The airport operator must:

- 1.4.2.1 Develop a CSPP that complies with the safety guidelines of Chapter 2, Construction Safety and Phasing Plans, and Chapter 3, Guidelines for Writing a CSPP. The airport operator may develop the CSPP internally or have a consultant develop the CSPP for approval by the airport operator. For tenant sponsored projects, approve a CSPP developed by the tenant or its consultant.
- 1.4.2.2 Require, review and approve the SPCD by the contractor that indicates how it will comply with the CSPP and provides details that cannot be determined before contract award.
- 1.4.2.3 Convene a preconstruction meeting with the construction contractor, consultant, airport employees and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. The appropriate FAA representatives should be invited to attend the meeting. See AC 150/5370-12, Quality Management for Federally Funded Airport Construction Projects. (Note “FAA” refers to the Airports Regional or District Office, the Air Traffic Organization, Flight Standards Service, and other offices that support airport operations, flight regulations, and construction/environmental policies.)
- 1.4.2.4 Ensure contact information is accurate for each representative/point of contact identified in the CSPP and SPCD.
- 1.4.2.5 Hold weekly or, if necessary, daily safety meetings with all affected parties to coordinate activities.
- 1.4.2.6 Notify users, ARFF personnel, and FAA ATO personnel of construction and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAM) and other methods, as appropriate. Convene a meeting for review and discussion if necessary.
- 1.4.2.7 Ensure construction personnel know applicable airport procedures and changes to those procedures that may affect their work.
- 1.4.2.8 Ensure that all temporary construction signs are located per the scheduled list for each phase of the project.
- 1.4.2.9 Ensure construction contractors and subcontractors undergo training required by the CSPP and SPCD.
- 1.4.2.10 Ensure vehicle and pedestrian operations addressed in the CSPP and SPCD are coordinated with airport tenants, the airport traffic control tower (ATCT), and construction contractors.
- 1.4.2.11 At certificated airports, ensure each CSPP and SPCD is consistent with Part 139.

- 1.4.2.12 Conduct inspections sufficiently frequently to ensure construction contractors and tenants comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.
 - 1.4.2.13 Take immediate action to resolve safety deficiencies.
 - 1.4.2.14 At airports subject to 49 CFR Part 1542, *Airport Security*, ensure construction access complies with the security requirements of that regulation.
 - 1.4.2.15 Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (for example, implementation of low-visibility operations).
 - 1.4.2.16 Ensure prompt submittal of a Notice of Proposed Construction or Alteration (Form 7460-1) for conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. A separate form may be filed for each potential obstruction, or one form may be filed describing the entire construction area and maximum equipment height. In the latter case, a separate form must be filed for any object beyond or higher than the originally evaluated area/height. The FAA encourages online submittal of forms for expediency at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>. The appropriate FAA Airports Regional or District Office can provide assistance in determining which objects require an aeronautical study.
 - 1.4.2.17 Ensure prompt transmission of the Airport Sponsor Strategic Event Submission, FAA Form 6000-26, located at https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT_SPONSOR_STRATEGIC_EVENT_SUBMISSION_FORM.pdf, to assure proper coordination for NAS Strategic Interruption per Service Level Agreement with ATO.
 - 1.4.2.18 Promptly notify the FAA Airports Regional or District Office of any proposed changes to the CSPP prior to implementation of the change. Changes to the CSPP require review and approval by the airport operator and the FAA. The FAA Airports Regional or District office will determine if further coordination within the FAA is needed. Coordinate with appropriate local and other federal government agencies, such as Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Transportation Security Administration (TSA), and the state environmental agency.
- 1.4.3 Define Construction Contractor's Responsibilities.
The contractor is responsible for complying with the CSPP and SPCD. The contractor must:

- 1.4.3.1 Submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how it will comply with the requirements of the CSPP and supply any details that could not be determined before contract award. The SPCD must include a certification statement by the contractor, indicating an understanding of the operational safety requirements of the CSPP and the assertion of compliance with the approved CSPP and SPCD unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP and SPCD may impact the airport's operational safety and will require a revision to the CSPP and SPCD and re-coordination with the airport operator and the FAA in advance.
- 1.4.3.2 Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and contractor employees.
- 1.4.3.3 Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.
- 1.4.3.4 Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
- 1.4.3.5 Conduct sufficient inspections to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.
- 1.4.3.6 Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate, and as specified in the CSPP and SPCD.
- 1.4.3.7 Ensure that no contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.
- 1.4.3.8 Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, and other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator. The FAA encourages online submittal of forms for expediency at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>.

- 1.4.3.9 Ensure that all necessary safety mitigations are understood by all parties involved, and any special requirements of each construction phase will be fulfilled per the approved timeframe.
- 1.4.3.10 Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

1.4.4 Define Tenant's Responsibilities.

If planning construction activities on leased property, Airport tenants, such as airline operators, fixed base operators, and FAA ATO/Technical Operations sponsoring construction are strongly encouraged to:

1. Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator. The airport operator may forgo a complete CSPP submittal and instead incorporate appropriate operational safety principles and measures addressed in the advisory circular within their tenant lease agreements.
2. In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval issued prior to issuance of a Notice to Proceed.
3. Ensure that construction personnel are familiar with safety procedures and regulations on the airport during all phases of the construction.
4. Provide a point of contact of who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
5. Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
6. Ensure that no tenant or contractor employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.
7. Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate, as specified in the CSPP and SPCD.
8. Ensure prompt submittal through the airport operator of Form 7460-1 for conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>.
9. Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

2.1 **Overview.**

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's CSPP and the contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard. They must provide information necessary for the Airport Operations department to conduct airfield inspections and expeditiously identify and correct unsafe conditions during construction. All aviation safety provisions included within the project drawings, contract specifications, and other related documents must also be reflected in the CSPP and SPCD.

2.2 **Assume Responsibility.**

Operational safety on the airport remains the airport operator's responsibility at all times. The airport operator must develop, certify, and submit for FAA approval each CSPP. It is the airport operator's responsibility to apply the requirements of the FAA approved CSPP. The airport operator must revise the CSPP when conditions warrant changes and must submit the revised CSPP to the FAA for approval. The airport operator must also require and approve a SPCD from the project contractor.

2.3 **Submit the CSPP.**

Construction Safety and Phasing Plans should be developed concurrently with the project design. Milestone versions of the CSPP should be submitted for review and approval as follows. While these milestones are not mandatory, early submission will help to avoid delays. Submittals are preferred in 8.5 × 11 inch or 11 × 17 inch format for compatibility with the FAA's Obstruction Evaluation / Airport Airspace Analysis (OE / AAA) process.

2.3.1 Submit an Outline/Draft.

By the time approximately 25% to 30% of the project design is completed, the principal elements of the CSPP should be established. Airport operators are encouraged to submit an outline or draft, detailing all CSPP provisions developed to date, to the FAA for review at this stage of the project design.

2.3.2 Submit a CSPP.

The CSPP should be formally submitted for FAA approval when the project design is 80 percent to 90 percent complete. Since provisions in the CSPP will influence contract costs, it is important to obtain FAA approval in time to include all such provisions in the procurement contract.

2.3.3 Submit an SPCD.

The contractor should submit the SPCD to the airport operator for approval to be issued prior to the Notice to Proceed.

2.3.4 Submit CSPP Revisions.

All revisions to a previously approved CSPP must be re-submitted to the FAA for review and approval/disapproval action.

2.4 **Meet CSPP Requirements.**

2.4.1 To the extent possible, the CSPP should address the following as outlined in Chapter 3, Guidelines for Writing a CSPP. Details that cannot be determined at this stage are to be included in the SPCD.

1. Coordination.
 - a. Contractor progress meetings.
 - b. Scope or schedule changes.
 - c. FAA ATO coordination.
2. Phasing.
 - a. Phase elements.
 - b. Construction safety drawings.
3. Areas and operations affected by the construction activity.
 - a. Identification of affected areas.
 - b. Mitigation of effects.
4. Protection of navigation aids (NAVAIDs).
5. Contractor access.
 - a. Location of stockpiled construction materials.
 - b. Vehicle and pedestrian operations.
6. Wildlife management.
 - a. Trash.
 - b. Standing water.
 - c. Tall grass and seeds.
 - d. Poorly maintained fencing and gates.
 - e. Disruption of existing wildlife habitat.
7. Foreign Object Debris (FOD) management.
8. Hazardous materials (HAZMAT) management.
9. Notification of construction activities.

- a. Maintenance of a list of responsible representatives/ points of contact.
 - b. NOTAM.
 - c. Emergency notification procedures.
 - d. Coordination with ARFF Personnel.
 - e. Notification to the FAA.
10. Inspection requirements.
 - a. Daily (or more frequent) inspections.
 - b. Final inspections.
 11. Underground utilities.
 12. Penalties.
 13. Special conditions.
 14. Runway and taxiway visual aids. Marking, lighting, signs, and visual NAVAIDs.
 - a. General.
 - b. Markings.
 - c. Lighting and visual NAVAIDs.
 - d. Signs, temporary, including orange construction signs, and permanent signs.
 15. Marking and signs for access routes.
 16. Hazard marking and lighting.
 - a. Purpose.
 - b. Equipment.
 17. Work zone lighting for nighttime construction (if applicable).
 18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.
 - a. Runway Safety Area (RSA).
 - b. Runway Object Free Area (ROFA).
 - c. Taxiway Safety Area (TSA). Provide details for any adjustments to Taxiway Safety Area width to allow continued operation of smaller aircraft. See paragraph 2.22.3.
 - d. Taxiway Object Free Area (TOFA). Provide details for any continued aircraft operations while construction occurs within the TOFA. See paragraph 2.22.4.
 - e. Obstacle Free Zone (OFZ).
 - f. Runway approach/departure surfaces.
 19. Other limitations on construction.
 - a. Prohibitions.

b. Restrictions.

2.4.2 The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, “I, (Name of Contractor), have read the (Title of Project) CSPP, approved on (Date), and will abide by it as written and with the following additions as noted:”). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, “No supplemental information,” should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

1. Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
2. Phasing. Discuss proposed construction schedule elements, including:
 - a. Duration of each phase.
 - b. Daily start and finish of construction, including “night only” construction.
 - c. Duration of construction activities during:
 - i. Normal runway operations.
 - ii. Closed runway operations.
 - iii. Modified runway “Aircraft Reference Code” usage.
3. Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
4. Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.
5. Contractor access. Provide the following:
 - a. Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
 - b. Listing of individuals requiring driver training (for certificated airports and as requested).
 - c. Radio communications.
 - i. Types of radios and backup capabilities.
 - ii. Who will be monitoring radios.
 - iii. Who to contact if the ATCT cannot reach the contractor’s designated person by radio.

- d. Details on how the contractor will escort material delivery vehicles.
6. Wildlife management. Discuss the following:
 - a. Methods and procedures to prevent wildlife attraction.
 - b. Wildlife reporting procedures.
7. Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.
8. Hazardous Materials (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.
9. Notification of construction activities. Provide the following:
 - a. Contractor points of contact.
 - b. Contractor emergency contact.
 - c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
 - d. Batch plant details, including 7460-1 submittal.
10. Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.
11. Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.
12. Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.
13. Special conditions. Discuss proposed actions for each special condition identified in the CSPP.
14. Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
 - a. Equipment and methods for covering signage and airfield lights.
 - b. Equipment and methods for temporary closure markings (paint, fabric, other).
 - c. Temporary orange construction signs.
 - d. Types of temporary Visual Guidance Slope Indicators (VGSI).
15. Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.
16. Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.
17. Work zone lighting for nighttime construction (if applicable). Discuss proposed equipment, locations, aiming, and shielding to prevent interference with air traffic control and aircraft operations.

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
 - a. Equipment and methods for maintaining Taxiway Safety Area standards.
 - b. Equipment and methods to ensure the safe passage of aircraft where Taxiway Safety Area or Taxiway Object Free Area standards cannot be maintained.
 - c. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
19. Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

2.5 **Coordination.**

Airport operators, or tenants responsible for design, bidding and conducting construction on their leased properties, should ensure at all project developmental stages, such as predesign, prebid, and preconstruction conferences, they capture the subject of airport operational safety during construction (see [AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects*](#)). In addition, the following should be coordinated as required:

2.5.1 Progress Meetings.

Operational safety should be a standing agenda item for discussion during progress meetings throughout the project developmental stages.

2.5.2 Scope or Schedule Changes.

Changes in the scope or duration at any of the project stages may require revisions to the CSPP and review and approval by the airport operator and the FAA (see paragraph [1.4.2.17](#)).

2.5.3 FAA ATO Coordination.

Early coordination with FAA ATO is highly recommended during the design phase and is required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. Formal agreements between the airport operator and appropriate FAA offices are recommended. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO. Reimbursable agreements should be coordinated a minimum of 12 months prior to the start of construction. (See paragraph [2.13.5.3.2](#) for required FAA notification regarding FAA-owned NAVAIDs.)

2.6 **Phasing.**

Once it has been determined what types and levels of airport operations will be maintained, the most efficient sequence of construction may not be feasible. In this case, the sequence of construction may be phased to gain maximum efficiency while allowing for the required operations. The development of the resulting construction phases should be coordinated with local Air Traffic personnel and airport users. The sequenced construction phases established in the CSPP must be incorporated into the project design and must be reflected in the contract drawings and specifications.

2.6.1 Phase Elements.

For each phase the CSPP should detail:

- Areas closed to aircraft operations.
- Duration of closures.
- Taxi routes and/or areas of reduced TSA and TOFA to reflect reduced ADG use.
- ARFF access routes.
- Construction staging, disposal, and cleanout areas.
- Construction access and haul routes.
- Impacts to NAVAIDs.
- Lighting, marking, and signing changes.
- Available runway length and/or reduced RSA and ROFA to reflect reduced ADG use.
- Declared distances (if applicable).
- Required hazard marking, lighting, and signing.
- Work zone lighting for nighttime construction (if applicable).
- Lead times for required notifications.

2.6.2 Construction Safety Drawings.

Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) should be developed for each construction phase. Such drawings should be included in the CSPP as referenced attachments and should also be included in the contract drawing package.

2.7 **Areas and Operations Affected by Construction Activity.**

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety. Pre-meetings with the FAA ATO will support operational simulations. See Appendix E for an example of a table showing temporary operations versus current operations. The tables in Appendix E can be useful for coordination among all interested parties, including FAA Lines of Business.

2.7.1 Identification of Affected Areas.

Identifying areas and operations affected by the construction helps to determine possible safety problems. The affected areas should be identified in the construction safety drawings for each construction phase. (See paragraph 2.6.2.) Of particular concern are:

2.7.1.1 **Closing, or Partial Closing, of Runways, Taxiways and Aprons, and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing, landing, or takeoff in either direction on that pavement is prohibited. A displaced threshold, by contrast, is established to ensure obstacle clearance and adequate safety area for landing aircraft. The pavement prior to the displaced threshold is normally available for take-off in the direction of the displacement and for landing and takeoff in the opposite direction. Misunderstanding this difference, may result in issuance of an inaccurate NOTAM, and can lead to a hazardous condition.

2.7.1.1.1 Partially Closed Runways.

The temporarily closed portion of a partially closed runway will generally extend from the threshold to a taxiway that may be used for entering and exiting the runway. If the closed portion extends to a point between taxiways, pilots will have to back-taxi on the runway, which is an undesirable operation. See Figure 2-1 for a desirable configuration.

2.7.1.1.2 Displaced Thresholds.

Since the portion of the runway pavement between the permanent threshold and a standard displaced threshold is available for takeoff and for landing in the opposite direction, the temporary displaced threshold need not be located at an entrance/exit taxiway. See Figure 2-2.

2.7.1.2 Closing of aircraft rescue and fire fighting access routes.

2.7.1.3 Closing of access routes used by airport and airline support vehicles.

2.7.1.4 Interruption of utilities, including water supplies for fire fighting.

2.7.1.5 Approach/departure surfaces affected by heights of objects.

2.7.1.6 Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.

Figure 2-1. Temporary Partially Closed Runway

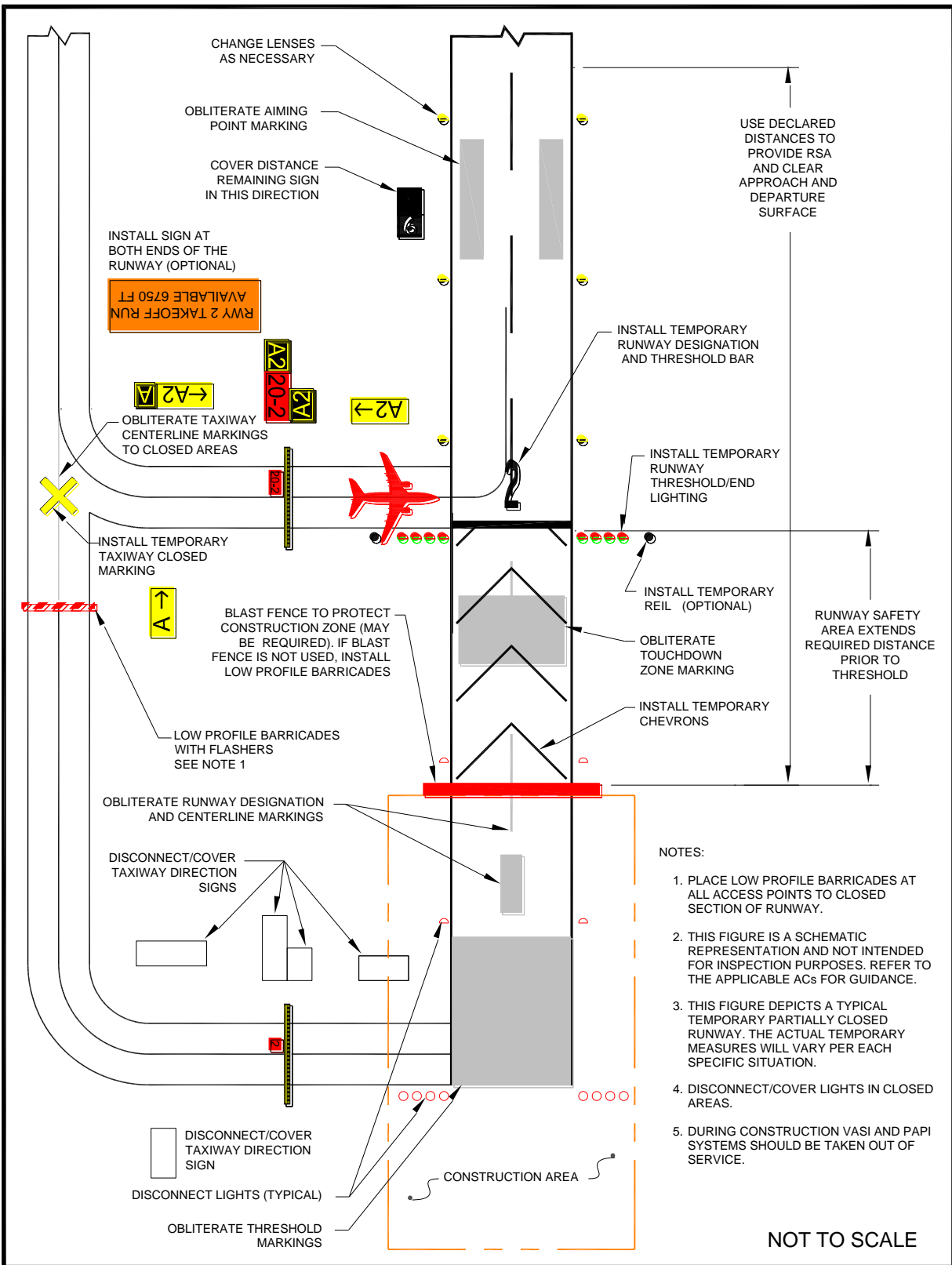
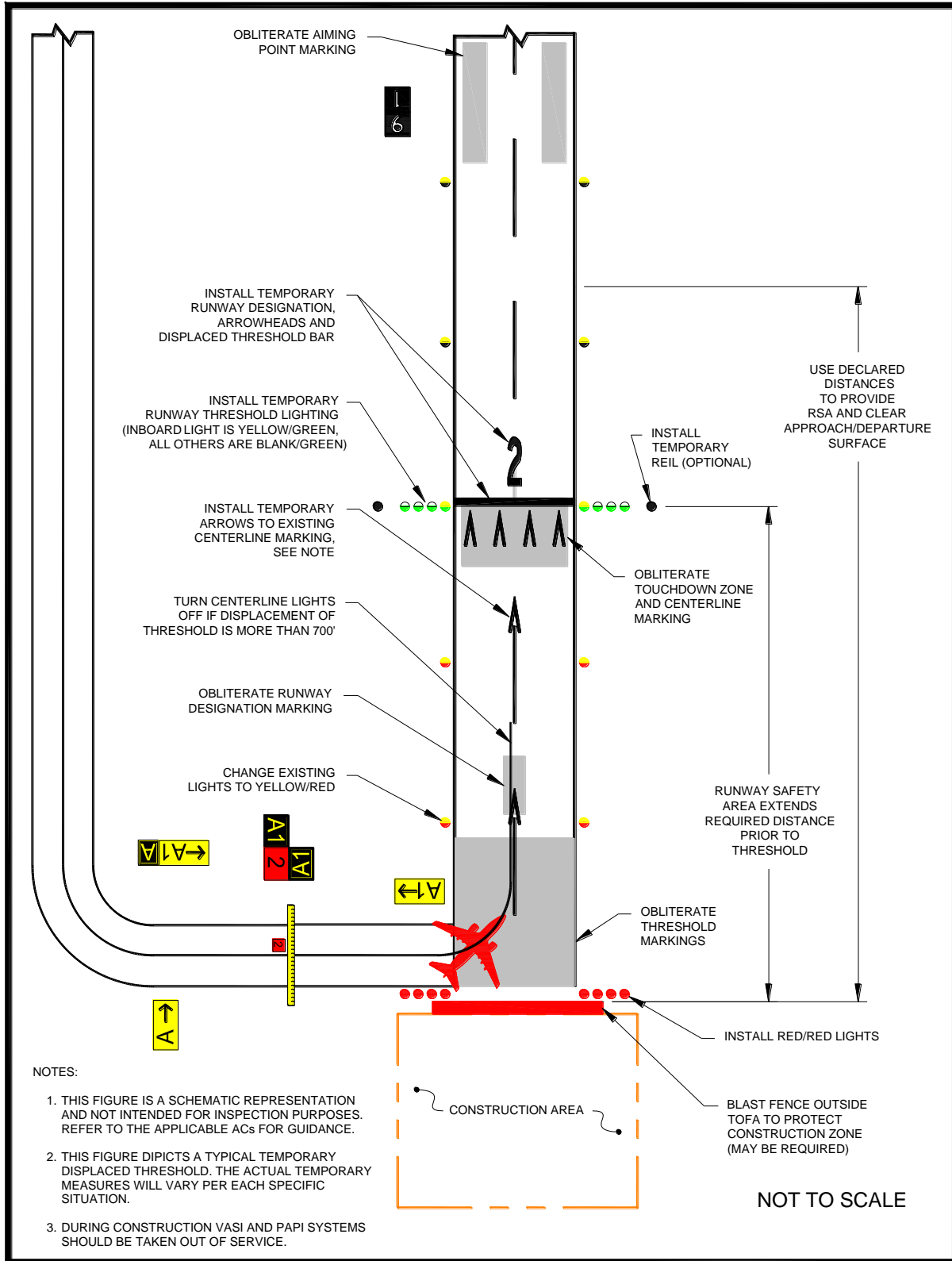


Figure 2-2. Temporary Displaced Threshold



Note: See paragraph 2.18.2.5.

2.7.2 Mitigation of Effects.

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. The CSPP must address:

- 2.7.2.1 Temporary changes to runway and/or taxi operations.
- 2.7.2.2 Detours for ARFF and other airport vehicles.
- 2.7.2.3 Maintenance of essential utilities.
- 2.7.2.4 Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

2.8 **Navigation Aid (NAVAID) Protection.**

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. (See paragraph 2.13.5.3.) Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the “critical area” associated with each NAVAID and describe how it will be protected. Where applicable, the operational critical areas of NAVAIDs should be graphically delineated on the project drawings. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed (see paragraph 2.13.2.) Construction activities and materials/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs. (See paragraph 2.13.5.3.)

2.9 **Contractor Access.**

The CSPP must detail the areas to which the contractor must have access, and explain how contractor personnel will access those areas. Specifically address:

2.9.1 Location of Stockpiled Construction Materials.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ, and if possible should not be permitted within the Object Free Area (OFA) of an operational runway. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. (See paragraph 2.18.2.) This includes determining and

verifying that materials are stabilized and stored at an approved location so as not to be a hazard to aircraft operations and to prevent attraction of wildlife and foreign object damage from blowing or tracked material. See paragraphs 2.10 and 2.11.

2.9.2 Vehicle and Pedestrian Operations.

The CSPP should include specific vehicle and pedestrian requirements. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The airport operator should coordinate requirements for vehicle operations with airport tenants, contractors, and the FAA air traffic manager. In regard to vehicle and pedestrian operations, the CSPP should include the following, with associated training requirements:

2.9.2.1 **Construction Site Parking.**

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the AOA. These areas should provide reasonable contractor employee access to the job site.

2.9.2.2 **Construction Equipment Parking.**

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP). See paragraph 2.13.1 for further information.

2.9.2.3 **Access and Haul Roads.**

Determine the construction contractor's access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Access routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Pay special attention to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul

roads does not interfere with NAVAIDs or approach surfaces of operational runways. Address whether access gates will be blocked or inoperative or if a rally point will be blocked or inaccessible.

2.9.2.4 Marking and lighting of vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*.

2.9.2.5 Description of proper vehicle operations on various areas under normal, lost communications, and emergency conditions.

2.9.2.6 Required escorts.

2.9.2.7 **Training Requirements for Vehicle Drivers to Ensure Compliance with the Airport Operator's Vehicle Rules and Regulations.**

Specific training should be provided to vehicle operators, including those providing escorts. See AC 150/5210-20, *Ground Vehicle Operations on Airports*, for information on training and records maintenance requirements.

2.9.2.8 **Situational Awareness.**

Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time. At non-towered airports, all aircraft movements and flight operations rely on aircraft operators to self-report their positions and intentions. However, there is no requirement for an aircraft to have radio communications. Because aircraft do not always broadcast their positions or intentions, visual checking, radio monitoring, and situational awareness of the surroundings is critical to safety.

2.9.2.9 **Two-Way Radio Communication Procedures.**

2.9.2.9.1 General.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCT. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact, as directed by the airport operator, with:

1. Airport operations
2. ATCT

3. Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.
4. Automatic Terminal Information Service (ATIS). This frequency is useful for monitoring conditions on the airport. Local air traffic will broadcast information regarding construction related runway closures and “shortened” runways on the ATIS frequency.

2.9.2.9.2 Areas Requiring Two-Way Radio Communication with the ATCT.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport.

2.9.2.9.3 Frequencies to be Used.

The airport operator will specify the frequencies to be used by the contractor, which may include the CTAF for monitoring of aircraft operations. Frequencies may also be assigned by the airport operator for other communications, including any radio frequency in compliance with Federal Communications Commission requirements. At airports with an ATCT, the airport operator will specify the frequency assigned by the ATCT to be used between contractor vehicles and the ATCT.

2.9.2.9.4 Proper radio usage, including read back requirements.

2.9.2.9.5 Proper phraseology, including the International Phonetic Alphabet.

2.9.2.9.6 Light Gun Signals.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard “Ground Vehicle Guide to Airport Signs and Markings.” This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/runway_safety/publications/ (see “Signs & Markings Vehicle Dashboard Sticker”) or obtained from the FAA Airports Regional Office.

2.9.2.10 **Maintenance of the secured area of the airport, including:**

2.9.2.10.1 Fencing and Gates.

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit “piggybacking” behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-

00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

2.9.2.10.2 Badging Requirements.

Airports subject to 49 CFR Part 1542, *Airport Security*, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

2.10 **Wildlife Management.**

The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*, and CertAlert 98-05, *Grasses Attractive to Hazardous Wildlife*. Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports, such as:

2.10.1 Trash.

Food scraps must be collected from construction personnel activity.

2.10.2 Standing Water.

2.10.3 Tall Grass and Seeds.

Requirements for turf establishment can be at odds with requirements for wildlife control. Grass seed is attractive to birds. Lower quality seed mixtures can contain seeds of plants (such as clover) that attract larger wildlife. Seeding should comply with the guidance in AC 150/5370-10, *Standards for Specifying Construction of Airports*, Item T-901, Seeding. Contact the local office of the United States Department of Agriculture Soil Conservation Service or the State University Agricultural Extension Service (County Agent or equivalent) for assistance and recommendations. These agencies can also provide liming and fertilizer recommendations.

2.10.4 Poorly Maintained Fencing and Gates.

See paragraph 2.9.2.10.1.

2.10.5 Disruption of Existing Wildlife Habitat.

While this will frequently be unavoidable due to the nature of the project, the CSPP should specify under what circumstances (location, wildlife type) contractor personnel should immediately notify the airport operator of wildlife sightings.

2.11 Foreign Object Debris (FOD) Management.

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, *Foreign Object Debris (FOD) Management*.

2.12 Hazardous Materials (HAZMAT) Management.

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel or hydraulic fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. See AC 150/5320-15, *Management of Airport Industrial Waste*.

2.13 Notification of Construction Activities.

The CSPP and SPCD must detail procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport. It must address the notification actions described below, as applicable.

2.13.1 List of Responsible Representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

2.13.2 NOTAMs.

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must either enter the NOTAM into NOTAM Manager, or provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators*, for a sample NOTAM form. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator. See paragraph 2.7.1.1 about issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

2.13.3 Emergency notification procedures for medical, fire fighting, and police response.

2.13.4 Coordination with ARFF.

The CSPP must detail procedures for coordinating through the airport sponsor with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

1. The deactivation and subsequent reactivation of water lines or fire hydrants, or
2. The rerouting, blocking and restoration of emergency access routes, or
3. The use of hazardous materials on the airfield.

2.13.5 Notification to the FAA.

2.13.5.1 **Part 77.**

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. See Appendix A to download the form. Further guidance is available on the FAA web site at oeaaa.faa.gov.

2.13.5.2 **Part 157.**

With some exceptions, Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, *Notice of Landing Area Proposal*, to the nearest FAA Airports Regional or District Office. See Appendix A to download the form.

2.13.5.3 **NAVAIDs.**

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

2.13.5.3.1 Airport Owned/FAA Maintained.

If construction operations require a shutdown of 24 hours or greater in duration, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown, using Strategic Event Coordination (SEC) Form 6000.26 contained within FAA Order 6000.15, *General Maintenance Handbook for National Airspace System (NAS) Facilities*.

2.13.5.3.2 FAA Owned.

1. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs, using SEC Form 6000.26.
2. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. Refer to active Service Level Agreement with ATO for specifics.

2.14 **Inspection Requirements.**

2.14.1 Daily Inspections.

Inspections should be conducted at least daily, but more frequently if necessary to ensure conformance with the CSPP. A sample checklist is provided in Appendix D, Construction Project Daily Safety Inspection Checklist. See also AC 150/5200-18, Airport Safety Self-Inspection. Airport operators holding a Part 139 certificate are required to conduct self-inspections during unusual conditions, such as construction activities, that may affect safe air carrier operations.

2.14.2 Interim Inspections.

Inspections should be conducted of all areas to be (re)opened to aircraft traffic to ensure the proper operation of lights and signs, for correct markings, and absence of FOD. The contractor should conduct an inspection of the work area with airport operations personnel. The contractor should ensure that all construction materials have been secured, all pavement surfaces have been swept clean, all transition ramps have been properly constructed, and that surfaces have been appropriately marked for aircraft to operate safely. Only if all items on the list meet with the airport operator's approval should the air traffic control tower be notified to open the area to aircraft operations. The contractor should be required to retain a suitable workforce and the necessary equipment at the work area for any last minute cleanup that may be requested by the airport operator prior to opening the area.

2.14.3 Final Inspections.

New runways and extended runway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

2.15 Underground Utilities.

The CSPP and/or SPCD must include procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas. This may involve coordinating with public utilities and FAA ATO/Technical Operations. Note that “One Call” or “Miss Utility” services do not include FAA ATO/Technical Operations.

2.16 Penalties.

The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (for example, if a vehicle is involved in a runway incursion). Such penalties typically include rescission of driving privileges or access to the AOA.

2.17 Special Conditions.

The CSPP must detail any special conditions that affect the operation of the airport and will require the activation of any special procedures (for example, low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, Vehicle / Pedestrian Deviation (VPD) and other activities requiring construction suspension/resumption).

2.18 Runway and Taxiway Visual Aids.

This includes marking, lighting, signs, and visual NAVAIDs. The CSPP must ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs that are to continue to perform their functions during construction remain in place and operational. Visual NAVAIDs that are not serving their intended function during construction must be temporarily disabled, covered, or modified as necessary. The CSPP must address the following, as appropriate:

2.18.1 General.

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, and other wind currents and constructed of materials that will minimize damage to an aircraft in the event of inadvertent contact. Items used to secure such markings must be of a color similar to the marking.

2.18.2 Markings.

During the course of construction projects, temporary pavement markings are often required to allow for aircraft operations during or between work periods. During the design phase of the project, the designer should coordinate with the project manager,

airport operations, airport users, the FAA Airports project manager, and Airport Certification Safety Inspector for Part 139 airports to determine minimum temporary markings. The FAA Airports project manager will, wherever a runway is closed, coordinate with the appropriate FAA Flight Standards Office and disseminate findings to all parties. Where possible, the temporary markings on finish grade pavements should be placed to mirror the dimensions of the final markings. Markings must be in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*, except as noted herein. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X. The preferred visual aid to depict temporary runway closure is the lighted X signal placed on or near the runway designation numbers. (See paragraph 2.18.2.1.2.)

2.18.2.1 **Closed Runways and Taxiways.**

2.18.2.1.1 Permanently Closed Runways.

For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place an X at each end and at 1,000-foot (300 m) intervals. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X.

2.18.2.1.2 Temporarily Closed Runways.

For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X. See Figure 2-3. See also paragraph 2.18.3.3.

2.18.2.1.3 Partially Closed Runways and Displaced Thresholds.

When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings must comply with AC 150/5340-1. An X is not used on a partially closed runway or a runway with a displaced threshold. See paragraph 2.7.1.1 for the difference between partially closed runways and runways with displaced thresholds. Because of the temporary nature of threshold displacement due to construction, it is not necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach. Some of the requirements below may be waived in the cases of low-activity airports and/or short duration changes that are measured in days rather than weeks. Consider whether the presence of an airport traffic

control tower allows for the development of special procedures. Contact the appropriate FAA Airports Regional or District Office for assistance.

Figure 2-3. Markings for a Temporarily Closed Runway

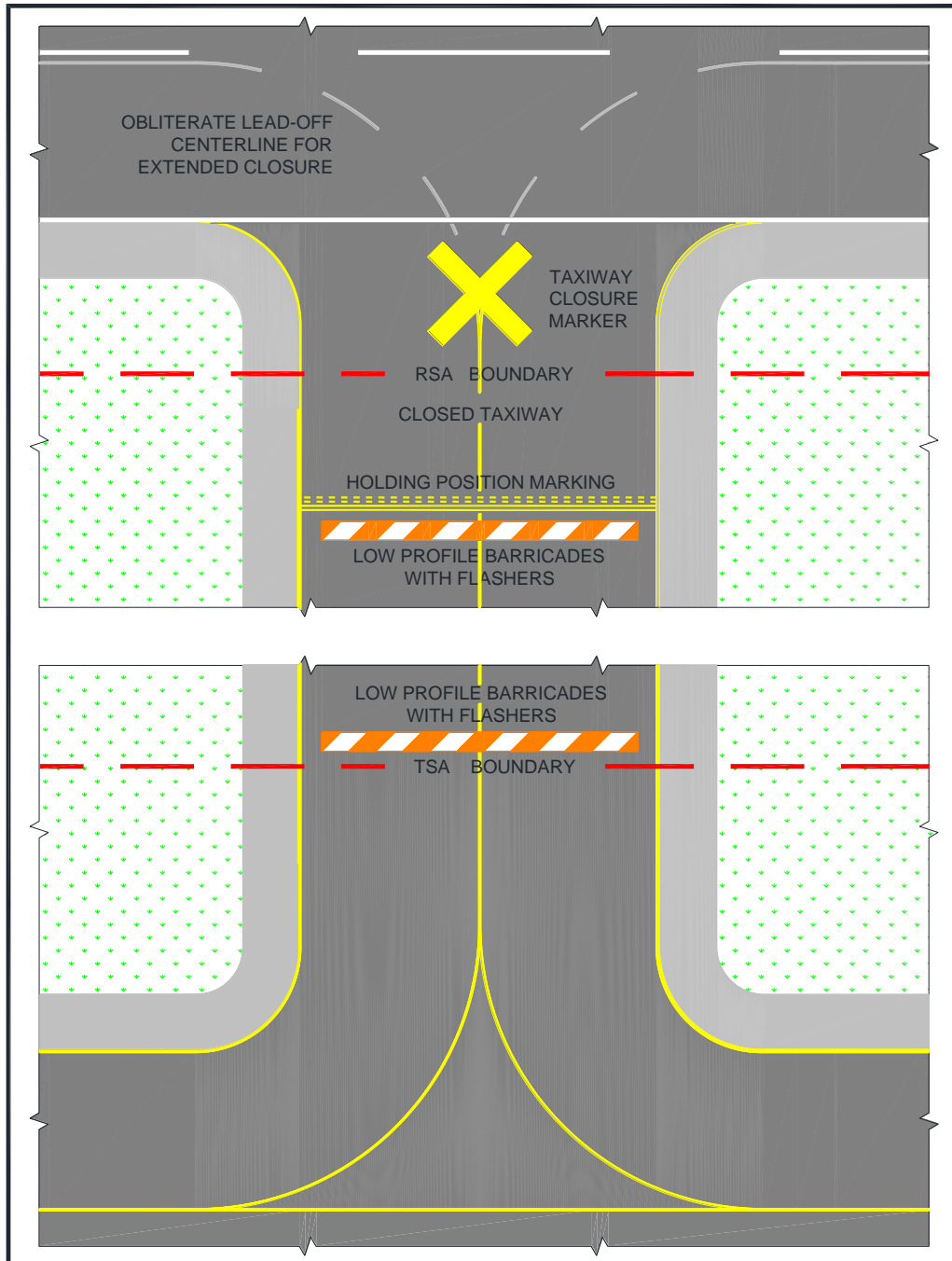


1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see [AC 150/5340-1](#)). Obliterate or cover markings prior to the moved threshold. Existing touchdown zone markings beyond the moved threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See [Figure 2-4](#).
2. **Displaced Thresholds.** Pavement markings for a displaced threshold consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See [AC 150/5340-1](#). Obliterate markings prior to the displaced threshold. Existing touchdown zone markings beyond the displaced threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See [Figure 2-2](#).

2.18.2.1.4 Taxiways.

1. **Permanently Closed Taxiways.** *AC 150/5300-13 Airport Design*, notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway. See [Figure 2-4](#).

Figure 2-4. Temporary Taxiway Closure



2. **Temporarily Closed Taxiways.** Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section. Always obliterate runway lead-off lines for high speed exits, regardless of the duration of the closure. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed. See Figure 2-4.

2.18.2.1.5 Temporarily Closed Airport.

When the airport is closed temporarily, mark all the runways as closed.

- 2.18.2.2 If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking.

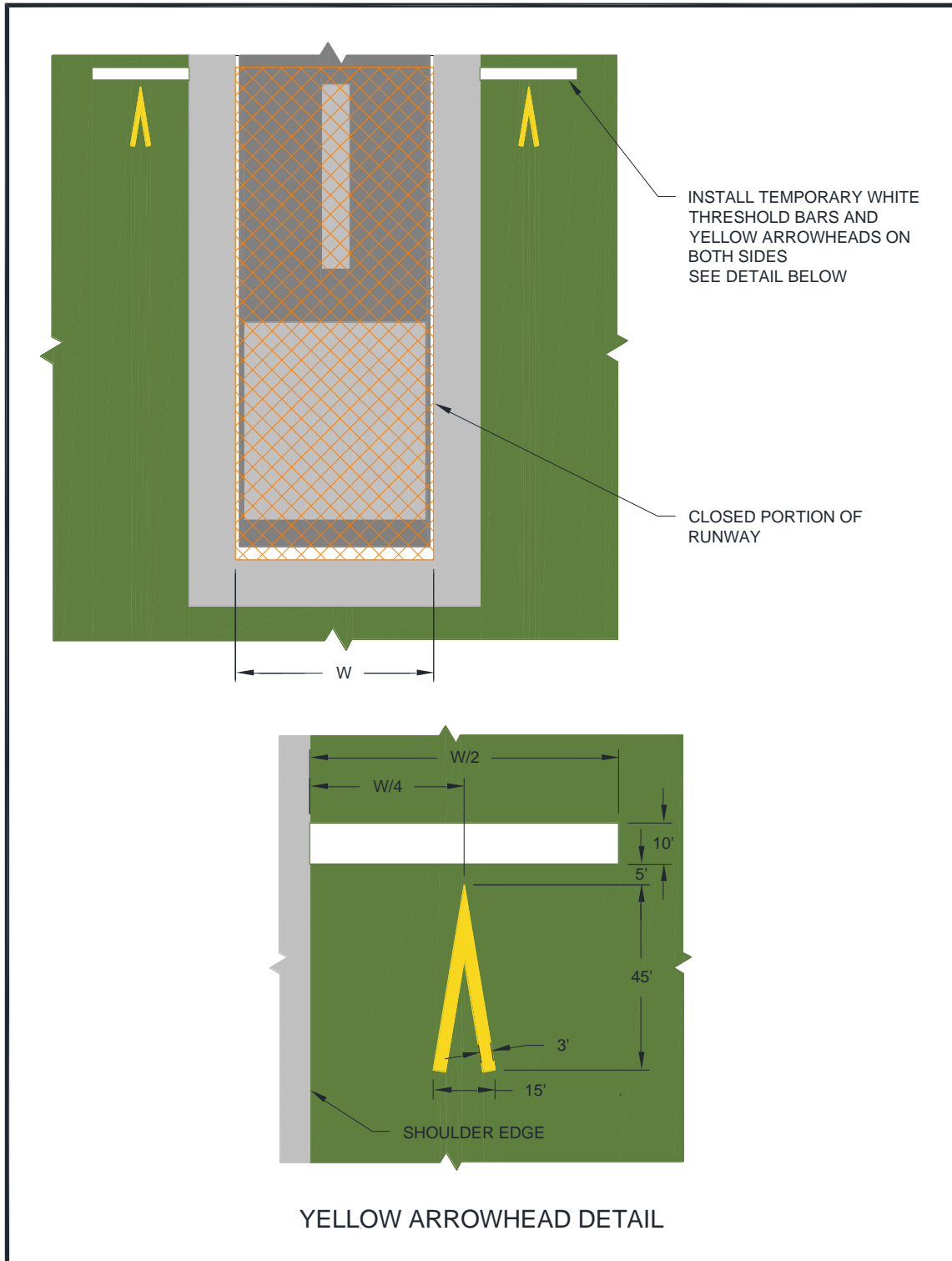
- 2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. When removing runway markings, apply the same treatment to areas between stripes or numbers, as the cleaned area will appear to pilots as a marking in the shape of the treated area.

- 2.18.2.4 If it is not possible to install threshold bars, chevrons, and arrows on the pavement, “temporary outboard white threshold bars and yellow arrowheads”, see Figure 2-5, may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimensions must be as shown in Figure 2-5. If the markings are not discernible on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

- 2.18.2.5 The application rate of paint to mark a short-term temporary runway and taxiway markings may deviate from the standard (see Item P-620, “Runway and Taxiway Painting,” in AC 150/5370-10), but the dimensions must meet the existing standards. When applying temporary markings at night, it is recommended that the fast curing, Type II paint be used to help offset the higher humidity and cooler temperatures often experienced at night. Diluting the paint will substantially increase cure time and is not recommended. Glass beads are not recommended for temporary markings. Striated markings may also be used for certain temporary markings. AC

150/5340-1, *Standards for Airport Markings*, has additional guidance on temporary markings.

Figure 2-5. Temporary Outboard White Threshold Bars and Yellow Arrowheads



2.18.3 Lighting and Visual NAVAIDs.

This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting installation must be in conformance with AC 150/5340-30, *Design and Installation Details for Airport Visual Aids*, and fixture design in conformance with AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights*. When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. See AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*, for disconnect procedures and safety precautions. Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources. Maintain mandatory hold signs to operate normally in any situation where pilots or vehicle drivers could mistakenly be in that location. At towered airports certificated under Part 139, holding position signs are required to be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, install a jumper to the taxiway circuit to provide power to the holding position sign for nighttime operations. Where it is not possible to maintain power to signs that would normally be operational, install barricades to exclude aircraft. Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4 illustrate temporary changes to lighting and visual NAVAIDs.

2.18.3.1 **Permanently Closed Runways and Taxiways.**

For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

2.18.3.2 **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.**

If available, use a lighted X, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note that the lighted X must be illuminated at all times that it is on a runway.) The use of a lighted X is required if night work requires runway lighting to be on. See AC 150/5345-55, *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure*. For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation. For runways that will be opened periodically, coordinate procedures with the FAA air traffic manager or, at airports without an ATCT, the airport operator. Activate stop bars if available. Figure 2-6 shows a lighted X by day. Figure 2-7 shows a lighted X at night.

Figure 2-6. Lighted X in Daytime**Figure 2-7. Lighted X at Night****2.18.3.3****Partially Closed Runways and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially

closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

- 2.18.3.3.1 Partially Closed Runways.
Disconnect edge and threshold lights on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed). Alternately, cover the light fixtures in such a way as to prevent light leakage. See Figure 2-1.
- 2.18.3.3.2 Temporary Displaced Thresholds.
Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, blank out centerline lights in the direction of approach or place the centerline lights out of service. If the displacement is over 700 feet, place the centerline lights out of service. See AC 150/5340-30 for details on lighting displaced thresholds. See Figure 2-2.
- 2.18.3.3.3 Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.
- 2.18.3.3.4 A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 2.18.2.1.3. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39, *Specification for L-853, Runway and Taxiway Retroreflective Markers*.
- 2.18.3.3.5 Temporary threshold lights and runway end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.
- 2.18.3.3.6 Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operations but may

be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

- 2.18.3.3.7 When runway thresholds are temporarily displaced, reconfigure yellow lenses (caution zone), as necessary, and place the centerline lights out of service.
- 2.18.3.3.8 Relocate the Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI, coordinate its installation or disabling with the local ATO/Technical Operations Office. Relocation of such visual aids will depend on the duration of the project and the benefits gained from the relocation, as this can result in great expense. See FAA JO 6850.2, *Visual Guidance Lighting Systems*, for installation criteria for FAA owned and operated NAVAIDs.
- 2.18.3.3.9 Issue a NOTAM to inform pilots of temporary lighting conditions.

2.18.3.4 **Temporarily Closed Taxiways.**

If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), cover the light fixture in a way as to prevent light leakage.

2.18.4 Signs.

To the extent possible, signs must be in conformance with AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and AC 150/5340-18, *Standard for Airport Sign Systems*.

2.18.4.1 **Existing Signs.**

Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

2.18.4.2 **Temporary Signs.**

Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot “information overload,” the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. Temporary signs must meet the standards for such signs in Engineering Brief 93, *Guidance for the Assembly and Installation of Temporary Orange Construction Signs*. Many criteria in AC 150/5345-44, *Specification for Runway and Taxiway Signs*, are referenced in the Engineering Brief. Permissible sign legends are:

1. CONSTRUCTION AHEAD,
2. CONSTRUCTION ON RAMP, and
3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

2.18.4.2.1 Takeoff Run Available (TORA) signs.

Recommended: Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position. See EB 93 for sign size and location.

2.18.4.2.2 Sign legends are shown in Figure F-1.

Note: See Figure E-1, Figure E-2, Figure E-3, Figure F-2, and Figure F-3 for examples of orange construction sign locations.

2.19 **Marking and Signs for Access Routes.**

The CSPP should indicate that pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections*, which may require modification to size and height guidance in the MUTCD.

2.20 **Hazard Marking, Lighting and Signing.**

2.20.1 Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP must specify prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting must also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

2.20.2 Equipment.

2.20.2.1 **Barricades.**

Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. For example, if barricades are intended to exclude aircraft, gaps between barricades must be smaller than the wingspan of the smallest aircraft to be excluded; if barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

2.20.2.2 **Lights.**

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

2.20.2.3 **Supplement Barricades with Signs (for example) As Necessary.**

Examples are “No Entry” and “No Vehicles.” Be aware of the increased effects of wind and jet blast on barricades with attached signs.

2.20.2.4 **Air Operations Area – General.**

Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground. [Figure 2-8](#) and [Figure 2-9](#) show sample barricades with proper coloring and flags.

Figure 2-8. Interlocking Barricades



Figure 2-9. Low Profile Barricades**2.20.2.5 Air Operations Area – Runway/Taxiway Intersections.**

Use highly reflective barricades with lights to close taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, even for closures of relatively short duration, close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

2.20.2.6 Air Operations Area – Other.

Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

2.20.2.7 Maintenance.

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

2.21 Work Zone Lighting for Nighttime Construction.

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. Refer to [AC 150/5370-10](#) for minimum illumination levels for nighttime paving projects. Additionally, it is recommended that all support equipment, except haul trucks, be equipped with artificial illumination to safely

illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways.

2.22 **Protection of Runway and Taxiway Safety Areas.**

Runway and taxiway safety areas, OFZs, OFAs, and approach surfaces are described in AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material. An FAA airspace study may be required. Coordinate with the appropriate FAA Airports Regional or District Office if there is any doubt as to requirements or dimensions (see paragraph 2.13.5) as soon as the location and height of materials or equipment are known. The CSPP should include drawings showing all safety areas, object free areas, obstacle free zones and approach departure surfaces affected by construction.

2.22.1 Runway Safety Area (RSA).

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

- 2.22.1.1 No construction may occur within the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. (See AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances. Coordinate with the appropriate FAA Airports Regional or District Office to have declared distances information published, and appropriate NOTAMs issued. See AC 150/5300-13 for guidance on the use of declared distances.
- 2.22.1.2 The airport operator must coordinate the adjustment of RSA dimensions as permitted above with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.
- 2.22.1.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations.

2.22.1.4 **Excavations.**

2.22.1.4.1 Open trenches or excavations are not permitted within the RSA while the runway is open. Backfill trenches before the runway is opened. If backfilling excavations before the runway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

2.22.1.4.2 Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.1.5 **Erosion Control.**

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.2 Runway Object Free Area (ROFA).

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

2.22.3 Taxiway Safety Area (TSA).

2.22.3.1 A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. (See AC 150/5300-13.) Since the width of the TSA is equal to the wingspan of the design aircraft, no construction may occur within the TSA while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction. Give special consideration to TSA dimensions at taxiway turns and intersections. (see AC 150/5300-13).

2.22.3.2 The airport operator must coordinate the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

2.22.3.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations.

2.22.3.4 **Excavations.**

1. Curves. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
2. Straight Sections. Open trenches or excavations are not permitted within the TSA while the taxiway is open for unrestricted aircraft operations. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations to allow the safe passage of ARFF equipment and of the heaviest aircraft operating on the taxiway across the trench without causing damage to the equipment or aircraft. In rare circumstances where the section of taxiway is indispensable for aircraft movement, open trenches or excavations may be permitted in the TSA while the taxiway is open to aircraft operations, subject to the following restrictions:
 - a. Taxiing speed is limited to 10 mph.
 - b. Appropriate NOTAMs are issued.
 - c. Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
 - d. Low mass, low-profile lighted barricades are installed.
 - e. Appropriate temporary orange construction signs are installed.
3. Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.3.5 **Erosion control.**

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.4 Taxiway Object Free Area (TOFA).

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

- 2.22.4.1 The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available. Give special consideration to TOFA dimensions at taxiway turns and intersections.
- 2.22.4.2 Offset taxiway centerline and edge pavement markings (do not use glass beads) may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting, centerline reflectors, or taxiway edge reflectors are required. Existing lighting that does not coincide with the temporary markings must be taken out of service.
- 2.22.4.3 Construction activity, including open excavations, may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:
 - 2.22.4.3.1 Taxiing speed is limited to 10 mph.
 - 2.22.4.3.2 NOTAMs issued advising taxiing pilots of hazard and recommending reduced taxiing speeds on the taxiway.
 - 2.22.4.3.3 Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
 - 2.22.4.3.4 If desired, appropriate orange construction signs are installed. See paragraph 2.18.4.2 and Appendix F.
 - 2.22.4.3.5 Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the usable pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.
 - 2.22.4.3.6 Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel. Flaggers must also be used to direct taxiing aircraft. Due to liability issues, the airport operator should require airlines to provide flaggers for directing taxiing aircraft.

2.22.5 Obstacle Free Zone (OFZ).

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6 Runway Approach/Departure Areas and Clearways.

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6.1 Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the airport operator with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

2.22.6.2 **Caution About Partial Runway Closures.**

When filing a NOTAM for a partial runway closure, clearly state that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold). There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

2.22.6.3 **Caution About Displaced Thresholds.**

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA), such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, or other work within the existing RSA of any usable runway end, do not implement a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

2.23 **Other Limitations on Construction.**

The CSPP must specify any other limitations on construction, including but not limited to:

2.23.1 Prohibitions.

- 2.23.1.1 No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.
- 2.23.1.2 No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.
- 2.23.1.3 No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property. See AC 150/5370-10.

2.23.2 Restrictions.

- 2.23.2.1 Construction suspension required during specific airport operations.
- 2.23.2.2 Areas that cannot be worked on simultaneously.
- 2.23.2.3 Day or night construction restrictions.
- 2.23.2.4 Seasonal construction restrictions.
- 2.23.2.5 Temporary signs not approved by the airport operator.
- 2.23.2.6 Grades changes that could result in unplanned effects on NAVAIDs.

CHAPTER 3. GUIDELINES FOR WRITING A CSPP

3.1 **General Requirements.**

The CSPP is a standalone document written to correspond with the subjects outlined in paragraph 2.4. The CSPP is organized by numbered sections corresponding to each subject listed in paragraph 2.4, and described in detail in paragraphs 2.5 - 2.23. Each section number and title in the CSPP matches the corresponding subject outlined in paragraph 2.4 (for example, 1. Coordination, 2. Phasing, 3. Areas and Operations Affected by the Construction Activity, and so on). With the exception of the project scope of work outlined in Section 2. Phasing, only subjects specific to operational safety during construction should be addressed.

3.2 **Applicability of Subjects.**

Each section should, to the extent practical, focus on the specific subject. Where an overlapping requirement spans several sections, the requirement should be explained in detail in the most applicable section. A reference to that section should be included in all other sections where the requirement may apply. For example, the requirement to protect existing underground FAA ILS cables during trenching operations could be considered FAA ATO coordination (Coordination, paragraph 2.5.3), an area and operation affected by the construction activity (Areas and Operations Affected by the Construction Activity, paragraph 2.7.1.4), a protection of a NAVAID (Protection of Navigational Aids (NAVAIDs), paragraph 2.8), or a notification to the FAA of construction activities (Notification of Construction Activities, paragraph 2.13.5.3.2). However, it is more specifically an underground utility requirement (Underground Utilities, paragraph 2.15). The procedure for protecting underground ILS cables during trenching operations should therefore be described in 2.4.2.11: “The contractor must coordinate with the local FAA System Support Center (SSC) to mark existing ILS cable routes along Runway 17-35. The ILS cables will be located by hand digging whenever the trenching operation moves within 10 feet of the cable markings.” All other applicable sections should include a reference to 2.4.2.11: “ILS cables shall be identified and protected as described in 2.4.2.11” or “See 2.4.2.11 for ILS cable identification and protection requirements.” Thus, the CSPP should be considered as a whole, with no need to duplicate responses to related issues.

3.3 **Graphical Representations.**

Construction safety drawings should be included in the CSPP as attachments. When other graphical representations will aid in supporting written statements, the drawings, diagrams, and/or photographs should also be attached to the CSPP. References should be made in the CSPP to each graphical attachment and may be made in multiple sections.

3.4 **Reference Documents.**

The CSPP must not incorporate a document by reference unless reproduction of the material in that document is prohibited. In that case, either copies of or a source for the referenced document must be provided to the contractor. Where this AC recommends references (e.g. as in paragraph 3.9) the intent is to include a reference to the corresponding section in the CSPP, not to this Advisory Circular.

3.5 **Restrictions.**

The CSPP should not be considered as a project design review document. The CSPP should also avoid mention of permanent (“as-built”) features such as pavements, markings, signs, and lighting, except when such features are intended to aid in maintaining operational safety during the construction.

3.6 **Coordination.**

Include in this section a detailed description of conferences and meetings to be held both before and during the project. Include appropriate information from AC 150/5370-12. Discuss coordination procedures and schedules for each required FAA ATO Technical Operations shutdown and restart and all required flight inspections.

3.7 **Phasing.**

Include in this section a detailed scope of work description for the project as a whole and each phase of work covered by the CSPP. This includes all locations and durations of the work proposed. Attach drawings to graphically support the written scope of work. Detail in this section the sequenced phases of the proposed construction. Include a reference to paragraph 3.8, as appropriate.

3.8 **Areas and Operations Affected by Construction.**

Focus in this section on identifying the areas and operations affected by the construction. Describe corresponding mitigation that is not covered in detail elsewhere in the CSPP. Include references to paragraphs below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. See Appendix F for sample operational effects tables and figures.

3.9 **NAVAID Protection.**

List in this section all NAVAID facilities that will be affected by the construction. Identify NAVAID facilities that will be placed out of service at any time prior to or during construction activities. Identify individuals responsible for coordinating each shutdown and when each facility will be out of service. Include a reference to paragraph 3.6 for FAA ATO NAVAID shutdown, restart, and flight inspection coordination. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to paragraph 3.14 for the

issuance of NOTAMs as required. Include a reference to paragraph 3.16 for the protection of underground cables and piping serving NAVAIDs. If temporary visual aids are proposed to replace or supplement existing facilities, include a reference to paragraph 3.19. Attach drawings to graphically indicate the affected NAVAIDs and the corresponding critical areas.

3.10 **Contractor Access.**

This will necessarily be the most extensive section of the CSPP. Provide sufficient detail so that a contractor not experienced in working on airports will understand the unique restrictions such work will require. Due to this extent, it should be broken down into subsections as described below:

3.10.1 Location of Stockpiled Construction Materials.

Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify stockpiles. Include a reference to paragraph 3.11 for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference to paragraph 3.12 for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

3.10.2 Vehicle and Pedestrian Operations.

While there are many items to be addressed in this major subsection of the CSPP, all are concerned with one main issue: keeping people and vehicles from areas of the airport where they don't belong. This includes preventing unauthorized entry to the AOA and preventing the improper movement of pedestrians or vehicles on the airport. In this section, focus on mechanisms to prevent construction vehicles and workers traveling to and from the worksite from unauthorized entry into movement areas. Specify locations of parking for both employee vehicles and construction equipment, and routes for access and haul roads. In most cases, this will best be accomplished by attaching a drawing. Quote from AC 150/5210-5 specific requirements for contractor vehicles rather than referring to the AC as a whole, and include special requirements for identifying HAZMAT vehicles. Quote from, rather than incorporate by reference, AC 150/5210-20 as appropriate to address the airport's rules for ground vehicle operations, including its training program. Discuss the airport's recordkeeping system listing authorized vehicle operators.

3.10.3 Two-Way Radio Communications.

Include a special section to identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor CTAF at airports without or with closed ATCT. Include training requirements for all individuals required to communicate with AT. Individuals required to monitor AT frequencies should also be identified. If construction employees are also required to communicate by radio with Airport Operations, this procedure should be described in detail. Usage of vehicle mounted radios and/or portable radios should be addressed. Communication procedures for the event of disabled radio communication (that is, light

signals, telephone numbers, others) must be included. All radio frequencies should be identified (Tower, Ground Control, CTAF, UNICOM, ATIS, and so on).

3.10.4 Airport Security.

Address security as it applies to vehicle and pedestrian operations. Discuss TSA requirements, security badging requirements, perimeter fence integrity, gate security, and other needs. Attach drawings to graphically indicate secured and/or Security Identification Display Areas (SIDA), perimeter fencing, and available access points.

3.11 **Wildlife Management.**

Discuss in this section wildlife management procedures. Describe the maintenance of existing wildlife mitigation devices, such as perimeter fences, and procedures to limit wildlife attractants. Include procedures to notify Airport Operations of wildlife encounters. Include a reference to paragraph 3.10 for security (wildlife) fence integrity maintenance as required.

3.12 **FOD Management.**

In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, and so on. Include a reference to paragraph 3.15 for inspection requirements as required.

3.13 **HAZMAT Management.**

Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Safety Data Sheet (SDS), Material Safety Data Sheet (MSDS) or Product Safety Data Sheet (PSDS) availability, and other considerations. Any specific airport HAZMAT restrictions should also be identified. Include a reference to paragraph 3.10 for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

3.14 **Notification of Construction Activities.**

List in this section the names and telephone numbers of points of contact for all parties affected by the construction project. We recommend a single list that includes all telephone numbers required under this section. Include emergency notification procedures for all representatives of all parties potentially impacted by the construction. Identify individual representatives – and at least one alternate – for each party. List both on-duty and off-duty contact information for each individual, including individuals responsible for emergency maintenance of airport construction hazard lighting and barricades. Describe procedures to coordinate immediate response to events that might adversely affect the operational safety of the airport (such as interrupted NAVAID service). Explain requirements for and the procedures for the issuance of Notices to Airmen (NOTAMs), notification to FAA required by 14 CFR Part 77 and Part 157 and in the event of affected NAVAIDs. For NOTAMs, identify an individual, and at least one alternate, responsible for issuing and cancelling each specific type of Notice to

Airmen (NOTAM) required. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police departments and nearby hospitals. Identify the E911 address of the airport and the emergency access route via haul roads to the construction site. Require the contractor to have this information available to all workers. The local Poison Control number should be listed. Procedures regarding notification of Airport Operations and/or the ARFF Department of such emergencies should be identified, as applicable. If airport radio communications are identified as a means of emergency notification, include a reference to paragraph 3.10. Differentiate between emergency and nonemergency notification of ARFF personnel, the latter including activities that affect ARFF water supplies and access roads. Identify the primary ARFF contact person and at least one alternate. If notification is to be made through Airport Operations, then detail this procedure. Include a method of confirmation from the ARFF department.

3.15 Inspection Requirements.

Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) or other airport operator's representative and the construction contractors. If the engineering consultants and/or contractors have a Safety Officer who will conduct such inspections, identify this individual. Describe procedures for special inspections, such as those required to reopen areas for aircraft operations. Part 139 requires daily airfield inspections at certificated airports, but these may need to be more frequent when construction is in progress. Discuss the role of such inspections on areas under construction. Include a requirement to immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

3.16 Underground Utilities.

Explain how existing underground utilities will be located and protected. Identify each utility owner and include contact information for each company/agency in the master list. Address emergency response procedures for damaged or disrupted utilities. Include a reference to paragraph 3.14 for notification of utility owners of accidental utility disruption as required.

3.17 Penalties.

Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, VPD, and others.

3.18 Special Conditions.

Identify any special conditions that may trigger specific safety mitigation actions outlined in this CSPP: low visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD, and other activities requiring construction suspension/resumption. Include a reference to paragraph 3.10 for compliance with airport safety and security measures and for radio communications as required. Include

a reference to paragraph 3.14 for emergency notification of all involved parties, including police/security, ARFF, and medical services.

3.19 Runway and Taxiway Visual Aids.

Include marking, lighting, signs, and visual NAVAIDS. Detail temporary runway and taxiway marking, lighting, signs, and visual NAVAIDS required for the construction. Discuss existing marking, lighting, signs, and visual NAVAIDS that are temporarily, altered, obliterated, or shut down. Consider non-federal facilities and address requirements for reimbursable agreements necessary for alteration of FAA facilities and for necessary flight checks. Identify temporary TORA signs or runway distance remaining signs if appropriate. Identify required temporary visual NAVAIDS such as REIL or PAPI. Quote from, rather than incorporate by reference, AC 150/5340-1, Standards for Airport Markings; AC 150/5340-18, Standards for Airport Sign Systems; and AC 150/5340-30, as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDS.

3.20 Marking and Signs for Access Routes.

Detail plans for marking and signs for vehicle access routes. To the extent possible, signs should be in conformance with the Federal Highway Administration MUTCD and/or State highway specifications, not hand lettered. Detail any modifications to the guidance in the MUTCD necessary to meet frangibility/height requirements.

3.21 Hazard Marking and Lighting.

Specify all marking and lighting equipment, including when and where each type of device is to be used. Specify maximum gaps between barricades and the maximum spacing of hazard lighting. Identify one individual and at least one alternate responsible for maintenance of hazard marking and lighting equipment in the master telephone list. Include a reference to paragraph 3.14. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

3.22 Work Zone Lighting for Nighttime Construction.

If work is to be conducted at night, specify all lighting equipment, including when and where each type of device is to be used. Indicate the direction lights are to be aimed and any directions that aiming of lights is prohibited. Specify any shielding necessary in instances where aiming is not sufficient to prevent interference with air traffic control and aircraft operations. Attach drawings to graphically indicate the placement and aiming of lighting equipment. Where the plan only indicates directions that aiming of lights is prohibited, the placement and positioning of portable lights must be proposed by the Contractor and approved by the airport operator's representative each time lights are relocated or repositioned.

3.23 **Protection of Runway and Taxiway Safety Areas.**

This section should focus exclusively on procedures for protecting all safety areas, including those altered by the construction: methods of demarcation, limit of access, movement within safety areas, stockpiling and trenching restrictions, and so on. Reference AC 150/5300-13, as required. Include a reference to paragraph 3.10 for procedures regarding vehicle and personnel movement within safety areas. Include a reference to paragraph 3.10 for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify open excavations as required. If runway and taxiway closures are proposed to protect safety areas, or if temporary displaced thresholds and/or revised declared distances are used to provide the required Runway Safety Area, include a reference to paragraphs 3.14 and 3.19. Detail procedures for protecting the runway OFZ, runway OFA, taxiway OFA and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, and so on. Quote from, rather than incorporate by reference, AC 150/5300-13, as required. Include a reference to paragraph 3.24 for height (i.e., crane) restrictions as required. One way to address the height of equipment that will move during the project is to establish a three-dimensional “box” within which equipment will be confined that can be studied as a single object. Attach drawings to graphically indicate the safety area, OFZ, and OFA boundaries.

3.24 **Other Limitations on Construction.**

This section should describe what limitations must be applied to each area of work and when each limitation will be applied: limitations due to airport operations, height (i.e., crane) restrictions, areas which cannot be worked at simultaneously, day/night work restrictions, winter construction, and other limitations. Include a reference to paragraph 3.7 for project phasing requirements based on construction limitations as required.

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APPENDIX A. RELATED READING MATERIAL

Obtain the latest version of the following free publications from the FAA on its Web site at <http://www.faa.gov/airports/>.

Table A-1. FAA Publications

Number	Title and Description
<u>AC 150/5200-28</u>	<i>Notices to Airmen (NOTAMs) for Airport Operators</i> Guidance for using the NOTAM System in airport reporting.
<u>AC 150/5200-30</u>	<i>Airport Field Condition Assessments and Winter Operations Safety</i> Guidance for airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.
<u>AC 150/5200-33</u>	<i>Hazardous Wildlife Attractants On or Near Airports</i> Guidance on locating certain land uses that might attract hazardous wildlife to public-use airports.
<u>AC 150/5210-5</u>	<i>Painting, Marking, and Lighting of Vehicles Used on an Airport</i> Guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.
<u>AC 150/5210-20</u>	<i>Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports</i> Guidance to airport operators on developing ground vehicle operation training programs.
<u>AC 150/5300-13</u>	<i>Airport Design</i> FAA standards and recommendations for airport design. Establishes approach visibility minimums as an airport design parameter, and contains the Object Free area and the obstacle free-zone criteria.
<u>AC 150/5210-24</u>	<i>Airport Foreign Object Debris (FOD) Management</i> Guidance for developing and managing an airport foreign object debris (FOD) program

Number	Title and Description
<u>AC 150/5320-15</u>	<p><i>Management of Airport Industrial Waste</i></p> <p>Basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Guidance for developing a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff with particular airport industrial activities.</p>
<u>AC 150/5340-1</u>	<p><i>Standards for Airport Markings</i></p> <p>FAA standards for the siting and installation of signs on airport runways and taxiways.</p>
<u>AC 150/5340-18</u>	<p><i>Standards for Airport Sign Systems</i></p> <p>FAA standards for the siting and installation of signs on airport runways and taxiways.</p>
<u>AC 150/5345-28</u>	<p><i>Precision Approach Path Indicator (PAPI) Systems</i></p> <p>FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.</p>
<u>AC 150/5340-30</u>	<p><i>Design and Installation Details for Airport Visual Aids</i></p> <p>Guidance and recommendations on the installation of airport visual aids.</p>
<u>AC 150/5345-39</u>	<p><i>Specification for L-853, Runway and Taxiway Retroreflective Markers</i></p>
<u>AC 150/5345-44</u>	<p><i>Specification for Runway and Taxiway Signs</i></p> <p>FAA specifications for unlighted and lighted signs for taxiways and runways.</p>
<u>AC 150/5345-53</u>	<p><i>Airport Lighting Equipment Certification Program</i></p> <p>Details on the Airport Lighting Equipment Certification Program (ALECP).</p>
<u>AC 150/5345-50</u>	<p><i>Specification for Portable Runway and Taxiway Lights</i></p> <p>FAA standards for portable runway and taxiway lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway lighting system is inoperative.</p>
<u>AC 150/5345-55</u>	<p><i>Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure</i></p>

Number	Title and Description
<u>AC 150/5370-10</u>	<i>Standards for Specifying Construction of Airports</i> Standards for construction of airports, including earthwork, drainage, paving, turfing, lighting, and incidental construction.
<u>AC 150/5370-12</u>	<i>Quality Management for Federally Funded Airport Construction Projects</i>
EB 93	<i>Guidance for the Assembly and Installation of Temporary Orange Construction Signs</i>
FAA Order 5200.11	<u>FAA Airports (ARP) Safety Management System (SMS)</u> Basics for implementing SMS within ARP. Includes roles and responsibilities of ARP management and staff as well as other FAA lines of business that contribute to the ARP SMS.
FAA Certalert 98-05	<i>Grasses Attractive to Hazardous Wildlife</i> Guidance on grass management and seed selection.
FAA Form 7460-1	<u>Notice of Proposed Construction or Alteration</u>
FAA Form 7480-1	<u>Notice of Landing Area Proposal</u>
FAA Form 6000.26	National NAS Strategic Interruption Service Level Agreement, Strategic Events Coordination, Airport Sponsor Form

Obtain the latest version of the following free publications from the Electronic Code of Federal Regulations at <http://www.ecfr.gov/>.

Table A-2. Code of Federal Regulation

Number	Title
Title 14 CFR Part 77	Safe, Efficient Use and Preservation of the Navigable Airspace
Title 14 CFR Part 139	Certification of Airports
Title 49 CFR Part 1542	Airport Security

Obtain the latest version of the Manual on Uniform Traffic Control Devices from the Federal Highway Administration at <http://mutcd.fhwa.dot.gov/>.

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APPENDIX B. TERMS AND ACRONYMS**Table B-1. Terms and Acronyms**

Term	Definition
Form 7460-1	Notice of Proposed Construction or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, <i>Safe, Efficient Use, and Preservation of the Navigable Airspace</i> . (See guidance available on the FAA web site at https://oeaaa.faa.gov .) The form may be downloaded at http://www.faa.gov/airports/resources/forms/ , or filed electronically at: https://oeaaa.faa.gov .
Form 7480-1	Notice of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport The form may be downloaded at http://www.faa.gov/airports/resources/forms/ .
Form 6000-26	Airport Sponsor Strategic Event Submission Form
AC	Advisory Circular
ACSI	Airport Certification Safety Inspector
ADG	Airplane Design Group
AIP	Airport Improvement Program
ALECP	Airport Lighting Equipment Certification Program
ANG	Air National Guard
AOA	Air Operations Area, as defined in 14 CFR Part 107. Means a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secured area of the airport terminal building.
ARFF	Aircraft Rescue and Fire Fighting
ARP	FAA Office of Airports
ASDA	Accelerate-Stop Distance Available
AT	Air Traffic
ATCT	Airport Traffic Control Tower
ATIS	Automatic Terminal Information Service
ATO	Air Traffic Organization
Certificated Airport	An airport that has been issued an Airport Operating Certificate by the FAA under

Term	Definition
	the authority of 14 CFR Part 139, <i>Certification of Airports</i> .
CFR	Code of Federal Regulations
Construction	The presence of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
CSPP	Construction Safety and Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
CTAF	Common Traffic Advisory Frequency
Displaced Threshold	A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction.
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FOD	Foreign Object Debris/Damage
FSS	Flight Service Station
GA	General Aviation
HAZMAT	Hazardous Materials
HMA	Hot Mix Asphalt
IAP	Instrument Approach Procedures
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LDA	Landing Distance Available
LOC	Localizer antenna array
Movement Area	The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139).
MSDS	Material Safety Data Sheet
MUTCD	Manual on Uniform Traffic Control Devices
NAVAID	Navigation Aid
NAVAID Critical Area	An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal.
Non-Movement Area	The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft.

Term	Definition
NOTAM	Notices to Airmen
Obstruction	Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.
OCC	Operations Control Center
OE / AAA	Obstruction Evaluation / Airport Airspace Analysis
OFA	Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See AC 150/5300-13 for additional guidance on OFA standards and wingtip clearance criteria.)
OFZ	Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to AC 150/5300-13 for guidance on OFZ.
OSHA	Occupational Safety and Health Administration
OTS	Out of Service
P&R	Planning and Requirements Group
NPI	NAS Planning & Integration
PAPI	Precision Approach Path Indicator
PFC	Passenger Facility Charge
PLASI	Pulse Light Approach Slope Indicator
Project Proposal Summary	A clear and concise description of the proposed project or change that is the object of Safety Risk Management.
RA	Reimbursable Agreement
RE	Resident Engineer
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RSA	Runway Safety Area. A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13 .
SDS	Safety Data Sheet
SIDA	Security Identification Display Area
SMS	Safety Management System

Term	Definition
SPCD	Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP.
SRM	Safety Risk Management
SSC	System Support Center
Taxiway Safety Area	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13 .
TDG	Taxiway Design Group
Temporary	Any condition that is not intended to be permanent.
Temporary Runway End	The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold.
Threshold	The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
TODA	Takeoff Distance Available
TOFA	Taxiway Object Free Area
TORA	Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See AC 150/5300-13 for guidance on declared distances.
TSA	Taxiway Safety Area, or Transportation Security Administration
UNICOM	A radio communications system of a type used at small airports.
VASI	Visual Approach Slope Indicator
VGSI	Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicator (PAPI), visual approach slope indicator (VASI), and pulse light approach slope indicator (PLASI).
VFR	Visual Flight Rules
VOR	Very High Frequency Omnidirectional Radio Range
VPD	Vehicle / Pedestrian Deviation

APPENDIX C. SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

Table C-1. CSPP Checklist

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
General Considerations					
Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified.	<u>2.5</u>				
Operational safety is a standing agenda item for construction progress meetings.	<u>2.5</u>				
Scheduling of the construction phases is properly addressed.	<u>2.6</u>				
Any formal agreements are established.	<u>2.5.3</u>				
Areas and Operations Affected by Construction Activity					
Drawings showing affected areas are included.	<u>2.7.1</u>				
Closed or partially closed runways, taxiways, and aprons are depicted on drawings.	<u>2.7.1.1</u>				
Access routes used by ARFF vehicles affected by the project are addressed.	<u>2.7.1.2</u>				
Access routes used by airport and airline support vehicles affected by the project are addressed.	<u>2.7.1.3</u>				
Underground utilities, including water supplies for firefighting and drainage.	<u>2.7.1.4</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Approach/departure surfaces affected by heights of temporary objects are addressed.	<u>2.7.1.5</u>				
Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings.	<u>2.7.1</u>				
Temporary changes to taxi operations are addressed.	<u>2.7.2.1</u>				
Detours for ARFF and other airport vehicles are identified.	<u>2.7.2.2</u>				
Maintenance of essential utilities and underground infrastructure is addressed.	<u>2.7.2.3</u>				
Temporary changes to air traffic control procedures are addressed.	<u>2.7.2.4</u>				
NAVAIDs					
Critical areas for NAVAIDs are depicted on drawings.	<u>2.8</u>				
Effects of construction activity on the performance of NAVAIDs, including unanticipated power outages, are addressed.	<u>2.8</u>				
Protection of NAVAID facilities is addressed.	<u>2.8</u>				
The required distance and direction from each NAVAID to any construction activity is depicted on drawings.	<u>2.8</u>				
Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.	<u>2.8, 2.13.1, 2.13.5.3.1, 2.18.1</u>				
Contractor Access					
The CSPP addresses areas to which contractor will have access and how	<u>2.9</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
the areas will be accessed.					
The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed.	<u>2.9</u>				
The location of stockpiled construction materials is depicted on drawings.	<u>2.9.1</u>				
The requirement for stockpiles in the ROFA to be approved by FAA is included.	<u>2.9.1</u>				
Requirements for proper stockpiling of materials are included.	<u>2.9.1</u>				
Construction site parking is addressed.	<u>2.9.2.1</u>				
Construction equipment parking is addressed.	<u>2.9.2.2</u>				
Access and haul roads are addressed.	<u>2.9.2.3</u>				
A requirement for marking and lighting of vehicles to comply with <i>AC 150/5210-5, Painting, Marking and Lighting of Vehicles Used on an Airport</i> , is included.	<u>2.9.2.4</u>				
Proper vehicle operations, including requirements for escorts, are described.	<u>2.9.2.5, 2.9.2.6</u>				
Training requirements for vehicle drivers are addressed.	<u>2.9.2.7</u>				
Two-way radio communications procedures are described.	<u>2.9.2.9</u>				
Maintenance of the secured area of the airport is addressed.	<u>2.9.2.10</u>				
Wildlife Management					
The airport operator's wildlife management procedures are addressed.	<u>2.10</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Foreign Object Debris Management					
The airport operator's FOD management procedures are addressed.	<u>2.11</u>				
Hazardous Materials Management					
The airport operator's hazardous materials management procedures are addressed.	<u>2.12</u>				
Notification of Construction Activities					
Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed.	<u>2.13</u>				
Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified.	<u>2.13.1</u>				
A list of local ATO/Technical Operations personnel is included.	<u>2.13.1</u>				
A list of ATCT managers on duty is included.	<u>2.13.1</u>				
A list of authorized representatives to the OCC is included.	<u>2.13.2</u>				
Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.	<u>2.8, 2.13.2, 2.18.3.3.9</u>				
Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.	<u>2.13.2</u>				
Emergency notification procedures for medical, fire fighting, and police	<u>2.13.3</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
response are addressed.					
Coordination with ARFF personnel for non-emergency issues is addressed.	<u>2.13.4</u>				
Notification to the FAA under 14 CFR parts 77 and 157 is addressed.	<u>2.13.5</u>				
Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.	<u>2.13.5.3.2</u>				
Inspection Requirements					
Daily and interim inspections by both the airport operator and contractor are specified.	<u>2.14.1, 2.14.2</u>				
Final inspections at certificated airports are specified when required.	<u>2.14.3</u>				
Underground Utilities					
Procedures for protecting existing underground facilities in excavation areas are described.	<u>2.15</u>				
Penalties					
Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.	<u>2.16</u>				
Special Conditions					
Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed.	<u>2.17</u>				
Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs					
The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed.	<u>2.18.1</u>				
Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.	<u>2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
The requirement for markings to be in compliance with <u>AC 150/5340-1</u> , <i>Standards for Airport Markings</i> , is specified.	<u>2.18.2</u>				
Detailed specifications for materials and methods for temporary markings are provided.	<u>2.18.2</u>				
The requirement for lighting to conform to <u>AC 150/5340-30</u> , <i>Design and Installation Details for Airport Visual Aids</i> ; <u>AC 150/5345-50</u> , <i>Specification for Portable Runway and Taxiway Lights</i> ; and <u>AC 150/5345-53</u> , <i>Airport Lighting Certification Program</i> , is specified.	<u>2.18.3</u>				
The use of a lighted X is specified where appropriate.	<u>2.18.2.1.2</u> , <u>2.18.3.2</u>				
The requirement for signs to conform to <u>AC 150/5345-44</u> , <i>Specification for Runway and Taxiway Signs</i> ; <u>AC 150/5340-18</u> , <i>Standards for Airport Sign Systems</i> ; and <u>AC 150/5345-53</u> , <i>Airport Lighting Certification Program</i> , is specified.	<u>2.18.4</u>				
Marking and Signs For Access Routes					
The CSPP specifies that pavement markings and signs intended for construction personnel should conform to <u>AC 150/5340-18</u> and, to the extent practicable, with the MUTCD and/or State highway specifications.	<u>2.18.4.2</u>				
Hazard Marking and Lighting					
Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified.	<u>2.20.1</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.	<u>2.20.1</u>				
The CSPP considers less obvious construction-related hazards.	<u>2.20.1</u>				
Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified.	<u>2.20.2.1</u>				
The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.	<u>2.20.2.1</u>				
Red lights meeting the luminance requirements of the State Highway Department are specified.	<u>2.20.2.2</u>				
Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high.	<u>2.20.2.3</u>				
Barricades are specified to indicate construction locations in which no part of an aircraft may enter.	<u>2.20.2.3</u>				
Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.	<u>2.20.2.5</u>				
Markings for temporary closures are specified.	<u>2.20.2.5</u>				
The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.	<u>2.20.2.7</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Work Zone Lighting for Nighttime Construction					
If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways.	<u>2.21</u>				
Protection of Runway and Taxiway Safety Areas					
The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.	<u>2.22.1.1,</u> <u>2.22.3.1</u>				
The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM.	<u>2.22.1.2,</u> <u>2.22.3.2</u>				
Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed.	<u>2.22.3.3</u>				
The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions.	<u>2.22.1.4</u>				
Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.	<u>2.22.1.4</u>				
The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.	<u>2.22.1.4</u>				
Grading and soil erosion control to maintain RSA/TSA standards are	<u>2.22.3.5</u>				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
addressed.					
The CSPP specifies that equipment is to be removed from the ROFA when not in use.	<u>2.22.2</u>				
The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.	<u>2.22.3</u>				
Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.	<u>2.22.4</u>				
Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included.	<u>2.22.4.3.6</u>				
Provisions for protection of runway approach/departure areas and clearways are included.	<u>2.22.6</u>				
Other Limitations on Construction					
The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use.	<u>2.23.1.2</u>				
The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property.	<u>2.23.1.3</u>				

APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

Table D-1. Potentially Hazardous Conditions

Item	Action Required (Describe)	No Action Required (Check)
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		
Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends.		
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.		
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		
Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and		

Item	Action Required (Describe)	No Action Required (Check)
approach zones.		
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.		
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.		
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.		
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		
Obliterated or faded temporary markings on active operational areas.		
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		

Item	Action Required (Describe)	No Action Required (Check)
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.		
Lack of radio communications with construction vehicles in airport movement areas.		
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.		
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.		
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.		
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		

Item	Action Required (Describe)	No Action Required (Check)
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.		
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.		
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.		
Site burning, which can cause possible obscuration.		
Construction work taking place outside of designated work areas and out of phase.		

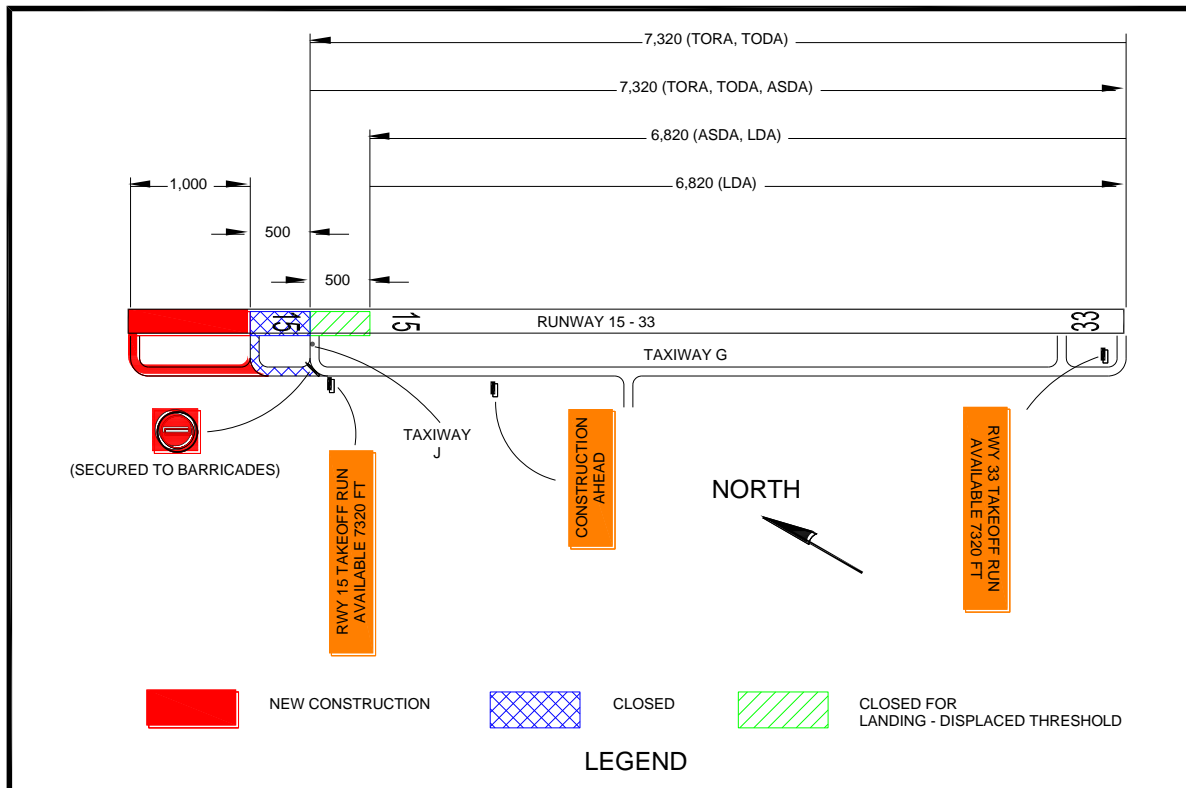
APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE

E.1 Project Description.

Runway 15-33 is currently 7820 feet long, with a 500 foot stopway on the north end. This project will remove the stopway and extend the runway 1000 feet to the north and 500 feet to the south. Finally, the existing portion of the runway will be repaved. The runway 33 glide slope will be relocated. The new runway 33 localizer has already been installed by FAA Technical Operations and only needs to be switched on. Runway 15 is currently served only by a localizer, which will remain in operation as it will be beyond the future RSA. Appropriate NOTAMS will be issued throughout the project.

E.1.1 During Phase I, the runway 15 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 15 takeoff and the departure end of runway 33 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 33 will be adjusted to provide the required RSA and applicable departure surface. Excavation near Taxiway G will require its ADG to be reduced from IV to III. See [Figure E-1](#).

Figure E-1. Phase I Example

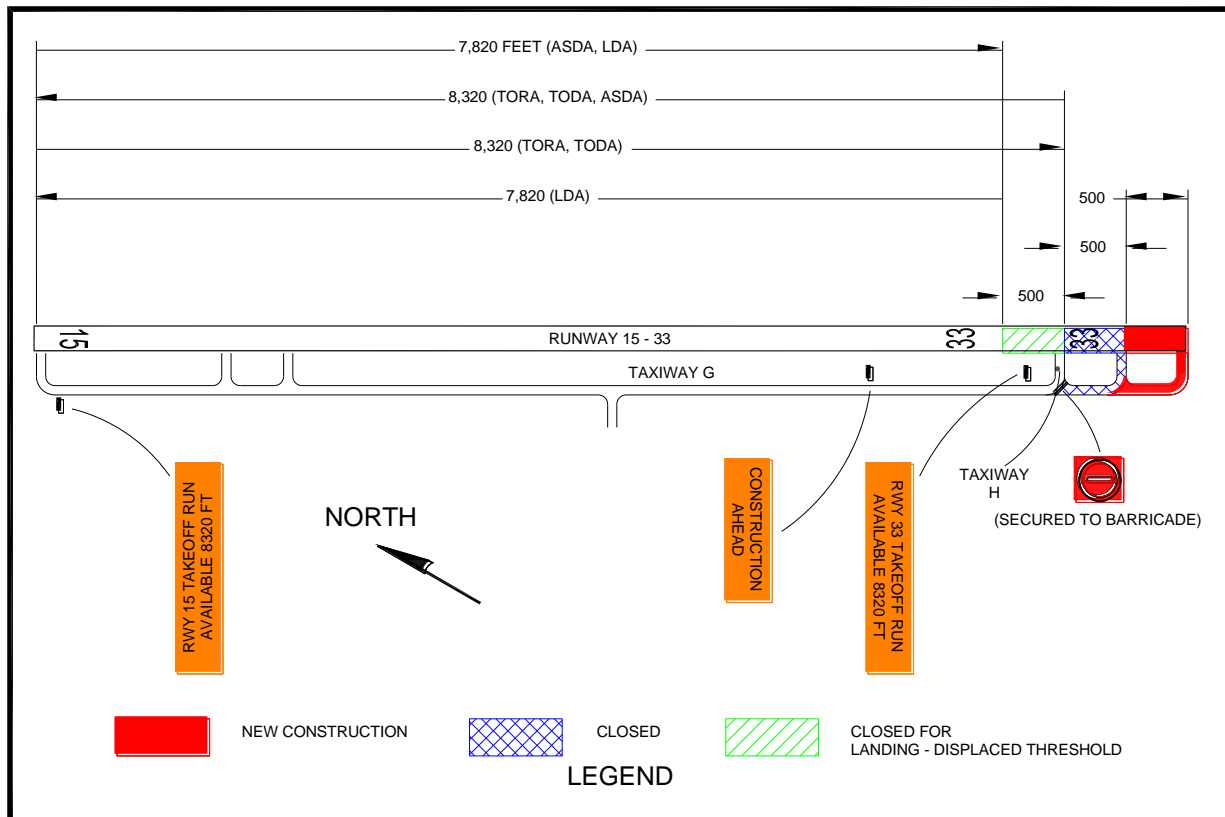


Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 33 departures, the maximum equipment height in the construction area is 12.5 feet ($500/40 = 12.5$).

E.2 During Phase II, the runway 33 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 33 takeoff and the departure end of runway 15 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 15 will be adjusted to provide the required RSA and applicable departure surface. See Figure E-2.

Figure E-2. Phase II Example



Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 15 departures, the maximum equipment height in the construction area is 12.5 feet ($500/40 = 12.5$).

- E.3 During Phase III, the existing portion of the runway will be repaved with Hot Mix Asphalt (HMA) and the runway 33 glide slope will be relocated. Construction will be accomplished between the hours of 8:00 pm and 5:00 am, during which the runway will be closed to operations.

Figure E-3. Phase III Example

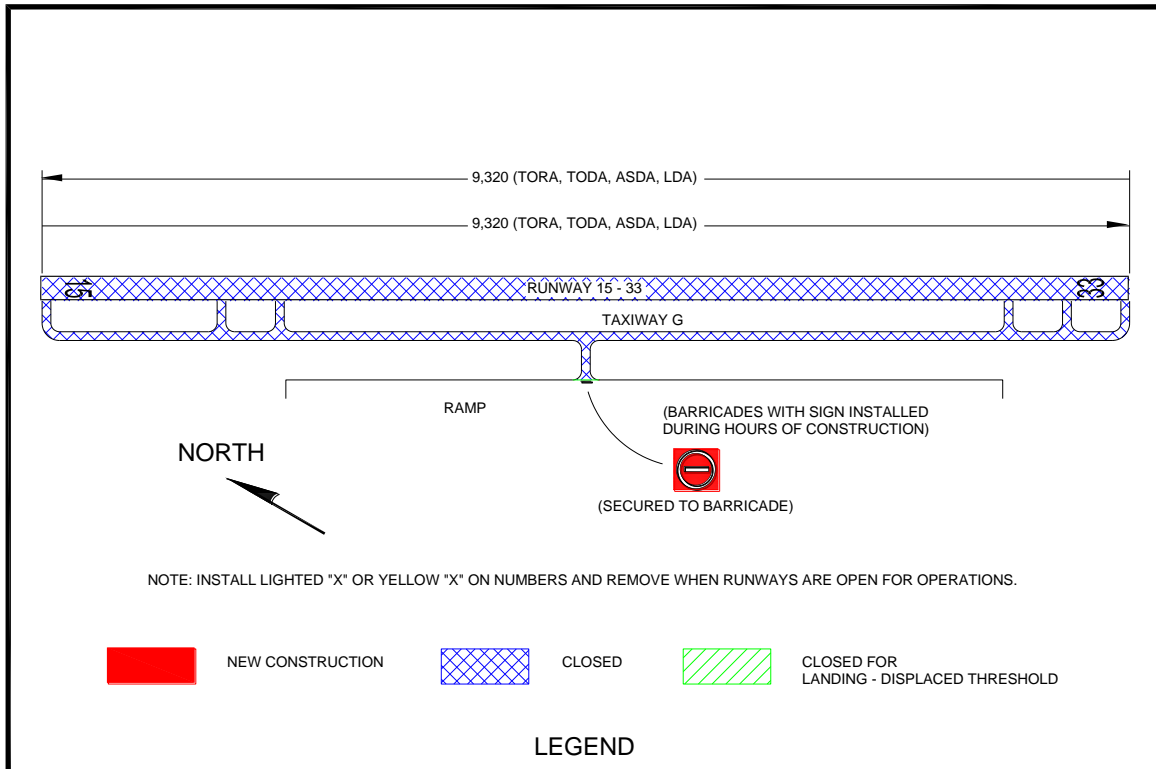


Table E-1. Operational Effects Table

Project	Runway 15-33 Extension and Repaving			
Phase	Normal (Existing)	Phase I: Extend Runway 15 End	Phase II: Extend Runway 33 End	Phase III: Repave Runway
Scope of Work	N/A	Extend Runway 15-33 1,000 ft on north end with Hot Mix Asphaltic Concrete (HMA).	Extend Runway 15-33 500 ft on south end with Hot Mix Asphaltic Concrete (HMA).	Repave existing runway with HMA Relocate Runway 33 Glide Slope
Effects of Construction Operations	N/A	Existing North 500 ft closed	Existing South 500 ft closed	Runway closed between 8:00 pm and 5:00 am Edge lighting out of service
Construction Phase	N/A	Phase I (Anticipated)	Phase II (Anticipated)	Phase III (Anticipated)
Runway 15 Average Aircraft Operations	Carrier: 52 /day GA: 26 /day Military: 11 /day	Carrier: 40 /day GA: 26 /day Military: 0 /day	Carrier: 45 /day GA: 26 /day Military: 5 /day	Carrier: 45 / day GA: 20 / day Military: 0 /day
Runway 33 Average Aircraft Operations	Carrier: 40 /day GA: 18 /day Military: 10 /day	Carrier: 30 /day GA: 18 /day Military: 0 /day	Carrier: 25 /day GA: 18 /day Military: 5 /day	Carrier: 20 /day GA: 5 /day Military: 0 /day
Runway 15-33 Aircraft Category	C-IV	C-IV	C-IV	C-IV
Runway 15 Approach Visibility Minimums	1 mile	1 mile	1 mile	1 mile
Runway 33 Approach Visibility Minimums	$\frac{3}{4}$ mile	$\frac{3}{4}$ mile	$\frac{3}{4}$ mile	1 mile

Note: Proper coordination with Flight Procedures group is necessary to maintain instrument approach procedures during construction.

Project		Runway 15-33 Extension and Repaving			
Phase		Normal (Existing)	Phase I: Extend Runway 15 End	Phase II: Extend Runway 33 End	Phase III: Repave Runway
Runway 15 Declared Distances	TORA	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	7,820	7,320	7,820	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 33 Declared Distances	TORA	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	8,320	6,820	8,320	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 15 Approach Procedures		LOC only	LOC only	LOC only	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 33 Approach Procedures		ILS	ILS	ILS	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 15 NAVAIDs		LOC	LOC	LOC	LOC
Runway 33 NAVAIDs		ILS, MALSR	ILS, MALSR	ILS, MALSR	LOC, MALSR
Taxiway G ADG		IV	III	IV	IV
Taxiway G TDG		4	4	4	4
ATCT (hours open)		24 hours	24 hours	24 hours	0500 - 2000
ARFF Index		D	D	D	D

Project	Runway 15-33 Extension and Repaving			
Phase	Normal (Existing)	Phase I: Extend Runway 15 End	Phase II: Extend Runway 33 End	Phase III: Repave Runway
Special Conditions	Air National Guard (ANG) military operations	All military aircraft relocated to alternate ANG Base	Some large military aircraft relocated to alternate ANG Base	All military aircraft relocated to alternate ANG Base
Information for NOTAMs		Refer above for applicable declared distances. Taxiway G limited to 118 ft wingspan	Refer above for applicable declared distances.	Refer above for applicable declared distances. Airport closed 2000 – 0500. Runway 15 glide slope OTS.

Note: This table is one example. It may be advantageous to develop a separate table for each project phase and/or to address the operational status of the associated NAVAIDs per construction phase.

Complete the following chart for each phase to determine the area that must be protected along the runway and taxiway edges:

Table E-2. Runway and Taxiway Edge Protection

Runway/Taxiway	Aircraft Approach Category* A, B, C, or D	Airplane Design Group* I, II, III, or IV	Safety Area Width in Feet Divided by 2*

*See AC 150/5300-13 to complete the chart for a specific runway/taxiway.

Complete the following chart for each phase to determine the area that must be protected before the runway threshold:

Table E-3. Protection Prior to Runway Threshold

Runway End Number	Airplane Design Group* I, II, III, or IV	Aircraft Approach Category* A, B, C, or D	Minimum Safety Area Prior to the Threshold*	Minimum Distance to Threshold Based on Required Approach Slope*	
				ft	: 1
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1

*See AC 150/5300-13 to complete the chart for a specific runway.

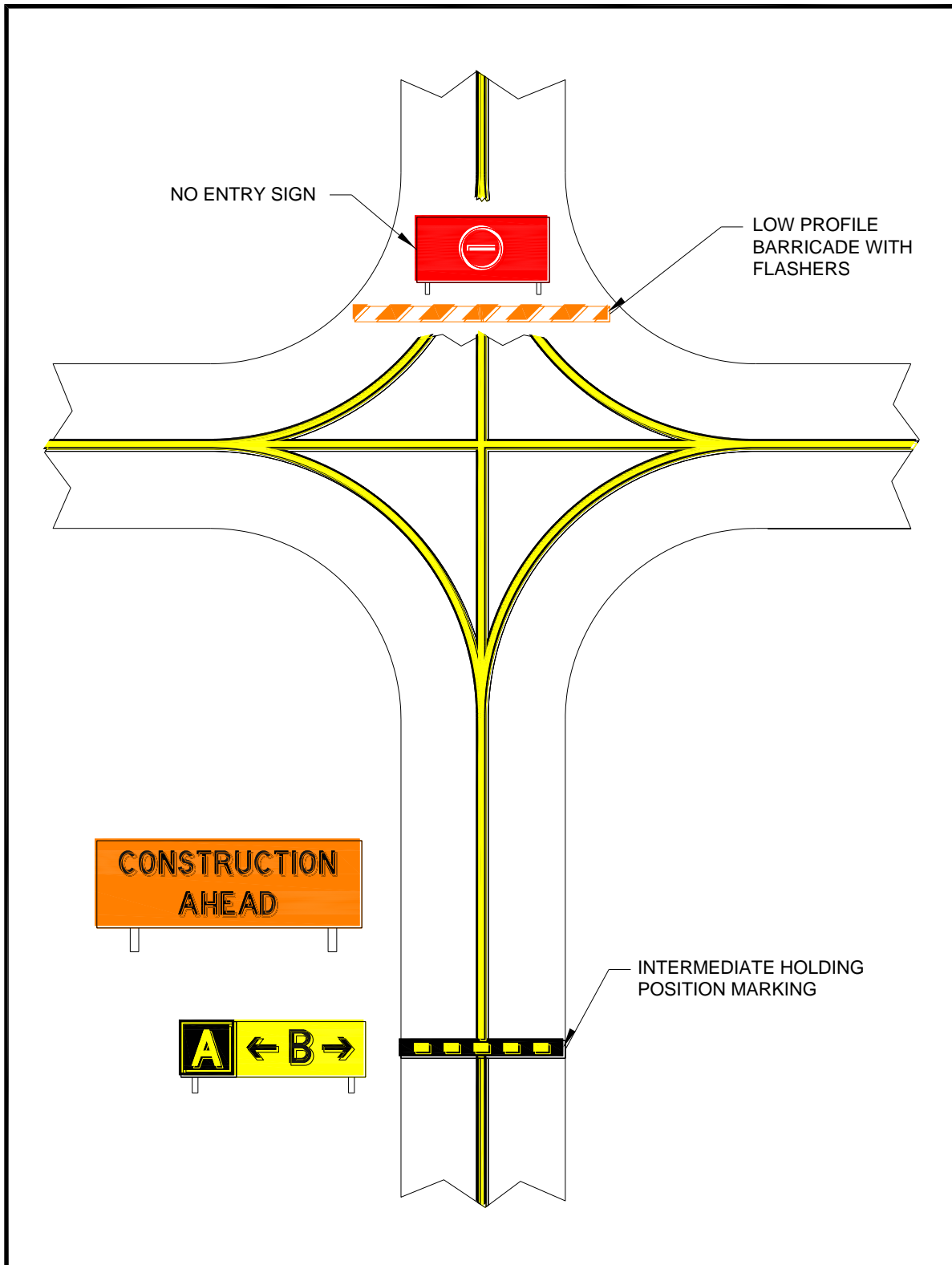
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APPENDIX F. ORANGE CONSTRUCTION SIGNS

Figure F-1. Approved Sign Legends

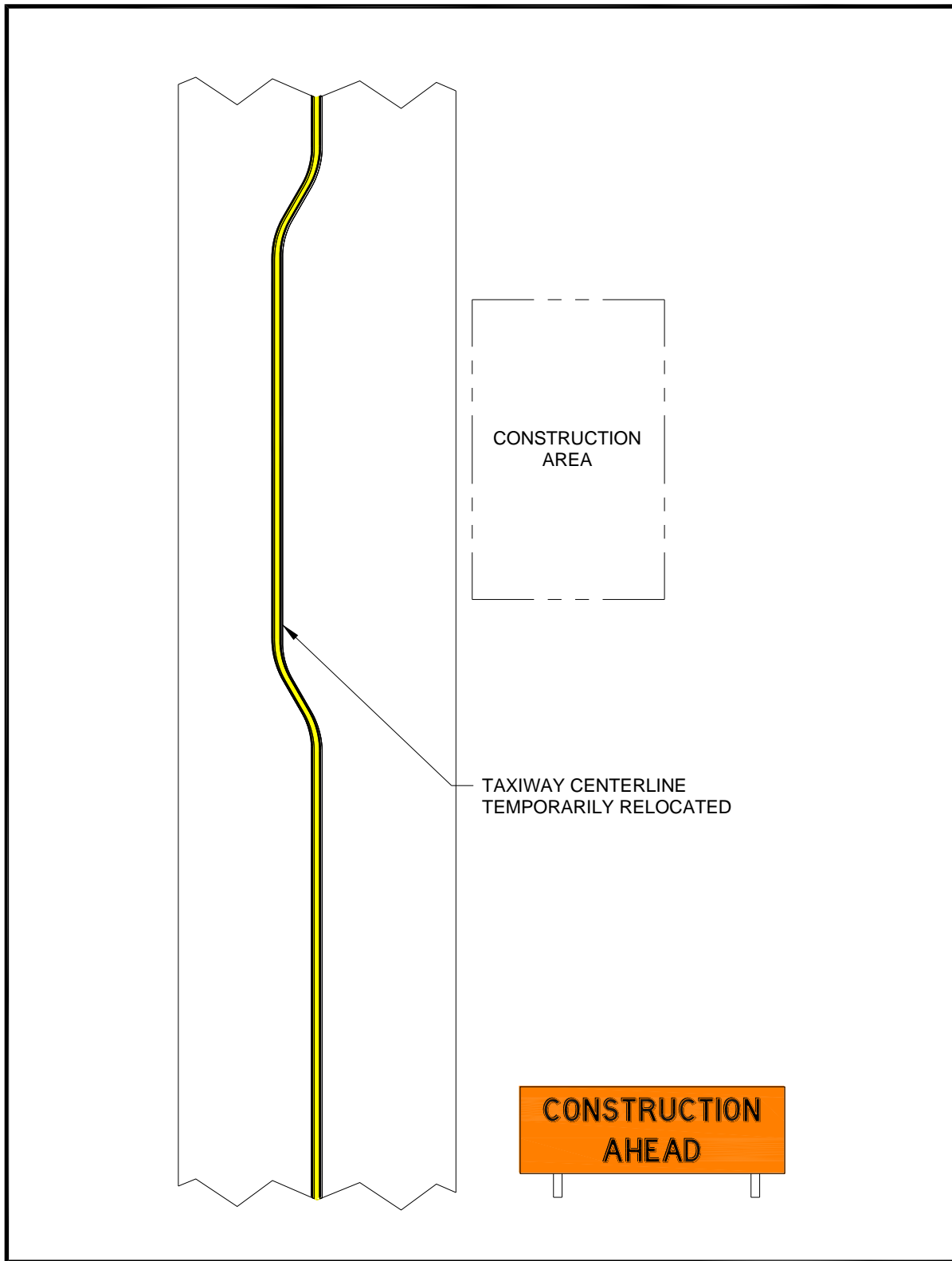


Figure F-2. Orange Construction Sign Example 1



Note: For proper placement of signs, refer to EB 93.

Figure F-3. Orange Construction Sign Example 2



Note: For proper placement of signs, refer to EB 93.

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Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5370-2G

Date: _____

Please check all appropriate line items:

An error (procedural or typographical) has been noted in paragraph _____ on page _____.

Recommend paragraph _____ on page _____ be changed as follows:

In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

Other comments:

I would like to discuss the above. Please contact me at (phone number, email address).

Submitted by: _____

Date: _____

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Attachment B – Project Construction Phasing Drawings

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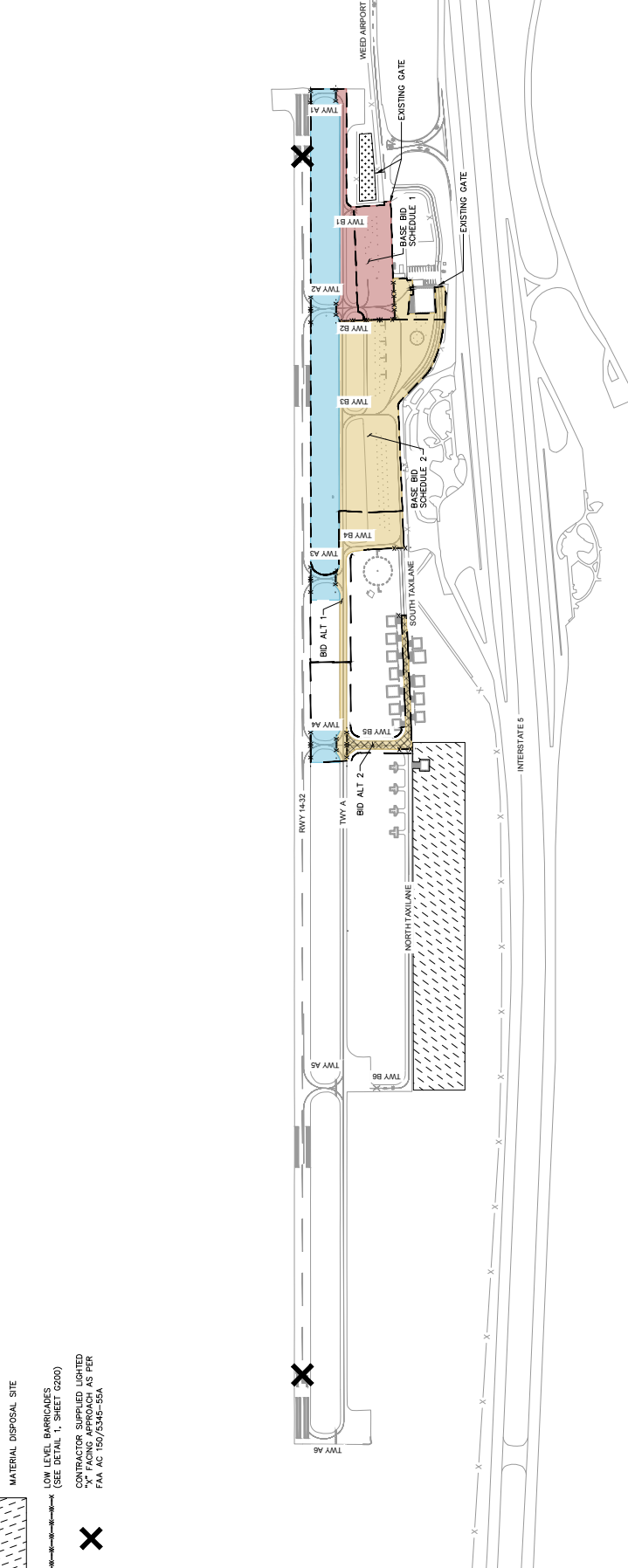
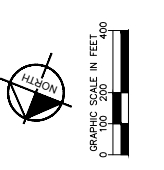


KHA PROJECT
 191396004
 DATE 03/24/2023
 SCALE
 DESIGNED BY JC
 DRAWN BY THH

CONSTRUCTION SAFETY & PHASING PLAN

SISKIYOU COUNTY
 WEED AIRPORT PARKING
 APRON RECONSTRUCTION
 PROJECT PHASE 1
 CALIFORNIA

SHEET NUMBER
G100
 SHEET 6 OF 54



- LEGEND**
- PHASE 1
 - PHASE 2
 - PHASE 3
 - PHASE 2A
 - PHASE 3
 - CONSTRUCTION STAGING AREA
 - MATERIAL DISPOSAL SITE
 - LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET C200)
 - CONTRACTOR SUPPLIED LIGHTED 'X' FADING APPROACH AS PER FAA AC 150/5345-55A

- MATERIAL DISPOSAL NOTES:**
- THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
 - CONTRACTOR AHEAD ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
 - THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
 - ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
 - THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MOIST DURING HAULING. TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, TWO TRUCKING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
 - ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
 - THE CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKING PASSES PER DAY. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
 - AT THE COMPLETION OF THE DISPOSING MATERIAL, THE FINISHED MOUND SHALL BE WATERED, THE SURFACE SHALL BE ROLLED, AND TREATED WITH TERRA-CORB OR APPROVED EQUAL WATER ABSORBING BINDER.
 - ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
 - PULVERIZED AC/AB SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
 - THE CONTRACTOR SHALL CONTACT THE RRR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RRR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
 - FALLING OBJECTS FROM THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE OPERATION OF THE TRUCKS. BARRICADES ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RRR.
 - PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.
 - THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL AREA BY AN RRR OFFICER. THE RRR OFFICER MAY BE WITH ANYONE WHO ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
 - THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
 - THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
 - ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT, CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AB MATERIAL ONLY.
 - THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
 - THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
 - THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
 - THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
 - WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.

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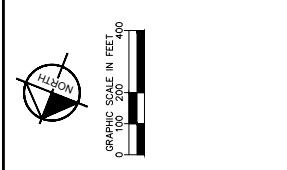
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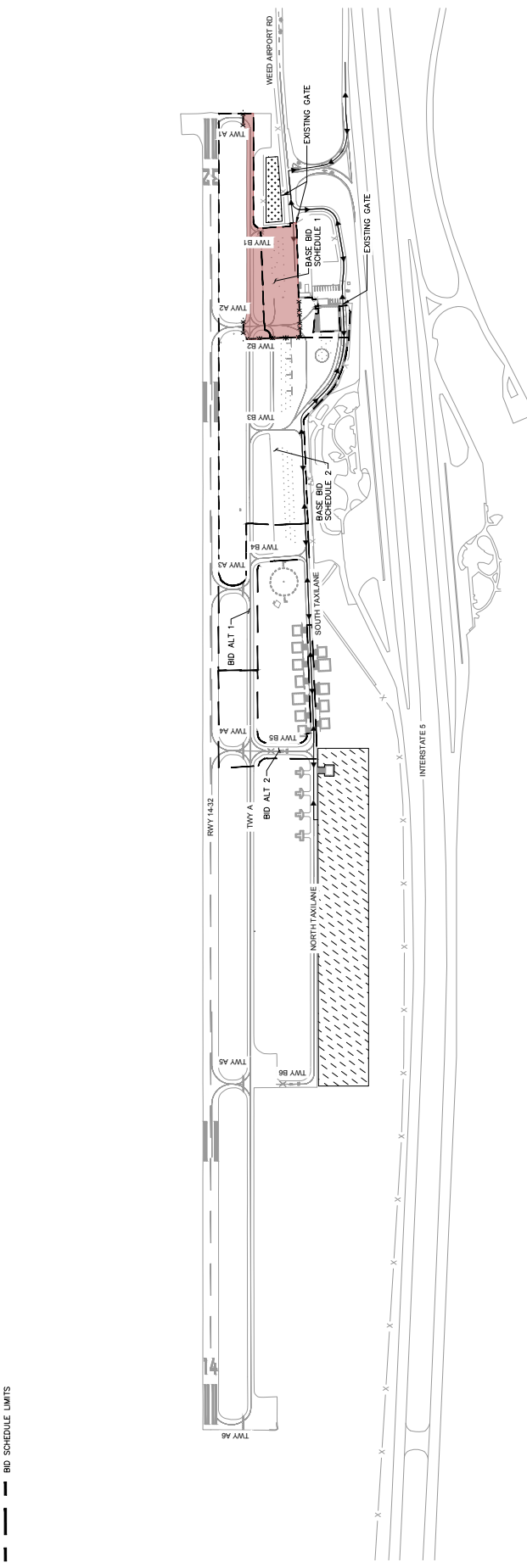
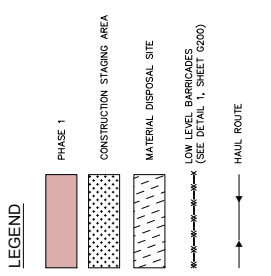
CONSTRUCTION SAFETY & PHASING PLAN (PHASE 1)

SISKIYOU COUNTY
 WEED AIRCRAFT PARKING
 APRON RECONSTRUCTION
 PROJECT PHASE 1
 CALIFORNIA



PHASE 1 NOTES:

PHASE	DURATION	AIRFIELD CLOSURES	WORK ELEMENTS	WORK RESTRICTIONS
1	30 DAYS	PARTIAL CLOSURE TO TAXIWAY 'A' SOUTH OF TAXIWAY 'A1', 'A2', 'B1', AND 'B2' FOR RECONSTRUCTION OR DEMOLITION	PHASE 1 IS COMPRISED OF THE FOLLOWING WORK ELEMENTS: • PAVEMENT IMPROVEMENTS, DRAINAGE IMPROVEMENTS, AND ELECTRICAL IMPROVEMENTS ALONG TAXIWAY 'A', SOUTH OF TAXIWAY 'A1' AND OUTSIDE OF THE RSA. IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A1', 'A2', 'B1', AND 'B2', NEW EDGE INSTALLATION TO EXISTING NAVAIDS.	<ul style="list-style-type: none"> PHASES CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 2 OR 3. RUNWAY 14-32 SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. THIS INCLUDES THE INSTALLATION OF TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY 14-32 CIRCUIT AND ITS NAVAIDS.



MATERIAL DISPOSAL NOTES:

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- CONTRACTOR AHEAD ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
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- ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE APPROXIMATE THREE FEET.
- CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKS TO BE USED. THE CONTRACTOR SHALL PROVIDE A 7-DAY NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
- AT THE COMPLETION OF THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL AREA BY THE RRR. THE FINISHED MOUND SHALL BE WATERED, AND TREATED WITH TERRA-SORB OR APPROVED EQUAL WATER ABSORBING BINDER.
- ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
- PULVERIZED AC/AS SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
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- THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
- WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE MOUND AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.

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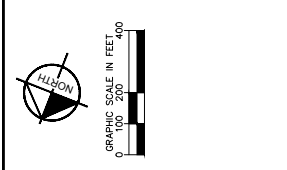
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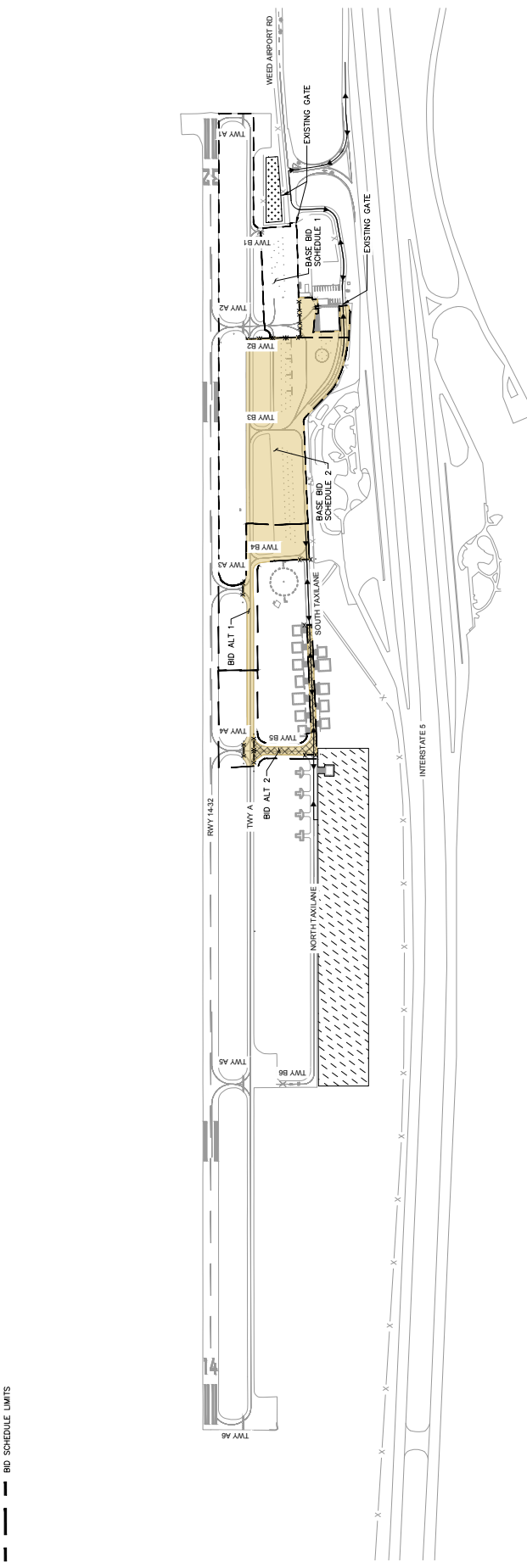
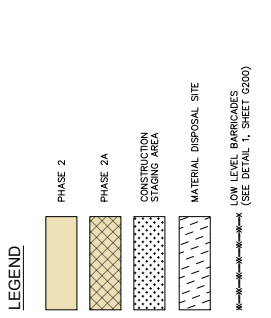
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SISKIYOU COUNTY
 WEED AIRCRAFT PARKING
 APRON RECONSTRUCTION
 PROJECT PHASE 1
 CALIFORNIA



PHASE 2 NOTES:

PHASE	DURATION	AIRFIELD CLOSURES	WORK ELEMENTS	WORK RESTRICTIONS
2	45 DAYS	PARTIAL CLOSURE TO TAXIWAY 'A' BETWEEN TAXIWAY 'A2' AND TAXIWAY 'A4'. FULL CLOSURE OF TAXIWAYS 'A3', 'A4', 'B3', 'B4', 'B5', AND THE SOUTH SIDE OF THE APRON RECONSTRUCTION OR DEMOLITION.	PHASE 2 IS COMPRISED OF THE FOLLOWING: • PAVEMENT IMPROVEMENTS AND DRAINAGE IMPROVEMENTS, AND ELECTRICAL IMPROVEMENTS ALONG TAXIWAY 'A' BETWEEN TAXIWAY 'A2' AND 'A4' AND OUTSIDE OF THE RSA. • IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A3', 'A4', 'B3', 'B4', 'B5', AND THE SOUTH SIDE OF THE APRON RECONSTRUCTION CONDUIT INSTALLATION TO EXISTING NAVAIDS.	PHASES CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 1 OR 3. RUNWAY 14-32 SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. THIS INCLUDES THE INSTALLATION AND MAINTAINING OF TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY 14-32 CIRCUIT AND ITS NAVAIDS.



- MATERIAL DISPOSAL NOTES:**
- THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
 - CONTRACTOR AHSIDE ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
 - THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
 - ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
 - THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MOIST. TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, TWO PASSSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
 - ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
 - THE CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKS TO BE USED. THE CONTRACTOR SHALL PROVIDE A 7-DAY NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
 - AT THE COMPLETION OF THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL LOCATION BY THE RRR. THE RRR SHALL RECORD THE DEPOSIT LOCATION, DATE, TIME, AND ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
 - THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
 - THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
 - ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT, CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AS MATERIAL ONLY.
 - THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
 - THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
 - THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
 - THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
 - WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS NOT ACCEPTABLE. WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS NOT ACCEPTABLE. MOUND AT COMPLETION; COMPACTION TEST ARE NOT REQUIRED.
 - ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
 - THE CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKS TO BE USED. THE CONTRACTOR SHALL PROVIDE A 7-DAY NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
 - AT THE COMPLETION OF THE DEPOSITING MATERIAL, THE FINISHED MOUND SHALL BE WATERED, AND TREATED WITH TERRA-SORB OR APPROVED EQUAL WATER ABSORBING BINDER.
 - ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
 - PULVERIZED AC/AS SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
 - THE CONTRACTOR SHALL CONTACT THE RRR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RRR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
 - FALLING DEBRIS FROM THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE OPERATION OF THE ABOVE RULES UNLESS ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RRR.
 - PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

ISSUED FOR BID
 SHEET NUMBER
G102
 SHEET 8 OF 54

This document, together with the contract and specified standard practices, shall constitute the entire agreement between the contractor and the client. No verbal or written agreements, amendments, or modifications shall be binding unless they are in writing and signed by both parties. The contractor shall be responsible for obtaining all necessary permits and approvals. The client shall be responsible for providing all necessary information and data. The contractor shall be responsible for the safety of all personnel and equipment on the site. The client shall be responsible for the safety of all personnel and equipment on the site. The contractor shall be responsible for the safety of all personnel and equipment on the site. The client shall be responsible for the safety of all personnel and equipment on the site.

NO.	REVISONS	DATE	BY

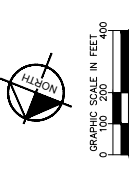
7900 KIMLEY-HORN PARKWAY, SUITE 100, RENO, NV 89511
 WWW.KIMLEY-HORN.COM
Kimley-Horn



KHA PROJECT
 19139604
 DATE 03/24/2023
 SCALE
 DESIGNED BY JC
 DRAWN BY JMH
 CHECKED BY THH

CONSTRUCTION SAFETY & PHASING PLAN (PHASE 3)

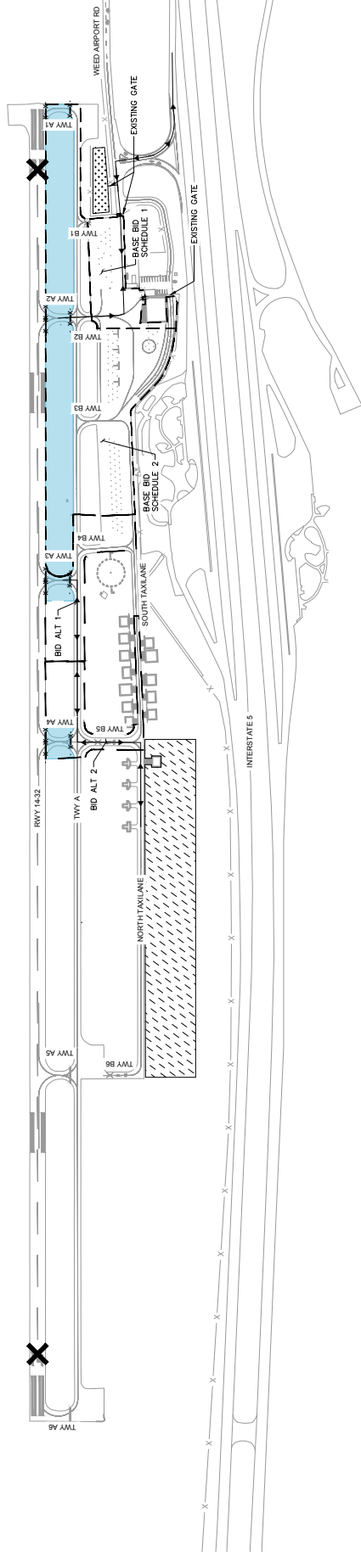
SISKIYOU COUNTY
 WEED AIRPORT
 TAXIWAY AND AIRCRAFT PARKING
 RRR RECONSTRUCTION
 PROJECT PHASE 1
 CALIFORNIA
 SHEET NUMBER
G103
 SHEET 9 OF 54



PHASE 3 NOTES:

PHASE	DURATION	AIRFIELD CLOSURES	WORK ELEMENTS	WORK RESTRICTIONS
3	15 DAYS	RUNWAY 14-32 CLOSURE CONTRACTOR SHALL MAINTAIN CONNECTOR TAXIWAYS AND INFIELD WITHIN THE RUNWAY'S SAFETY AREAS OF TAXIWAYS A1, A2, A3, AND 24 FOR RECONSTRUCTION OR DEMOLITION	PHASE 3 IS COMPRSED OF THE FOLLOWING WORK ELEMENTS: • ELECTRICAL IMPROVEMENTS ALONG TAXIWAYS A1, A2, A3, AND A4. • IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS A1, A2, A3, AND A4. NEW EDGE INSTALLATION TO EXISTING NAVADS.	PHASES CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 1 OR 2. • RUNWAY 14-32 SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. • ALL WORK SHALL BE COMPLETED BY THE AIRPORT AHEAD OF PHASE 3 CONSTRUCTION. THIS MAY REQUIRE THE CONTRACTOR TO INSTALL TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY 14-32 CIRCUIT.

- LEGEND**
- PHASE 3
 - CONSTRUCTION STAGING AREA
 - MATERIAL DISPOSAL SITE
 - LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET G200)
 - HAUL ROUTE
 - BID SCHEDULE LIMITS
 - CONTRACTOR SUPPLIED LIGHTED "X" FACING APPROACH AS PER FAA AC 150/5345-55A



MATERIAL DISPOSAL NOTES:

1. THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
2. CONTRACTOR AHSIDE ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
3. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
4. ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
5. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, ADDITIONAL PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
6. ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE APPROXIMATE THREE FEET.
7. THE CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
8. THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL LOCATION AND ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
9. THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
10. THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
11. ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT, CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AS MATERIAL ONLY.
12. THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
13. THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
14. THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
15. THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
16. WHEEL ROLLING USING THE FEEDER EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. WHEEL ROLLING USING THE FEEDER EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. MOULD AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.
17. AT THE COMPLETION OF THE DEPOSITING MATERIAL, THE FINISHED MOUND SHALL BE WATERED, AND TREATED WITH TERRA-CORR OR APPROVED EQUAL WATER ABSORBING BINDER.
18. ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
19. PULVERIZED AC/AS SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
20. THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
21. THE CONTRACTOR SHALL CONTACT THE RRR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RRR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
22. FAILURES TO FOLLOW THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE HAULING OPERATION. THE ABOVE RULES ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RRR.
23. PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

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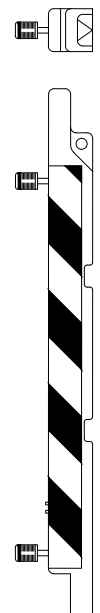
This document, together with the contract and specified conditions and standards, is intended only for the specific purpose and client for which it was prepared. It is not to be used for any other purpose without the written approval of Kimley-Horn and Associates, Inc.

CONSTRUCTION PHASING GENERAL NOTES

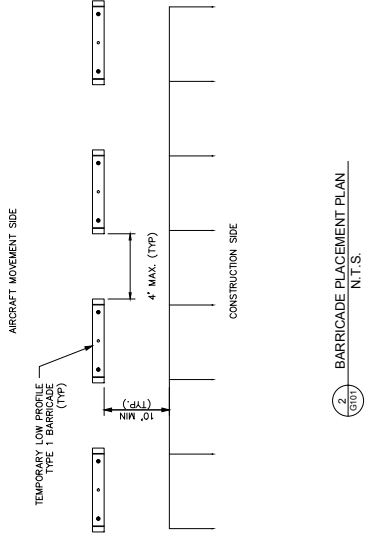
1. THE CONTRACTOR SHALL COMPLETE THE PHASES IN ACCORDANCE WITH THE CONSTRUCTION PHASING PLANS. THE CONTRACTOR SHALL SUBMIT FOR REVIEW TO THE ENGINEER AND OWNER ANY REQUESTED DEVIATIONS TO THE PHASING PLANS. ANY REQUESTED DEVIATIONS TO THE PHASING PLANS SHALL BE AT THE OWNER'S SOLE DISCRETION AND AT THE CONTRACTOR'S ADDITIONAL COST TO THE OWNERS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LIMITS AND SEQUENCE OF ANY CONSTRUCTION PHASES DURING THE PROJECT FOR AIRPORT OPERATIONAL PURPOSES. THE CONTRACTOR SHALL MAINTAIN AND FULLY COMPLY WITH ANY AIRPORT PHASING MODIFICATIONS.
3. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A COMMENCING WORK PLAN TO THE FAA AS IDENTIFIED IN THE CONTRACT DOCUMENTS AND SHALL COMPLY WITH THE REQUIREMENTS OF AC 150/5370-26.
4. ALL AOA PAVEMENT SURFACES SHALL BE OPEN FOR AIRCRAFT OPERATIONS AT ALL TIMES OTHER THAN THE DESIGNATED CLOSURES.
5. ALL CONSTRUCTION TRAFFIC SHALL YIELD TO AIRCRAFT OPERATIONS. THE CONTRACTOR SHALL NOT MOVE EQUIPMENT ONTO THE ACTIVE AOA WITHOUT AIRCRAFT APPROVAL. DELAYS RESULTING FROM AIRCRAFT OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. DELAYS RESULTING FROM AIRCRAFT OPERATIONS SHALL BE ADJUSTED FOR AIRCRAFT COMPENSATION THROUGH THE AIRCRAFT OPERATIONS PLAN FOR ALL AREAS ADJACENT TO TAXWAYS AND RUNWAYS DUE TO AIRCRAFT TRAFFIC.
6. THE CONTRACTOR SHALL NOT CROSS AN ACTIVE AOA OR TSA AT ANY TIME UNLESS UNDER THE CLOSE SUPERVISION OF THE FAA AT THE AIRPORT PROPERTY AND/OR AN ASSESSMENT OF FINES.
7. THE CONTRACTOR SHALL COORDINATE WITH THE AIRPORT OWNER PER THE FOLLOWING LIST:
 - a. PRIOR TO THE START OF DAILY OR NIGHT TIME CLOSURES.
 - b. FOR ALL ACTIVE RUNWAY AND TAXWAY CLOSURES PRIOR TO 72-HOURS PRIOR TO THE REQUESTED CLOSURE TIME.
 - c. FOR ALL NIGHT WORK REQUIRING ISSUANCE OF A NOTAM.
 - d. A MINIMUM 72-HOURS NOTICE START TIME.
8. THE CONTRACTOR SHALL SUBMIT TO THE FAA ALL PHASING PLANS AND CLOSURES. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN BARRICADES TO PROTECT THE PHASING PLANS AND DETAILS UPON COMPLETION OF EACH PHASE. THE CONTRACTOR SHALL REMOVE THE ASSOCIATED BARRICADES.
9. ALL AIRCRAFT PROPERTY, INCLUDING REFLECTORS, SHALL BE PROTECTED BY BARRICADES AND REMAIN IN PLACE UNLESS OTHERWISE NOTED ON THE PHASING PLANS. DAMAGE TO SIGNS, REFLECTORS, NAVAIDS OR AIRCRAFT PROPERTY SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.
10. THE CONTRACTOR SHALL MAINTAIN ALL PAVED AREAS CLEAN AND IN A MAINTAINABLE CONDITION FOR AIRCRAFT MOVEMENT. THE CONTRACTOR SHALL HAVE RESPONSIBILITY TO MAINTAIN THE PHASING PLANS AND ANY ADJACENT PAVEMENTS TO THE CONSTRUCTION AREA TO REMOVE ANY FOREIGN OBJECT DEBRIS (FOD).
11. THE ROUTES AND ADA ACCESS LOCATIONS MAY NEED TO CHANGE DUE TO OPERATIONAL NEEDS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ROUTES REQUESTED BY AIRPORT AT ITS OWNERS' SOLE RESPONSIBILITY TO COORDINATE OFF SITE HAUL ROUTES WITH THE FAA, AKDOT, AND OBTAIN ANY REQUIRED PERMITS.
12. THE CONTRACTOR SHALL COMPLY WITH ALL CITY, COUNTY AND STATE TRAFFIC REGULATIONS CONCERNING THE USE OF STREETS AND ROADWAYS FOR HAULING. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ROUTES TO LIMIT ANY DAMAGE TO THE ROADWAYS DUE TO THE CONTRACTOR EQUIPMENT OR HAULING OPERATIONS.
13. THE CONTRACTOR SHALL MAINTAIN 2-WAY TRAFFIC ON ALL PUBLIC ROADS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PUBLIC ROADS USED AT ALL TIMES DURING THE CONSTRUCTION. PUBLIC ROADS USED AS CONTRACTOR ROUTES WILL BE USED BY OTHER CONTRACTORS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EMERGENCY VEHICLES AND SHALL YIELD TO EMERGENCY VEHICLES AND VEHICLES ALONG ALL PUBLIC ROADS.
14. THE CONTRACTOR SHALL MAINTAIN 2-WAY TRAFFIC ON ALL PUBLIC ROADS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PUBLIC ROADS USED AT ALL TIMES DURING THE CONSTRUCTION. PUBLIC ROADS USED AS CONTRACTOR ROUTES WILL BE USED BY OTHER CONTRACTORS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EMERGENCY VEHICLES AND SHALL YIELD TO EMERGENCY VEHICLES AND VEHICLES ALONG ALL PUBLIC ROADS.
15. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE AIRFIELD SURFACES AND TO THE CONSTRUCTION PHASING PLANS. THE CONTRACTOR SHALL SUBMIT FOR REVIEW TO THE ENGINEER AND OWNER ANY REQUESTED DEVIATIONS TO THE PHASING PLANS. ANY REQUESTED DEVIATIONS TO THE PHASING PLANS SHALL BE AT THE OWNER'S SOLE DISCRETION AND AT THE CONTRACTOR'S ADDITIONAL COST TO THE OWNERS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LIMITS AND SEQUENCE OF ANY CONSTRUCTION PHASES DURING THE PROJECT FOR AIRPORT OPERATIONAL PURPOSES. THE CONTRACTOR SHALL MAINTAIN AND FULLY COMPLY WITH ANY AIRPORT PHASING MODIFICATIONS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ANY TEMPORARY DRAINAGE SYSTEMS TO MAINTAIN THE EXISTING DRAINAGE PATTERNS. ANY SUCH DRAINAGE PATTERNS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION AND SHALL NOT IMPACT AOA OPERATIONS.
18. AT THE PRE-CONSTRUCTION MEETING THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SCHEDULE TO THE FAA AND THE ENGINEER. THE CONTRACTOR SHALL REVIEW THIS SCHEDULE ON A WEEKLY BASIS DURING THE PROJECT. THE ENGINEER AND FAA WILL APPROVE THIS SCHEDULE TO BE IN ACCORDANCE WITH THE APPROVED SCHEDULE.
19. CONSTRUCTION PERSONNEL, EQUIPMENT AND MATERIALS SHALL NOT PENETRATE THE RUNWAY OFZ AS DEFINED IN AC 150/5300-19 FOR AN OPERATIONAL PURPOSE. THE CONTRACTOR SHALL MAINTAIN HEIGHT LIMITS SHOWN ON THE PLANS OR IDENTIFIED IN FAA PART 77.
20. ALL CONTRACTOR VEHICLES, INCLUDING HAULING VEHICLES, CONSTRUCTION EQUIPMENT (ROLLERS, BACK LOADERS, COMPACTORS, ETC.) SHALL OPERATE WITHIN THE DESIGNATED LIMITS OF CONSTRUCTION OR HAUL ROUTES AS DEFINED ON THE PHASING PLANS. ALL VEHICLES SHALL HAVE A WHITE CHECKERBOARD FLAG IN FULL VIEW ABOVE THE VEHICLE. EACH CHECKERBOARD COLOR SHALL BE DARKNESS OR LIMITED VISIBILITY SHALL REQUIRE THE CONTRACTOR'S VEHICLES TO BE EQUIPPED WITH ROTATING HAULING VEHICLES NOT EQUIPPED WITH ROTATING OR FLASHING LIGHTS SHALL BE ESCORTED BY A VEHICLE SO EQUIPPED.
21. ANY WORK WITHIN THE RUNWAY SAFETY AREA (RSA) OR THE TAXWAY SAFETY AREA (TSA) REQUIRES A TEMPORARY CLOSURE OF THE RUNWAY. ANY WORK WITHIN THE TSA SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE AND TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL SUBMIT WRITTEN NOTICE IN THE FORM OF A WEEKLY SCHEDULE OF CLOSURES, 72-HOURS PRIOR TO THE ANTICIPATED START OF WORK, WITHIN THE AOA.
22. PRIOR TO RE-OPENING AND RE-EQUIPMENT OF THE RUNWAY, THE CONTRACTOR SHALL RETURN TO THE FAA STANDARDS CRITERIA OUTLINED IN AC 150/5300-26. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ROUTES REQUESTED BY AIRPORT AT ITS OWNERS' SOLE RESPONSIBILITY TO COORDINATE OFF SITE HAUL ROUTES WITH THE FAA, AKDOT, AND OBTAIN ANY REQUIRED PERMITS.
23. PRIOR TO RE-OPENING A TEMPORARY CLOSED RUNWAY OR TAXWAY, THE PAVEMENT MUST BE REPAIRED TO THE ORIGINAL CONDITION. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ROUTES REQUESTED BY AIRPORT AT ITS OWNERS' SOLE RESPONSIBILITY TO COORDINATE OFF SITE HAUL ROUTES WITH THE FAA, AKDOT, AND OBTAIN ANY REQUIRED PERMITS.
24. EXISTING PAVEMENT MARKINGS THAT HAVE BEEN OBLITERATED, DISTURBED OR REMOVED DURING THE CONSTRUCTION SHALL BE REPAIRED TO PREVIOUSLY EXISTING CONDITION PRIOR TO OPENING THE RUNWAY. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ROUTES REQUESTED BY AIRPORT AT ITS OWNERS' SOLE RESPONSIBILITY TO COORDINATE OFF SITE HAUL ROUTES WITH THE FAA, AKDOT, AND OBTAIN ANY REQUIRED PERMITS.
25. CONSTRUCTION MATERIAL STOCKPILING SHALL NOT BE PLACED WITHIN THE DESIGNATED AREAS. ALL MATERIAL SHALL BE STORED WITHIN THE DESIGNATED AREAS. MATERIAL STOCKPILING SHALL NOT BE PLACED WITHIN THE DESIGNATED AREAS OUTSIDE THE DESIGNATED AREAS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ROUTES REQUESTED BY AIRPORT AT ITS OWNERS' SOLE RESPONSIBILITY TO COORDINATE OFF SITE HAUL ROUTES WITH THE FAA, AKDOT, AND OBTAIN ANY REQUIRED PERMITS.
26. PRIOR TO SUBSTANTIAL COMPLETION OF THE CONSTRUCTION PHASING PLANS, THE CONTRACTOR SHALL RESTORE THE STAGING AREAS TO THE ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ENGINEER.
27. UPON APPROVAL OF THE SUBSTANTIAL COMPLETION OF THE CONSTRUCTION PHASING PLANS, THE CONTRACTOR SHALL INSTALL THE FINAL COAT OF AIRPORT MARKINGS (IN ACCORDANCE WITH FAA PART 77) WITHOUT ACCORDING LIQUIDATED DAMAGES.

GENERAL NOTES:

1. BARRICADES SHALL CONFORM TO FAA AC 150/5370-26 AND MEET THE REQUIREMENTS OF THE CONSTRUCTION PHASING PLANS AND THE ADVISORY CIRCULAR. THE ADVISORY CIRCULAR SHALL TAKE PRECEDENCE.
2. COLORS SHALL BE ORANGE AND WHITE.
3. STEADY-BURNING OR FLASHING RED LIGHTS ARE TO BE BATTERY POWERED AND BE ABLE TO MANUALLY ROTATE 90°. LIGHTS TO BE OMNI-DIRECTIONAL.
4. ALL LOW LEVEL BARRICADE LIGHTS ON THE PROJECT SHALL BE OF THE SAME MAKE AND MODEL TO ENSURE CONSISTENT LIGHTING INTENSITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF LIGHTS.
5. BARRICADES TO BE PLACED END TO END W/OUT GAPS. CONTINUOUS BARRICADES ACROSS TAXWAYS TO BE CLOSED. WITH AIRPORT DIRECTION BARRICADES MAY BE PLACED PER DETAIL 2 ON THIS SHEET G201 WHEN CLOSING APRON AREAS.
6. BARRICADES TO REMAIN IN-PLACE FOR DURATION OF CONSTRUCTION.
7. BARRICADES SHALL BE IDENTIFIED WITH SANDBAGS TO PREVENT MOVEMENT FROM WIND AND ICE BLAST. TWO (2) SANDBAGS MUST BE PLACED INSIDE THE LIGHTS FOR VISIBILITY REASONS.
8. BARRICADES SHALL BE IN GOOD CONDITION, WITH ALL COLOR STRIPING INTACT AND WITH FUNCTIONAL LIGHTS.
9. CONTRACTOR SHALL PROVIDE AND MAINTAIN BARRICADES.



1 LOW LEVEL BARRICADE
N.T.S.



2 BARRICADE PLACEMENT PLAN
N.T.S.

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