ARMY ACCESS CONTROL POINTS (ACPs) STANDARD DESIGN

VARIOUS LOCATIONS (CONUS AND OCONUS)

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US Army Corps of Engineers ®
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ARMY ACCESS CONTROL POINTS (ACPs) STANDARD DESIGN

1 INTRODUCTION

1.1 STANDARD DESIGN

This Standard Design supersedes all previous versions for this facility type. It shall be used for construction of all new ACP projects and renovations to existing ACP projects. It is intended for use anywhere in the continental United States (CONUS) or overseas locations (OCONUS). The design procedures and drawings included in this Standard Design provide flexibility to Army ACP designers in meeting the Army's baseline physical security requirements and the full range of Force Protection Conditions on Army Installations. This Standard Design meets the Army Standard (AS) for Access Control Points (ACPs) approved by the Army Facilities Standardization Committee dated 13 April 2012. It also meets Architectural and Engineering design criteria established by the Headquarters U.S. Army Corps of Engineers (HQUSACE). The local Center of Standardization (COS) must approve all changes, deviations, or waivers to the Standard Design. In addition to these requirements, Appendix D contains design guidance and instructions that are considered information only and are meant to further provide information on issues that often arise when doing an ACP design.

1.2 ACP DEFINITION

An Access Control Point (herein referred to as ACP) is a corridor at an Installation cantonment perimeter through which all vehicles and/or pedestrians must pass when entering or exiting the Installation cantonment area. An ACP provides the first physical security boundary layer that restricts access to Department of Army (DA) Installation cantonment areas. ACP guards control the active barriers to deny or permit entry on to the Installation.

1.3 ACP CLASSIFICATIONS

DA ACP classifications are: (a) Primary, (b) Secondary, (c) Limited Use, and (d) Pedestrian. Primary and Secondary ACPs can accommodate privately owned vehicles (POVs), commercial vehicles (trucks), pedestrians, bicycles or any combination thereof. Primary and Secondary ACPs provide the means to defeat a vehicular and/or pedestrian threat via permanent measures defined in the Army Standard (AS) for Access Control Points (ACPs). Limited Use ACPs provide means to defeat vehicular and/or pedestrian threats via temporary or permanent measures. Limited Use ACPs do not have routine hours of operation. A Pedestrian ACP may be part of an ACP that accommodates vehicles or it may stand alone.

For definitions of Installation, Primary ACP, Secondary ACP, Limited Use ACP, Approach Zone, Access Control Zone, Response Zone, and other definitions, see Army Standard (AS) for Access Control Points (ACPs).

1.4 ACP FUNCTIONS

1.4.1 Site Functions

ACP site functions include, but are not limited to, Approach Zone, Access Control Zone, Response Zone, Passive Vehicle Barriers, Active Vehicle Barriers, Command and Control, ID Check Area, Overwatch, Canopies, Turn Arounds, Search Areas, Lighting, and CCTV.

1.4.2 Building Functional Areas

Visitor Control Center (VCC), Guard Booths (ID Check and Pedestrian ID Check), Search Area Building, Command and Control, Mechanical/Electrical, Communications, Gatehouse, Latrine, Storage, and Overwatch are some building function components of the ACP. This standard design includes some of the function combinations that are deemed acceptable. Combinations of functional areas not included as Standard Designs may be possible but will require COS review and approval, with Standard Design exception. The only functions that cannot be combined with other functions are the Vehicle ID Check and

Vehicle ID Check Guard Booths.

1.5 ACP WAIVERS

See Army Standard (AS) for Access Control Points (ACPs). Army Standard exception and waiver process is identified in AR 420-1.

Waivers to the Army ACP Standard Design must require a COS position statement and approved by HQ USACE.

1.6 MANDATORY CRITERIA

See Army Standard (AS) for Access Control Points (ACPs) for mandatory criteria for Primary and Secondary ACPs, Limited Use ACPs, and Pedestrian ID Check.

1.7 DEFEAT OF VEHICLE THREAT SCENARIOS

1.7.1 Office of Provost Marshal General (OPMG) Vehicle Threat Scenarios

ACPs shall be designed to defeat the following four minimum vehicle threat scenarios. Additional vehicle threat scenarios shall be included if required by a local threat assessment. Appendix C covers the methodology associated with performing the threat path calculations by providing an example.

1) Vehicle Threat Scenario #1. Threat vehicle enters the ACP in the inbound or outbound lane(s) at the maximum speed attainable at the ACP entrance and then immediately accelerates at its maximum acceleration rate through the ACP.
   (a) Threat vehicle characteristics shall be as defined below (includes, but is not limited to: top speed, acceleration, etc.)
2) Vehicle Threat Scenario #2. Threat vehicle enters the ACP in the inbound or outbound lane(s) at or under the posted ACP Speed Limit and then, later at some point further in the Approach Zone, accelerates at its maximum acceleration rate through the remainder of the ACP.
   (a) Note that 'some point' shall be interpreted as being the worst case threat delay time from point of detection to Active Vehicle Barrier (AVB) location(s) in the response zone. If multiple zones of overspeed detection are utilized the analysis will include the worst case situations for each overspeed zone.
3) Vehicle Threat Scenario #3. Threat vehicle feigns compliance and stops in lane. The guard detects threat behavior or criminal status through observation or electronic means and moves to guard booth to initiate denial process. Threat vehicle occupant(s) attempt to force entry (tactics include potential use of direct fire weapons and acceleration through the ACP).
   (a) Baseline protection for direct fire weapon shall be UL 752-Level 3. A higher level is required if direct fire weapons are identified in local threat assessment/policy that exceed the capabilities of UL 752-Level 3. The contents of local threat assessment/policy are not sufficient justification for the lowering of the baseline ballistic resistance (UL 752-Level 3). Use of ballistic standards other than UL 752 may be utilized anywhere where the barrier rating can be verified as clearly meeting or exceeding UL requirement designated.
4) Vehicle Threat Scenario #4. Similar to Threat Scenario 3 above, except the driver of the denied vehicle drives toward the Turn-around or Search Area at the ACP Speed Limit as if complying with guard instructions, but then fails to turn and instead accelerates at its maximum acceleration rate through the ACP while attempting to enter the Installation cantonment area.

1.7.2 Threat Vehicle Characteristics

1) **Acceleration Rate -** Threat calculations shall utilize the acceleration rate of 11.3 feet per second squared (feet/second/second) when determining delay.

(a) Where applicable the lower acceleration rates associated with trucks/commercial vehicles can be utilized for calculating the required stopping capability of passive and active vehicle barrier systems; however, lower acceleration rates are not relevant to delay calculations.

2) **Deceleration Rate -** Threat calculations shall utilize a deceleration rate of 24.1 feet per second squared (feet/second/second) when calculating delay.

3) **Friction Factors -** Threat calculations shall utilize a friction factor of 1.0. Calculations performed for threat purposes differ significantly from calculations typically performed for consideration of driver comfort. Lower friction factors associated with highway safety shall not be used for threat calculations.

4) **Maximum Velocity -** The maximum velocity of the 4,630 pounds baseline threat vehicle utilized for delay calculations shall be 130 mph. This parameter shall be utilized for calculation of delay unless a 'local' threat assessment and/or policy identifies a vehicle that is capable of a greater velocity. The addition of larger vehicles or trucks through mandatory incorporation of threats identified in 'local' threat assessments and/or policies shall not be considered justification for use of a reduced velocity in delay calculations.

   (a) The maximum velocity of specific threat vehicles (where local threat analysis and/or policy identifies a specific vehicle) shall be obtained from manufacturer specifications.

   (b) The maximum velocity of other vehicle classes (where a type of vehicle e.g. 'pickup truck' is identified in local threat analysis and/or policy) shall be calculated through acquisition of information on at least 5 vehicles within the type and averaging the top speed of the lot. If significant outliers (atypical vehicles with unusual characteristics) exist they may be removed from the sample set.

5) **Vehicle Mass -** The baseline threat vehicle shall be a large passenger car as defined in ASTM F2656. The weight of the baseline threat vehicle is 4,630 pounds and the mass is 143.8 slugs. This mass shall be utilized for kinetic energy calculations unless a vehicle of larger mass is included due to the aforementioned incorporation of local threat analysis and/or policy.

   (a) **Modification of baseline vehicle threat -** The baseline threat vehicle must be adjusted in accordance with all applicable 'local' threat analysis and policy. All relevant 'local' threat analyses and policy shall be reviewed and incorporated. Classification of such documentation is not justification for exclusion of baseline threat vehicle for barrier impact energy and/or delay calculations. Both the baseline vehicle and the additional vehicle(s) (identified by 'local' threat assessment and/or policy) shall be analyzed and the more stringent of results shall be applied.

1.8 TRAFFIC AND TRANSPORTATION ENGINEERING

1.8.1 Traffic Engineering Study (TES)

1) The ACP shall be planned, designed, and so located as not to create un-safe off-Installation traffic queuing or any other un-safe traffic practices as defined by Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) and all other applicable roadway standards/criteria.

2) The traffic engineering study shall be either conducted or approved by the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA).

   (a) In some instances (e.g. very low volume ACPs) SDDCTEA may accept, at their discretion, abbreviated traffic engineering studies. The contents required for programming/design of key ACP design features may be determined by SDDCTEA on a case by case basis.

3) The traffic engineering study shall be based on the largest anticipated design demand value that occurs between the current traffic volume and the projected traffic volume five (5) years in the future.

4) The traffic engineering study shall not project future demand through use of standardized population growth rates for the Installation itself unless supported by Installation specific data. The traffic engineering study may utilize standardized population growth rates for surrounding communities.

1.8.2 Transportation Engineering

1) The ACP shall be capable of handling the largest expected vehicle that will be processed. However, if the ACP processes trucks, it shall be capable of turning around the largest truck common to state or host nation roadways, and capable of processing the largest truck that is allowed onto the installation.

2) Analyses related to determination of the required number of ID check area lanes may include queuing but shall not include queuing that results in off-Installation traffic impacts.

3) Calculate existing and future lane requirements per Pamphlet 55-15, Traffic and Safety Engineering for Better Entry Control Facilities or similar method with consideration of growth, as well as single or tandem lane processing and Automated Installation Entry (AIE), etc.).

4) The efficient use of guard manpower will be considered when calculating the number of ID check area lanes.

5) In locations where pedestal mounted AIE is anticipated calculations related to ID check area lane, quantities shall not anticipate throughput rates in excess of 375 vehicles/hour/lane. Locations using other forms of automation shall utilize validated processing rates for that specific form of automation.

6) The calculations for the number of ID check lanes shall not be based on the use of more than 2 guards per lane.

7) Utilize the ACP/ ECF SMART Decision Evaluator© (or other methods to accomplish the same results) to evaluate the existing, short-term and long-term impact of security, manpower, automation, and roads and traffic.

8) Identify traffic control requirements per SDDCTEA Pamphlet 55-15, Traffic and Safety Engineering for Better Entry Control Facilities.

1.8.3 Turning Movements

1) Turning movement calculations/modeling shall be performed to confirm that the correct vehicle turning radius is achieved and to demonstrate there is no conflict with other vehicles in the ACP corridor. Turning movement analysis shall address all traffic types to be processed. Turning movements shall address, at a minimum, both POVs and trucks, if applicable. If trucks are prohibited at the ACP, truck modeling may terminate at the post ID Check rejection point. The turning movement calculations/models shall be provided for all turning movements.

2) The turning movement analysis shall be performed for all anticipated vehicle paths.

3) The turning movement analysis shall include, but may not be limited to: horizontal road alignment, turn-around and rejection, entrance and egress paths for the ACP corridor, search areas and visitor control centers (when present).

1.9 APPROACH ZONE

1.9.1 Entry Gate

Entry gate will have the same level of protection as the adjacent perimeter.

A. Signage

1) Type: Entry gate signage shall be as indicated in Section 7.5 of SDDCTEA Pamphlet 55-15 for CONUS locations (to include both Hawaii and Alaska). OCONUS entry gate signage shall conform to host nation criteria for closure/barricading of a normally open roadway lane. In the absence of applicable host nation criteria the entry gate shall be signed in accordance with the aforementioned criteria.

2) Retroreflectivity: Entry gate signage shall be red/white retroreflective or illuminated to show the same shape and similar color by both day and night. Retroreflectivity and/or illumination shall be in accordance with the MUTCD for CONUS locations (to include both Hawaii and Alaska). OCONUS

entry gate signage shall include retroreflectivity and/or illumination in accordance with host nation criteria where such exists. If no host nation criteria exists for retroreflectivity/illumination of barricade signage then the MUTCD criteria shall be utilized.

B. Impact Resistance

1) Where adjacent perimeter is not vehicle resistant, the fence gate is not required to exceed the kinetic energy mitigation/defeat capabilities of the adjacent perimeter fence.

2) Where adjacent perimeter is vehicle resistant and vehicle resistant capability of adjacent perimeter is manmade, the fence gate shall match or exceed the kinetic energy rating of the adjacent perimeter fence/wall/barrier.Where the adjacent perimeter anti-ram capabilities is provided by topographic feature, the fence gate shall match or exceed the kinetic energy mitigation/defeat capabilities of the adjacent perimeter. In this case, however, the fence gate is not required to exceed 1,250,000 ft-lbs of kinetic energy resistance (limit of requirement is K12 equivalent).

1.9.2 Passive Vehicle Barriers

1) Passive vehicle barriers in the approach zone will begin at the entry gate/perimeter and extend to the access control zone passive vehicle barriers. Transitions between passive vehicle barrier systems shall not represent weak points in the barrier system.

(a) Passive Vehicle Barriers will be designed to defeat the kinetic energy associated with the baseline threat and any additional threat identified in 'local' threat analyses or policy.

- Achievable angle and velocity shall be included in such calculations.

- Kinetic energy calculations must be performed for the baseline threat vehicle as well as any additional vehicles included through mandatory incorporation of 'local' threat analyses.

(b) Passive vehicle barriers must be certified or approved in accordance with one of the following:

- Included on the list of DOD Anti-Ram Vehicle Barriers maintained by the U.S. Army Corps of Engineers (USACE)-Protective Design Mandatory Center of Expertise (PD-MCX),

- Analysis is not currently an acceptable method of validation.

2) Capacity (kinetic energy defeat/mitigation capability)

The kinetic energy mitigation capacity of the system shall be capable of defeating the baseline threat vehicle and any additional threat vehicles identified in 'local' threat assessment and/or policy.

However, the capacity of the passive vehicle barrier system is not required to exceed 1.25 million ft-lbs of kinetic energy defeat capability unless 'local' threat assessment and/or criteria identifies a threat vehicle in excess of 15,000 pounds and that threat vehicle is capable of approaching the passive vehicle barrier system at a speed and angle resulting in impact energy in excess of the previously mentioned 1.25 million ft-lbs.

The ACP passive vehicle barrier corridor shall be analyzed in segments.

- Segments will be restricted in length to those locations where the potential impact energy of a threat vehicle on the vehicle barrier system is equal.
- Segments will break where a change in passive barrier alignment in relation to the ACP roadway differs or the layout of the barriers and roadway differs.
- Segments will also be broken where any other existing or proposed topography or ACP features in any other way increases or decreases the potential impact energy of a threat vehicles speed or angle of approach prior to impact with the passive vehicle barrier system.

(a) Gaps

The gaps between elements of a passive vehicle barrier system (or between systems) shall not exceed 3 feet where potential angle of impact exceeds 60 degrees and achievable speed (for impact at the 60 degrees or more angles) exceeds 40 miles per hour. The gaps between elements of a passive barrier system (or

between systems) where potential velocity and angle of impact do not meet or exceed the threshold identified above shall not exceed 4 feet.

(b) Transition

The transition between passive vehicle barrier systems shall not result in weak points. Transitions between barrier systems or types will include measures to ensure that the transition meets or exceeds the kinetic energy mitigation/defeat level of the adjacent barrier systems.

1.9.3 Visitor Control Center (VCC)

1) VCC must be located such that visitor processing occurs prior to entry into the Installation (prior to ID Check location).
2) Paved road surface used to support movement to/from the VCC location must not provide opportunity for undetected bypass of the ID check area. Configuration shall not anticipate control of bypass by personnel working at the visitor control center, ID check area, or search areas. These personnel are not capable of monitoring paved bypass paths for the VCC.
3) If the Installation accepts visitors and does not currently possess a VCC one should be included in the first available ACP project.
4) The VCC shall include the following:
   (a) Parking.
   (b) Service Counter.
   (c) Waiting Area.
5) The VCC may include the following:
   (a) Self-registering kiosks.
   (b) Administration Office.
   (c) Break Room.
   (d) ElectricWater cooler.
   (e) Latrines.
6) Ballistic protection of guard positions
   (a) When guard functions requiring ballistic protection (e.g. command & control, pedestrian ID check, etc.) are combined in a facility with the VCC function the guards must be separated from VCC personnel (both workers and visitors waiting to be processed) by ballistic rated building components (walls, glazing, doors, etc.).
   (b) Where guards are utilized solely to perform VCC function(s) it is not necessary to provide a ballistic rated separation between the guard and the visitor. Non-ballistic rated guard positions cannot be designed to require shared VCC responsibility with guards responsible for command & control, ID check area, overwatch building, active vehicle barrier deployment or similar functions.
   (c) Visitor control center worker positions (non-guard) are not required to include ballistic protection.
7) Communication and Security Systems – General Requirements. See paragraph 3.9 Communications and Security Systems.
8) Electrical – General Requirements. See paragraph 3.10 Electrical Requirements.

1.9.4 Lighting

See paragraph 3.10 Electrical Requirements on lighting requirements for the approach zone.

1.10 ACCESS CONTROL ZONE

1.10.1 Passive Vehicle Barriers

1) Passive vehicle barriers in the access control zone will begin at the termination of the approach zone passive vehicle barriers and extend to the response zone passive vehicle barriers. Transitions between passive vehicle barrier systems shall not represent weak points in the barrier system.

   (a) Passive Vehicle Barriers will be designed to defeat the kinetic energy associated with the baseline threat and any additional threat identified in 'local' threat analyses or policy.

   - Achievable angle and velocity shall be included in such calculations.

   - Kinetic energy calculations must be performed for the baseline threat vehicle as well as any additional vehicles included through mandatory incorporation of 'local' threat analyses.

   (b) Passive vehicle barriers must be certified or approved in accordance with one of the following:

   - Included on the list of DOD Anti-Ram Vehicle Barriers maintained by the U.S. Army Corps of Engineers (USACE)-Protective Design Mandatory Center of Expertise (PD-MCX),

   - Analysis is not currently an acceptable method of validation.

2) Capacity (kinetic energy defeat/mitigation capability)

The kinetic energy mitigation capacity of the system shall be capable of defeating the baseline threat vehicle and any additional threat vehicles identified in 'local' threat assessment and/or policy.

However, the capacity of the passive vehicle barrier system is not required to exceed 1.25 million ft-lbs of kinetic energy defeat capability unless 'local' threat assessment and/or criteria identifies a threat vehicle in excess of 15,000 pounds and that threat vehicle is capable of approaching the passive vehicle barrier system at a speed and angle resulting in impact energy in excess of the previously mentioned 1.25 million ft-lbs.

The ACP passive vehicle barrier corridor shall be analyzed in segments.

- Segments will be restricted in length to those locations where the potential impact energy of a threat vehicle on the vehicle barrier system is less than or equal.
- Segments will break where a change in passive barrier alignment in relation to the ACP roadway differs or the layout of the barriers and roadway differs.
- Segments will also be broken where any other existing or proposed topography or ACP features in any other way increases or decreases the potential impact energy of a threat vehicles speed or angle of approach prior to impact with the passive vehicle barrier system.

   (a) Gaps

The gaps between elements of a passive vehicle barrier system (or between systems) shall not exceed 3 feet where potential angle of impact exceeds 60 degrees and achievable speed (for impact at the 60 degrees or more angles) exceeds 40 miles per hour. The gaps between elements of a passive barrier system (or between systems) where potential velocity and angle of impact do not meet or exceed the threshold identified above shall not exceed 4 feet.

   (b) Transition

The transition between passive vehicle barrier systems shall not result in weak points. Transitions between barrier systems or types will include measures to ensure that the transition meets or exceeds the kinetic energy mitigation/defeat level of the adjacent barrier systems.

1.10.2 ID Check Area

1) ID Check Area Islands

- Design shall provide opportunity for a guard to step out of guard booth onto a flat, relatively level surface or step.

- Locations where ID checks occur shall include all likely positions for such operations along and within the ID check island (for lighting and island surface).
- Communication and Security Systems – General Requirements. See paragraph 3.9 Communication and Security Systems.
- Electrical – General Requirements. See paragraph 3.10 Electrical Requirements.

2) ID Check Area Canopy

- Individual canopy columns shall limit field of view from ID check guard booth by no more than 11 degrees. Where automated means include driver use of pedestal mounted credential validation, no canopy feature shall interfere with the view of this pedestal from the related ID check guard booth.
- Canopy shall provide 15 feet clear height where ACP use is limited to POVs.
- Canopy shall provide 17.5 feet clear height where commercial traffic is allowed.
- Canopy shall cover, as a minimum, routinely occupied guard positions and locations where drivers or pedestrians are required to interact with guards or equipment.
- Foundations for canopy columns shall be raised at least 6" above adjacent surface to prevent corrosion of the steel columns, unless otherwise justified.
- Ceiling/underside of canopy roof should include reflective coating to aid light distribution.
- Canopy clear height shall include lighting, signage and all other objects or equipment hung from, or projecting from, the underside of the canopy structure.
- Provide an open/close visual indicator on the canopy over each lane that is controlled from the ID Check area or Command and Control.
- Communication and Security Systems – General Requirements. See paragraph 3.9 Communication and Security Systems.
- Electrical – General Requirements. See paragraph 3.10 Electrical Requirements for electrical and lighting requirements.

3) Turn-Arounds

- Definition - Turn-around 'lane' shall be defined as a median opening, widened area or other feature(s) devised to permit an inbound vehicle to move from the ingress to the egress lanes.
- TurnAround – For the turn around prior to the ID check the turning movement analysis shall, as a minimum, allow rejection of the largest common commercial vehicle allowed (without special permit) on the public roads near the Access Control Point.
- Rejection - For ACPs restricted to POV use; turning movement analysis for the rejection after the ID check shall, at a minimum, allow rejection of the largest POV common to public roadways leading to the Installation. Where commercial vehicles are allowed, turning movement analysis for the rejection after the ID check shall, at a minimum, allow rejection of the largest common commercial vehicle allowed on the public road leading to the Installation.

1.10.3 Search Area

Assumption must be that the search area will not be open 24/7. Search area lanes must be capable of closure during periods when search area is vacant.

(a) Closure of search area lanes shall consist of one of the following:

- Vehicle blockage - Utilize vehicle blockage to prevent or mitigate the inconspicuous movement of vehicles through the search area when the search area is unmanned. Blockage

shall be sufficient to ensure that in the event of attempted circumvention, guards notice/are made aware.of an attempted bypass.

- Delineation of closure with alarm for ID check location - Alarm annunciation will be audible (above traffic and other background noise) for guards in each ID check guard booth(s), at the command and control functional area and all areas under the ID check area canopy where guards may be standing adjacent to inbound lanes conducting validation of credentials. Alarm levels will be 85 – 90 dB interior and 105 – 115 dB exterior to guard booth(s).

(b) Communication and Security Systems – General Requirements. Requirements can be found in paragraph 3.9 Communications and Security Systems of this document.

(c) Electrical – General Requirements. See paragraph 3.10 Electrical Requirements for electrical and lighting requirements.

(d) Search Area Canopy

- Canopy shall provide 15 feet clear height where ACP use is limited to POVs.
- Canopy shall provide 17.5 feet clear height where commercial traffic is allowed.
- Canopy clear height shall include lighting, signage and all other objects or equipment hung from, or projecting from, the underside of the canopy structure.
- Canopy shall cover, as a minimum, the search lane(s) routinely occupied guard positions and locations where drivers or pedestrians are required to interact with guards or equipment.
- Canopy or enclosed facility shall extend a minimum of 4 feet beyond these locations.
- Ceiling/underside of structure should include reflective coating to aid light distribution.
- Communication and Security Systems – General Requirements. See paragraph 3.9.
- Electrical – General Requirements. See paragraph 3.10 Electrical Requirements for electrical and lighting requirements.

(e) Search Area Enclosed Facility

Where necessary for protection in extreme climatological areas/zones an enclosed facility may be utilized in lieu of a canopy. In locations with both a Search Area Enclosed Facility functional area and Search Area Office functional area, the two functional areas may be combined into one facility.

- Enclosed Facility shall provide 15 feet clear height where ACP use is limited to POVs.
- Enclosed Facility shall provide 17.5 feet of clear height where ACP allows commercial traffic.
- Enclosed Facility clear height shall include the structure itself as well as lighting, signage and all other objects hung from, or projecting from, the underside of the roof structure, doorways, or other facets of the facility.
- Enclosed Facility shall cover, as a minimum, the search lane(s) and the locations routinely occupied by guards as well as locations where drivers or pedestrians are required to interact with guards or equipment.
- The inside of the Search Area Enclosed Facility should include a light reflective coating to aid in light distribution.
- Communication and Security Systems – General Requirements. See paragraph 3.9.
- Electrical – General Requirements. See paragraph 3.10 Electrical Requirements for electrical and lighting requirements.
- Ventilation of the Enclosed Facility shall be designed in accordance with all relevant standards related to ventilation of enclosed spaces which accommodate motor vehicles.
- HVAC is required for enclosed occupied spaces (e.g. offices, waiting areas, etc.) within the Search Area Enclosed Facility.
- HVAC is not normally feasible for the vehicle search bay(s). However, consider the use of radiant heating for northern climates.
- Provide interior power outlets for offices or other spaces if they are included within the Search Area Enclosed Facility.

- Provide interior power outlets for the Search Area Enclosed Facility. Outlets must be provided along the periphery of the Facility as well as near each search lane.
- Provide exterior power outlets near the entry and egress points (both vehicular and pedestrian doors).
- Provide Electronic Security, Duress Alarms and IDS

(f) Search Area Shelter - A search area shelter is required in order to shelter occupants removed from vehicles being searched. This may be accomplished in the search area office (if provided), or in a standalone search area shelter. Consider obscuration in this location such that the search of the vehicle cannot be observed by its occupants.

(g) Inclusion of a Search Area Office – If the ACP will have a significant search area function that will be frequently manned by one or more personnel, a search area office must be considered. Prosimity of other facilities must be considered. If no other facility is nearby and/or cannot be used by search area personnel, a search area office is recommended.

1.10.4 Guard Facilities

1) Vehicle ID Check Area Guard Booths (Used by guards responsible for validating credentials of vehicle occupants)

(a) Provide a minimum of one guard booth for each vehicle ID check area entry lane.

(b) Raised traffic island - The guard booth will be protected by a raised traffic island in one of the following ways:

- Locate the guard booth on a raised traffic island. Provide a minimum of 3' setback between doorways of guard booth and face of raised traffic island curb. Must also include, as a minimum, a 1' horizontal clearance between face of traffic island curb and guard booth roof, gutters or any other objects protruding from the guard booth.
- Recess the guard booth within a raised traffic island. Curb may be interrupted to allow movement of guard between booth and ID check position (adjacent to vehicles) to occur without stepping onto, off or over raised island or curb sections.

(c) Passive Barrier Protection

- Provide protection against errant impact.
- The protection provided for the guard booth structure is not required to be an ASTM, Department of State (DOS) or DOD anti-ram capable product.
- Protection (passive barrier) may be located on the leading edge of the island on which the guard booth is located and shall be prior to the leading canopy column (if present).
- If breaks in the ID check traffic island curb-line exist, additional protection should be included to mitigate errant impact.

(d) Dimensions

- Minimum nominal ID check area guard booth width shall be 4 feet.
- Minimum nominal ID check area guard booth length shall be 10 feet.

(e) Prohibition of Combining with Other Functions - The function performed by the ID Check Area Guard Booths used for validating credentials of vehicle occupants shall not be combined with any other function.

(f) Field of View - Shall provide a 360 degree field of view for occupant. Door frame interruptions in lines of sight shall not exceed 11 degrees for a guard sitting or standing at the counter. Door frame interruption of guard line of sight shall be minimized.

(g) Ballistic Rating - Shall, as a minimum, be ballistic rating of UL 752 – Level 3 with a higher level being required if prescribed in 'local' threat analyses or policy.

(h) Blast Resistance - Given the proximity of the guard booth to vehicular traffic it is normally not considered feasible to provide blast protection for ID check guard booth occupants.

(i) HVAC

- General Requirements – General requirements pertaining to HVAC can be found in paragraph 3.11 Heating, Ventilating, and Air-Conditioning (HVAC) Requirements of this document.
- Ballistic Rating - All penetrations of guard booth resulting from incorporation of HVAC shall provide the same level of ballistic resistance as the rest of the guard booth. The roof and floor of the guard booth (to include HVAC penetrations) shall not require ballistic protection unless direct fire trajectory is possible through roof/floor and into the occupied portion of the guard booth.
- Exterior HVAC units should be placed so that they do not provide a convenient sitting or resting position for guard staff. Where this is not possible, provide seating surface above HVAC unit to prevent personnel from sitting directly on the HVAC unit.

(j) Energy Policy - Shall adhere to the latest national energy policy unless applicable exemption exists within said policy and can be found in paragraph 3.14.Sustainable Design.

(k) Counter - Must include a counter oriented such that a guard is facing inbound (ingress) traffic while seated or standing at the counter.

(l) Door(s) - Must include door(s) oriented in the direction of each lane for which a guard occupying the booth has vetting responsibility (includes situations where vehicle occupants identification is validated remotely through use of automated equipment).

(m) Provide exterior power outlet sufficient to power hand-held searchlights, and bug zappers etc.

(n) Provide interior power outlet sufficient for radio chargers, and computers, etc.

(o) Provide active vehicle barrier control console with annunciator, computer workstation, and communications equipment including Local Area Network (LAN), telephone, and Internet connections.

(p) Communications. Provide a minimum of two (2) means of communications from the facility and with the Central Security Monitoring Station.

(q) Electronic Security.

- Duress Alarms. Provide duress alarm capability that annunciates at both the Command and Control and the Central Security Monitoring Station.
- Intrusion Detection. The entry doors to the ID Check Area Guard Booths are to be equipped with Balanced Magnetic Switches (BMS) for intrusion detection.
- CCTV. Provide the means to control the cameras from Command and Control. It is recommended that CCTV monitors be placed above the counter, if there is wall space.

(r) Communication and Security Systems – General Requirements. See paragraph 3.9 Communications and Security Systems.

(s) Electrical – General Requirements. See paragraph 3.10 Electrical Requirements.

(t) Active Vehicle Barrier Controls.

- Provide emergency-fast-operate (EFO) controls for all active vehicle barriers related to the ACP. One EFO will be located on the counter and another will be located in close proximity to the guard position while performing vehicle ID Check validation.
- Panel is to have LED indicator lights showing whether or not the panel is functional and capable of barrier deployment.
- See requirements on Active Vehicle Barrier Controls in paragraph 3.9 Communications and Security Systems.

2) Pedestrian ID Check Guard Booth functional area (Used by guards responsible for validating credentials of pedestrians)

(a) Raised traffic island - The Pedestrian ID Check will be protected by a raised traffic island in one of the following ways:

- If located within the roadway clear zone, locate the guard booth on a raised traffic island. Provide a minimum of 3 feet setback between doorways of guard booth and face of raised traffic island curb.

- If located within the roadway clear zone, the functional area must include, as a minimum, a 1 feet horizontal clearance between the face of traffic island curb and guard booth roof, gutters or any other objects protruding from the guard booth.

(b) Passive Barrier Protection

- Must be provided with protection against errant impact if located on a traffic island or within the roadway clear zone.

- Protection (passive barrier) may be located on the leading edge of the island on which the guard booth is located.

(c) Dimensions: Minimum width of 4 feet and minimum length of 10 feet, but in no case shall the building exceed the maximum square footage specified in the Army Standard (AS).

(d) Prohibition of Combining with Other Functions - This function differs from the vehicle ID check guard booth. The pedestrian ID check guard booth function may be combined with other functions.

(e) Field of View - Shall provide a 180 degree field of view for guard. Interruptions in lines of sight shall not exceed 11 degrees for a guard sitting or standing at the counter.

(f) Ballistic Rating - As a minimum, shall have a ballistic rating of UL 752 – Level 3 with a higher level being required if prescribed in 'local' threat analyses or policy.

(g) HVAC

- Required - General Requirements – General requirements pertaining to HVAC can be found in paragraph 3.11 Heating, Ventilating, and Air-Conditioning (HVAC) Requirements of this document.

- Ballistic Rating

All penetrations of guard booth resulting from incorporation of HVAC shall provide the same level of ballistic resistance as the rest of the guard booth. The roof and floor of the guard booth (to include HVAC penetrations) shall not require ballistic protection unless direct fire trajectory is possible through roof/floor and into the occupied portion of the guard booth.

The guard position shall be separated from pedestrian traffic by ballistic rated materials whether the ballistic rated material is exterior to a facility or interior to a facility.

(h) Material transfer - A 'deal tray' or other device offering a similar level of protection shall be included for transfer of materials (e.g. identification, and/or passes, etc.) between pedestrians and guard personnel. Where pedestians are outside and materials are transitioning between indoor and outdoor, the deal tray shall be intended for use in the local climate and rated for exterior use.

(i) Energy Policy - Shall adhere to the latest national energy policy unless applicable exemption exists within said policy and can be found in paragraph 3.14.Sustainable Design.

(j) Counter - Must include a counter oriented such that a guard is facing pedestrian traffic while seated or standing at the counter.

(k) Provide exterior power outlet sufficient to power hand-held searchlights.

(l) Provide interior power outlet sufficient for radio chargers, and computers, etc.

(m) Provide active vehicle barrier control console with annunciator, computer workstation, and communications equipment including Local Area Network (LAN), telephone, and Internet connections.

(n) Communications. Provide a minimum of two (2) means of communications from the facility and with the Central Security Monitoring Station.

(o) Electronic Security.

- Duress Alarms. Provide duress alarm capability that will annunciate at both the Command and Control and the Central Security Monitoring Station.
- Intrusion Detection. The entry door(s) is to be equipped with Balanced Magnetic Switches (BMS) for intrusion detection.

(p) Communication and Security Systems – General Requirements. See paragraph 3.9 Communications and Security Systems.

(q) Electrical – General Requirements. See paragraph 3.10 Electrical Requirements.

(r) Active Vehicle Barrier Controls.

- Provide emergency-fast-operate (EFO) controls for all active vehicle barriers related to the ACP.
- Panel is to have LED indicator lights showing whether or not the panel is functional and capable of barrier deployment.
- See paragraph 3.9 Communications and Security Systems.

1.10.5 Command and Control

1) Functional Location - The command and control function will be located in either the Access Control Zone or the Response zone. The location will be conducive to the monitoring of activities at and near the ID check area canopy as well as the rejection path for vehicles being turned away from the ID check area. The location will also allow monitoring of vehicles exiting the search area to ensure that proper actions are taken by those vehicles.

2) Field of View - Shall include a view of the ID check area. View shall be direct if the command and control function is located within the control zone. If the command and control function is located within the response zone the view of ID check area will be augmented with CCTV where direct view is distant or limited.

3) Ballistic Rating

- Ballistic rating shall protect against all feasible firing angles achievable from a ground based attack from a direct fire weapon.
- Ballistic rating shall include ceiling/roof protection where the topography or the structures location provides opportunity for direct fire from an elevated position (when angle is sufficient to impact guard standing and/or sitting at the counter).
- When combined with other facilities only the portion of the facility defined as Command and Control and all other areas specifically designated as requiring a ballistic rating shall require a ballistic rating. Under these circumstances, the requirement for a ballistic rating shall include both the exterior walls and the interior walls which separate the Command and Control function from other functional areas.

- Shall include, as a minimum, a UL 752 - Level 3 ballistic rating with a higher level being required if prescribed in a local threat analysis or policy.

4) HVAC
    - Requirement - The Command & Control function includes a requirement for ballistic protection. Ballistic rating precludes the feasibility of mechanical-ventilation as an alternative to heating or air conditioning.
    - New bullet : Both heating and air conditioning shall be provided.
    - General Requirements – General requirements pertaining to HVAC can be found in paragraph 3.11 Heating, Ventilating, and Air-Conditioning (HVAC) Requirements of this document.
    - Ballistic Rating - Building envelope penetrations created by HVAC components shall be mitigated to provide the same level of ballistic protection as the structure itself.

5) Provide exterior power outlet sufficient to power hand-held searchlights, and bug zappers etc.
6) Provide interior power outlet sufficient for radio chargers, and computers, etc.
7) Provide active vehicle barrier control console with enunciator, computer workstation, and communications equipment including Local Area Network (LAN), telephone, and Internet connections.
8) Communications. Provide a minimum of two (2) means of communications from the facility and with the Central Security Monitoring Station.
9) Electronic Security. Intrusion Detection. The entry doors to the Command and Control are to be equipped with Balanced Magnetic Switches (BMS) for intrusion detection.
10) Communication and Security Systems – General Requirements. See paragraph 3.9 Communications and Security Systems.
11) Electrical – General Requirements. See paragraph 3.10 Electrical Requirements.
12) Active Vehicle Barrier Controls
    - Provide emergency-fast-operate (EFO) controls for all active vehicle barriers related to the ACP.
    - Panel is to have LED indicator lights showing whether or not the panel is functional and capable of barrier deployment. See paragraph 3.9 Communications and Security Systems.

1.10.6 Closed Circuit Television (CCTV)

See paragraph 3.9 Communication and Security Systems for the access control zone.

1.10.7 Electronic Security

See paragraph 3.9 Communication and Security Systems on electronic security for the access control zone.

1.10.8 Automation

See paragraph 3.9 Communications and Security Systems on automation for the access control zone.

1.10.9 Back-up Power

See paragraph 3.10 Electrical Requirements on back-up power for the access control zone.

1.10.10 Lighting

See paragraph 3.10 Electrical Requirements for details on the lighting requirements for the access control zone.

1.11 RESPONSE ZONE

1.11.1 Passive Vechicle Barriers

1) Passive vehicle barriers in the Response Zone will begin at the termination of the control zone passive vehicle barriers and extend to the active vehicle barriers. Transitions between passive vehicle barrier systems and active vehicle barriers shall not represent weak points in the barrier system.

   (a) Passive Vehicle Barriers will be designed to defeat the kinetic energy associated with the baseline threat and any additional threat identified in 'local' threat analyses or policy.

   - Achievable angle and velocity shall be included in such calculations.
   - Kinetic energy calculations must be performed for the baseline threat vehicle as well as any additional vehicles included through mandatory incorporation of 'local' threat analyses.

   (b) Passive vehicle barriers must be certified or approved in accordance with one of the following:

   - Included on the list of DOD Anti-Ram Vehicle Barriers maintained by the U.S. Army Corps of Engineers (USACE)-Protective Design Mandatory Center of Expertise (PD-MCX),
   - Analysis is not an accepted method for validation.

2) Capacity (kinetic energy defeat/mitigation capability)

The kinetic energy mitigation capacity of the system shall be capable of defeating the baseline threat vehicle and any additional threat vehicles identified in 'local' threat assessment and/or policy.

However, the capacity of the passive vehicle barrier system is not required to exceed 1.25 million ft-lbs of kinetic energy defeat capability unless 'local' threat assessment and/or criteria identifies a threat vehicle in excess of 15,000 pounds and that threat vehicle is capable of approaching the passive vehicle barrier system at a speed and angle resulting in impact energy in excess of the previously mentioned 1.25 million ft-lbs.

The ACP passive vehicle barrier corridor shall be analyzed in segments.

- Segments will be restricted in length to those locations where the potential impact energy of a threat vehicle on the vehicle barrier system is equal.
- Segments will break where a change in passive barrier alignment in relation to the ACP roadway differs or the layout of the barriers and roadway differs.
- Segments will also be broken where any other existing or proposed topography or ACP features in any other way increases or decreases the potential impact energy of a threat vehicles speed or angle of approach prior to impact with the passive vehicle barrier system.

(c) Gaps

The gaps between elements of a passive vehicle barrier system (or between systems) shall not exceed 3 feet where potential angle of impact exceeds 60 degrees and achievable speed (for impact at the 60 degrees or more angles) exceeds 40 miles per hour. The gaps between elements of a passive barrier system (or between systems) where potential velocity and angle of impact do not meet or exceed the threshold identified above shall not exceed 4 feet.

(d) Transition

The transition between passive vehicle barrier systems shall not result in weak points. Transitions between barrier systems or types will include measures to ensure that the transition meets or exceeds the kinetic energy mitigation/defeat level of the adjacent barrier systems.

1.11.2 Active Vehicle Barriers (AVB)

1) Safety Scheme

The Active Vehicle Barriers and Access Control Point Control System types shall conform to a safety scheme, as identified by Surface Deployment Distribution Command Transportation and Engineering Agency (SDDCTEA). All identified components of the identified SDDCTEA safety scheme will be included.

Major AVB renovation projects will include upgrades to the AVB safety regime which bring the AVB system into conformance with a current SDDCTEA safety scheme.

2) Security

The active vehicle barrier system selected must be a DOD active vehicle barrier system that has been tested in accordance with State Department STD-02.01 or ASTM F-2656 by an accredited laboratory/test facility and included on the DOD anti-ram vehicle barrier list.

The DOD anti-ram vehicle barrier list can be found on the U.S. Army Corps of Engineers, Protective Design Center website. The list is updated quarterly.

https://www.nwo.usace.army.mil/About/Centers-of-Expertise/Protective-Design-Center/PDC-Library/
Vehicle barrier systems that have demonstrated a vulnerability to a vehicle that falls within the parameter of the baseline threat and/or 'local' identified threat shall not be utilized. The baseline threat includes multiple attempts by the same vehicle (if not captured or rendered inoperable) but does not include a multiple vehicle threat.

3) Active Vehicle Barrier Markings and Delineation

(a) The active vehicle barrier type selected will meet the following requirements:

The non-deployed active vehicle barrier shall not result in unsafe roadway or roadside obstructions. Active vehicle barrier shall include retro-reflective material that is visible on both sides of the barrier when the barrier is deployed.

(b) Active vehicle barrier red delineation lighting.

The following does not apply to vehicle barriers behind closed gates (gate marked with retroreflective road closure signage in accordance with MUTCD) and those utilized to close service drives (average traffic of 1 vehicle per day or less). These systems are not required to comply with the 'barrier red delineation lighting' criteria.

Red delineation lighting shall be provided to ensure the active vehicle barrier is clearly visible when the barrier is deployed. All delineation lighting shall be LED and each luminaire shall provide a sustained illumination level of 50 lumina. Active vehicle barrier system shall include the following alternatives:

- The active vehicle barrier system shall include red flashing lights facing the direction of the threat vehicle and facing in the direction of vehicles traveling on the roadway. The lighting shall meet the following alternatives.

Alternative 1 - Bollard systems must include, as a minimum, one red led light per bollard.

Alternative 2a – Plate/wedge barrier systems equal to or greater than 3 feet in width will include, as a minimum, 3 red lights. One will be mounted within 1 foot of each barrier edge and one will be mounted within 1 foot of barrier centerline.

Alternative 2b – Plate/wedge barrier systems less than 3 feet in width will include, as a minimum, 1 red light. One light will be mounted within 1 foot of the barrier centerline.

Alternative 3 - Crash beam barrier systems will include, as a minimum, 3 red lights. One will be mounted within 2 feet of the each edge of the driving surface. One light will be mounted within 1 foot of the center of each lane spanned by the barrier.

Alternative 4 – Net type barriers are not required to have lighting mounted on the barrier, but mitigation must be provided through use of in-roadway lighting.

Alternative 5 - Roadway Lighting (Alternative to barrier mounted red delineation lighting)

- Red non-flashing roadway lighting shall be provided in the pavement on both sides of the barrier. A minimum of three shall be provided per lane per side.
- In roadway lighting shall conform to the following:

See ACTIVE VEHICLE BARRIER SYSTEM REQUIREMENTS in paragraph 3.9 COMMUNICATIONS AND SECURITY SYSTEMS.

4) Site Selection

(a) Utility conflicts

Utility conflicts are not justification for modification of DOD active vehicle barrier system.

(b) Drainage

Drainage conflicts are not justification for modification of 'as tested' active vehicle barrier system(s).

(c) Sight distance

Sight distance will conform to the AASHTO Roadside Design Guide. Sight distance is for crest/sag curves and view when lane obstructions are present. OCONUS locations will conform to host nation criteria. If no equivalent host nation criterion exists the AASHTO Roadside Design Guide shall be utilized.

(d) Roadside Safety/Clear Zones

Many active vehicle barrier systems include components that lie adjacent to the roadway. These components will be evaluated for their impact on driver sight distance.

5) Active Vehicle Barrier and Passive Vehicle Barrier Transitions

(a) Foundation Conflicts

The 'as tested' foundation of the active vehicle barrier will not be modified.

(b) Acceptable Gaps

For locations where high speed impact at significant angle (less than 40 mph and 60 degrees or kinetic energy equivalent) is not achievable, the clear distance between active vehicle barriers and adjacent passive vehicle barriers shall not exceed 4 feet.

For locations where high speed impact at significant angle (greater than 40 mph and 60 degrees or kinetic energy equivalent) is achievable, the clear distance between active vehicle barriers and adjacent passive vehicle barriers shall not exceed 3 feet.

6) Maintenance:

Maintenance of the AVB system will be considered during the design, construction and selection of AVB systems.

(a) During the time that an active vehicle barrier is undergoing maintenance the lane, the barrier signals may stay dark, green or go to red depending upon the safety scheme being used. The measures taken during the maintenance of an active vehicle barrier shall be similar to that used for temporary lane closure during construction. Signage, marking and other measures will be in accordance with national roadway standards applicable for temporary lane closure. For OCONUS

locations relevant host nation criteria related to temporary lane closure shall be utilized. If no applicable host nation criterion exists the U.S. national standards shall be utilized.

(b) Active vehicle barrier systems should be maintained in accordance with manufacturer's recommendations.

(c) AVB O&M manuals developed by manufacturers often include requirements that are not feasible for the configuration of the access control point. In such cases the requirement will either be mitigated or an alternate product selected.

7) Access Control Point Control System (ACPCS)

See paragraph 3.9 Communications and Security Systems.

8) Active Vehicle Barrier Commissioning

(a) Commissioning of active vehicle barriers will be in accordance with UFGS 34 75 13.13 "Crash Rated Active Vehicle Barriers and Controls".

(b) The active vehicle barrier system will be commissioned by the U.S. Army Corps of Engineers, Protective Design Mandatory Center of Expertise (PD-MCX) or a representative designated by the PD-MCX.

- On-site commissioning effort will not take place until after the review of required commissioning related materials (as defined in the aforementioned UFGS) by the PD-MCX.

- The endurance testing period identified in UFGS 34 75 13.13 may occur during normal ACP operations. However, it will include periodic (at least once daily) operation of the AVB system regardless of whether or not such operation is part of normal ACP operations.

9) Primary and Secondary ACPs

The AVBs will be permanent systems (not portable or transportable).

1.11.3 Overwatch

The ACP will include an overwatch position in accordance with one the two following alternatives:

- Overwatch Pad: The Overwatch pad alternative shall include size and pavement section capable of supporting the identified Overwatch vehicle. The minimum vehicle shall be that associated with a High-Mobility Multipurpose Wheeled Vehicle (HMMWV). The Overwatch pad includes Items 4) Location and 6) Communications and Security System below.

- Overwatch Facility: The Overwatch Facility alternative includes all the items listed below.

1) Dimensions

Dimensions shall be sufficient for movement of guard personnel within the structure.

2) Fighting Position

Design must provide adequate space for movement of a guard and use of both handgun and shoulder fired weapon with gunports.

Gunports shall be provided on each face of the overwatch.

All gunports shall be usable for both handgun and shoulder fired weapons. Gunport design shall not require weapons to be oriented in an unusual way (e.g. gunport being placed immediately above counter and counter interfering with vertical orientation of pistol magazine).

3) Ballistic Rating

Overwatch facility shall include, as a minimum, UL 752- Level 3 ballistic rating.
A higher ballistic rating is required when such is identified during mandatory review of 'local' threat analysis and policy.

Ballistic ratings shall be provided for all walls, glazing, doors and frames.

A ballistic rating is required for the roof and/or floor only if direct fire striking of that surface is possible and the trajectory could result in guard impact.

4) Location

The overwatch position must be located such that it is near the AVBs but within site of the ID Check Area. The overwatch position will be utilized as a fighting position. If the AVBs and/or the ID Check Area are not directly observable, then observation will be supplemented by CCTV.

5) Protection Against Errant Impact

Provide passive barrier protection for facility if located less than 3 feet behind the face of curb when adjacent to a curbed roadway section.

Provide passive barrier protection for facility if located less than 7 feet from the traveled lane when adjacent to a shouldered roadway section.

6) Communications and Security Systems

(a) Active Vehicle Barrier Controls.

- Provide emergency-fast-operate (EFO) controls for all active vehicle barriers related to the ACP.
- Panel is to have LED indicator lights showing whether or not the panel is functional and capable of barrier deployment.
- A full discussion on the requirements on Active Vehicle Barrier Controls can be found in paragraph 3.9 Communications and Security Systems of this document.

(b) Communications. Provide a minimum of two (2) means of communications from the facility and with the Central Security Monitoring Station, when present.

(c) Information Connectivity. Facility shall have LAN connectivity.

(d) Electronic Security. Intrusion Detection. The entry doors to the Overwatch Facility are to be equipped with Balanced Magnetic Switches (BMS) for intrusion detection.

(e) CCTV. If the facility does not have a direct visual view of the ID Check Area then provide necessary connectivity to the CCTV to allow CCTV monitors to be installed.

(f) Communication and Security Systems – General Requirements. Requirements can be found in paragraph 3.9 Communications and Security Systems of this document.

7) Electrical Requirements

(a) Provide interior power outlets sufficient for radio chargers, and computers, etc.

(b) Electrical – General Requirements. See paragraph 3.10 Electrical Requirements.

1.11.4 Back-up Power

See paragraph 3.10 Electrical Requirements on back-up power for the response zone.

1.11.5 Lighting

See paragraph 3.10 Electrical Requirements for lighting requirements in the response zone.

1.11.6 Communications

See paragraph 3.9 Communications and Security Systems for communications requirements in the response zone.

1.11.7 Information Connectivity

See paragraph 3.9 Communications and Security Systems for information connectivity requirements in the response zone.

1.12 COORDINATING FACILITY TYPES

Additional facility types may be involved, but typically ACPs are stand-alone projects.

1.13 STANDARD DESIGN DRAWINGS AND INFORMATION

Copies of the drawings and text information that constitutes a Standard Design are available from the supporting Center of Standardization (Omaha) U. S. Army Corps of Engineers District, and numerous military web sites. The primary web site (the address is subject to change) to consult is:

"http://mrsi.usace.army.mil/sites/cos/SitePages/Home.aspx".

1.14 OUTSIDE CONTINENTAL UNITED STATES (OCONUS)

The requirements for this document have been written around U.S. Standards. For OCONUS applications the following requirements are applicable:

Metric units of measurement are allowed.

Local codes are permitted (except where specifically noted within this document), but shall not be less than U.S. requirements.

Where there are no local codes, U.S. requirements shall govern.

Requirements of the Department of Army Standard Design for Access Control Points shall be used.

All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Therefore, the acquisition team must ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

Exceptions to the above requirements include line-of-sight, ballistic ratings, threat calculations, anti-terrorism standards and standoff distances included in this document.

1.15 RFP WIZARD

The RFP Wizard is an Army Transformation Model for Design-Build Requests for Proposals (RFP). Paragraphs 2 and 3 in this document include references to the RFP Wizard, which are highlighted in yellow. Ignore any references to the RFP Wizard for this standard. This document requires additional changes to be usable for the RFP Wizard.

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2 SCOPE OF WORK:

2.1 ACCESS CONTROL POINTS

Provide an installation access control point(s) which will allow safe, convenient vehicular and pedestrian access to the installation, while ensuring anti-terrorism/ force protection (AT/FP) measures are implemented.

The project is based on, and shall comply with, the Army Standard for Access Control Points and the Department of Army Access Control Points Standard Design (ACP-SD). The Access Control Point (ACP) functions are a corridor through which all vehicles and pedestrians pass when entering or exiting an installation. The ACP personnel perform identification verification procedures and control the active barriers that deny or permit entry on to the installation.

In addition, the ACP(s) shall be provided with a Closed Circuit Television (CCTV) camera system, security lighting, duress system, Intrusion Detection System (IDS), communications system, LAN, back-up power system, traffic control system, overspeed detection system (if necessary), wrong way detection system, active and passive vehicle barriers and control system. CCTV system shall include cameras, digital video recorders (DVR), monitors and controls. Cameras shall be provided at the Visitor Control Center (when required), overwatch area, ID check area, vehicle inspection areas, and active vehicle barrier (AVB) areas. Camera monitoring shall occur at the Command and Control and at a central monitoring station when present. Lighting shall be provided at the Approach zone, Access Control Zone, Response zone, vehicle search (inspection) areas, active barrier areas and parking areas. A back-up power system shall be provided with a generator and uninterruptible power supply (UPS).

The ACP(s) in this document may be a mixture of Design Build requirements with partial design drawings or Full Construction Plans and Specifications. [RFP Wizard: See Paragraph 6 and Appendices for additional details for Design Build Request for Proposal (RFP).]

Construct the ACP(s) to include the facilities and features listed below.

2.1.1 ID Check Area

A. Design Demand

[Less than 290 vph] [Greater than 290 vph]

B. Number of ID Check Lanes

[2] [3] [4] [5] [6] [7] [8] [9] [10] lanes under the ID Check Area Canopy

C. Vehicle ID Check Area Guard Booths: One for each Vehicle ID Check lane.

2.1.2 Ballistic Resistance

UL 752-Level [3] [4] [5], where required.

2.1.3 Canopies

Canopies are required for the ID Check Area, (Truck) Search Area, Passenger Vehicle Search Area and Combination Truck and Passenger Vehicle Search Areas, where required.

2.1.4 ACP Functional Area Facilities

[See Center of Standardization (COS) drawings required for the ACP project [RFP Wizard: included in Appendix J – Drawings].

2.1.5 Stand-Off Distance

As identified on site drawings furnished for the ACP Project.

2.1.6 Equipment

A. Truck Inspection Equipment to be Used: [Vehicle Inspection System] - [Mobile] [Permanent] [None]

B. Functional Area Facility(ies) Equipment: [None][Package Scanner] [_____]

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3 ACCESS CONTROL POINTS

3.1 GENERAL REQUIREMENTS

3.1.1 Facility Description

A. The Access Control Point (ACP) must comply with the Department of Army (DA) standards for this facility type. The ACP(s) are required by the DA to provide safe entry to the installation by authorized procedures for vehicles, and/or pedestrian traffic. Both safety and security requirements are primary of the ACP criteria.

B. Facility types may be adapt build (based on approximately 80% level of design), design build (based on specific floor plan) or design/build (based on functional requirements only).

3.1.2 Accommodations

3.1.2.1 Accessibility Requirements

The Visitor Control Center(s), Search Area Building(s) and Pedestrian ID Check (Where those being vetted are inside the facility) are the only ACP facilities that require access by individuals with disabilities. Provide access for individuals with disabilities in accordance with Architectural Barriers Act (ABA) and Americans with Disabilities Act (ADA) Accessibility Guidelines or Host Nation equivalent.

3.1.2.2 Nursing Mother's Room

Provide Nursing Mothers accommodations in accordance with ECB, 2019-4, Design for Nursing Mothers in Federal Employment. Complete ACP renovation or new ACP campuses projects shall include nursing facilities in one of the larger facilities like the VCC or Gatehouse as described in the ECB. Renovation projects of existing VCC or Gatehouses shall include accommodations for nursing facilities. New or existing ACP campuses which include only small buildings shall provide nursing accommodation through operational procedures identified and coordinated with the security forces, either on site, at adjoining facility, or at a security forces facility. When programing renovations or new facilities it will be necessary to program additional square footage and cost into the programing documents.

3.1.3 Building Areas

GROSS AREA: For each ACP building or structure, provide gross building area as calculated by UFC 3-101-01, "Architecture", Chapter 2 which is the area included within the surrounding exterior walls measured from outside face of wall to inside face of wall.

3.1.4 Hours of Operation

The hours of operation for access control points will depend upon ACP classification. For primary ACPs the hours of operation are typically 24 hours a day, 7 days a week. For secondary ACPs the hours of operation will vary with installation requirements and are generally less than 24 hours a day, 7 days a week. Limited use ACPs are open only for special events, and do not have a fixed schedule.

3.1.5 Ballistic Requirements

Various buildings defined (guard booths, command and control function, and overwatch position, etc.) require design/ construction for ballistic resistance to UL 752-Level 3 or higher. See paragraph 2 SCOPE OF WORK for required ballistic level.

3.1.6 Mandatory Requirements

Floor plans included are considered mandatory, unless directed otherwise. For OCONUS locations dimensions shown shall be considered nominal. Changes are allowed where required for use of metric construction materials.

3.1.7 Facility Goals

A. The objective of the access control facilities is to prevent unauthorized vehicles and where required pedestrians from entering an installation. The access control point needs to be constructed with features that support the effective use of equipment, procedures, and man power.

B. The technical and functional requirements defined herein are the standard requirements that apply to all (DA) ACP projects and are current with Headquarters U.S. Army Corps of Engineers (HQUSACE) criteria.

C. The ACP is intended to provide a high level of safety while meeting the ACP Standard requirements.

3.1.8 Adapt Build Model:

When an Adapt-Build Model is available to use as a basis for design and/or construction, it will be posted on the Center of Standardization (CoS) web site, noted in solicitation documentation, or made available upon request as follows:

CoS Web Site address:
`https://mrsi.erdc.dren.mil/cos/nwo/acp/`

CoS address: U. S. Army Corps of Engineers, Omaha District
CENWO-ED-D
1616 Capitol Avenue
Omaha, NE 68102-4901

Attn: CoS Program Manager (Matthew Hebert)

3.1.9 Outside Continental United States (OCONUS)

The requirements for this document have been written primarily around U.S. Standards. For OCONUS applications the following requirements are applicable:

1) Metric units are allowed.
2) Local codes are permitted (except where specifically noted within this document), but shall not be less than U.S. requirements.
3) Where there are no local codes, U.S. requirements shall govern.
4) Requirements of the Department of Army Access Control Points Standard Design (ACP-SD).
5) All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.
6) Exceptions to the above requirements include line of sight, ballistic ratings, threat path calculations, anti-terrorism standards and standoff distances included in this document.

3.2 FUNCTIONAL AND OPERATIONAL REQUIREMENTS:

3.2.1 General

1) Functional areas and facilities included in the design of ACP(s) are as listed below.

2) Coordinate the visual appearance and exterior material selections as well with the standards set by the Installation in their respective Installation Design Guide. Address the impact of climate, security and geography appropriately. There may be reasons to control exterior traffic noise from entering the facilities and may require special treatment or Standard Transmission Class (STC) rating on major building components. Provide appropriate and adequate protection from the wind, and wind driven precipitation for doors and entries.

3.2.2 Primary Spaces (Functional Areas)

1) Visitor Processing: Provide the capability to process visitors. The following elements may be included.

(a) Vestibule

The vestibule is a small antechamber between the outer door of a building and an interior door. The vestibule saves energy by not allowing exterior conditions to enter the building. The space is not required to be ballistic rated, but may be located in a blast resistant (hardened) building. If blast resistance is required the wall of the vestibule opposite the door will need to be constructed of reinforced concrete or masonry to stop the door from traveling through the building in the event of a bomb blast.

(b) Waiting

The waiting area contains seating for people waiting processing on to the Installation. The space is not required to be ballistic rated.

(c) Processing

The processing area is normally an area with casework and cabinets that houses personnel who will verify credentials for temporary access onto the Installation. A counter is normally the only separation between the working personnel and those requiring a vehicle and individual passes. The space is not required to be ballistic rated.

(d) Break Room

The break room is space for eating or recreation of the personnel staffing the access control point. The space may also be used for interrogation of persons of interest. The space is not required to be ballistic rated.

(e) Office

The office is a space within the facility where the supervisor may be located. The space may be used to perform interviews and appraisals and requires sound deadening materials (minimum STC 35) within the walls to reduce the amount of sound transfer. The space is not required to be ballistic rated.

(f) Provost Marshal/ Military Police

The Marshal/ Military Police occupies office space within the facility. The space may be used to perform interviews of persons of interest and requires sound deadening materials (minimum STC 35) within the walls to reduce the amount of sound transfer. The space may also be used to detain such persons and is required to have a separate exterior entrance to allow detainees to be removed from the building without encountering anyone within the waiting area. The space is not required to be ballistic rated, but may be located in a ballistic rated or blast resistant (hardened) building.

2) ID Check Area Canopy

The ID Check Area Canopy will be a metal framed structure that covers the islands of the ID Check Area. The canopy height will be a minimum 15’-0” clear height above the road surface if only automobiles will be using the ACP, but will be increased 17’-6” clear height above the road surface if oversize vehicles such as firefighting equipment would need to pass under the canopy. The roof of the canopy can be in any configuration, gabled, hipped, flat, single sloped, or curved that is acceptable and in accordance with the Installation Design Guide. The canopy structure shall be designed by a registered professional engineer.

Less than 11 degrees of obscuration of vision from the Guard Booth shall be maintained.

3) ID Check Guard Booth

Ballistic resistant guard booths will be installed on islands adjacent to each incoming lane of traffic under the ID Check Canopy for protection of guards performing vehicle/ passenger ID checks. Locate Guard Booths on a raised island in the ID Check Area under the ID Check Canopy. Guard booths can be pre-manufactured units. Guard booths are not required to be ABA/ ADA compliant. Guard booths shall have sliding doors and a counter.

4) Search Area Shelter

The search area shelter is a space to house individuals whose vehicles are being searched. The space should hold persons for the short time their vehicle is being inspected. The space should have large windows on the exterior to observe the people within the space and allow the inspectors to observe occupants. The space is not required to be ballistic rated. The function is not normally located in a blast protected building. Depending on installation requirements, this may either be a bus stop type shelter or building.

5) Truck Search Area Canopy

Canopy: The Truck Search Canopy will be a metal framed structure that covers the Truck Search Area. The canopy shall be sized for one or more of the largest vehicles expect to enter the Installation. The canopy height will be a minimum 17'-6" clear height above the road surface. The roof of the canopy can be in any configuration, flat, single sloped, or curved acceptable and should be in accordance with the Installation Criteria. The canopy structure shall be designed by a registered Professional Engineer.

Enclosed Facility: The Truck Search Enclosed Facility will be a structure that encloses the Truck Search Area. The facility shall be sized for one or more of the largest vehicles expected to enter the Installation. The clear height of the facility will be a minimum of 17'-6" above the surface of the roadway. The roof of the facility can be in any configuration but should be in conformance with the Installation Design Guidance.

6) Passenger Vehicle Search Area Canopy

Canopy: The Passenger Vehicle Search Canopy will be a metal framed structure that covers the Passenger Vehicle Search Area. The building shall be large enough to allow the searching of a minimum of two vehicles at a time. The canopy clear height will be a minimum 15'-0" clear above the road surface. The roof of the canopy can be in any configuration, gabled, hipped, flat, single sloped, or curved that is acceptable and in with the Installation Criteria. The canopy structure shall be designed by a registered Professional Engineer.

Enclosed Facility: The Passenger Vehicle Search Enclosed Facility will be a structure that covers the Passenger Vehicle Search Area. The facility shall be large enough to allow the search of, as a minimum, two vehicles at a time. The clear height above the road surface will be a minimum or 15'-0". The roof of the facility can be of any configuration that conforms to the Installation Design Guide.

7) Command and Control

The Command and Control will contain the controls to activate the AVB in the event of an unauthorized vehicle tries to penetrate the installation's perimeter. The Command and Control shall have a clear view of all ID Check area, and if possible, the Search Area Canopies. Due to the function of this area the public will not be allowed to enter the area. Therefore, the facility is not required to be ABA/ ADA compliant. The function will be protected with ballistic resistant construction.

8) Latrine

Latrines can be unisex units or single sex units, sized in accordance with ABA/ ADA criteria. The latrines shall be handicapped accessible with grab bars, tilted handicapped mirrors, etc. All toilet accessories are to be mounted in accordance with ABA/ ADA criteria unless the latrine is to be operated by only able bodied personnel. Latrines operated by able bodied personnel shall not be required to meet ABA/ ADA requirements.

9) Inside Storage

The room may contain cleaning supplies, mops, a mop rack, mop bucket and a mop sink. Space is not normally ballistic resistant construction.

10) Outside Storage

The Outside Storage function will house equipment used within the ID Check and Search Area. Equipment may include traffic cones, and mirrors used for vehicle inspection. The building can be a pre-fabricated storage unit or stick built construction. The building may be located on a raised curb under the ID Check Canopy. The function does not require ballistic protection.

11) Electrical/ Communications Room

Electrical/ Communications room shall be sized to accommodate all required equipment. This functional space houses communications equipment, telephone equipment, along with space for CCTV equipment racks, and back-up generator equipment, used in the operation of the access control point. Equipment shall be arranged in the facility to maintain individual security and access. Equipment shall be located in secure areas within the facility. Some space may require separate entrances. This functional space also includes mechanical equipment necessary to heat and/or cool the equipment.

12) Pedestrian ID Check

The Pedestrian ID Check area occupied by guard personnel shall be ballistic rated. Pedestrian ID Check can be pre-manufactured or stick built construction. The Pedestrian ID Check area occupied exclusively by guard personnel is not required to be ABA/ ADA compliant, however any area utilized by pedestrians during the vetting process shall be ABA/ ADA compliant. A Pedestrian ID Check functional area with no pedestrian pass-through shall have a single door with a counter. The counter will include a deal tray for the passage of identification, and a speaking port to allow communication between the guard and persons wishing to enter the installation.

13) Miscellaneous Functional Elements

The following items may be included:

(a) Janitor

The space contains cleaning supplies, mops, a mop rack, mop bucket and a mop sink. The space does not require a ballistic rating may be located in a blast resistant building.

(b) Recycle

The space contains bins for recycled materials. The space does not require a ballistic rating may be located in a blast resistant building.

(c) Standalone Storage Building

The facility will house equipment used at the I.D. Check Canopy such as cones, and vehicle inspection mirrors. The facility does not require ballistic or blast protection.

14) Overwatch Position

(a) Overwatch Building

Ballistic resistant Overwatch building installed near the active barrier and providing occupant(s) the ability to oversee response zone traffic and operations at the ID Check Area. The Overwatch building may be a pre-manufactured unit or stick built. The Overwatch building is not ABA/ ADA compliant. The Overwatch building is a fighting position and shall be equipped with gunports to allow for the occupant to respond to inbound threats. Overwatch building shall have a 360 degree field of view.

(b) Overwatch Pad

A paved pad designed to accommodate at a minimum one High-Mobility Multipurpose Wheeled Vehicle (HMMWV). This pad includes a pedestal for AVB controls.

D. COMBINATIONS/SQUARE FOOT LIMITATIONS FOR VARIOUS FUNCTIONAL AREAS

The following represent standard designs for both functional areas and combinations of functional areas. Square footage limitations for these designs are listed below.

1) Gatehouse - 940 Square Feet Maximum. Includes Command and Control, Latrine, Inside Storage, Outside Storage, Mechanical/ Electrical room and Communications room.

2) Command and Control - 530 Square Feet Maximum. The Command and Control functional area is limited to 530 Square Feet when combined with other functional areas.

3) Standalone Storage Building – 50 Square Feet Maximum.

4) Standalone Electrical/ Communications Equipment Building - 530 Square Feet Maximum. Includes Communications and Electrical room.

5) Latrine – Unisex Handicapped Toilet 110 Square Feet Maximum

   Single Sex Handicapped Toilets 220 Square Feet Maximum

6) Gatehouse without Outside Storage – 910 Square Feet Maximum. Includes Command and Control, Latrine, Inside Storage, Mechanical/ Electrical room and Communications room.

7) ID Check Guard Booth– 40 Square Feet Maximum

8) Pedestrian ID Check – 140 Square Feet Maximum

9) Search Function / Bus Shelter – 75 Square Foot Maximum.

10) Small Search Building – 660 Square Feet. Includes Office, Break Room, Latrine, Inside Storage, Mechanical/Electrical room and Communications, and Outside Storage.

11) Large Search Building – 1,200 Square Foot Maximum. Includes Processing, Waiting, Provost Marshal, Break Room, Latrine, and Inside Storage, Mechanical/Electrical room and Communications, Outside Storage.

12) Overwatch Building – 36 Square Feet Maximum.

13) Overwatch Functional Area when combined with Command and Control – 230 Square Feet Maximum. Square footage only includes the overwatch functional area of the combined facility.

14) ID Check Canopy – Varies with the number of lanes.

15) Passenger Vehicle Search Area Canopy or Enclosed Facility – Varies with the number of lanes and configuration.

16) Truck Search Area Canopy or Enclosed Facility – Varies with the number of lanes and configuration.

17) Two (2) Processor Visitor Control Center – 900 Square Feet Maximum.

18) Three (3) Processor Visitor Control Center – 2,480 Square Feet Maximum.

19) Six (6) Processor Visitor Control Center - 2,960 Square Feet Maximum.

20) Nine (9) Processor Visitor Control Center – 3,440 Square Feet Maximum.

3.3 SITE FUNCTIONAL REQUIREMENTS

3.3.1 General

1) Location and construction of the new facilities including associated structures, roads, parking, and utilities and landscaping shall be as indicated and as specified herein. All site layout changes are subject to review and approval by the Government. Government supplied site plans are provided to assist the Contractor in the preparation of their proposal and design. Any errors identified shall be brought to the attention of the Contracting Officer immediately for resolution and direction. Take all

professionally prudent and reasonable actions to verify the accuracy of the data provided. The Contractor is responsible for final site plans.

2) Installation Physical Security and Antiterrorism requirements that are in addition to the requirements of this section will be included in a separate document. [RFP Wizard: See Paragraph 6 for any additional security requirements required by the installation Physical Security and Antiterrorism including the requirements in this section.]

3) Visitor Control Center

   (a) The Visitor Control Center (VCC), if present, shall be placed such that the processing of visitors is done prior to entry into the Installation. This shall mean that the visitor vetting is conducted prior to inbound traffic (vehicular and pedestrian) reaching the ID check and search area.

   (b) The VCC parking and driveway shall not provide undetected bypass of the ID check area.

4) ID Check Area

   (a) The ID check area shall be configured in a manner that allows ID check guards to be aware of all inbound vehicle and pedestrian traffic.

5) Overwatch Position

   (a) The overwatch position is both a location for overwatch and a potential fighting position. As such it shall be located in a position where a guard within the structure has some ability to defend the Installation from a potential threat in the ACP response zone.

   (b) Overwatch firing ports will be oriented to allow guards to fire from all sides of the position. Specific consideration will be given to the most likely threat locations. This shall include the response zone near the final denial active vehicle barriers.

6) Search Area

   (a) Search area(s) shall present the opportunity for vehicles to be designated for search prior to the ID check and must also support search for those vehicles selected for search at the ID check location.

   (b) The search area must not provide opportunity for undetected bypass of the ID check area. The design will not be based on the search area being in operation during the entire time that the ACP is open. During closure the design must anticipate search area being unmanned at times and vehicle resistant measures and/or alarm and annunciation provided for ID check guards if a vehicle travels through toward the search area when it is closed.

3.3.2 Parking

1) Vehicle Parking

   (a) Provide clear and convenient traffic flow through and around the ACP parking areas and access drives that maximizes functional capabilities but minimizes traffic conflicts. If required coordinate inter-modal traffic within the ACP site.

   (b) Provide sufficient parking spaces for the anticipated number of visitors and personnel at the ACP. See Military Surface Deployment and Distribution Command, Transportation Engineering Agency (SDDCTEA) Pamphlet 55-15 for the methodology to be used in determining the number of visitor parking spaces required. Provide ramps serving the handicapped spaces for access.

   (c) Privately Owned Vehicle (POV) parking is to be off-street parking. Area lighting and landscaping is to reinforce the parking area while meeting functional and safety requirements. Pavement markings are to be in compliance with MUTCD. [RFP Wizard: Minimum flexible and concrete pavement thickness and pavement calculations are indicated in paragraph 5.2.3.]

3.3.3 Access Roadways, Drives and Islands

1) Roadways and Access Drives: Design roadways to accommodate expected vehicles in the design, including, but are not limited to: passenger cars, emergency vehicles, garbage trucks, fire trucks, military vehicles, delivery service, utility vehicles, commercial vehicles and bicycles if present. The

minimum roadway width in the approach and response zones is 11 feet. The minimum roadway width at the ID Check Area is 10 feet, but 11-12 feet is preferred. All roadway horizontal and vertical alignments must properly address the turning radius of the design vehicle(s). Pavement design shall follow the UFC or other approved methods. Host nation methods for determining concrete pavement section may be utilized where present. If no such documentation exists, the aforementioned minimum applies. [RFP Wizard: Minimum flexible and concrete pavement thickness and pavement calculations are indicated in paragraph 5.2.3.]

2) Devices in Pavements: Devices installed in the roadway surface will be rated for exterior use and will be installed in a manner which resists or avoids impact by snowplows. Housings for such devices will be metal capable of resisting corrosion. Recess devices where necessary to avoid snow plow impact.

3) ID Check Area Islands: Traffic islands in the ID Check Area are to be, at a minimum, 10 feet in width. Medians at the ID Check Area shall be a minimum of 10 feet in width.

4) ID Check Area Hardstand: ID Check Area will consist of a concrete hardstand extending a minimum of 3 feet before and after the ID Check Islands and canopy.

3.4 SITE AND LANDSCAPE REQUIREMENTS

3.4.1 Site Structures

1) Dumpsters: Dumpsters are not a requirement of the Army Standard Design, but maybe incorporated at the request of the installation.

   (a) Provide concrete pads and dumpster screen wall enclosure. Ensure minimum UFC 4-010-02 "DoD Minimum Antiterrorism Standoff Distances for Buildings" between the building and dumpster location is complied with. Construct the screen wall enclosures of materials to match the new facility exterior walls. Coordinate color with the installation. Integrate a gate keeper capable of holding the entry gate(s) in an open position and a locking mechanism into the entry gate design consistent with DA fence requirements.

   (b) Coordinate with the Installation on the required recycling dumpsters (or storage containers). Collocate, but separate recycling dumpsters (or containers) with the dumpsters and screened as per dumpsters.

3.4.2 Landscaping/Hardscaping

1) Landscaping:

   (a) Lines-of-Sight

   - Landscaping shall not obscure lines of sight. Lines-of-sight shall be determined by the mature growth of trees and other plantings. Provide clear lines of sight between guards and the following functions:

   - Vehicle ID Check Guard Booth guards view of vehicle and driver during the vetting process will not be observed.

   - Pedestrian ID Check guards view of pedestrian being processed will not be observed.

   - Overwatch position view of ID Check Area.

   - Command and Control view of ID Check and Search Area exits.

   - Landscaping shall not infringe on sight distance for drivers. Sight distance shall bas defined in the AASTHTO Green Book (or applicable host nation criteria). If the specific issue of sight distance is not addressed by host nation criteria the AASHTO documentation shall be utilized.

(b) Make selection of landscape materials from among species well adapted to the region and shall consider maintenance requirements. Focus landscaping concepts on desirable environmental effects such as windbreaks, shade, and screening of undesirable views and definition of desirable enclosed areas.

(c) The landscaping plan is also to consider the irrigation requirements. Ideally, the selected species are to be native and drought resistant such that a permanent irrigation system is not required. In the event that a permanent irrigation system is required, include as a minimum, a backflow prevention and pop-up or drip type sprinkler heads.

2) Sidewalks: Provide an ample functional system of walks connecting structures, parking area(s), street(s), and other sidewalk(s) as pedestrian traffic demands. In addition, review paths of travel to determine a layout of sidewalks that is sufficient to meet the likely paths of travel. Slopes of all sidewalks are required to meet all requirements for ADA Accessibility Guidelines (ADAAG). Pedestrian sidewalks are to be a minimum of 6 feet wide and 10 feet wide for those anticipated to have bidirectional bicycle traffic. Construct pedestrian sidewalks of Portland Cement Concrete having a minimum 3,000 psi compressive strength. Conformance with Architectural Barriers Act (ABA) is also required. Host Nation methods for determination of concrete section and strength may be utilized.

3.4.3 Site Design Requirements

For all site design requirements, excluding line-of-sight requirements, Host nation criteria may be used in lieu of the contents of this section. Use the requirements described in this section, if host nation criteria does not specifically address any of the features described herein.

1) Grading:

(a) Provide positive drainage for all areas and use existing drainage ways to the extent possible. It is desirable to direct drainage away from buildings to curb and gutter or road ditches. Avoid swales between buildings and parking areas, if possible. Grade parking areas such that storm water is directed off to the sides, with curbs and gutters to control drainage, and not down the center of the parking area, where possible. Balance earthwork to the extent possible without compromising the design. Keep the number of existing trees to be removed to a minimum. No grading is to be done within drip lines of existing trees to be preserved.

(b) Design grading such that visual lines of sight are maintained throughout the ACP corridor between the major functional areas (Gatehouse, active vehicle barriers, Guard Booths, Search Area Building, Visitor Control Center, Vehicle Search Area, ID Check Area, etc.).

(c) Comply with AASHTO Green book for vertical roadway profiles.

2) Line of Sight: Individual obstructions, to include canopy columns, shall not cause more than 11 degree interruption of line of sight of the inbound lanes (in both directions – both upstream and downstream) from vehicle ID Check guard booths and other routinely occupied vehicle ID Check guard locations.

3) Adjustment of Existing Structures: Adjust all manholes, valve boxes, or inlets of any nature within the project that do not conform to the finished grade in either surfaced or unsurfaced areas to the finished grade. Where inlets, manholes, or valve boxes fall within a surfaced or unpaved roadway or parking, remove the existing frames and cover and replace with a heavy-duty frame and cover. Adjust the structure as needed to fit the new conditions. Provide structures of a type suitable for the intended use and conforming to the requirements of the applicable sections herein.

4) Sidewalks: Provide concrete sidewalks with a transverse grade of 2 percent. The maximum longitudinal sidewalk grade adjacent to the roadway shall be less than or equal to the adjacent roadway grade. Sidewalks without railings shall have a maximum grade not to exceed 5 percent. Sidewalks with handrails and landing shall have a maximum slope of 8.333 percent (1V:12H) slope with 5 feet level landings at 30 feet maximum spacing and at the top and bottom of the slope. See Uniform Federal Accessibility Standards for additional requirements.

5) Stairs: Avoid the use of stairs in sidewalks whenever possible, this is especially important throughout the ACP. When stairs are unavoidable, they should have at least three risers and shall be provided with

handrails. Provide all steps within a stair to have a uniform tread width and riser height. Provide risers with a height of 4.5 to 6 inches and treads with a width of 12 to 17 inches. Treads should slope 2 percent for positive drainage. Keep the height between landings to a maximum of 5 feet to allow a view of the next higher landing whenever possible. The height between landings is not to exceed 12 feet. Provide landings that are at least 4 feet long.

6) Transverse Parking Area Grades:

   (a) Desirable minimum of 2 percent.

   (b) Absolute minimum of 1.5 percent for flexible pavement and 1 percent for rigid pavement.

7) Longitudinal Parking Area Grades: Maximum of 5 percent.

8) Road and Street Longitudinal Grades: Preferred maximum longitudinal road and street grades of 5 percent. Use of longitudinal road and street grades greater than 7 percent shall not be used.

9) Ramp Grades:

   (a) Desirable maximum of 7 percent.

   (b) Absolute maximum of 10 percent for short distances only.

10) Gutter Grades:

   (a) Desirable minimum of 0.8 percent.

   (b) Absolute minimum of 0.5 percent.

11) Building Floor Elevation: Set building finished floor elevation to ensure that the required minimum and maximum grades are met. Construct first floor of new buildings a minimum of 1 foot above the 100-year flood plain elevation, if applicable.

12) Grades Away From Building:

   (a) Minimum Soil Grade: 5 percent for 10 feet.

   (b) Maximum Soil Grade: 10 percent for 10 feet.

   (c) Sidewalk or Paved Grade: Preferred is 2 percent, maximum is 4 percent and this shall be subject to approval by the Contracting Officer. This is especially important where sidewalks transition between the buildings and adjacent roadways or drives that have vehicle traffic.

13) Overlot Grades:

   (a) Minimum 1 percent for cohesionless sandy soils.

   (b) Minimum 2 percent for cohesive soils or turfed areas.

   (c) Side slopes for ditches, roads, and other turfed areas shall be no steeper than 3 Horizontal to 1 Vertical (3H:1V), preferred is 4 Horizontal to 1 Vertical (4H:1V). A 10-foot wide shelf shall be constructed every 15 feet in elevation change on all cut and fill slopes. Retaining walls are an option to limit the amount of cut and fill.

14) Ditches: Grade ditches at non-erodible slopes or line the ditch with an appropriate material to prevent erosion. Use a design storm with a return period of at least 10 years to determine erodibility of ditches and swales. Provide the depth of ditches along pavement shoulders such that the water surface from the 10 year design storm is below pavement subbase and base courses which daylight through the adjacent shoulder.

15) Storm Drainage System: Comply with host nation requirements for storm drainage requirements. If no applicable host nation requirement exists, comply with UFCs requirements**.** Comply with the appropriate UFCs requirements for design, construction and material specified for storm drainage installation. State's DOT requirements maybe used with Government approval. Use reinforced concrete pipe (RCP) with watertight joints for all storm drainage lines constructed under road, parking

area and or surfaces subject to vehicular traffic. [RFP Wizard: See Paragraph 6 for additional storm drainage system requirements.]

16) Canopy Stormwater Drainage System: All drainage from canopy roofs shall be collected and either discharged into a storm drain system or onto non-paved areas with positive drainage. Roof drainage shall not be discharged onto islands, pavements, sidewalks, or any other areas that people or vehicles regularly access.

17) Building Stormwater Drainage System: Stormwater from building roofs shall be collected and will be either discharged into a subsurface stormwater drainage system or onto non-paved areas in areas unlikely to be accessed by guard personnel or pedestirans. Provide positive slope away from facilities, roadways, sidewalks and other areas that may be accessed by pedestrians or vehicles.

18) Asphalt Pavement: Provide asphalt aprons, roads and parking areas per project requirements. Construct the asphalt areas with concrete curb and gutter at the project specific locations.

19) Concrete Pavement: Provide concrete pavement per project specific. Construct the concrete pavement with the curb type at project specific locations, minimum 6 inches high,.

20) Traffic Signage, Pavement Markings and Striping: Provide traffic signage, pavement marking and striping for all roads and parking areas. Design signage, pavement markings and striping in accordance with Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways. Provide retro-reflectorized signs according to the minimum requirements of ASTM D 4956-07e1, Type III sheeting. Provide non-reflectorized paint for parking areas. Stripe roads and streets with reflectorized paint.

21) Exterior Signage: [To be in accordance with installation requirements] **[RFP Wizard:** See Appendix H Exterior Signage for exterior signage requirements.]

3.4.4 Minimum Anti-terrorism Standards for ACP Buildings

1) General

ACP structures shall be sited, designed and constructed in accordance with the minimum requirements of UFC 4-010-01, "DoD Minimum Antiterrorism Standards for Buildings". Facilities which are, by occupancy, considered "inhabited structures", per the criteria, which cannot be sited to meet conventional construction standoff distance requirements from threats, shall be designed as hardened facilities.

2) Standoff

Shall be in accordance with UFC 4-010-01 "Minimum Antiterrorism Standards for Buildings."

Standoff shall consider a moving vehicle threat scenario within the ACP corridor.

The element of UFC 4-010-01 that has the most significant impact on project planning is providing protection against explosives effects. That protection can either be achieved using conventional construction (including specific window requirements) in conjunction with establishing relatively large standoff distances to parking, roadways, and installation perimeters or through building hardening, which will allow lesser standoff distances. Even with the latter, the minimum standoff distances cannot be encroached upon. These setbacks will establish the maximum buildable area. All standards in Appendix B of UFC 4-010-01 must be followed. In addition to the UFC cited in this paragraph UFC 4-020-02FA, (2005) "Security Engineering: Concept Design"; UFC 4-020-03FA, (2005) "Security Engineering: Final Design"; UFC 4-020-04FA, (2005) "Electronic Security Systems: Security Engineering"; and UFC 4-021-01 "Design and O&M Mass Notification Systems" apply to the facility.

3) Visitor Control Center (VCC) and Multi-Function Building Combination

VCC Standard design facilities and multi-function building combinations where occupancy level is greater than 11 persons may necessitate compliance with UFC 4-010-01 depending on site placement of these facilities.

3.5 ARCHITECTURAL REQUIREMENTS:

3.5.1 Architectural Functional Requirements

The requirements below include both separate functional requirements and example combination of functional requirements, where identified.

1) Two (2) Processor Visitor Control Center (When Applicable)

The Visitor Control Center contains an entry vestibule, waiting and processing area, latrine, break room, mechanical/ electrical room, and communications. Visitor Control Center shall have occupancy under 11 persons and shall be considered an unoccupied facility, and is not required to have blast resistant construction. The facility is non-ballistic rated construction.

(a) Waiting and Processing: The space will have seating for visitors. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(b) Vestibule: Provide exterior and interior vestibule doors with panic hardware.

(c) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(d) Break Room: Provide passage latchset. Provide STC 45 sound rated walls. Break room will function as a space to conduct interviews of individuals by a provost marshal. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(e) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(f) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

2) Three (3) Processor Visitor Control Center (When Applicable)

The Visitor Control Center contains entry vestibules, waiting, and processing area on a raised flooring system, unisex latrines, break room, janitor closet, office, provost marshal room, mechanical/ electrical room, and communications. The facility is non-ballistic rated construction, but may require blast rated construction based on stand-off distance (for hardened structures).

(a) Waiting: The space will have seating for visitors.

(b) Processing Area: Raised flooring with stair and ramp access. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(c) Vestibules: Provide exterior and interior vestibule doors with panic hardware. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(d) Unisex Latrines: Provide privacy lockset. Provide STC 45 sound rated walls.

(e) Break Room: Provide latchset. Provides 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(f) Office: Provide office lockset. Provide STC 45 sound rated walls.

(g) Provost Marshal Room: Provide office lockset on interior door. Provide STC 45 sound rated walls. Separate exterior door will be provided to allow the removal of arrested individuals, exterior door to have no exterior trim.

(h) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(i) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

3) Six (6) Processor Visitor Control Center (When Applicable)

The Visitor Control Center contains entry vestibules, waiting, and processing area on a raised flooring system, latrines, break room, janitor closet, office, provost marshal, mechanical/ electrical room, and communications. The facility is non- ballistic rated construction, but may require blast rated construction based on stand-off distance (for hardened structures).

(a) Waiting: The space will have seating for visitors.

(b) Processing Area: Raised flooring with stair and ramp access. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(c) Vestibule: Provide exterior and interior vestibule doors with panic hardware.

(d) Latrines: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(e) Break Room: Provide latchset. Provide STC 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(f) Office: Provide office lockset. Provide STC 45 sound rated walls.

(g) Provost Marshal Room: Provided room office lockset on interior door. Provided room STC 45 sound rated walls. Separate exterior door to allow the removal of arrested individuals, exterior door to have no exterior trim.

(h) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation). No ballistic protection required.

(i) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

4) Nine (9) Processor Visitor Control Center (When Applicable)

The Visitor Control Center contains entry vestibules, waiting and processing area on a raised flooring system, men's and women's latrines, break room, janitor closet, storage, recycling, provost marshal, office, mechanical/ electrical room, and communications. The facility is non-ballistic rated construction, but may require blast rated construction based on stand-off distance (for hardened structures).

(a) Waiting: The space will have seating for visitors.

(b) Processing Area: Raised flooring with stair and ramp access. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(c) Vestibules: Provide exterior and interior vestibule doors with panic hardware.

(d) Latrines: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(e) Break Room: Provide latchset. Provide STC 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(f) Office: Provide office lockset. Provide STC 45 sound rated walls.

(g) Provost Marshal Room: Provide office lockset on interior door. Provide STC 45 sound rated walls. No ballistic protection required. Separate exterior door to allow the removal of arrested individuals, exterior door with no exterior trim.

(h) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(i) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

5) ID Check Canopy

The ID Check Canopy will be a metal framed roof structure supported by column that covers the islands and entry lanes of the ID Check Area. It is desirable to clad the structural members and provide soffits to the underside of the structure to prevent birds from nesting on the exposed legs of the steel beam flanges.

6) Vehicle ID Check Guard Booth

(a) Ballistic rated construction. Provide 360-degree field of view. Provide two sliding ballistic rated doors with hardware. Provide 32-inch deep stainless steel countertop. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

7) Search Function Bus Shelter (When Applicable)

The three or four sided glass and aluminum pre-manufactured bus shelter will have a wood or metal bench and doors where needed. Bus shelter size may vary with search area traffic volume and manufacturer provided. Glazing shall be clear to allow guards to maintain visual contact with persons whose vehicle is being inspected. Ballistic rated construction is not required.

8) Small Search Area Building(s) (When Applicable)

The Small Search Area Building(s) will be located adjacent to the Vehicle Search Area(s) to support the Search Area guards in performing their activities by providing a space for vehicle occupants to go during the vehicle inspection process. The building will be designed and constructed to be Architectural Barriers Act (ABA) and Americans with Disabilities Act (ADA) Accessibility Guidelines compliance. The facility will have an office, break room, latrine, inside storage, outside storage, mechanical/ electrical room, and communications spaces. Ballistic rated construction is not required.

(a) Office: Door with entry door hardware.

(b) Break room: Provide latchset and pre-manufactured kitchenette (unit kitchen) to include microwave.

(c) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(d) Interior Storage: Provide standard utility space lockset.

(e) Communications Room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(f) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

(g) Outside Storage: Provide entry door with locksets.

9) Large Search Area Building (When Applicable)

The Large Search Area Building is located adjacent to the Vehicle Search Area to support the Search Area guards in performing their activities by providing a space for vehicle occupants to go during the vehicle inspection process. The building will be designed and constructed to be Architectural Barriers Act ABA and Americans with Disabilities Act (ADA) Accessibility Guidelines compliant. At OCONUS locations host nation accessibility criteria may be utilized in lieu of ABA/ADA requirements. If no host nation criteria exists the project will comply with ABA/ADA. The facility will have space for an optional X- Ray machine and metal detector room, Provost Marshal Room, office, latrine, visitor processing, break room, outside storage, mechanical/electrical room, and Communications room. Ballistic rated construction is not required for this facility.

(a) Optional X- Ray/ Metal Detector: Provide a pair of doors with panic hardware on active leaf and lever action flush bolts on inactive leaf.

(b) Office: Provide interior with office lockset, exterior doors to have entry door lockset.

(c) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(d) Visit Processing: Two (2) processors with office door with office lockset.

(e) Break Room: Break room with latchset and pre-manufactured kitchenette (unit kitchen) to include microwave.

(f) Outside Storage: Provide entry door with utility room lockset.

(g) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(h) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

10) Truck Search Area Canopy (When Applicable)

Canopy: The Truck Search Canopy will be a metal framed structure that covers the Truck Search Area. The roof of the canopy can be in any configuration, gable, hipped, flat; single sloped, or curved and should be in accordance with the Center of Standardization (COS) drawings, Army Standard Design and Installation Design Guide (IDG). The canopy structure shall be designed by a registered Professional Engineer. Screening of search operations from casual observation should be considered. The structure may include screen walls as part of the canopy design.

Enclosed Facility: The Truck Search Enclosed Facility will be a structure that encloses the Truck Search Area. The roof of the facility can be any configuration that conforms to the Installation Design Guide. The facility design should conform to the Army Standard Design and Center of Standardization (COS) drawings. This facility shall be designed by a registered Professional Engineer. The Enclosed Facility may not require additional measure to screen from casual observation; however, it should still be considered during planning and design.

11) Passenger Vehicle Search Area Canopy (When Applicable)

Canopy: The Passenger Vehicle Search Canopy will be a metal framed structure that covers the Passenger Vehicle
Search Area. The roof of the canopy can be in any configuration, gable, hipped, flat; single sloped, or curved and should be in accordance with the Center of Standardization (COS) drawings, Army Standard Design and Installation Design Guide (IDG). The canopy structure shall be designed by a registered professional engineer. Screening of search operations from casual observation should be considered. The building may include screen wall(s) as part of the canopy design.

Enclosed Facility: The Passenger Vehicle Search Enclosed Facility will be structure that encloses the Passenger Vehicle Search Area. The roof of this facility can be of any configuration that conforms to the Installation Design Guide. The facility design should conform to the Army Standard Design and Center of Standardization (COS) drawings. This facility shall be designed by a registered Professional Engineer. The Enclosed Facility may not require additional measure to screen from casual observation; however, it should still be considered during planning and design.

12) Command and Control

The Command and Control functional area will enable guards oversight of the ID Check and Search Areas, and will contain the master controls to activate the AVB in the event of an unauthorized vehicle tries to penetrate the ACP. The facility must have a 180 degree un-obstructed view Areas not directly observable from the Command and Control can be monitored by closed circuit television (CCTV). Due to the function of the building, the public will not be allowed to enter therefore the facility is not required to be ABA/ ADA compliant. The building may contain a latrine, inside storage, and mechanical, electrical room and

communications room. All areas shall be ballistic rated. Roof requires ballistic rating only where direct fire threat is possible from an elevated position. The facility is not required to be blast resistant.

(a) Combination Facilities may include the following functional requirements:

- Latrine (When required): Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

- Interior Storage: Provide standard utility space lockset.

- Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

13) Latrines:

Latrines can be single unisex units or twin single sex units combined in a single building. The latrines when required to be ABA/ ADA accessible shall be handicapped accessible with grab bars, tilted handicapped mirrors, etc. All toilet accessories are to be mounted in accordance with ABA/ ADA criteria. At OCONUS locations host nation accessibility criteria may be utilized in lieu of ABA/ADA requirements. If no host nation criteria exists the project will comply with ABA/ADA. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(a) Provide privacy lockset.

(b) No ballistic protection required.

14) Standalone Storage

The Standalone Storage will house equipment used within the ID Check and Search Areas. Equipment may include traffic cones, and mirrors used in vehicle inspection. The building can be a pre-fabricated storage unit or stick built construction. The building can be located on an island under the ID Check Canopy if the required field of view is maintained.

(a) Provide utility lockset. No ballistic or blast protection is required.

15) Communications with Mechanical/ Electrical Equipment Building (Separate Building)

The facility will house electrical and Communications equipment. The mechanical and electrical equipment area will house heating and cooling equipment for the building. The building will contain CCTV equipment racks, Duress, AVB, AIE, IDS and other electrical equipment necessary for the operation of the ACP.

(a) Communications: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation). No ballistic or blast protection is required.

(b) Mechanical room: If required, provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation). No ballistic or blast protection is required.

(c) Electrical room: If required, provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation). No ballistic or blast protection is required.

16) Pedestrian ID Check (When Applicable)

Ballistic rated construction. Provide 360-degree field of view. Provide sliding ballistic rated doors and hardware. Provide a countertop. Countertop to have deal tray for passing identification cards. Provide a ballistic rated speaking portal. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

17) Overwatch Building

The Overwatch Building will be a pre-manufactured or stick built unit. Overwatch shall have a single door and a counter.

Ballistic rated construction for walls and windows. Provide, at a minimum, 180-degree field of view. Provide single ballistic rated door with hardware. Gun ports to be provided on all sides of the building. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

18) Gatehouse #1 (Example Combination, See drawing on Sheet No. A-100G1)

Gatehouse shall be located to allow guard to observe and oversee the Identification (ID) Check Area and the exits from search areas and must have a 180 degree un-obstructed view. Through closed circuit television (CCTV) the Command and Control function of the Gatehouse can monitor the entire operation of the ACP. A control panel for the Active Vehicle Barrier (AVB) will be located in the Command and Control section of the building. The Gatehouse will be located on a raised island immediately after the last turn-around past the ID Check Canopy. Due to the function of the building the public will not be allowed to enter the building so therefore the facility will not be required to be ABA/ ADA compliant. Spaces occupied by personnel shall be ballistic rated. Roof requires ballistic rating only where direct fire threat is possible from an elevated position. The facility is not designed to be blast resistant. The building will contain a command and control function, latrine, inside storage, outside storage, mechanical/ electrical room, and Communications room. A Break Room that provides personal storage may replace, or be combined with, inside storage or replace outside storage depending on user requirements. Also consider the addition of a kitchenette, especially when the gatehouse is located in a remote area.

(a) Command and Control function: Provide ballistic resistant walls, windows and exterior doors with front door locksets.

(b) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(c) Interior Storage: Provide standard utility space lockset.

(d) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(e) Outside Storage: Provide entry door with locksets.

(f) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

19) Gatehouse without Outside Storage (Example Combination , See drawing on Sheet No. A-100G2)

Gatehouse shall be located to allow Gatehouse personnel to observe and oversee the Identification (ID) Check Area and the exits from search areas and must have a 180 degree un-obstructed view. Through closed circuit television (CCTV) the personnel in the Gatehouse can monitor the entire operation of the ACP. A control panel for the Active Vehicle Barrier (AVB) will be located in the Command and Control section of the building. The Gatehouse needs to be located on a raised island immediately after the last turn-around past the ID Check Canopy. Due to the function of the building the public will not be allowed to enter the building so therefore the facility will not be required to be ABA/ ADA compliant. The building will contain a command and control function, latrine, inside storage, mechanical/ electrical room, and Communications room. The Command and Control Functional Area will be protected with bullet resistant construction. Roof requires ballistic rating only where direct fire threat is possible from an elevated position. . A Break Room that provides personal storage may replace, or be combined with, inside storage depending on user requirements. Also consider the addition of a kitchenette, especially when the gatehouse is located in a remote area.

(a) Command and Control function: Provide ballistic resistant walls, windows and exterior doors with locksets.

(b) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(c) Interior Storage: Provide standard utility space lockset.

(d) Mechanical/ Electrical room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

(e) Communications room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

20) Command and Control with Search and Mechanical/ Electrical (Example Combination, See drawing on Sheet No. A-100CS)

The Command and Control function will enable guard oversight of the activities of the ID Check and Search Areas, and contain the master controls to activate the Active Vehicle Barrier (AVB). The Command and Control can monitor the operations of the Search Area including the Truck Search Canopy/Enclosed Facility and the Passenger Vehicle Search Canopy/ Enclosed Facility, through the use of closed circuit television (CCTV). The Enclosed Search Area Facility (when utilized) will include additional CCTV to mitigate the loss of direct line of sight from other areas within the ACP Control Zone. The Command and Control requires a 180 degree field of view. The building also houses, a Search Area function which provides weather protection for persons having their vehicles inspected, and Mechanical/ Electrical room. The Command and Control will have a bullet resistant observation window between itself and the Search Area to observe persons having their vehicle inspected. **All interaction between Command and Control and non-ACP personnel shall include ballistic rated protection (e.g. Intercom, Pass Through Drawers, etc.).** Command and Control will be protected with ballistic rated construction. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

(a) Command and Control function: Provide ballistic resistant walls, windows and exterior doors with front door locksets.

(b) Search Function: Provide entry door lockset.

(c) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

(d) Communications room: Provide entry doors with locksets (coordinated keying with installation groups responsible for maintenance and operation).

21) Command and Control with Visitor Control Center (Example Combination, See drawing on Sheet No. A-100CV)

The Command and Control function will enable guard oversight of the activities of the ID Check and Search Areas, and contain the master controls to activate the Active Vehicle Barrier (AVB). The Command and Control can monitor the operations of the Search Area including the Truck Search Canopy/Enclosed Facility and the Passenger Vehicle Search Canopy/ Enclosed Facility, through the use of closed circuit television (CCTV). The Enclosed Search Area Facility (when utilized) will include additional CCTV to mitigate the loss of direct line of sight from other areas within the ACP Control Zone. The Command and Control requires a 180 degree field of view. The building also houses, a Search Area function which provides weather protection for persons having their vehicles inspected, and Mechanical/ Electrical room. The Command and Control will have a bullet resistant observation window between itself and the Search Area to observe persons having their vehicle inspected. **All interaction between Command and Control and non-ACP personnel shall include ballistic rated protection (e.g. Intercom, Pass Through Drawers, etc.).** Command and Control will be protected with ballistic rated construction. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

(a) Command and Control function: Provide ballistic resistant walls, windows and exterior doors with locksets.

(b) Waiting and Processing: The space will have seating for visitors. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(c) Vestibule: Provide exterior and interior vestibule doors with panic hardware.

(d) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(e) Break Room: Provide passage lockset. Provide STC 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(f) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation). Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

22) Visitor Control with Search Function (Example Combination, See drawing on Sheet No. A-100VS)

The Visitor Control Center contains an entry vestibule, waiting area with additional space for containing persons who are having their vehicles inspected, processing area (two (2) processors), latrine, break room, mechanical/ electrical room, and Communications. Visitor Control Center shall have occupancy under 11 persons and shall be considered an unoccupied facility, and is not required to have blast resistant construction.

(a) Vestibule: Provide exterior and interior vestibule doors with panic hardware.

(b) Waiting and Processing: The space will have seating for visitors. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(c) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(d) Break Room: Provide latchset. Provide STC 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(e) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

(f) Communications: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

23) Command and Control with Search, Pedestrian ID Check (Entrapment Area) , and Mechanical/ Electrical room (Example Combination, See drawing on Sheet No. A-100CSP)

The Command and Control function will enable guard oversight of the activities of the ID Check and Search Areas, and contain the master controls to activate the Active Vehicle Barrier (AVB). The Command and Control can monitor the operations of the Search Area including the Truck Search Canopy/Enclosed Facility and the Passenger Vehicle Search Canopy/ Enclosed Facility, through the use of closed circuit television (CCTV). The Enclosed Search Area Facility (when utilized) will include additional CCTV to mitigate the loss of direct line of sight from other areas within the ACP Control Zone. The Command and Control requires a 180 degree field of view. The building also houses, a Search Area function which provides weather protection for persons having their vehicles inspected, and Mechanical/ Electrical room. The Command and Control will have a bullet resistant observation window between itself and the Search Area to observe persons having their vehicle inspected. **All interaction between Command and Control and non-ACP personnel shall include ballistic rated protection (e.g. Intercom, Pass Through Drawers, etc.).** Command and Control will be protected with ballistic rated construction. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

(a) Command and Control function: Provide ballistic resistant walls, windows and exterior doors with locksets.

(b) Pedestrian ID Check (Entrapment Area): Provide an entrapment area controlled by Command and Control personnel. Walls between the Pedestrian ID Check (Entrapment Area) and Command and Control will be ballistic rated. Doors will have locksets and electric strikes.

(c) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

24) Command and Control with Pedestrian ID Check and Visitor Control Center (Example Combination, See drawing on Sheet No. A-100PVC)

The Command and Control function will enable guard oversight of the activities of the ID Check and Search Areas, and contain the master controls to activate the Active Vehicle Barrier (AVB). The Command and Control can monitor the operations of the Search Area including the Truck Search Canopy/Enclosed Facility and the Passenger Vehicle Search Canopy/ Enclosed Facility, through the use of closed circuit television (CCTV). The Enclosed Search Area Facility (when utilized) will include additional CCTV to mitigate the loss of direct line of sight from other areas within the ACP Control Zone. The Command and Control requires a 180 degree field of view. The building also houses, a Search Area function which provides weather protection for persons having their vehicles inspected, and Mechanical/ Electrical room. The Command and Control will have a bullet resistant observation window between itself and non-ACP personnel. **All interaction between Command and Control and non-ACP personnel shall include ballistic rated protection (e.g. Intercom, Pass Through Drawers, etc.).** Command and Control will be protected with ballistic rated construction. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

(a) Command and Control function: Provide bullet resistant protection. Provide bullet resistant exterior windows, doors with locksets.

(b) Pedestrian Entrapment Area to have an entrapment area controlled by Command and Control personnel. Wall between the Pedestrian Entrapment Area and Command and Control will be ballistic rated. Doors will have locksets and electric strikes.

(c) Waiting and Processing: The space will have seating for visitors. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(d) Vestibule: Provide exterior and interior vestibule doors with panic hardware.

(e) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(f) Break Room: Provide latchset. Provide STC 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(g) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

(h) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

25) Pedestrian Entrapment Area ID Check and Visitor Control Center (Example Combination, See drawing on Sheet No. A-100PV)

Ballistic resistant Pedestrian ID Check Entrapment Area can be pre-manufactured or stick built construction and will be installed on the end of Visitor Control Center. The pedestrian Entrapment Area is required to be ABA/ ADA compliant. Pedestrian Entrapment Area shall have a single door with a counter. The counter will include a deal tray for the passage of identification, and a speaking port to allow communication between the guard and persons wishing to enter the installation. The Visitor Control Center contains an entry vestibule, waiting and processing area, latrine, break room, mechanical/electrical room, and Communications room. The Visitor Control Center part of the building is non-ballistic rated. The combined facility shall have a routine occupancy of under 11 persons and shall not be considered an inhabited facility for the purposes of UFC 4-010-01. The Visitor Control Center part of this building is therefore, not required to have blast resistant construction.

(a) Pedestrian ID Check: Ballistic rated construction. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

(b) Waiting and Processing: The space will have seating for visitors. The processing area will contain casework for processing operations. Provide plastic laminate casework with solid surface material countertops.

(c) Vestibule: Provide exterior and interior vestibule doors with panic hardware.

(d) Latrine: Provide privacy lockset. Provide STC 45 sound rated walls. Provide a base cabinet with the sink to house equipment such as a water heater and miscellaneous supplies.

(e) Break Room: Provide latchset. Provide STC 45 sound rated walls. Provide a pre-manufactured kitchenette (unit kitchen) to include a microwave. Verify if arms storage or personal lockers are required.

(f) Mechanical/ Electrical room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

(g) Communications room: Provide entry doors with locksets (coordinate keying with installation groups responsible for maintenance and operation).

26) Overwatch Building with Command and Control (Example Combination, See drawing on Sheet No. A-100O)

The Overwatch building can be a pre-manufactured or stick built unit and consistent with the Center of Standardization (COS) drawings and Army Standard design manual and Installation Criteria [RFP Wizard: and Paragraph 6.0 PROJECT SPECIFIC REQUIREMENTS]. Overwatch building shall have a single door and a counter. Due to the function of the building the public will not be allowed to enter the building and the facility will not be ABA/ ADA compliant. See paragraph 17) Overwatch Building for additional requirements. The Command and Control functional area will enable guard oversight of the activities of the ID Check Area and Search Area Canopies, and will contain the controls to activate the AVB. Through closed circuit television (CCTV) the Command and Control can monitor the entire operation of the ACP. The Command and Control shall have a clear 180 degree field of view.

(a) Ballistic rated construction. Provide 360-degree field of view. Provide single swinging ballistic rated door with hardware. Provide 24-inch deep stainless steel counter. Gun ports to be provided on all sides of the building. Roof requires ballistic rating only where direct fire threat is possible from an elevated position.

3.5.2 Finishes and Interior Specialties:

A. GENERAL

1) Provide an exterior appearance massing that is consistent with the Installation's architectural theme.

2) Interior Building Appearance: Provide the facility interior with a warm, comfortable, and professional environment through the appropriate use of building materials, finishes, fabrics, color and texture. Provide materials of high quality, functional, easily maintained, and furnished as described herein. Provide complementary building finishes and details. Finish and fabrics shall provide a completely integrated interior design. Coordinate the interior building appearance with the exterior building appearance.

3) Interior Design Categories: Interior Design is divided into two categories (1) Structural Interior Design (SID) and (2) Furniture, Fixtures and Equipment (FF&E). SID is the design of building related interior finishes and includes the selection and specification of interior and exterior materials, and finishes for the building environment. Items typically considered a part of the building design include but are not limited to: exterior and interior building materials, floor, wall and ceiling finishes, built-in casework, millwork, fixed equipment, trim item, signage, window treatment, etc. Building related items are those materials and finishes that are generally applied or fastened to the building. Furniture related interior design (FF&E) is the design of the interior furniture and includes the selection and specification of these items. Items typically considered part of the furniture package include but are

not limited to: workstations, seating, tables, storage units, trash receptacles, etc. Provide appropriate furniture finishes and fabrics for the intended use. Provide upholstery fabric (color, pattern, and fiber content) that is easily cleaned and helps hide soiling. Patterned or multi-colored fabrics are recommended for seating.

B. FINISHES

The following requirements include both functional and example combinations of functional requirements, where identified. Any reference to installation criteria is to establish materials and finishes consistent with the installation's architectural theme.

1) ID Check Canopy, Passenger Vehicle Search Area Canopy or Enclosed Facility, Truck Search Area Canopy or Enclosed Facility (As Required)

   (a) Painted structural steel framing, soffits and beam covers.

   (b) Painted bollards and screening panels.

2) ID Check Guard Booths:

   (a) Pre-manufactured booth or stick built construction with 3'-0" by 3'-0" anti-fatigue mat. Walls may be painted ballistic resistant wall panels. Inside ceiling height shall be, as a minimum, 7'-2" above finish floor.

3) Search Function/ Bus Shelter (When Applicable)

   (a) Sealed concrete floor slab. Walls shall be pre-manufactured steel or aluminum framing with glass. Ceilings can be solid steel or aluminum or glass per manufacturer's standard. Framing can be clear aluminum, anodized aluminum, or painted in accordance with the Installation criteria.

   (b) Benches can be metal or wood. Wood benches shall have manufacturer's approved sealant/ preservative.

4) Small Search Area Building (When Applicable)

   (a) Office: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor base. Provided painted wallboard for the wall finish. Provide suspended acoustic tile with recessed light fixtures in a grid pattern. Tile suspension system shall be an exposed type. Provide ceiling heights that are a minimum of 8'-0" above the finish floor. Provide solid surface window sills.

   (b) Break Room: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor base. Provided painted wallboard for the wall finish. Provide suspended acoustic tile with recessed light fixtures in a grid pattern. Tile suspension system shall be an exposed type. Provide ceiling heights that are a minimum of 8'-0" above the finish floor. Provide plastic laminate cabinetry on pre-engineered kitchenette, and countertop and back splashes constructed of solid surface material. Provide solid surface window sills.

   (c) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

   (d) Inside Storage: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide painted wallboard for the wall finish. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide mop sink and mop holder with shelf.

   (e) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

(f) Communications room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

(g) Outside Storage: Provide sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

5) Large Search Area Building (When Applicable)

(a) X ray/ Metal Detector: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor base. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide suspended acoustic tile with recessed light fixtures in a grid pattern. Tile suspension system shall be an exposed type. Provide ceiling heights that are a minimum of 8'-0" above the finish floor. Provide solid surface window sills.

(b) Provost Marshal: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor base. Provided painted wallboard for the wall finish. Provide suspended acoustic tile with recessed light fixtures in a grid pattern. Tile suspension system shall be an exposed type. Provide ceiling heights that are a minimum of 8'-0" above the finish floor.

(c) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(d) Visitor Processor: Provide porcelain tile or stained concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide solid surface counter top and window sills.

(e) Hall: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor.

(f) Break Room: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor base. Provided painted wallboard for the wall finish. Provide suspended acoustic tile with recessed light fixtures in a grid pattern. Tile suspension system shall be an exposed type. Provide ceiling heights that are a minimum of 8'-0" above the finish floor. Provide plastic laminate cabinetry on pre-engineered kitchenette, and countertop and back splashes constructed of solid surface material. Provide solid surface window sills.

(g) Outside Storage: Provide sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Ceiling to be an exposed painted structure.

(h) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

(i) Communications room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

6) Command and Control

Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position. Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide suspended acoustical tile with recessed light fixtures and hold down clips for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide a raised section of the ceiling at the counter for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills. Example Combinations may include the following:

(a) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(b) Inside Storage: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide painted wallboard for the wall finish. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide mop sink and mop holder with shelf.

(c) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Ceiling to be an exposed painted structure.

7) Latrines

(a) Provide porcelain tile or sealed concrete for floor finish, porcelain tile or resilient base for wall/ floor trim appropriate for the floor finish. Walls shall be painted concrete masonry or wallboard or fully tiled per Installation criteria. Wet walls are required to be painted concrete masonry or porcelain tile. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

8) Outside Storage Building

Provide stick built or pre-manufactured unit per Installation criteria.

(a) Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted. Ceiling shall be exposed structure.

9) Communications with Mechanical/ Electrical Equipment Building

(a) Communications: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete or wallboard. Ceiling to be an exposed painted structure.

(b) Mechanical/ Electrical room: Where required, provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete or wallboard. Ceiling to be an exposed painted structure.

10) Pedestrian ID Check (If Required):

(a) Pre-manufactured booth or stick built construction, with 3’-0” by 3’-0” anti-fatigue mat. Walls may be painted ballistic resistant wall panels. Inside ceiling height shall be a minimum of 7’-2” above finish floor.

11) Overwatch Building

(a) Pre-manufactured booth or stick built construction with 3’-0” by 3’-0” anti-fatigue mat. Walls may be painted ballistic resistant wall panels and glazing. Overwatch shall have a single door and counter. Inside ceiling height shall be a minimum of 7’-2” above finish floor.

12) Gatehouse (Example Combination, See drawing on Sheet No. A-100G1)

Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position .

(a) Command and Control: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide suspended acoustical tile with recessed light fixtures and hold down clips for the ceiling. Provide 8’-0” minimum ceiling heights above the finished floor. Provide a raised section of the ceiling in front of the front wall for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills.

(b) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8’-0” minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(c) Inside Storage: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide painted wallboard for the wall finish. Provide painted wallboard ceiling with recessed light fixtures. Provide 8’-0” minimum ceiling heights above the finished floor. Provide mop sink and mop holder with shelf.

(d) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Provide 8’-0” minimum ceiling heights above the finished floor.

(e) Communications: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Provide 8’-0” minimum ceiling heights above the finished floor.

(f) Outside Storage: Provide sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Provide 8’-0” minimum ceiling heights above the finished floor.

13) Gatehouse without Outside Storage (Example Combination, See drawing on Sheet No. A-100G2)

Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein.

(a) Command and Control function: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide suspended acoustical tile with recessed light

fixtures and hold down clips for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide a raised section of the ceiling in front of the front wall for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position.

(b) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(c) Inside Storage: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide painted wallboard for the wall finish. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide mop sink and mop holder with shelf.

(d) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor.

(e) Communications: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor.

14) Command and Control with Search Function and Mechanical/ Electrical (Example Combination, See drawing on Sheet No. A-100CS)

(a) Command and Control: Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position. Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide suspended acoustical tile with recessed light fixtures and hold down clips for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide a raised section of the ceiling at the counter for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills.

(b) Search: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. If wallboard, provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Include stainless steel corner guards on all exposed corners. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Window wall shall be steel or aluminum with anodized or painted finish per Installation criteria. Provide 8'-0" minimum ceiling heights above the finished floor.

(c) Inside Storage: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide painted wallboard for the wall finish. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor.

(d) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

15) Command and Control with Visitor Control Center (Example Combination, See drawing on Sheet No. A-100CV)

(a) Command and Control: Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein for the Command and Control portion of the building. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position. Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard above protective wall covering Provide suspended acoustical tile with recessed light fixtures and hold down clips for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide a raised section of the ceiling at the counter for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills.

(b) Vestibule: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Include an entrance floor mat and frame of sufficient size to protect floor from pedestrian traffic. Provide painted gypsum wallboard for the wall finish. Provide rigid gypsum wallboard with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide solid surface window sills.

(c) Waiting and Processing: Provide porcelain tile or ground and polished concrete for the floor finish in the waiting and carpet tile in the processing; porcelain tile or resilient base for the wall/floor appropriate for the floor finish in the waiting and resilient base in the processing. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide chair rails along wall at location of seating. Provide solid surface window sills.

(d) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(e) Break Room: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Painted gypsum wallboard for the wall finish. Provide suspended acoustical tile with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate cabinetry on pre-engineered kitchenette, and countertop and back splashes constructed of solid surface material.

(f) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Ceiling to be an exposed painted structure.

16) Visitor Control Center with Search Function (Example Combination, See drawing on Sheet No. A-100VS)

(a) Vestibule: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Include an entrance floor mat and frame of sufficient size to protect floor from pedestrian traffic. Provide painted gypsum wallboard for the wall finish. Provide rigid gypsum wallboard with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide solid surface window sills.

(b) Waiting and Processing: Provide porcelain tile or ground and polished concrete for the floor finish in the waiting and carpet tile in the processing; porcelain tile or resilient base for the wall/floor appropriate for the floor finish in the waiting and resilient base in the processing. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard ceiling with recessed light

fixtures. Provide 8’-0” minimum ceiling heights above the finished floor. Provide chair rails along wall at location of seating. Provide solid surface window sills.

(c) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8’-0” minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(d) Break Room: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Painted gypsum wallboard for the wall finish. Provide suspended acoustical tile with recessed light fixtures for the ceiling. Provide 8’-0” minimum ceiling heights above the finished floor. Provide plastic laminate cabinetry on pre-engineered kitchenette, and countertop and back splashes constructed of solid surface material.

(e) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Ceiling to be an exposed painted structure.

(f) Communications: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

17) Command and Control with Search Function, Pedestrian Entrapment Area, and Mechanical/ Electrical (Example Combination, See drawing on Sheet No. A-100CSP)

(a) Command and Control: Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position. Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide suspended acoustical tile with recessed light fixtures and hold down clips for the ceiling. Provide 8’-0” minimum ceiling heights above the finished floor. Provide a raised section of the ceiling at counter for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills.

(b) Search: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. If wallboard, provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Include stainless steel corner guards on all exposed corners. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Window wall shall be steel or aluminum with anodized or painted finish per Installation criteria. Provide 8’-0” minimum ceiling heights above the finished floor.

(c) Pedestrian Entrapment Area: Provide walls, window frames and glazing that are ballistic rated as defined herein. Wall between Command and Control and the Entrapment Area shall be ballistic rated. Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide 8’-0” minimum ceiling heights above the finished floor. Provide solid surface window sills.

(d) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

18) Command and Control with Pedestrian Entrapment Area, and Visitor Control Center (Example Combination, See drawing on Sheet No. A-100PVC)

(a) Command and Control: Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein for the Command and Control portion of the building. Provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated

position. Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard above protective wall covering. Provide suspended acoustical tile with recessed light fixtures and hold down clips for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide a raised section of the ceiling at counter for the installation of CCTV monitors that place the monitor out of the line of sight of a person looking out the windows. Provide solid surface material for countertops and window sills.

(b) Vestibule: Provide porcelain tile floor and base or ground and polished concrete with resilient base. Include an entrance floor mat and frame of sufficient size to protect floor from pedestrian traffic. Provide painted gypsum wallboard for the wall finish. Provide rigid gypsum wallboard with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide solid surface window sills.

(c) Waiting and Processing: Provide porcelain tile or ground and polished concrete for the floor finish in the waiting and carpet tile in the processing; porcelain tile or resilient base for the wall/floor appropriate for the floor finish in the waiting and resilient base in the processing. , porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide chair rails along wall at location of seating. Provide solid surface window sills.

(d) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(e) Break Room: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Painted gypsum wallboard for the wall finish. Provide suspended acoustical tile with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate cabinetry on pre-engineered kitchenette, and countertop and back splashes constructed of solid surface material.

(f) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Ceiling to be an exposed painted structure.

(g) Communications: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide a rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be an exposed painted structure.

19) Visitor Control Center with Pedestrian ID Check (Example Combination, See drawing on Sheet No. A-100PV)

Provide walls, doors, door frames, window frames and glazing that are ballistic rated as defined herein. For the Pedestrian ID Check, provide ballistic rated roof/ceilings at locations where a direct fire threat is possible from an elevated position.

(a) Sealed concrete floor slab with 3'-0" by 3'-0" anti-fatigue mat. Walls shall be painted ballistic resistant wall panels. Inside ceiling height shall be, as a minimum, 7'-2" above finish floor.

(b) Vestibule: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Include an entrance floor mat and frame of sufficient size to protect floor from pedestrian traffic. Provide painted gypsum wallboard for the wall finish. Provide rigid gypsum wallboard

with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide solid surface window sills.

(c) Waiting and Processing: Provide porcelain tile or ground and polished concrete for the floor finish in the waiting and carpet tile in the processing; porcelain tile or resilient base for the wall/floor appropriate for the floor finish in the waiting and resilient base in the processing. Provide protective wallcovering 36" high with a chair rail and painted wallboard above the protective wallcovering. Provide painted wallboard for all other wall finish. Include stainless steel corner guards on all exposed corners. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide chair rails along wall at location of seating. Provide solid surface window sills.

(d) Latrine: Provide porcelain tile or ground and polished concrete for the floor finish, porcelain tile or resilient base for the wall/ floor trim appropriate for the floor finish. Provide porcelain tile on the wet wall and painted wallboard on all other walls. Provide painted wallboard ceiling with recessed light fixtures. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate on sink cabinetry and solid surface material on countertop and back splash.

(e) Break Room: Provide Porcelain tile floor and base or ground and polished concrete with resilient base. Painted gypsum wallboard for the wall finish. Provide suspended acoustical tile with recessed light fixtures for the ceiling. Provide 8'-0" minimum ceiling heights above the finished floor. Provide plastic laminate cabinetry on pre-engineered kitchenette, and countertop and back splashes constructed of solid surface material.

(f) Mechanical/ Electrical room: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Ceiling to be an exposed painted structure.

(g) Communications: Provide exposed sealed concrete for floor finish. Resilient base for wall/ floor trim. Walls shall be painted concrete masonry or wallboard. Provide a rigid gypsum wallboard ceiling with recessed light fixtures. Ceiling to be exposed a painted structure.

20) Overwatch Building with Command and Control (Example Combination, See drawing on Sheet No. A-100O)

(a) Building can pre-manufactured with steel diamond plate flooring with 2- 3'-0" by 3'-0" anti-fatigue mat. Walls shall be painted ballistic resistant wall panels and glazing. Provide ceiling with a minimum height of 7'-2" above finish floor. Stainless steel counters.

C. CASEWORK:

Plywood or particle board construction with plastic laminate finish. Solid surface material counter tops and back splashes. Wire drawer pulls with drawer slides, and 180 degree hinges.

D. MINIMUM FINISH REQUIREMENTS

The following are minimum finish requirements, where applicable:

1) **Carpet Tile**: Provide carpet tile with commercial 100% branded (federally registered trademark) nylon continuous filament, permanent static control, loop pile with multi-color (geometric, bold, or floral patterns shall not be used), minimum finished yarn weight of 20 oz./sq. yd, 1/8" gauge minimum, minimum pile weight density of 4725, and synthetic backing. Carpet tile installation shall be with release adhesive and as per manufacturer's recommendations.

2) **Porcelain Tile**: Provide large format porcelain tile that conforms to ANSI A137.1, hass less than 0.5 percent water absorption and is a minimum commercial heavy traffic grade. Porcelain tile and trim shall be unglazed with the color extending uniformly through the body of the tile or glazed with body color consistent with glaze color. Color of porcelain tile and porcelain tile grout shall be a medium range color to help hide soiling.

3) **Ground and Polished Concrete:** Ground and polished concrete must be minimum Grade 2 (Salt and Pepper Exposure) and Class 2 (Medium Reflectivity). Concrete floor to have a Floor Flatness Factor

of FF50 or better per ASTM E1155. Use a manufacturer approved grout filler to patch any voids that may have been exposed by the grinding process. Use a lithium densifier that chemically reacts to the concrete and fills holes and a sealant on floor slabs to provide a durable and easily maintainable finished surface.

4) **Resilient Base**: Provide rubber or viny base 4 inches high and minimum of 1/8 inch thick.

5) **Solid Surfacing Material and Plastic Laminate**: Solid surface material to be homogeneous filled solid polymer, not coated, laminated or of a composite construction, meet CSA B45.5-11/IAPMO Z124 requirements, and be composed of cast 100 percent acrylic or a formulation composed of acrylic and polyester polymers, mineral fillers, and pigments. Acrylic polymer content must not be less than 5 percent and not more than 10 percent. Color and pattern must go through the thickness of the material. Provide minimum of 1/2 inch thick material for countertops and window sills. Solid surfacing material and plastic laminate shall have patterns that are mottled, flecked or speckled, except for sinks. Countertops at sinks shall be light to medium range in color to help hide water spotting and to reduce appearance of scratches.

6) **Protective Wall Covering**: Provide wall covering/panels consisting of high impact rigid acrylic vinyl or polyvinyl chloride resilient material. Provide panel sizes of 3 x 8 or 4 x 8 feet and a minimum .060" thick. Minimum impact resistance must be 18 ft-lbs/sq. inch when tested in accordance with ASTM D256 (Izod impact, ft-lbs per sq inch notched). Fire rating must be Class 1 when tested in accordance with ASTM E84 having a maximum flame spread of 25 and a smoke developed rating of 450 or less. Material must be rated self extinguishing when tested in accordance with ASTM D635. Finish top edge and seams of wallcovering/panels.

7) **Corner Guards:** Provide floor to ceiling stainless steel corner guards. Product must be fabricated of 16 guage thick material and wings shall be minimum 1 ½" wide.

8) **Entrance Floor Mat and Frame**: Provide surface-mounted extruded aluminum frames that have a tapered flexible aluminum or vinyl edge at least 1 1/2" wide and a frame depth that accommodates a mat. Provide roll up mat in frame with tread inserts consisting of carpet composed of solution-dyed nylon or polypropylene carpet fibers fusion-bonded to a rigid two-ply backing to prevent fraying and supplied in continuous splice-free lengths. Carpet to have antistatic and anti-stain treatments. Ensure that pile weight is a minimum 30 ounces per square yard.

E. INTERIOR SPECIALTIES:

1) **Signage**: Provide a complete interior signage system that coordinates with the interior design. The facility interior signage system shall be standardized throughout the building and shall be flexible to allow for the addition and deletion of signs and information. Room signs shall be provided. Room signs for spaces in which the room name, function of the room, or personnel within a room may change shall have a changeable paper insert that can be changed by the User in the future. Provide rooms signs where appropriate.

2) **Window Treatment**: Provide commercial grade horizontal blinds for exterior windows with the exception of functions that required visibility (i.e. guard booth). Slats must be aluminum not less than .0070 thick.

3.6 STRUCTURAL REQUIREMENTS:

3.6.1 General

Structural design of all Access Control buildings shall be governed by the International Code Council publication, International Building Code (IBC), as modified by DoD Unified Facilities Criteria document, UFC 3-301-01, "Structural Engineering". The most current edition of UFC 3-301-01 shall apply, and the applicable edition of IBC shall be as identified in the UFC.

3.6.2 Loadings

Structural loadings for building designs shall be determined in accordance with the IBC, and, by reference, American Society of Civil Engineers publication, ASCE 7, using applicable occupancy data and

climatic/seismic data tabulated in UFC 3-301-01 “Structural Engineering” for the location of the facility on which the Access Control structures are being constructed, unless specific design parameters are provided by the facility.

3.6.3 Seismic Design

Seismic design of buildings shall be in accordance with the IBC, except as modified by UFC 3-301-01, “Structural Engineering”.

3.6.4 Ballistic Resistant Design

Facility buildings identified in the Architectural criteria as “ballistic resistant” shall be designed in accordance with the provisions of UFC 4-023-07, “Design to Resist Direct Fire Weapons Effects”, in addition to the criteria identified in the Architectural design narrative.

3.6.5 Antiterrorism Design

ACP structures shall be sited, designed and constructed in accordance with the minimum requirements of UFC 4-010-01, “DoD Minimum Antiterrorism Standards for Buildings”, unless a higher level of protection is mandated by local threat assessment and/or policy. Facilities which are, by occupancy, considered “inhabited structures”, per the criteria, which cannot be sited to meet conventional construction standoff distance requirements from threats, shall be designed as hardened facilities. Hardened structures shall have walls, roof slabs, doors and windows designed and/or specified to resist blast pressures associated with the actual threat standoff distance per UFC 4-010-01.

3.6.6 Canopies

1) Wind Loading

   Vehicle canopies shall be considered as “open structures” with “clear wind flow” for calculation of wind pressures on roofs for main wind force resisting systems and component and cladding wind pressures in accordance with the UFC referenced edition of ASCE 7. Canopies shall be considered flexible structures, having a Gust Effect Factor, “G”, of not less than 0.90, in accordance with ASCE 7, to account for flexibility of the building system. Canopy wind for the design of frames or columns shall include the summation of pressures on the various canopy elements having a projected area perpendicular to the wind direction under consideration. Projected areas include front and rear surfaces of both windward and leeward canopy fascias or other vertical roof structure surfaces, windward surfaces of all columns, and lateral components of wind on sloped roofs, in accordance with ASCE 7. Canopy fascias shall be considered as either inverted “parapets” or “solid freestanding signs”, in accordance with ASCE 7, depending upon their configuration. Wind pressure on columns shall be computed as for “open signs and/or lattice frameworks”, and shall be applied to all free-standing columns simultaneously, rather than just to the windward facing perimeter columns. Main wind force resisting system overall lateral wind forces from the roof, fascias and columns shall be applied in each (+/-) direction along the principal building axes as separate loading conditions, and as another set of load conditions, shall be applied coincident with a torsional moment equal to the sum of wind forces multiplied by a +/- eccentricity of 15% of the windward roof plan width dimension. Wind shall also be considered at 75% of the full pressure from additive orthogonal axis directions applied simultaneously (representing oblique wind directions).

2) Lateral Force Resisting System

   Canopies shall have a rigid frame and/or cantilever column lateral force resisting structural system. Lateral forces shall be transferred to columns and frames by horizontally spanning spandrel members, structural diaphragms or horizontal bracing systems in the plane of the roof. The metal roof panels and liners shall not be used as a structural diaphragm unless analysis calculations in accordance with the provisions of the Steel Deck Institute (SDI), demonstrating the adequacy of the strength and stiffness of the panels and anchorage system, are performed. Roof and fascia panels shall similarly not be considered to provide lateral bracing for roof beams and purlins. Roof and liner panels shall be anchored to purlins or other framing members with screws or bolts. Clamp systems shall not be used to attach panels to the structure.

(a) Column Anchorage and Foundations

Canopy column base anchorages shall be designed for combined shear, moment and uplift, as applicable, in accordance with the UFC referenced edition of American Concrete Institute code ACI 318, Chapter 17. Canopy foundations shall be designed to resist factored wind uplift and overturning. Soil bearing pressures shall be investigated for all loading conditions, including overturning.

3.7 THERMAL PERFORMANCE

[For RFP Wizard revise paragraph title to read: "SEE PARAGRAPH 6.7 THERMAL PERFORMANCE – NOT USED"]
[ACP Standard:
Thermal insulation must comply with the minimum requirements of ASHRAE Standard 189.1-2009.]

3.8 PLUMBING REQUIREMENTS:

OCONUS: All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Therefore, the acquisition team must ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

3.8.1 Sanitary Sewer (where connection is possible)

1) Search Area Building and Search function

For Large and Small Army Standard Design or Custom Types Search Area Buildings, and search functions or rooms of combined facilities as shown on [Center of Standardization (COS) drawings][RFP Wizard Appendix J – Drawings]; domestic cold and hot water are to be provided to all plumbing fixtures as required by code. A below sink garbage disposal is to be provided for the kitchen sink. Condensate drains from mechanical equipment are to be routed to a floor drain. Provide a sanitary drainage system as required by code.

2) Visitor Control Center & (Facilities including Visitor's Processing)

Domestic cold and hot water are to be provided to all plumbing fixtures as required by code. A below sink garbage disposal are to be provided for the kitchen sink. Condensate drains from mechanical equipment are to be routed to a floor drain. Provide a sanitary drainage and vent system as required by code.

3) Facilities including Command and Control function

Domestic cold and hot water are to be provided to all plumbing fixtures as required by code. A below sink garbage disposal is to be provided for the kitchen sink. Condensate drains from mechanical equipment are to be routed to a floor drain. Provide a sanitary drainage and vent system as required by code.

4) ID Check Guard Booth and Pedestrian ID Check or (Pedestrian ID Check "room" function)

No domestic cold and hot water are to be provided and no drainage and vent system.

5) Overwatch Building

No domestic cold and hot water are to be provided and no drainage and vent system.

3.8.2 Sanitary Sewer (where connections are not possible)

1) Design criteria for septic tanks, waterless toilets (composting toilet, incineration toilet, chemical toilet) and mounding systems shall be in accordance with UFC 3-240-02, "Domestic Wastewater Treatment".

3.8.3 Drinking Water

Drinking fountains are not required for an occupant load of 15 or fewer. See Center of Standardization (COS) furniture layout drawings for occupant count.

3.8.4 Sizing

OCONUS: All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

1) STANDARDS AND CODES: The plumbing system and water consuming equipment shall conform to APPLICABLE CRITERIA and ASHRAE Standard 189.1, Section 6.3, Mandatory Provisions, and either Section 6.4, Prescriptive Option, or Section 6.5, Performance Option. In addition, meet the requirements of ASHRAE Standard 189.1, Section 10.3.2. Exception: Paragraph 6.3.2.3. (c) Shall not be required to be provided.

2) HOT WATER SYSTEMS: For hot water heating and supply systems, meet the requirements in UFC 3-420-01 "Plumbing Systems" and amendments, and the service water heating requirements of ASHRAE 189.1.

3) SIZING HOT WATER SYSTEMS: Design in accordance with ASHRAE Handbook HVAC Applications, Chapter 49, "Service Water Heating," UFC 3-420-01 and amendments, and ASHRAE 189.1, Section 7.4.4. Size and place equipment so that it is easily accessible and removable for repair or replacement.

4) WATER EFFICIENT PLUMBING FIXTURES: Indoor plumbing fixture equipment shall comply with the following criteria: ASHRAE 189.1, Section 6.3, Mandatory Provisions, and either Section 6.4, Prescriptive Option, or Section 6.5, Performance Option.

5) DRAINAGE SYSTEMS: Do not use engineered vent or Sovent® type drainage systems.

3.9 COMMUNICATIONS AND SECURITY SYSTEMS:

3.9.1 Communication

1) Communication system shall be installed in accordance with the Technical Guide for Installation Information Infrastructure Architecture (I3A) for exterior telecommunications work and use UFC 3-580-01 for interior telecommunications.

2) Command and Control, ID Check Guard Booth, Pedestrian ID Check, Search Area(s), Search Facilities, except Search Shelter, Overwatch Position, Overwatch Facility, and Visitor Control Center shall have a minimum of two (2) means of communication from the facility and, when present, the Central Security Monitoring Station.

3) Communication Handhole. Provide a communication handhole in each island/median in the ID Check Area. Conduit shall be run from the handhole to the island/median guard booth and to the next island/median handhole. This handhole/conduit system shall be used for all communication (copper and fiber) to the ID Check guard booths and to the area. The handhole cover is to be flush with the island/median.

3.9.2 Information Connectivity

1) Information Connectivity and LAN systems shall be installed in accordance with the Technical Guide for Installation Information Infrastructure Architecture (I3A) for exterior telecommunications and UFC 3-580-01 for interior telecommunications.

2) Command and Control, ID Check Guard Booth, Pedestrian ID Check, Search Facilities, Overwatch Facility, and Visitor Control Center shall have information connectivity to the LAN system and internet.

3.9.3 Closed Circuit Television (CCTV)

1) The ACP shall have a CCTV system installed.

2) CCTV cameras shall have sufficient resolution and wide dynamic range for real time assessment of activity detail.

3) Overwatch Cameras. CCTV cameras shall over watch the Approach Zone, ID Check Area, Search Area(s), and Active Vehicle Barrier area(s). Camera view at the active vehicle barriers shall include the nonsecure side of all active vehicle barriers as well as any traffic signals facing toward the nonsecure side. Camera view at the active vehicle barriers shall include a view of the secure side of outbound lane active vehicle barrier(s) and traffic signal.

4) ID Check Area. CCTV cameras shall be positioned to view drivers, ID Check guards, rear license plate, and the vehicle in the ID check lane.

5) Search Area(s) including Enclosed Search Facility. CCTV cameras shall be positioned to view drivers, Search guards, rear license plate, and the vehicle being searched.

6) Rear License Plates. Conduit shall be installed in the islands at the Search Areas and ID Check Area to accommodate future cameras to view rear license plates. Coordinate with the requirements given in the paragraph on Automated Installation Entry (AIE). Installations that will receive fixed AIE do not need an additional rear license plate camera for the ID Check Area, since there will be one that is part of the fixed AIE install package.

7) ID Verification. CCTV cameras are to be positioned to view visitors at pass and identification stations. These stations area located in the Visitor Control Centers. Command & Control does not have to be able to view the Visitor Control Center interior view. Search Offices may have an interior identification station, which would need a CCTV camera to view the visitor.

8) All cameras are intended to be fixed view except for the ID Check Area and Search Area overwatch cameras are allowed to be pan/tilt/zoom. The active vehicle barrier area cameras are to be fixed in order to ensure the proper view are always maintained.

9) Monitors. Monitors for CCTV shall be at the Command and Control location and the Central Security Monitoring Station as a minimum..

10) Digital Video Recording. The CCTV system shall include digital video recording for all ACP video cameras. The video recording shall operate 24 hours per day and seven (7) days a week and shall retain all imagery for a minimum of seven (7) days.

11) Pedestrian ACPs:

    (a) Overwatch Cameras. CCTV cameras shall over watch the approach to the booth from the entry gate to the area around the active pedestrian barrier including the booth.

    (b) Monitors. Monitors for CCTV shall be at the Pedestrian ID Check. Monitors shall also be located at Command and Control and Central Security Monitoring, if part of a vehicle ACP. If not part of a vehicle ACP, then provide monitoring at the Central Security Monitoring Station.

    (c) Digital Video Recording. The CCTV system shall include digital video recording for all ACP video cameras. The video recording shall operate 24 hours per day and seven (7) days a week and shall retain all imagery for a minimum of seven (7) days. Video recordings shall have the ability to be saved to external media for retention greater than seven (7) days.

3.9.4 Electronic Security

1) Duress Alarms. Guards at the ID Check Area Guard booth, Pedestrian Booth, Search Area(s) including Enclosed Search Facilities, Overwatch Facility, Overwatch Position, and Visitor Control Center shall have duress alarm capability that shall annunciate at both the Command and Control location and the Central Security Monitoring Station, when available. The Visitor Control Center shall ensure each Pass & ID station, as a minimum, have a means of duress.

    (a) Duress buttons shall be protected and not prone to accidental activation.

    (b) Duress buttons shall be located within close proximity to all routinely manned positions.

    (c) Duress button shall not be visible to the general public.

    (d) Telephone shall not be considered a duress device in their normal configuration.

(e) If there isn't a Central Monitoring Station, then annunciate at an alternate security force station or monitoring location.

(f) Wireless Duress Buttons. If wireless duress buttons are utilized in conjunction with mandatory hardwire buttons, then the wireless device shall have battery level monitoring, low battery level visible and audible warning, demonstrated transmission capacity of 150 feet greater than all usage locations, transmit of radio frequencies that do no interfere with or are impeded by any local wireless apparatus, and transmit in a spread spectrum mode.

2) Intrusion Detection. Exterior doors to the Command and Control, Gatehouse, Guard Booths, Overwatch, Search Office, Enclosed Search Facility, and Visitors Control Center shall be equipped with Balanced Magnetic Switches (BMS) for intrusion detection. Storage rooms that do not contain any security, CCTV or Communication equipment are not required to have BMS. Interior doors that go to rooms that contain Communication or security equipment shall be equipped with BMS.

3) Tamper Switches.

(a) Electronic control cabinets for Communications, AIE, CCTV, and security controls shall be equipped with tamper switches. CCTV and security controllers shall be in cabinets or panels.

(b) Active vehicle barrier cabinets shall be equipped with tamper switches. Active vehicle barrier controllers shall be in cabinets or panels. Control panels associated with the AVB controls (master, guard booth, local, etc.) are required to be equipped with tamper switches.

(c) The cabinet at the Overwatch Position pad (if provided) shall be equipped with a tamper switch(es).

(d) Manholes and handholes that will contain duress alarm, AIE, CCTV, intrusion detection or AVB control wiring and there are splices present are to have tamper switches provided on the covers.

(e) Uninterruptable power supply (UPS) cabinets shall be equipped with tamper switches.

3.9.5 Automation

1) Infrastructure to include the conduit pathways and space in facilities for Automated Installation Entry (AIE) per the latest requirements by PM-PFS and the requirements in this document shall be provided. AIE is not currently required in foreign countries. AIE includes a fixed pedestal card reader or a hand held card reader. Each system has different requirements.

(a) Fixed AIE includes a rear license plate camera, a driver face camera, traffic arm with signal, and a card reader that is located on each ID Check Area island.

(b) Fixed AIE includes equipment that is provided in each ID Check Area guard booth that monitors the camera views and the card reader.

(c) Fixed and Hand-Held AIE head end equipment is located in the communications room and is to be in a cabinet.

(d) Fixed and Hand-Held AIE require an antenna that is normally located at the ID Check Island.

2) Automation equipment other than AIE may be required. Provide infrastructure to include the conduit pathways, power, and space for this equipment.

3.9.6 Active Vehicle Barrier Control System

Each ACP shall be furnished with an Active Vehicle Barrier Control System (AVBCS). The AVBCS shall be an integrated control system and be include part or all of the following subsystems: active vehicle barriers, active vehicle barrier controls, traffic signals, traffic signal controls, traffic signs, pavement markings, traffic warning signs, traffic arms, vehicle overspeed detection & alarm, vehicle wrong-way detectin & alarm., intrusion detection/duress alarm, CCTV, sequence event recorder (data logget), data transmission, other audible and visual alarms and all interconnecting wiring. The active vehicle barrier control system (AVBCS) shall collect alarm, status, and control sensor inputs at the ACP and provide control signals to the active vehicle barriers (AVB), traffic signals, traffic arms (when present), barrier lights, in roadway lights, and warning beacons. The AVBCS shall provide alarm, status, and control

information to the Command and Control 'control console', each Guard Booth Control Panel, the Overwatch Position or Booth Control Panel, the Local Control Panel(s) at each AVB, Search Area Control Panel, Pedestrain Booth control panel, the CCTV subsystem for controlling camera presets, the duress alarm subsystem for controlling camera presets, and to the Installation's Central Security Monitoring System (CSMS)for annunciating alarms at both the CSMS alarm monitoring point and a CSMS provided annunciation panel at the Gatehouse.

1) Locations that do not have a CSMS shall have the alarms annunciate at the equivalent location.

2) CCTV and duress alarm subsystems may not be present when the AVBCS is installed. If that is the case, the AVBCS shall be provided with the necessary spare capacity for later installation.

3) The ACPCS system must utilize components and software that are intended for use in industrial or commercial control systems. The ACP control system shall not be a general purpose computer or personal computer and shall not be consumer grade software.

4) Emergency-Fast-Operate (EFO), when required by the safety scheme, shall ensure the AVB closes in two (2) seconds or less.

5) Only guards in the Command and Control, ID Check Guard Booths, Search Areas, Pedestrian Booth, and Overwatch Position are required to have emergency fast operate close control of the active barriers. A master "Emergency-Fast- Operate" (EFO) button/switch shall be provided on a Barrier Master Control Panel located in Command and Control. Remote EFO buttons shall be located in each ID Check Guard Booth, Search Area, Pedestrain Booth, and the Overwatch Position. The "Emergency-Fast-Operate" buttons will close all active barriers in all inbound and outbound lanes, that are in EFO mode, simultaneously. Only those safety schemes that require an EFO have to comply with this requirement.

6) Command and Control, Guard Booths, Search Areas and Overwatch position shall have an enunciator providing audible and visual indication of alarms including over speed and wrong way.

7) Command and Control and the Overwatch position shall have an enunciator providing audible and visual indication of duress alarm.

8) Switches and indicating lights shall be provided on the AVB Master Control Panel to allow the Command and Control guard to individually enable or disable the remote EFO buttons.

9) Switches and indicating lights shall be provided on the AVB Master Control Panel to allow the Command and Control guard to individually open and close the active vehicle barriers.

10) Switches and indicating lights shall be provided on the AVB Local Control Panel to allow maintenance personnel to individually open and close the active vehicle barriers.

11) Installation shall maintain strict key control to ensure the EFO Reset and the Test and Local modes are only operated when allowed by the head of the guards at that ACP.

12) See Access Control Point Standard drawing set for information on panel layouts and operation.

13) See UFGS 34 71 13.19, Appendix A for the appropriate SDDCTEA safety scheme and description on controls. Safety schemes that are not in Appendix A, but have been approved by SDDCTEA are allowed. Description on the sequence of operation and operating panel layouts will be provided upon request.

14) Active Vehicle Barrier and In Roadway Lighting:

    (a) Active vehicle red delineation lighting are required to make barriers clearly visible when deployed, unless vehicle barriers are behind closed gates or the specific vehicle barriers are used to close service drives. Active vehicle barriers shall include red flashing lights facing the direction of the threat vehicle as a minimum. Required red lighting is dependent on the type of system required as listed below:

- Bollard Systems – Include, as a minimum, one red light per bollard.
- Plate Barriers Systems, 3 feet or greater in width – Include, as a minimum, 3 red lights with one

mounted within 1 foot of each barrier edge and one mounted within 1 foot of the barrier centerline.

- Plate Barrier Systems less than 3 feet in width – Include, as a minimum, one red light mounted within 1 foot of the barrier centerline.
- Crash Barrier Systems – Include as a minimum, 3 red lights with one light mounted within 2 feet of each edge of the driving surface and one light mounted within 1 foot of the center of each lane spanned by the barrier.
- Net Type Barrier Systems – No light is required to be mounted on this barrier type system, but mitigation (e.g. in-roadway lighting) must be provided.

(b) In Roadway Lighting. In-Roadway lighting is required where the AVB does not have all the required lighting on the AVB itself. Then in-pavement lights are to be provided.

- Provide red non-flashing roadway lighting in the pavement, with a minimum of 3 lights per lane per side. Luminaires shall have a sustained illumination level of 500,000 candela per square meter using the 10 degree refractor option at a distance of 30 feet.
- Luminaire shall be rated for vehicular traffic and shall be manufactured for use in roadways.
- Luminaire shall be unidirectional with a wide distribution pattern.
- The luminaire shall not extend more than 0.5 inches above the road surface and shall have a smooth transition from the road surface.
- In areas with snow, the luminaire shall be rated to handle snow plows. Select a product that has proven performance and will not be forced above the pavement surface by freeze/thaw cycles.

(c) Active Vehicle Barrier Markings/Finishes

Active vehicle barriers include retro-reflective material that is visible on both sides of the barrier when deployed. The markings/finishes are to comply with SDDTTEA Pamphlet 55-15 and MUTCD.

15) Guard booths. Provide a number on the exterior of each guard booth that is visible from Command and Control. The number will correspond with the Guard booth number used on the Master Control Panel for the barrier controls. Numbering shall be approved by the installation. Numbering shall be at least 6 inches high.

16) Overspeed detection, when required, shall be located to ensure the overspeed zone or zones are covered to ensure threat vehicle detection. Overspeed detectors are allowed to be several different types per UFGS 34 71 13.19 ACPCS; however, local weather conditions and topology requirements shall be taken into account. When overspeed detection is required, judicious use is required to prevent nuisance alarms associated with having set-points too low for the traffic flow. Set-points need to be sufficiently high over the posted speed to prevent nuisance alarms. Note that some installation will have posted speeds below 25 mph; however, set-points should still be set based on an assumed posted speed of at least 25 mph in order to limit nuisance alarms. Where overspeed detection settings of less than 30mph are utilized, the zone shall not extend more than 75 feet forward (toward the approach zone) when measured from the centerline of the ID Check guard booth. Such zones must utilize equipment that allows absolute cutoff at the 75 feet (or shorter) distance and will not utilize alarm settings lower than 25mph. Where possible, use 35mph as a minimum alarm setpoint for overspeed detection systems.

17) Wrong-way detection shall be located to ensure that a vehicle that has not been cleared to proceed and try to use the outbound lane(s) to gain entry is detected. Wrong-way detectors are allowed to be several different types per UFGS 34 71 13.19 ACPCS; however, local weather conditions and topology requirements shall be taken into account. Wrong-way detection shall be located to ensure that rejected vehicles and other vehicles do not cause a nuisance alarm by traversing the in-bound and out-bound lanes.

3.9.7 Cable Television (CATV)

1) Provide CATV in those facilities requested by the installation.

3.9.8 General Requirements

1) Exterior Wiring. Direct buried wiring is not allowed. All wiring shall be in conduit and shall be concrete encased. Exterior communication shall meet the requirements of I3A Technical Criteria for the Installation Information Infrastructure Architecture.

2) Signal System Handhole. Provide a signal system handhole in each island/median in the ID Check Area. Conduit shall be run from the handhole to the island/median guard booth and to the next island/median handhole. This handhole/conduit system shall be used for all signal systems (CCTV, IDS, Duress, AIE, AVB controls) to the ID Check guard booths and to the area. The handhole cover is to be flush with the island/median. A single handhole that handles both the signal and communication cables is allowed.

3.10 ELECTRICAL REQUIREMENTS:

3.10.1 Exterior Lighting

1) Visitor Control Center parking lot, sidewalks and other parking are to comply with the lighting requirements in UFC 3-530-01 "Design: Interior and Exterior Lighting and Controls" .

2) Lighting for the Pedestrian ACP shall maintain a minimum of two (2) Foot-Candles maintained illumination with an average to minimum ratio of 3:1 as measured at an elevation of 6 inches above the roadway surface. This includes areas of a vehicle ACP used for pedestrian access.

3) Access Control Point Corridor Lighting:

   (a) Approach Zone Roadway(s) are to have three (3) Foot-candles (FC) average maintained with an average to minimum ratio not to exceed 4:1 as measured at an elevation of 6 inches above the roadway surface. Lighting color rendering index (CRI) are to be not less than 50.

   (b) Access Control Zone, ID Check Area and Search Area(s) are to have five (5) foot-candles (FC) average maintained with an average to minimum ratio not to exceed 3:1 as measured at an elevation of 6 inches above the roadway surface. In addition, where ID checks or searches are made, the illumination shall be 10 FC or twice the illumination in the immediate or surrounding area, whichever is greater. The vertical illumination shall be at least 25% of the horizontal illumination. ID Check Area and Search Areas shall have a color rendering index (CRI) of not less than 65. All other areas shall have a CRI of not less than 50.

   (c) Response Zone Roadway(s) are to have three (3) Foot-candles (FC) average maintained with an average to minimum ratio not to exceed 4:1 as measured at an elevation of 6 inches above the roadway surface. Lighting shall have a CRI of not less than 50.

   (d) The ACP corridor (Approach, Access Control and Response Zones) cannot have poles shorter than 15 feet. In situations where poles would need to be shorter to provide the lighting, then the COS is to be contacted. A proposed solution is required to be approved by the Surface Deployment and Distribution Command Transportation Agency (SDDCTEA) in order to ensure all aspects of motorist safety is maintained. The option to not provide lighting throughout the entire ACP Corridor will have to be justified in writing as to why there isn't a workable solution.

   (e) ACP layouts will vary greatly, which will have an impact on the length of the Approach, Access Control and Response Zones. Situations where the zone length is too short to have sufficient transitional lighting will be taken on a case by case basis. Approval will be by the COS with consultation with SDDCTEA to ensure traffic safety is maintained. This may mean on a short Approach zone that it may be deemed better to have the appropriate transition lighting over having the full foot-candle level average immediately at the start of the ACP.

4) Color Rendering Index (CRI). Lighting at the ID Check Area, Access Control Zone, and Search Areas shall have a color rendition index (CRI) of not less than 65. All other light sources shall have a CRI of not less than 50.

5) Light Loss Factor (LLF). The design is to take into account a light loss factor for the life of the luminaires. The LLF is to be calculated in accordance with Illuminating Engineering Society of North American handhbook. This includes using lamp depreciation factor (for LEDs this would include the driver and the luminaire) and the dirt depreciation factor. Instead of providing the LLF calculation, a LLF of 0.75 can be used. The LLF can be adjusted, if the installation indicates that there is a relamping plan in place to replace all the luminaires after a specified time. In no case is a LLF used to be higher than 0.85.

6) Transition Lighting. Transition lighting shall be provided in accordance with UFC-3-530-01 "Design: Interior and Exterior Lighting and Controls", SDDCTEA Pamphlet 55-15 "Traffic and Safety Engineering for Better Entry Control for Facilities", and IES Handbook of North America. Transition lighting goes from the lower light levels prior to the Approach Zone up to the required light level for the Approach Zone and then again up to the required level for the Access Control Zone. Then the lighting will transition from the Access Control Zone to the lower level for the Response Zone. Then after the active vehicle barriers the light level needs to transition down to the lower light level for the street. Roadway geometry may impact the ability to do the transition lighting per the criteria; however, the best engineering attempt shall be accomplished.

7) Power Requirements. High intensity discharge luminaires indicated to be on generator back-up power shall have quartz-restrike provided when the luminaire is a type that either requires cool-down to restrike or takes considerable time to achieve full brightness. An exception to the quartz-restrike would be to provide a means to ensure the luminaire does not lose its arc during transition from normal or generator and back again.

8) Existing ACPs where roadways within the ACP are revised in width or geometry are required to bring that specific entire ACP Zone (approach zone, control zone or response zone) into compliance with the lighting levels. If adjoining ACP Zone(s) are not in compliance, then transitioning lighting is required from the upgraded zone to the existing zones.

9) Exterior lighting poles and the electrical connections shall be frangible when required by MUTCD.

10) Poles are to be located at least 2 ft. from any road edge or curb face. Comply with AASHTO Roadway Design Guide break-away requirements.

11) Exterior canopy lighting control requirements are to be coordinated with the local installation as to location and method. Command and Control shall be provided with a Hand/Off/Automatic controller(s) with the automatic means, as a minimum, being a photocell for controlling the Approach Zone, Access Control Zone and Response Zone, unless the Customer approves in writing an alternate location or different requirements.

12) Exterior doors are to have a luminaire above or adjacent to the door that can be controlled via an automatic means such as a photocell or a manual means. These luminaires shall be LED unless local conditions dictate a more appropriate light source. The following facilities are exempt from this requirement: ID Check Guard Booths, Pedestrian ID Check and Overwatch building.

13) Provide an open/close visual indicator on the ID Check canopy over each lane that is controlled from the ID Check area or Command and Control. The preferred style of indicator is the red "X" and green "Arrow", but other types are allowed if approved in writing by the local installation and the COS-ACP.

14) Provide an open/close visual indicator on the Search canopy(s) or Enclosed Facility over each lane that is controlled from the Canopy area or Command and Control. The preferred style of indicator is the red "X" and green "Arrow", but the two head traffic signal (red/green) is allowed, but other types are allowed, such as red/green signal, if approved in writing by the local installation and the COS-ACP. Luminaires shall be Light Emitting Diode (LED). If there is only one search lane, then it is up to the Installation to determine if a visual indicator is desired. If the approach lanes have curves such that the line of site for drivers would make it difficult to see the canopy mounted indicators, additional indicators should be added in the approach zone to make drivers aware of lanes that are open/closed.

15) Provide under-vehicle lighting, when required by the User, for one lane in each Search Area. The lane must be under the canopy. Those areas that may have snow plows go through the lane are to ensure the lights are flush with or below the finished surface. Provide a manual switch in the area to turn the

lights on/off. The local installation can state in writing that they do not want this under-vehicle lighting. Only those lanes under a canopy can have under-vehicle lighting.

3.10.2 Interior Lighting

1) Interior lighting shall comply with UFC 3-530-01 "Design: Interior and Exterior Lighting and Controls "and with the sustainability requirements.

2) Lighting for most spaces with suspended acoustic ceilings shall be of the recessed type.

3) Lighting in Command and Control, ID Check Guard Booth, Pedestrian ID Check, and Overwatch facility shall be dimmable.

4) Emergency and Exit Lighting. Provide emergency lighting and exit lighting per NFPA 101, UFC 3-600-01 "Fire Protection Engineering Facilities" and UFC 4-010-01 "DoD Minimum Antiterrorism Standards for Buildings". Emergency and exit access lighting are to be on battery backup. Facilities that have stand-by generator power are required to have the power to the emergency and exit lights on a generator circuit and also have battery back-up. The battery back-up is considered the primary source. All signage as required by life safety codes are to be included in designs.

3.10.3 General Power Requirements

1) Requirements for heating, ventilation, and air conditioning system shall be determined by the project criteria package. Access around equipment shall be provided for service and air flow. In cold climates, provide features that will protect plumbing, water lines, and other lines from freezing.

2) The power panelboard shall not be installed below a counter. This includes pre-fabricated structures such as the Vehicle ID Check Area Guard Booths, Pedestrian Check Area both and Overwatch Booth.

3) Exterior Wiring. Direct buried wiring is not allowed. All 600V or less wiring shall be in conduit. If the conduit is within six (6) ft. of a roadway, then the conduit shall be concrete encased or in rigid steel conduit. All wiring over 600V shall be concrete encased.

4) Provide power receptacles per NFPA 70 and in conjunction with the proposed equipment and furniture layouts. Provide duplex receptacles adjacent (at least 6 inches away) to each telecommunication outlet. Special receptacles may be required for equipment to be installed by others to include package scanners. The following are in addition to the general requirements.

   (a) Search Function/Bus Shelter is to have at least one duplex receptacle.

   (b) ID Check Guard Booth, Pedestrian ID Check, Overwatch Building. Provide one duplex receptacle at the counter that is either on a UPS circuit or provide a standalone UPS.

   (c) ID Check Guard Booth. Provide an exterior receptacle on each of the narrow ends. Provide at least one receptacle below the eave along each of the long sides.

   (d) Overwatch Pad. Provide a duplex receptacle at the pad.

   (e) ID Check Canopy. Provide at least one duplex receptacle per island.

   (f) Truck Search Area Canopy or Enclosed Facility, Passenger Vehicle Search Area Canopy or Enclosed Facility. Provide at least one duplex receptacle on a column on each side of the inspection space. Provide a dedicated circuit for each side of the inspection space receptacles.

   (g) ID Check Canopy, Truck Search Area Canopy, Passenger Vehicle Search Area Canopy. Coordinate with the User on any special power requirements for portable heaters or misters. This typically will require a 20 amp circuit at either 208VAC, 240VAC, 277VAC or similar voltage depending on the country. Provide an appropriate receptacle for the amperage and voltage configuration and have an adjacent disconnecting means.

   (h) Truck Search Enclosed Facility, Passenger Vehicle Search Enclosed Facility. Provide duplex receptacles spaced around the perimeter of the inspection space. Provide a dedicated circuit for each side of the inspection space.

5) Other Equipment and Systems. See discussion on COMMUNICATIONS AND SECURITY SYSTEMS for other equipment and systems that will need power. Provide power for communications equipment per UFC 3-580-01 Telecommunications.

6) Power Handhole. Provide a power handhole in each island/median in the ID Check Area. Conduit shall be run from the handhole to the island/median guard booth and to the next island/median handhole. This handhole/conduit system shall be used for all 600V or less power to the ID Check guard booths and to the area. The handhole cover is to be flush with the island/median.

7) Design and locate the service transformer(s) to be either located within the ACP corridor (inside the passive barrier) or on the outside. Location needs to ensure access is maintained to the transformer. If on the outside, this may include a manual gate with the appropriate crash rating in the passive barrier.

8) Panelboards and other cabinets that are located in the ID Check Area or in Search Areas cannot be located closer than 18 inches to the curb face. Locations where the equipment may be struck by an errant vehicle are to provide bollards for protection.

9) Search Canopies. Provide traffic arms with a signal light for each search lane.

10) ID Check area. Provide a traffic arm with or without a signal light for each ID Check lane, if the installation is not on the list to have fixed Automated Installation Entry installed at this ACP.

3.10.4 Back-up Power

1) Generator

   (a) Automatic start-up within 10 seconds after the normal source of electrical power fails.

   (b) Generator shall have an alternate fuel source and/or sufficient on-site fuel to maintain full-load operation for a minimum of 12 hours. Natural gas line to the generator will be accepted as meeting the 12 hr on-site fuel source.

   (c) Status monitored at Command and Control to include alarms for loss of normal power, generator malfunction, and low fuel.

   (d) The generator is to be installed so that it is at least 30 feet from the service entrance transformer and 30 ft. from any ACP building.

   (e) Design and locate the generator to be either located within the ACP corridor (inside the passive barrier) or on the outside. Location needs to ensure access to the generator is maintained for adding fuel and performing maintenance. If on the outside, this may include a manual gate with the appropriate crash rating in the passive barrier.

   (f) The following loads shall be on generator power:

- Interior lighting for Command and Control, the Gatehouse, Guard Booths, Pedestrian ID Check, Overwatch position, and Search Offices.
- Canopy lighting in the ID Check Area and the Search Areas.
- Where canopies are utilized for Search Areas: Canopy lighting for the Search Areas.
- Where enclosed facilities are utilized for search areas: Interior lighting for the Search Area Enclosed Facility.
- External lighting in the Access Control Area.
- External lighting in the Search Areas this shall include 100 ft. on both sides of the Search canopy.
- Approach Zone and Response Zone lighting within 100 feet of the Access Control Zone.
- External lighting 150 feet on both sides of the final vehicle barriers.
- ID Check Area traffic arms.
- Uninterruptible Power Supplies (UPS).
- Search Area traffic arms.

   (g) Under Vehicle Inspection System (UVIS). An ACP is not required to have a UVIS, but if provided then all equipment associated with the UVIS system needs to be on generator power. .

2) Uninterruptible Power Supply (UPS). The ACP shall have one or more Uninterruptible Power Supplies to power critical security, Communications, and safety loads when the normal source of electrical power fails. The UPS shall provide a minimum of 10 minutes back-up power. A centralized UPS is to have a remote monitoring panel located at the Command and Control to report alarms associated with the UPS. The following loads shall be on UPS:

   (a) Primary communications system

   (b) Duress alarm system.

   (c) Computers.

   (d) CCTV system.

   (e) Intrusion Detection Systems (IDS).

   (f) Automation (Automated Installation Entry) excludes the island traffic arms.

   (g) Lighting:

   - One luminaire for each ID Check lane. This luminaire shall be located near the location where ID checks are performed.
   - One luminaire at each Active Vehicle Barrier to include requirement of CCTV cameras for real time assessment of activity detail.

   (h) Access Control Equipment including:

   - Active vehicle barrier controls.
   - Active barrier activation system for one complete operation cycle (opens to close and close to open). Hydraulic systems do not need to have the pump motor on UPS, if the system can maintain enough pressure for 1.5 cycles. The hydraulic pump motor then only needs to be on generator back-up power for a hydraulic system having sufficient capacity.
   - Traffic arms located at the active vehicle barriers.
   - Traffic sensors (wrong way, over speed, and presence detectors). Traffic signals and warning lights.

   (i) Under Vehicle Inspection System (UVIS). The computer that operates the UVIS needs to be on UPS.

3.10.5 Lightning Protection System

1) A risk analysis per NFPA 780 is to be performed to determine if a lightning protection system is required. If required, but the installation does not desire a lightning protection system, then the installation shall provide direction in writing.

2) The lightning protection systems are to comply with the requirements found in UFC 3-575-01 “Lightning and Static Electricity Protection Systems”.

3) Provide surge protection per requirements found in UFC 3-575-01 “Lightning and Static Electricity Protection Systems” and UFC 3-520-01 “Interior Electrical Systems”. In addition, all exterior power panelboards and those panelboards that primarily power communications, LAN, exterior site lighting, security equipment and active vehicle barrier controls are to have surge protection.

3.11 HEATING VENTILATING AND AIR CONDITIONING (HVAC) REQUIREMENTS:

OCONUS: All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

3.11.1 Sizing

1) The capacity of HVAC systems and equipment shall be calculated in accordance with ASHRAE Handbooks, ASHRAE 62.1, ASHRAE 55, and ASHRAE 189.1. Outdoor and Indoor Calculations and Requirements: Indoor design conditions and load calculations shall be in accordance with UFC 3-410-01FA "Heating, Ventilating, and Air Conditioning". Outdoor air and exhaust ventilation requirements for indoor air quality shall be in accordance with ASHRAE 62.1-2007. All Buildings with minimum LEED Silver requirement (or better) will earn LEED Credit EQ 7.1, Thermal Comfort-Design, except where precluded by other project requirements.

2) Indoor Air Quality: Buildings indoor air quality systems, thermal comfort, acoustical control, equipment, calculation procedures, construction and start-up shall comply with ASHRAE Standard 189.1, Section 8.3, Mandatory Provisions, and Section 8.4, Prescriptive Option, or Section 8.5, Performance Option.

3) Outdoor Air Delivery Monitoring: Spaces Ventilated by Mechanical Systems. Reference Sections 7.4.3.2, 8.3.1.2.1, and 10.3.2, of ASHRAE Standard 189.1. A densely occupied space are defined as those spaces with a design occupant density greater than or equal to 25 people per 1000 ft2.

4) Environmental Tobacco Smoke: a. Smoking shall not be allowed inside the building. Signage stating such shall be posted within 10 ft. of each building entrance. b. Any exterior designated smoking areas shall be located a minimum of 50 ft. away from building entrances, outdoor air intakes, and operable windows. c. Section 6.2.9 of ANSI/ASHRAE Standard 62.1 shall not apply.

3.11.2 Ballistic Resistant Rated Structures

1) Command and Control function

The occupied portions of the command and control functional areas of combined facilities, which are a ballistically protected area, are to be heated and air conditioned, and controlled for temperature (settings) are to be easily accessed by staff. Locate mechanical equipment when provided for heating and cooling in the Mechanical equipment room or in other areas where space is provided for clearance and accessibility for maintenance. Provide insulation on all ductwork, equipment, and other items as required by code. Provide latrines when required and janitor closets or areas with a mop sink with an exhaust system. The system is to maintain exhaust rates as required by the applicable code. Exhaust fans are to be accessible for repair or maintenance. Communications room when provided are to be air conditioned to maintain a space temperature of 75 degrees F at the design load. The mechanical/electrical room and inside storage is to be heated and ventilated as required by code and to prevent damage from excessive space temperatures.

2) ID Check Guard Booth

This is a ballistic rated structure, heating and air conditioning of the structure is mandatory.

3) Overwatch Building.

This is a ballistic rated structure, heating and air conditioning of the structure is mandatory.

4) Pedestrian ID Check & (Pedestrian ID Check functional areas "room")

This is a ballistic rated structure, heating and air conditioning of the structure is mandatory.

3.11.3 Non-Ballistic Resistant Rated Structures

1) Search Area Building and Search Function

For large and small standard army design or custom type Search Area Buildings, and search functions or rooms of combined facilities: Occupied portions of the facility are to be heated and air conditioned for occupant comfort, unless otherwise not required by the Installation Design Guidance (IDG). Search area may not be air conditioned. Controls for temperature settings are to be easily accessed by staff. Locate mechanical equipment for heating and cooling in the Mechanical equipment room when required or in other areas where space is provided for clearance and accessibility for maintenance. Provide insulation on all ductwork, equipment, and other items as required by code. Provide latrine when required and janitor closets or areas with a mop sink with an exhaust system. The system is to maintain exhaust rates as required by the applicable code. Exhaust fans are to be accessible for repair or maintenance. The mechanical and electrical rooms and inside storage are to be heated and ventilated as required by code and

to prevent damage from excessive space temperatures.

2) Two (2)- Three (3)- Six (6)- Nine (9) Processor Visitor Control Center & (Combined facilities including Visitor Processing)

Occupied portions of the facility (Office, Provost Marshal, Vestibule, Hall, and Breakroom, Etc.) and the visitor processing area of combined facility are required to be heated and air conditioned for occupant comfort. Controls for temperature settings are to be easily accessed by staff. Locate mechanical equipment for heating and cooling in the Mechanical room when required or in other areas where space is provided for clearance and accessibility for maintenance. Provide insulation on all ductwork, equipment, and other items as required by code. Provide latrine when required and janitor closets or areas with a mop sink with an exhaust system. The system is to maintain exhaust rates as required by the applicable code. Exhaust fans are to be accessible for repair or maintenance. Communications room when required are to be air conditioned to maintain a space temperature of 75 degrees F at the design load. The mechanical/electrical room and inside storage is to be heated and ventilated as required by code and to prevent damage from excessive space temperatures.

3) Environmental Requirements for Communications Rooms :

Comply with ANSI/EIA/TIA 569 (including applicable Addenda). Maintain environmental conditions at the Class 1 and 2 Recommended Operating Environment. Before being introduced into the room, filter and pre-condition outside air to remove particles with the minimum MERV filtration quality shown in the ASHRAE HVAC Applications, Chapter 19. Maintain rooms under positive pressure relative to surrounding spaces. Design computer room air conditioning units specifically for Communications room applications. Build and test units in accordance with the requirements of ANSI/ASHRAE Standard 127. A complete air handling system shall provide ventilation, air filtration, cooling and dehumidification, humidification (as determined during the design phase), and heating. The system shall be independent of other facility HVAC systems and operation shall be required year round.

3.12 ENERGY CONSERVATION REQUIREMENTS

OCONUS: All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

3.12.1 Whole Building Approach

A whole building approach should be used in achieving the target energy reduction. Energy consumption levels for both the baseline and proposed building shall be determined by using the Performance Rating Method found in ASHRAE Standard 90.1-2007 Appendix G, with process and plug loads; see paragraph Energy Policy. All calculations shall be performed using a professionally recognized and proven computer program or programs that integrate architectural features with air-conditioning, heating, lighting, and other energy producing and consuming systems. These programs will be capable of simulating the features, systems, and thermal loads used in the design. The energy savings and any parasitic energy loads associated with the utilization of recovered energy and other renewable or waste heat applications shall be included. All calculations shall be included as part of the design analysis. A summary of the energy reduction features should also be included as part of the design analysis. This summary should include for both the baseline and proposed building such items as building insulation values, glass SHGC and U-factor, roof construction, equipment efficiencies and lighting levels.

3.12.2 Energy Calculation Methodologies and Substantiation Requirements:

The calculation methodology used for the documentation and analysis shall follow the guidelines set forth in Appendix G of ASHRAE 90.1, with the exception that receptacle and process loads may not be omitted from the calculation and; this calculation shall address all energy consuming systems in a single integrated methodology e.g. laboratory fume hoods and kitchen ventilation loads in the energy calculation. Individual calculations for heating, cooling, power, and lighting systems etc. will not be acceptable. The following building simulation software is acceptable for use in calculating building energy consumption: Hourly Analysis Program (HAP) by Carrier Corp., TRACE 700 by Trane Corp., DOE-2 by US Department of Energy, and EnergyPlus by DOD/DOE.

3.12.3 Design After Award

Interim and final design submittals shall demonstrate that each building including the building envelope, HVAC systems, service water heating, power, and lighting systems meet the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Interim and final design submittals which address energy consuming systems, (heating, cooling, service hot water, lighting, power, etc.) must also include calculations in a separate Energy Conservation Section of the Design Analysis which demonstrate and document:

1) The baseline energy consumption for the facility or facilities under contract, that would meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007,

2) The energy consumption of the facility or facilities under contract utilizing the materials and methods required by this construction contract.

3.13 FIRE PROTECTION REQUIREMENTS:

OCONUS: All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

3.13.1 Building Function Requirements

The facilities shall be designed in compliance with UFC 3-600-01 “Fire Protection Engineering for Facilities”. The typical construction is Type IIB. The facilities are a combination of Business and Assembly occupancies. Due to the nature of the facility (size, and mission criteria), the facilities are generally not provided with a fire sprinkler system unless officially requested by a specific command. For Life Safety and Egress, the latest version of NFPA 101 shall be used in the development of the buildings. For general square footage, building areas, and heights, the latest version of IBC shall be complied with in the development of the buildings.

3.13.2 Fire Alarm System

The fire alarm system, when required, is to comply with UFC 3-600-01 “Fire Protection Engineering for Facilities". Buildings with a fire alarm system shall have an addressable fire alarm evacuation system with manual pull stations (break glass not allowed), audible and visual alarms. The facilities shall be designed in compliance with UFC 3-600-01, and NFPA 101

3.13.3 Mass Notification

Mass notification system is to be integrated into the fire detection system when both are required. The building mass notification system is to meet the requirements of UFC 4-021-01 “Design and Operation & Maintenance (O&M): Mass Notification System. The system is to be fully compatible with local mass notification system.

3.14 SUSTAINABLE DESIGN

OCONUS: All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Ensure compliance with the most stringent of any UFC applicable, the SOFA, the HNFA, and the BIA, as applicable.

3.14.1 General

Many features that make a facility sustainable can be integrated into a typical building and site. Reduction in the use of water is a key element that generally applies to every building and site. However, other very beneficial features/techniques (such as shading devices for buildings or building orientation for sites) or materials might also have application but need to have a more tailored building and site to be effective.

The offerer (for design-build contracts) or designer (for design-bid-build contracts) is encouraged to

suggest sustainable material substitutions or building feature modifications for consideration where they appear to provide benefit without appearing to interfere with functionality.
One aspect of sustainability is the over-all energy consumption of a building and mandated federal criteria are regularly being revised to decrease such energy consumption by increasing energy efficiency.

Documents, such as ASHRAE 189.1-2009, have been developed to focus building design on steadily improving their levels of energy efficiency.

It is expected that meeting certain levels of energy efficiency will require the use of such features as horizontal shades or overhangs above windows in hotter climates and these techniques are acceptable even though not required for every climate application. The target for this facility type at the time this Army Standard Design was approved for application to specific projects was 30% energy savings from the base-line energy use defined in the criteria of ASHRAE 90.1-2007. The U. S. Army has decided to include/use site energy for the HVAC, lighting, and hot water loads to determine the energy savings.

It is recommended that facilities provided for climate zones 1a & b, 2a & b and 3a, b & c have horizontal shades above the windows, shading grills, or other devices or building geometry (like being deeply recessed) techniques (clerestories close to the roof line may accomplish the same benefit with overhangs) to allow for meeting the required energy savings.

It is assumed that both the governing criteria and the energy target (as defined by the U. S. Governments and organizations such as the United States Green Building Council (USGBC)) will change regularly. Provide every facility (these will generally be projects appropriated at specific times over several years) so that it meets the requirements of governing criteria and the energy target that are applicable at the time of project development.

Many federally mandated definitions/requirements or measures of energy consumption criteria (energy cost savings) are not identical with other measures of energy efficiency or sustainability. Examples of different measures are those described in the USGBC “LEED” point criteria.

Provide a comprehensive analysis of energy consumption during specific project design processes and incorporate what appears to be the best/most-appropriate blend of features/characteristics that will reduce energy consumption of the facility to the minimum practicable levels. Also meet whatever the current mandates or criteria that apply at the time of the specific project under design:

1) FY08-FY12, and FY13 and beyond: New facilities or minor renovations that don’t meet LEED minimum program requirements (occupied building, climate control (heating and/or cooling) for human comfort and 1000 S.F. or greater):

   (a) Scored using LEED-NC and incorporate sustainable design features to the maximum extent life cycle cost effective and technically possible.

   (b) Supporting documentation will be developed (including LEED checklist).

3.14.2 LEED and Third Party Validation

Reference: UFC 1-200-02 High Performance and Sustainable Building Requirements, latest

A. GENERAL. Except where indicated otherwise, these requirements apply worldwide to all facility construction activities on permanent Active Army installations, Army Reserve, Army Readiness Centers, Army National Guard Facilities and Armed Forces Reserve Centers, regardless of funding source and including Base Realignment and Closure (BRAC) and non-Army tenant facilities on Army property. For tenant projects on Army property, USACE project Master Planner and Project Manager (PM) will make the tenant organization aware of Army Sustainability requirements and the tenant responsibility to coordinate directly with the installation Department of Public Works (DPW) if the requirements cannot be met. These requirements apply to permanent facility construction only. Excluded are overseas contingency construction and continental United States (CONUS) interim facilities. However, overseas contingency construction and CONUS interim

facilities should incorporate as many sustainability features as life cycle cost effective especially passive sustainability measures. The UFC 1-200-02 "High Performance and Sustainable Building Requirements" will be used for all DOD projects, except ASHRAE 90.1-2007 shall be used and work for other customers where appropriate. All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (NNFA), and in some instances, bilateral Infrastructure Agreements (BIA). Therefore, the acquisition team must ensure compliance with the most stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

B. MINIMUM REQUIREMENT - NEW FACILITIES IN THE UNITED STATES AND ITS TERRITORIES. Facilities which meet the requirements for Sustainability HPSB validation shall be registered with one of the organizations which provide sustainability validation indicated in the UFC. The project shall incorporate all applicable requirements of the DoD or Army Sustainability/HPSB Score Sheet. Sustainability validation shall be completed by one of the validation methods through one of the organizations indicated in the UFC. DoD or Army Sustainability/HPSB Score Sheet shall be completed and updated throughout the project life and copies shall be forwarded to the Army PM at each design phase and upon request during contruction. Final validation and certification documents shall be forwarded to the PM for record and data calls. Projects which do not meet minimum requirements for sustainability validation or certification shall document sustainability features which are applicable to the scope involved. Documentation of this type of projects shall use the DoD or Army Sustainability/HPSB Score Sheet and additional data collected, such as construction waste recycling shall be provided to the DPW and the Army PM.

C. ENERGY POLICY

1) Directive and Guidance for FY13 and beyond MCA Projects - See Reference ECB 2012-13.

2) References:

(a) Memorandum, ASA (IE&E), 27 Oct 10, Subject: "*Sustainable Design and Development Update (Environmental and Energy Performance)*"

(b) ANSI/ASHRAE/IESNA Standard 189.1-2009: "Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings"

(c) Memorandum of Understanding (MOU), 06 Mar 2006, "*Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings"*

(d) Engineering and Construction Bulletin (ECB) 2011-1, 19 Jan 2011, Subject: "High Performance Energy and Sustainability Policy"

(e) Engineering and Construction Bulletin (ECB) 2012-13, 23 Apr 2013, Subject: "Energy Implementation Guidance Update, ASHRAE 189.1, Life-Cycle Cost Analysis Requirements"

(f) Energy Independence and Security Act (EISA) of 2007, Section 433 "Federal Building Energy Efficiency Performance Standards"

(g) Methodology and Procedures for Life-Cycle Cost Analysis, Subpart A, Code of Federal Regulations, Part 436

(h) ANSI/ASHRAE/IES Standard 90.1-2010 "Final Qualitative Determination, Pacific Northwest National Laboratory", October 2011

3) General

(a) The purpose is to update and clarify the Energy and Sustainability guidance previously issued by ECB 2011-1 (Reference d). Specifically, this establishes a minimum energy requirement for compliance with ASHRAE Standard 189.1-2009 (Reference b) for prescriptive and performance paths and establishes ASHRAE Standard 189.1 as our baseline facility criteria for the purpose of life-cycle cost analysis (LCCA). Previous guidance issued in ECB 2011-1 related to LCCA for

features that exceed 1% of the Programmed Amount will no longer apply starting with FY13 projects and beyond. Instead, projects should follow guidance stated herein.

(b) We are in the process of reviewing the most current versions of ASHRAE Standards 189.1-2011 and 90.1-2010 to determine what the impacts are, if any, of adopting the latest versions of the Standards. ASHRAE Standard 189.1-2011 references the 2010 version of ASHRAE Standard 90.1 and according to an analysis conducted by the Pacific Northwest National Laboratory (Reference g) there are 109 changes to the 90.1-2010 version compared to the 90.1-2007 version of which 62 changes have an impact on energy. Expect additional guidance regarding adoption of these new standards.

(c) As stated in ECB 2011-1 (Reference d), all FY13 and beyond projects are required to meet the Energy and Sustainability requirements of ASHRAE Standard 189.1 according to Department of the Army Sustainable Design and Development Policy Update (Reference a) with the noted exemptions. The Army established ASHRAE Standard 189.1 as a minimum standard and recognizes that Congressional Law and Executive Orders drive project solutions beyond the requirements of ASHRAE Standard 189.1; an example being EISA 2007 fossil fuel reduction targets (Reference e).

- The Energy Independence & Security Act of 2007 (EISA 2007) requires the progressive reduction in site fossil fuel use, compared to a 2003 Commercial building Energy Consumption survey (CBECS) average per building type as published by the Energy Information Administration (EIA), with the goal of eliminating consumption of fossil fuels by 2030.

- In terms of the fossil fuel reduction statute, there is currently no formal guidance issued by an expert agency detailing how the calculations for fossil fuel reduction should be performed. In general, DOD implementation guidance would follow expert agency guidance. In absence of formal implementation guidance, USACE cannot require the fossil fuel avoidance as pertains to EISA 2007, which requires a reduction of 65% for the average building type in CBECS with respect to ASHRAE 90.1-2007 for buildings FY15-FY19 and 55% reduction respectfully for FY10-FY14.

(d) Per Army Policy, ASHRAE 189.1 is a minimum requirement and shall be used as the project baseline for life-cycle cost comparisons. A LCCA is not required on the baseline project. An incremental LCCA shall be completed for all energy efficiency or conservation features provided in excess of the baseline to ensure the payback period is no greater than the lesser of 40 years or the projected life of the facility. Equipment procurement, fuel, maintenance, repair, replacement, and any other quantifiable benefits and costs are to be included in the LCCA. The LCCA will be documented and made part of the design analysis.

(e) When applying ASHRAE Standard 189.1 energy performance standards, ensure that the minimum energy savings to be achieved, through performance or prescriptive paths, is at least 30 percent better than ASHRAE Standard 90.1-2007 (including process and plug loads) by the use of Energy use analysis: see paragraph Energy Conservation. This 30 percent savings threshold may in some cases be a slight improvement upon the standard for certain facility types in some climatic zones.

- The Energy Policy Act of 2005 (EPAact 2005) amended and extended by Executive Orders, subsequent legislation, and the "*Federal Leadership in High Performance and Sustainable Buildings Memorandum Of Understanding"* (FLHPSB MOU) establishes a betterment goal for the proposed project compared to an ASHRAE 90.1-2004 standard baseline model. Epact is applicable to all buildings and is an Energy Use based analysis, which excludes plug and process loads. But, the requirements of the paragraph above including process and plug loads is a much more extensive, conservative and stricter requirement for energy use savings.

(f) 10 CFR Part 436 (Reference f) establishes a methodology to conduct a LCCA for determining energy and water conservation improvements for Federal Buildings. The Building Life-Cycle Cost (BLCC) program developed by the National Institute of Standards and Technology (NIST) was designed to comply with 10 CFR Part 436 and includes a MILCON Analysis module. All project delivery teams shall use the BLCC program and follow the methodology in 10 CFR Part 436 to determine the LCCA for each project when requesting additional funds for features in excess of the baseline described in paragraph (c). A link is provided below with instructions on how to download the BLCC program for free:

http://www1.eere.energy.gov/femp/information/download_blcc.html

(g) A request for an exemption to HQUSACE may be made for any specific requirement included herein or by reference that the PDT determines would adversely affect mission performance, security requirements, health, safety, or welfare. The request for exemption shall only apply to the specific requirements in conflict. Any approved exemptions to the guidance shall be documented with reference to the specific requirement in conflict and included in the project documentation.

3.15 EQUIPMENT AND FURNITURE REQUIREMENTS:

3.15.1 Furnishings:

A. GENERAL:

1) Conceal clips, screws and other furniture construction elements where possible. Seating upholstery is required to meet Wyzenbeek Abrasion Test; 50,000 minimum double rubs. Furniture can be wood (where appropriate), plastic laminate or metal finish. Tops for case goods with plastic laminate or metal construction are to be plastic laminate. Location, use and frequency of moving furniture are to be considered when determining appropriate finish material and construction. Furniture constructed of particleboard with plastic laminate finish is not acceptable. Provide box and file drawers with a heavy-duty suspension system. Construct furniture with concealed fasteners. Furniture storage is to be lockable with keys provided to the user. Locks shall be keyed per user requirements. Coordinate style details and finishes within a room. Refer to the drawings for furniture layout. Clocks shall be provided in waiting rooms, offices and break rooms. Trash receptacles shall be provided in all employee work spaces, waiting rooms and by copier and printers.

(a) **Desk Chair:** Provide ergonomic desk chairs with non-upholstered adjustable height arms, padded, contoured, cushioned and upholstered or mesh seat and back, back tilt and locking capability, pneumatic seat height adjustment, adjustable lumbar support, seat depth adjustment, five star base and casters. Provide desk chairs with adjustable seat height range of 4 ½", range to include 16 1/2 – 20". Verify with user if armless desk chairs are preferred for employees carrying weapons.

(b) **High Stool:** Provide ergonomic swivel stool with adjustable height arms, padded, contoured, cushioned and upholstered or mesh seat and back, variable back lock, pneumatic seat height adjustment, adjustable lumbar support, seat depth adjustment, five star base, foot ring and casters. Provide high stools with adjustable seat height range of 5 ½" to include 20-25 ½".

(c) **Guest/Waiting Chair:** Provide guest chairs without arms, upholstered cushioned seat and back that are compatible in style, finish and color with the desk chairs (approximately 1'-9 w x 1'-11"d x 2'-6"h in size).

(d) **Break Room Chairs & Table:** Provide break room chairs that are easily cleaned. Verify style and finishes with user. Provide table with high pressure laminate top with PVC, vinyl, or post formed high pressure plastic laminate edge. A high pressure laminate plastic laminate self edge is not acceptable.

(e) **End Table:** Provide end table with high pressure laminate plastic laminate top and metal or wood frames that are compatible in style, finish and color to waiting chairs.

(f) **Desk & Workstations:** Provide U-shaped workstation with keyboard tray, overhead storage, tackboard and task light, under all overhead storage. The unit is to have modesty panels that allow access to the wall for power and communications including two pedestals and a pencil drawer. Provide a personal tower with coat storage, shelves and file storage where possible. Provide desk of steel construction with high pressure plastic laminate work surface. Tops are to have a formed edge such as PVC, vinyl molding or post formed high pressured plastic laminate. A high pressure plastic laminate self edge is not acceptable. Provide knee space that is not obstructed by legs/storage units that interfere with knee space of seated person. When space is limited, provide L-shaped workstation (desk, return, overhead storage, tackboard and task light) or double pedestal desk. All units to include keyboard tray.

(g) **Lateral File Cabinet:** Provide four drawer lateral file, unless limited by window design or other architectural features. File drawers are to be full extension, accommodate letter files and have rails for hanging folders. The drawers are to be capable of hanging files side-to-side and front-to-back. Drawer pulls are to be an integral pull, not an attached pull. Counterweights are to be provided when required by the manufacturer for stability.

(h) **Bookcase:** Provide four shelf metal bookcase(s) with adjustable shelves. Shelves are to be of sufficient height and depth to accommodate standard three ring binders. Bookcases can be inter-changed with lateral file cabinets, depending on user requirements or preferences.

(i) **Supply Cabinet:** Provide metal double door lockable supply cabinet with adjustable shelves.

(j) **Clock:** Provide clock that is 12 inches in diameter with a bezel finish, acrylic cover and quartz battery.

(k) **Trash Receptacles:** Provide rubber trash receptacles approximately 14”w x 11”d x 15”h.

3.15.2 Equipment: NOT USED

3.16 FACILITY SPECIFIC REFERENCES

A. These references are to be included [in addition to those in Paragraph 4 of the Army RFP Wizard].
1) ASTM F2656/F2656M (2018a) “Standard Test Methods for Vehicle Crash Testing of Perimeter Barriers”
2) Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) Pamphlet 55-15, “Traffic and Safety Engineering for Better Entry Control Facilities”
3) Army Standard (AS) for Access Control Points(ACPs) – 13 April 2012 available at: https://mrsi.erdc.dren.mil/cos/army-standards

B. OTHER UFC REFERENCES IN THIS STANDARD:

UFC 1-200-02 (2022) High Performance and Sustainable Building Requirements, with Change 2
UFC 3-101-01 (2021) Architecture with Change 1
UFC 3-201-01 (2021) Civil Engineering, with Change 5
UFC 3-240-01 (2021) Wastewater Collection and Treatment, with Change 2
UFC 3-301-01 (2022) Structural Engineering, with Change 1
UFC 3-410-01 (2021) Heating, Ventilating, and Air Conditioning Systems, with Change 8
UFC 3-420-01 (2021) Plumbing Systems
UFC 3-520-01 (2021) Interior Electrical Systems, with Change 2
UFC 3-530-01 (2019) Interior and Exterior Lighting and Controls, with Change 4
UFC 3-575-01 (2021) Lightning and Static Electricity Protection Systems, with Change 1
UFC 3-600-01 (2021) Fire Protection Engineering for Facilities, with Change 6
UFC 3-701-01 (2022) DoD Facilities Pricing Guide, with Change 1
UFC 4-010-01 (2022) DoD Minimum Antiterrorism Standards for Buildings with Change 2
UFC 4-020-02FA (2005) Security Engineering: Concept Design (FOUO)
UFC 4-020-03FA (2005) Security Engineering: Final Design (FOUO)
UFC 4-021-01 (2010) Design and O&M: Mass Notification Systems, with Change 1
UFC 4-021-02 (2019) Electronic Security Systems, with Change 1

UFC 4-022-01 (2017) Security Engineering: Entry Control Facilities / Access Control Points
UFC 4-023-07 (2017) Design to Resist Direct Fire Weapons Effects, with Change 1
ANSI A137.1 (2019) Specifications for Ceramic Tile
ASTM F1066 (2004; R 2018) Standard Specification for Vinyl Composition Floor Tile
ASTM F2656/F2656M (2020) "Standard Test Methods for Vehicle Crash Testing of Perimeter Barriers"
Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDC-TEA) Pamphlet 55-15, "Traffic and Safety Engineering for Better Entry Control Facilities" available at: https://www.sddc.army.mil/sites/TEA/Functions/SpecialAssistant/TrafficEngineeringBranch/Pages/pamphlets.aspx
Army Standard (AS) for Access Control Points(ACPs) – 13 April 2012 available at: https://mrsi.erdc.dren.mil/cos/army-standards

APPENDIX C

DRAWINGS

U.S ARMY ENGINEER DISTRICT, OMAHA

DEPARTMENT OF THE ARMY
FACILITIES STANDARDIZATION PROGRAM

STANDARD DESIGN/ CRITERIA
APPENDIX C

ACCESS CONTROL POINTS
FOR U.S. ARMY INSTALLATIONS

JANUARY 2009

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

COVER SHEET

SHEET REFERENCE NUMBER
G1.01
SHEET 1 OF 60

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C3.02	5	SITE PLAN - PRIMARY/SECONDARY ACP WITH VCC
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STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

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US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X. | DATE: NOV 2007
DWN BY: X.X.X. | CKD BY: X.X.X. | SOLICITATION NO.: W912HN-07-X-6204
SUBMITTED BY: X | CONTRACT NO.: X
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SIZE: ANSI D | PLOT SCALE: 1:1 | PLOT DATE:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SHEET INDEX

SHEET REFERENCE NUMBER
G2.01
SHEET 2 OF 60

REFERENCE CRITERIA

1. DEPARTMENT OF ARMY FACILITIES STANDARDIZATION PROGRAM, ARCHITECTURAL AND ENGINEERING DESIGN CRITERIA, ENGINEERING REGULATION ER 1110-1-113 (LATEST EDITION)
2. FEDERAL HIGHWAY ADMINISTRATION (FHWA), MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
3. FHWA, STANDARD HIGHWAY SIGNS, LATEST EDITION.
4. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (GREENBOOK), LATEST EDITION
5. AASHTO, ROADSIDE DESIGN GUIDE, LATEST EDITION
6. TRANSPORTATION RESEARCH BOARD (TRB), HIGHWAY CAPACITY MANUAL, LATEST EDITION
7. DEPARTMENT OF DEFENSE, UNIFIED FACILITIES CRITERIA (UFC) ON ENTRY CONTROL FACILITIES/ACCESS CONTROL POINTS: UFC 4-022-01
8. INSTITUTE OF TRANSPORTATION ENGINEERS (ITE), TRAFFIC ENGINEERING HANDBOOK, 1999
9. NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350, RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES
10. SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND-TRANSPORTATION ENGINEERING AGENCY (SDDC-TEA), TRAFFIC AND SAFETY ENGINEERING FOR BETTER ENTRY CONTROL FACILITIES: SDDCTEA PAMPHLET 55-15.

STANDARDS

ARMY INSTALLATION DESIGN STANDARDS (IDS) MAY 2004 - THE PURPOSE OF THESE STANDARDS, AND THIS STANDARD DESIGN PACKAGE, IS TO PROVIDE COMMON FACILITY AND INFRASTRUCTURE STANDARDS FOR ALL ARMY INSTALLATIONS. THE ARMY IDS PROVIDE COMPREHENSIVE STANDARDS IN THE FOLLOWING AREAS THAT THIS STANDARD DESIGN, WHEN IMPLEMENTED, SHALL COMPLY WITH:

SITE PLANNING DESIGN STANDARDS
BUILDING DESIGN STANDARDS
CIRCULATION DESIGN STANDARDS
LANDSCAPE DESIGN STANDARDS
SITE ELEMENTS DESIGN STANDARDS
FORCE PROTECTION DESIGN STANDARDS

1. UNIFIED FACILITIES CRITERIA (UFC) 4-010-01, MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS.
2. NFPA 70, 72, 101, AND 780.
3. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), NATIONAL FIRE CODES (NFC).
4. ETL 1110-3-491 - SUSTAINABLE DESIGN AND DEVELOPMENT FOR MILITARY FACILITIES, 1 MAY 2001.

ELECTRONIC SECURITY

1. UNIFIED FACILITIES CRITERIA (UFC) 4-020-04FA ELECTRONIC SECURITY SYSTEMS: SECURITY ENGINEERING
2. UNIFIED FACILITIES GUIDE SPECS (UFGS) 28 20 01.00 10 ELECTRONIC SECURITY SYSTEMS
3. UNIFIED FACILITIES GUIDE SPECS (UFGS) UFGS 28 23 23.00 10 CLOSED CURCUIT TELEVISION SYSTEMS

ELECTRICAL DESIGN REQUIREMENTS

1. ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA), GUIDELINE FOR SECURITY LIGHTING FOR PEOPLE PROPERTY AND PUBLIC SPACES, 2003 G-1-03
2. TECHNICAL MANUAL (TM) 5-811-1/AIR FORCE AFJMAN32-1080, ELECTRICAL POWER SUPPLY AND DISTRIBUTION
3. TECHNICAL INSTRUCTIONS (TI) 811-16, LIGHTING DESIGN
4. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70, 72, 101, AND 780
5. ANSI C2 NATIONAL ELECTRIC SAFETY CODE, LATEST EDITION
6. UNIFIED FACILITIES CRITERIA (UFC) 3-501-03N, ELECTRICAL ENGINEERING PRELIMINARY DESIGN CONSIDERATIONS

MECHANICAL DESIGN REQUIREMENTS

1. TI 800-01, TECHNICAL INSTRUCTIONS, DESIGN CRITERIA, 20 JULY 1998 (CHG. 28-30 JULY 2004)
2. AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE) MANUALS
3. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), NATIONAL FIRE CODES (NFC)
4. ENGINEERING TECHNICAL LETTER (ETL) 1110-3-491 - SUSTAINABLE DESIGN AND DEVELOPMENT FOR MILITARY FACILITIES, 1 MAY 2001
5. UFC 3-410-01FA DATED 15 MAY 2003, DESIGN: HEATING, VENTILATING AND AIR CONDITIONING
6. UFC 3-410-02A DATED 15 MAY 2003, DESIGN: HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTROL SYSTEMS

PLUMBING DESIGN REQUIREMENTS

1. NATIONAL STANDARD PLUMBING CODE (NAPHCC) AND ASHRAE TECHNICAL MANUALS

CIVIL ENGINEERING

1. UNIFIED FACILITIES CRITERIA (UFC) 3-210-06A, SITE PLANNING AND DESIGN, 16 JANUARY 2004
2. UNIFIED FACILITIES CRITERIA (UFC) 3-230-17FA, DRAINAGE FOR AREAS OTHER THAN AIRFIELDS, 16 JANUARY 2004
3. UNIFIED FACILITIES CRITERIA (UFC) 3-250-18FA, GENERAL PROVISIONS AND GEOMETRIC DESIGN FOR ROADS, STREETS, WALKS, AND OPEN STORAGE AREAS, 16 JANUARY 2004
4. UNIFIED FACILITIES CRITERIA (UFC) 3-250-01FA, PAVEMENT DESIGN FOR ROADS, STREETS, WALKS, AND OPEN STORAGE AREAS, 16 JANUARY 2004

ARCHITECTURAL

1. ADA- AMERICANS W/DISABILITIES ACT.
2. UFAS- UNIFORM FEDERAL ACCESSIBILITY STANDARDS.
3. IDG- INSTALLATION DESIGN GUIDES.
4. MSPA 80- STANDARDS FOR FIRE DOORS AND FIRE WINDOWS.
5. LEED VERSION 2.2- UNITED STATES GREEN BUILDING COUNCIL, LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN RATING SYSTEM.

STRUCTURAL

1. FOR A STRUCTURAL REFERENCE, AND AS A GENERAL REFERENCE USE UFC 1-200-02 "DESIGN: GENERAL BUILDING REQUIREMENTS"
2. TI 809-04, TECHNICAL INSTRUCTIONS - SEISMIC DESIGN FOR BUILDINGS, 13 DECEMBER 1998
3. TI 809-04, TECHNICAL INSTRUCTIONS - STRUCTURAL DESIGN CRITERIA FOR BUILDINGS, 01 SEPTEMBER 1999

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRWN BY: X.X.X.
CHKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
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PLOT DATE: .

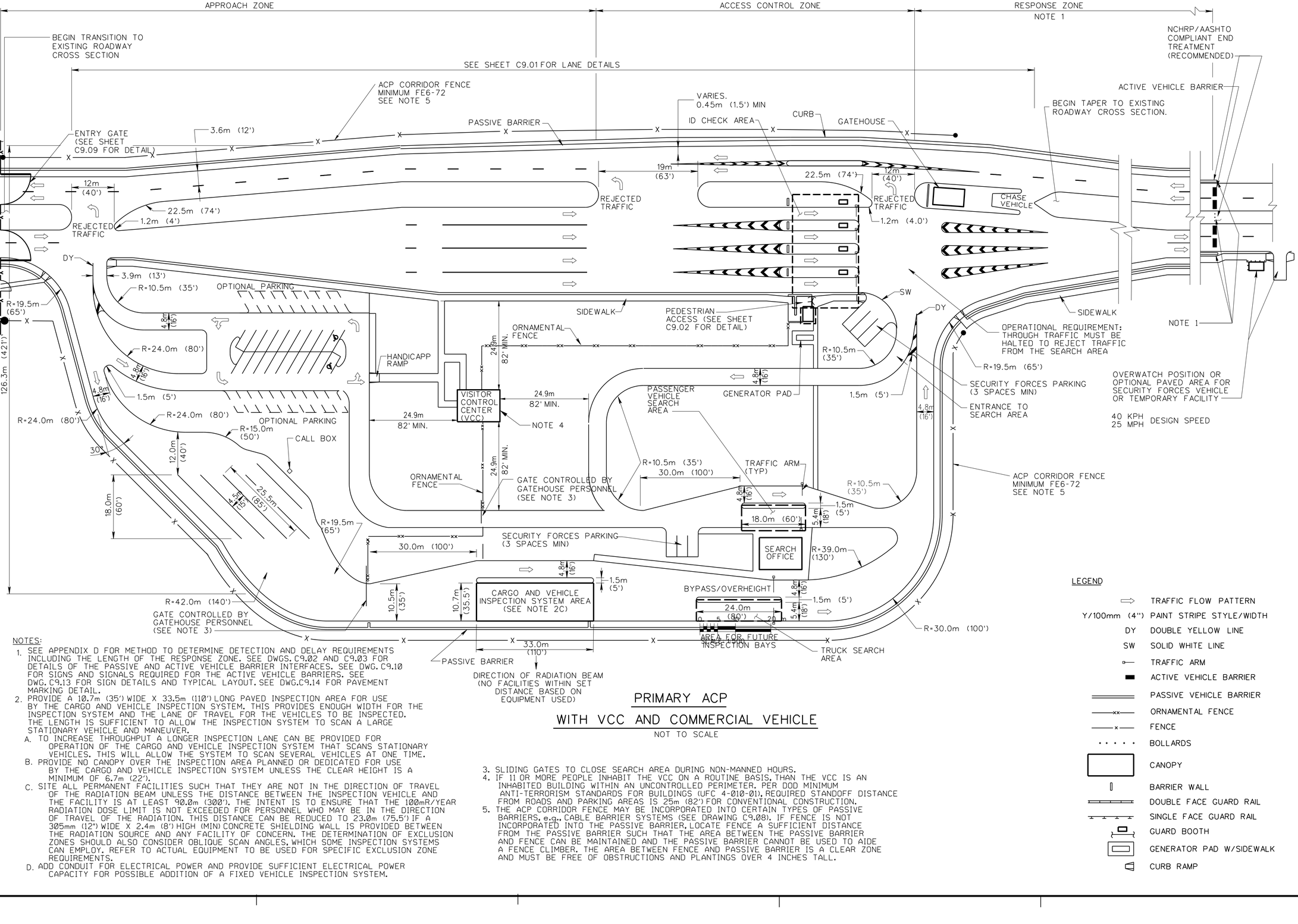
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

GENERAL NOTES

SHEET REFERENCE NUMBER
C0.01
SHEET 3 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG.C9.14 FOR PAVEMENT MARKING DETAIL.
2. PROVIDE A 10.7m (35') WIDE X 33.5m (110') LONG PAVED INSPECTION AREA FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM. THIS PROVIDES ENOUGH WIDTH FOR THE INSPECTION SYSTEM AND THE LANE OF TRAVEL FOR THE VEHICLES TO BE INSPECTED. THE LENGTH IS SUFFICIENT TO ALLOW THE INSPECTION SYSTEM TO SCAN A LARGE STATIONARY VEHICLE AND MANEUVER.
   A. TO INCREASE THROUGHPUT A LONGER INSPECTION LANE CAN BE PROVIDED FOR OPERATION OF THE CARGO AND VEHICLE INSPECTION SYSTEM THAT SCANS STATIONARY VEHICLES. THIS WILL ALLOW THE SYSTEM TO SCAN SEVERAL VEHICLES AT ONE TIME.
   B. PROVIDE NO CANOPY OVER THE INSPECTION AREA PLANNED OR DEDICATED FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM UNLESS THE CLEAR HEIGHT IS A MINIMUM OF 6.7m (22').
   C. SITE ALL PERMANENT FACILITIES SUCH THAT THEY ARE NOT IN THE DIRECTION OF TRAVEL OF THE RADIATION BEAM UNLESS THE DISTANCE BETWEEN THE INSPECTION VEHICLE AND THE FACILITY IS AT LEAST 90.0m (300'). THE INTENT IS TO ENSURE THAT THE 100mR/YEAR RADIATION DOSE LIMIT IS NOT EXCEEDED FOR PERSONNEL WHO MAY BE IN THE DIRECTION OF TRAVEL OF THE RADIATION. THIS DISTANCE CAN BE REDUCED TO 23.0m (75.5') IF A 305mm (12") WIDE X 2.4m (8') HIGH (MIN) CONCRETE SHIELDING WALL IS PROVIDED BETWEEN THE RADIATION SOURCE AND ANY FACILITY OF CONCERN. THE DETERMINATION OF EXCLUSION ZONES SHOULD ALSO CONSIDER OBLIQUE SCAN ANGLES, WHICH SOME INSPECTION SYSTEMS CAN EMPLOY. REFER TO ACTUAL EQUIPMENT TO BE USED FOR SPECIFIC EXCLUSION ZONE REQUIREMENTS.
   D. ADD CONDUIT FOR ELECTRICAL POWER AND PROVIDE SUFFICIENT ELECTRICAL POWER CAPACITY FOR POSSIBLE ADDITION OF A FIXED VEHICLE INSPECTION SYSTEM.
3. SLIDING GATES TO CLOSE SEARCH AREA DURING NON-MANNED HOURS.
4. IF 11 OR MORE PEOPLE INHABIT THE VCC ON A ROUTINE BASIS, THAN THE VCC IS AN INHABITED BUILDING WITHIN AN UNCONTROLLED PERIMETER. PER DOD MINIMUM ANTI-TERRORISM STANDARDS FOR BUILDINGS (UFC 4-010-01), REQUIRED STANDOFF DISTANCE FROM ROADS AND PARKING AREAS IS 25m (82') FOR CONVENTIONAL CONSTRUCTION.
5. THE ACP CORRIDOR FENCE MAY BE INCORPORATED INTO CERTAIN TYPES OF PASSIVE BARRIERS, e.g., CABLE BARRIER SYSTEMS (SEE DRAWING C9.08). IF FENCE IS NOT INCORPORATED INTO THE PASSIVE BARRIER, LOCATE FENCE A SUFFICIENT DISTANCE FROM THE PASSIVE BARRIER SUCH THAT THE AREA BETWEEN THE PASSIVE BARRIER AND FENCE CAN BE MAINTAINED AND THE PASSIVE BARRIER CANNOT BE USED TO AIDE A FENCE CLIMBER. THE AREA BETWEEN FENCE AND PASSIVE BARRIER IS A CLEAR ZONE AND MUST BE FREE OF OBSTRUCTIONS AND PLANTINGS OVER 4 INCHES TALL.

PRIMARY ACP
WITH VCC AND COMMERCIAL VEHICLE
NOT TO SCALE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
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CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE: .

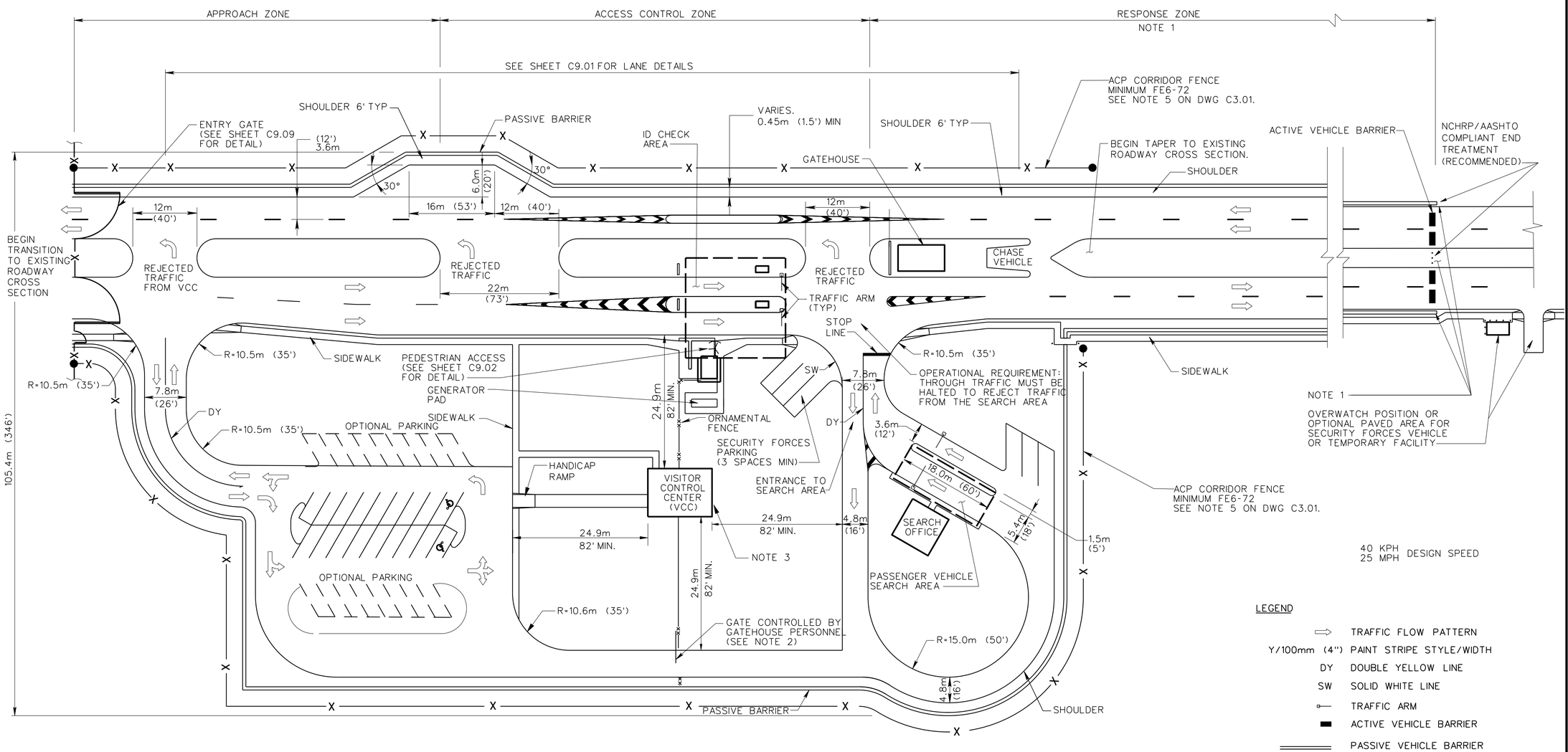
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
PRIMARY ACP WITH VCC AND COMMERCIAL VEHICLE ACCESS

SHEET REFERENCE NUMBER
C3.01
SHEET 4 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



40 KPH
25 MPH DESIGN SPEED

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG.C9.14 FOR PAVEMENT MARKING DETAIL.
2. SILIDING GATE TO CLOSE SEARCH AREA DURING NON-MANNED HOURS.
3. IF 11 OR MORE PEOPLE INHABIT THE VCC ON A ROUTINE BASIS, THEN THE VCC IS AN INHABITED BUILDING WITHIN AN UNCONTROLLED PERIMETER. PER DOD MINIMUM ANTI-TERRORISM STANDARDS FOR BUILDINGS (UFC 40010-01), REQUIRED STANDOFF DISTANCE FROM ROADS AND PARKING AREAS IS 25m (82') FOR CONVENTIONAL CONSTRUCTION.

PRIMARY/SECONDARY ACP WITH VCC

(NOT FOR COMMERCIAL VEHICLES)
NOT TO SCALE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

DATE	DESCRIPTION	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-4004
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:
SIZE: ANSI D

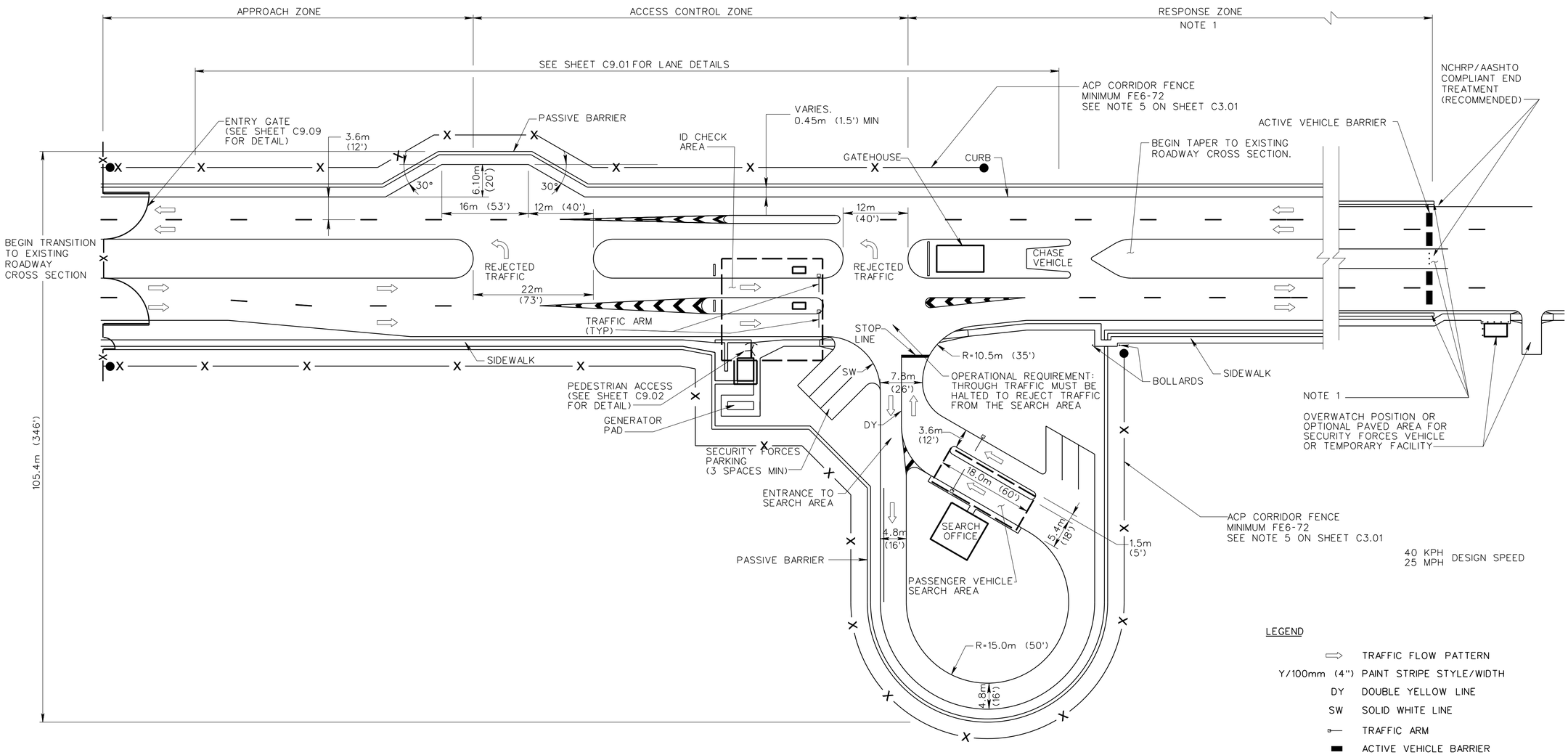
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
PRIMARY/SECONDARY ACP WITH VCC

SHEET REFERENCE NUMBER
C3.02
SHEET 5 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG.C9.14 FOR PAVEMENT MARKING DETAIL.

LEGEND

⇨	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
SW	SOLID WHITE LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
	ORNAMENTAL FENCE
	FENCE
	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP

PRIMARY/SECONDARY ACP WITHOUT VCC

(NOT FOR COMMERCIAL VEHICLES)

0 5 10 20 m

SCALE: 1:400

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: XXX
DRAWN BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
CHKD BY: XXX
PLOT SCALE: 1:1
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

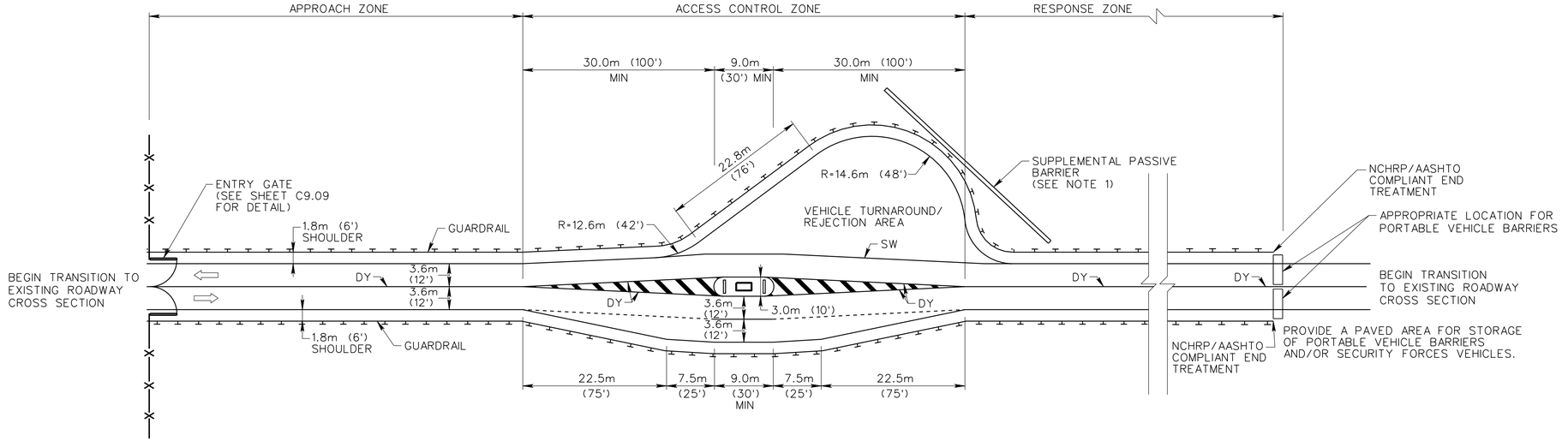
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
PRIMARY/SECONDARY ACP WITHOUT VCC

SHEET REFERENCE NUMBER
C3.03
SHEET 6 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



LIMITED USE ACP

NOT TO SCALE

NOTES:

1. SUPPLEMENTAL BARRIERS REQUIRED TO STOP VEHICLES APPROACHING AT GREATER THAN 25 DEGREES.

LEGEND

⇨	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
SW	SOLID WHITE LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
xx	ORNAMENTAL FENCE
x	FENCE
	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRN BY: X.X.X.
CHKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
SIZE: ANSI D
PLOT DATE:

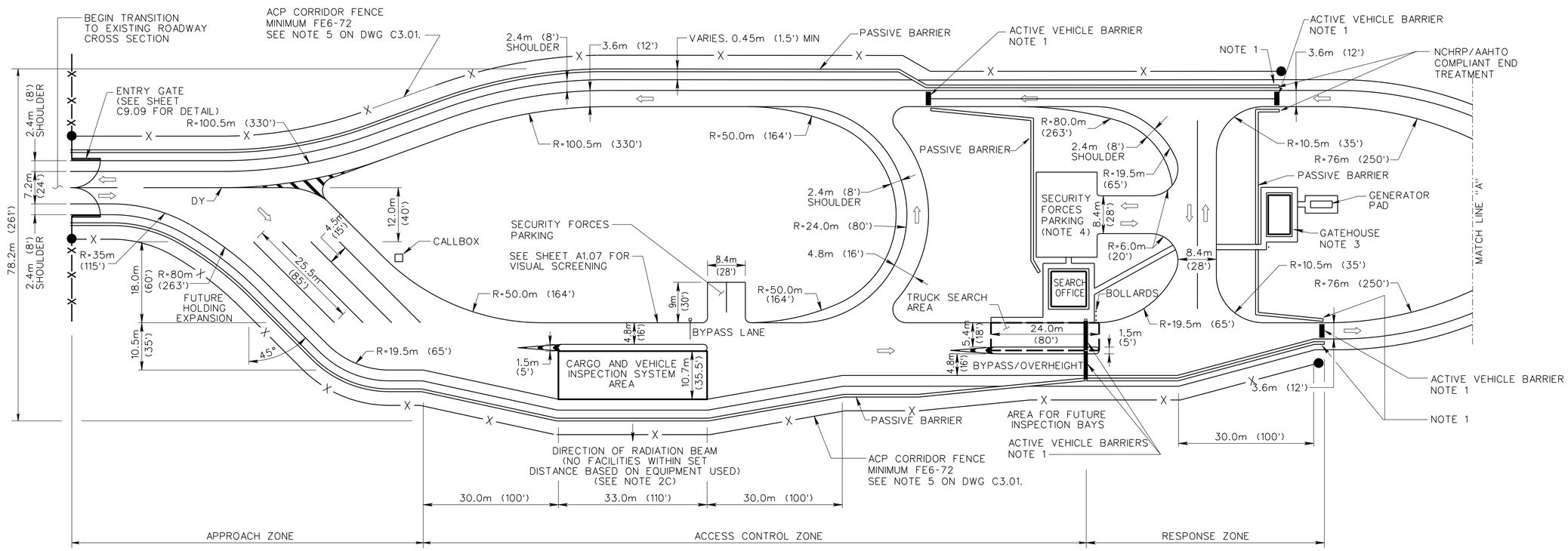
U. S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
LIMITED USE ACP

SHEET REFERENCE NUMBER
C3.04
SHEET 7 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



40 KPH
25 MPH DESIGN SPEED

NOTES:

1. SEE DWG. C3.08 FOR SIGNALIZATION DETAIL AT ACTIVE VEHICLE BARRIER. SEE DWGS C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKING DETAILS.

2. PROVIDE A 10.7m (35') WIDE X 33.5m (110') LONG PAVED INSPECTION AREA FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM. THIS PROVIDES ENOUGH WIDTH FOR THE INSPECTION SYSTEM AND THE LANE OF TRAVEL FOR THE VEHICLES TO BE INSPECTED. THE LENGTH IS SUFFICIENT TO ALLOW THE INSPECTION SYSTEM TO SCAN A LARGE STATIONARY VEHICLE AND MANEUVER.

   A. TO INCREASE THROUGHPUT A LONGER INSPECTION LANE CAN BE PROVIDED FOR OPERATION OF THE CARGO AND VEHICLE INSPECTION SYSTEM THAT SCANS STATIONARY VEHICLES. THIS WILL ALLOW THE SYSTEM TO SCAN SEVERAL VEHICLES AT ONE TIME.

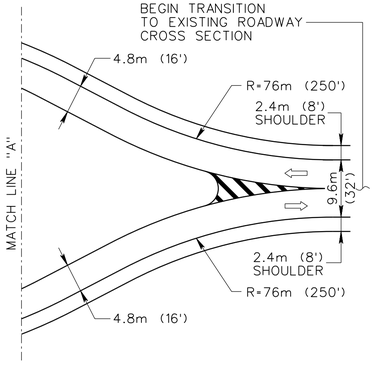
   B. PROVIDE NO CANOPY OVER THE INSPECTION AREA PLANNED OR DEDICATED FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM UNLESS THE CLEAR HEIGHT IS A MINIMUM OF 6.7m (22').

   C. SITE ALL PERMANENT FACILITIES SUCH THAT THEY ARE NOT IN THE DIRECTION OF TRAVEL OF THE RADIATION BEAM UNLESS THE DISTANCE BETWEEN THE INSPECTION VEHICLE AND THE FACILITY IS AT LEAST 90.0m (300'). THE INTENT IS TO ENSURE THAT THE 100mR/YEAR RADIATION DOSE LIMIT IS NOT EXCEEDED FOR PERSONNEL WHO MAY BE IN THE DIRECTION OF TRAVEL OF THE RADIATION. THIS DISTANCE CAN BE REDUCED TO 23.0m (75.5') IF A 305mm (12") WIDE X 2.4m (8') HIGH (MIN) CONCRETE SHIELDING WALL IS PROVIDED BETWEEN THE RADIATION SOURCE AND ANY FACILITY OF CONCERN. THE DETERMINATION OF EXCLUSION ZONES SHOULD ALSO CONSIDER OBLIQUE SCAN ANGLES, WHICH SOME INSPECTION SYSTEMS CAN EMPLOY. REFER TO ACTUAL EQUIPMENT TO BE USED FOR SPECIFIC EXCLUSION ZONE REQUIREMENTS.

   D. ADD CONDUIT FOR ELECTRICAL POWER AND PROVIDE SUFFICIENT ELECTRICAL POWER CAPACITY FOR POSSIBLE ADDITION OF A FIXED VEHICLE INSPECTION SYSTEM.

3. GATEHOUSE DOUBLES AS OVERWATCH.

4. NUMBER OF SPACES DETERMINED BY PERSONNEL REQUIREMENTS.



COMMERCIAL VEHICLE ACP

BARRIER NORMALLY CLOSED (DEPLOYED) OPERATION

0 5 10 20 m

SCALE: 1:500

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

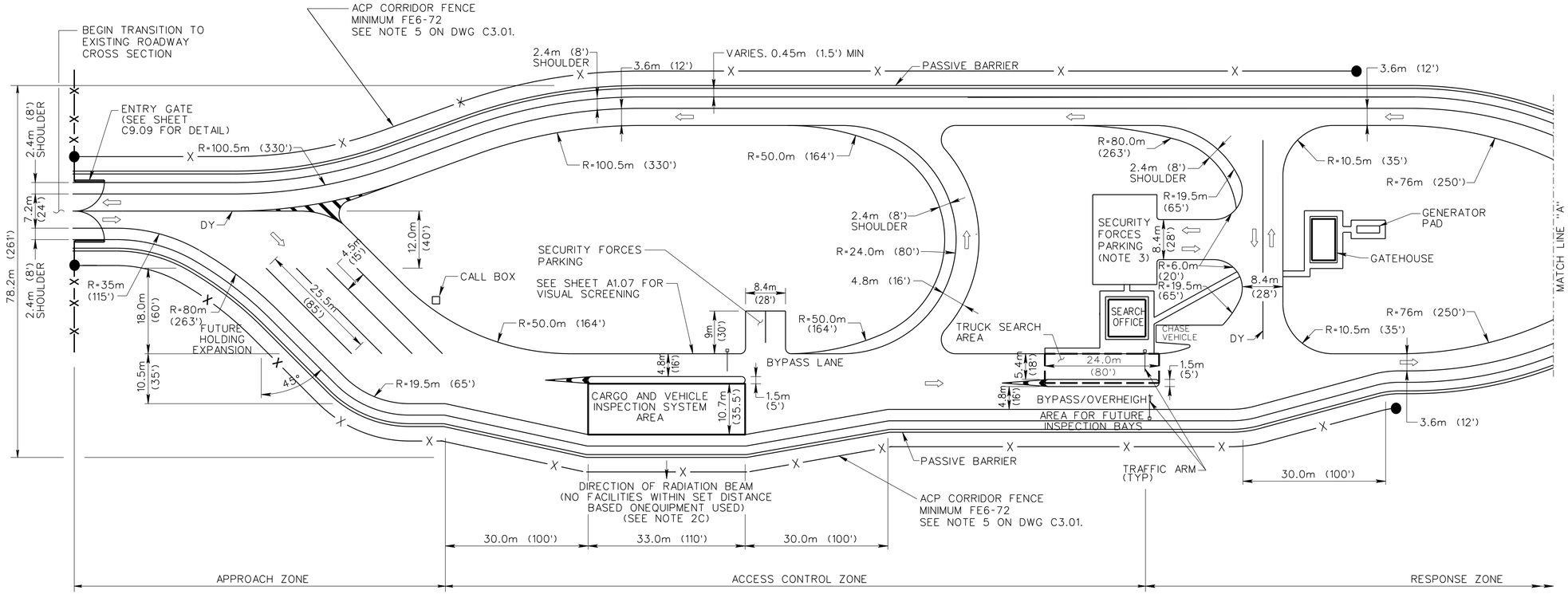
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
COMMERCIAL VEHICLE ACP
BARRIER NORMALLY CLOSED (DEPLOYED) OPERATION

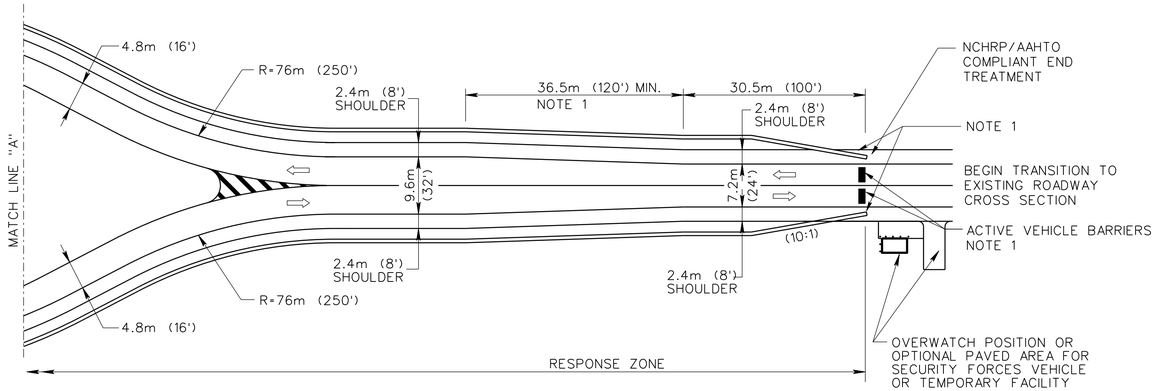
SHEET REFERENCE NUMBER
C3.05
SHEET 8 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKING DETAILS.
2. PROVIDE A 10.7m (35') WIDE X 33.5m (110') LONG PAVED INSPECTION AREA FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM. THIS PROVIDES ENOUGH WIDTH FOR THE INSPECTION SYSTEM AND THE LANE OF TRAVEL FOR THE VEHICLES TO BE INSPECTED. THE LENGTH IS SUFFICIENT TO ALLOW THE INSPECTION SYSTEM TO SCAN A LARGE STATIONARY VEHICLE AND MANEUVER.
   A. TO INCREASE THROUGHPUT A LONGER INSPECTION LANE CAN BE PROVIDED FOR OPERATION OF THE CARGO AND VEHICLE INSPECTION SYSTEM THAT SCANS STATIONARY VEHICLES. THIS WILL ALLOW THE SYSTEM TO SCAN SEVERAL VEHICLES AT ONE TIME.
   B. PROVIDE NO CANOPY OVER THE INSPECTION AREA PLANNED OR DEDICATED FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM UNLESS THE CLEAR HEIGHT IS A MINIMUM OF 6.7m (22').
   C. SITE ALL PERMANENT FACILITIES SUCH THAT THEY ARE NOT IN THE DIRECTION OF TRAVEL OF THE RADIATION BEAM UNLESS THE DISTANCE BETWEEN THE INSPECTION VEHICLE AND THE FACILITY IS AT LEAST 90.0m (300'). THE INTENT IS TO ENSURE THAT THE 100mR/YEAR RADIATION DOSE LIMIT IS NOT EXCEEDED FOR PERSONNEL WHO MAY BE IN THE DIRECTION OF TRAVEL OF THE RADIATION. THIS DISTANCE CAN BE REDUCED TO 23.0m (75.5') IF A 305mm (12") WIDE X 2.4m (8') HIGH (MIN) CONCRETE SHIELDING WALL IS PROVIDED BETWEEN THE RADIATION SOURCE AND ANY FACILITY OF CONCERN. THE DETERMINATION OF EXCLUSION ZONES SHOULD ALSO CONSIDER OBLIQUE SCAN ANGLES, WHICH SOME INSPECTION SYSTEMS CAN EMPLOY. REFER TO ACTUAL EQUIPMENT TO BE USED FOR SPECIFIC EXCLUSION ZONE REQUIREMENTS.
   D. ADD CONDUIT FOR ELECTRICAL POWER AND PROVIDE SUFFICIENT ELECTRICAL POWER CAPACITY FOR POSSIBLE ADDITION OF A FIXED VEHICLE INSPECTION SYSTEM.
3. NUMBER OF SPACES DETERMINED BY PERSONNEL REQUIREMENTS.



COMMERCIAL VEHICLE ACP

BARRIER NORMALLY OPEN OPERATION

0 5 10 20 m

SCALE: 1:500

40 KPH
25 MPH DESIGN SPEED

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:
SIZE: ANSI D

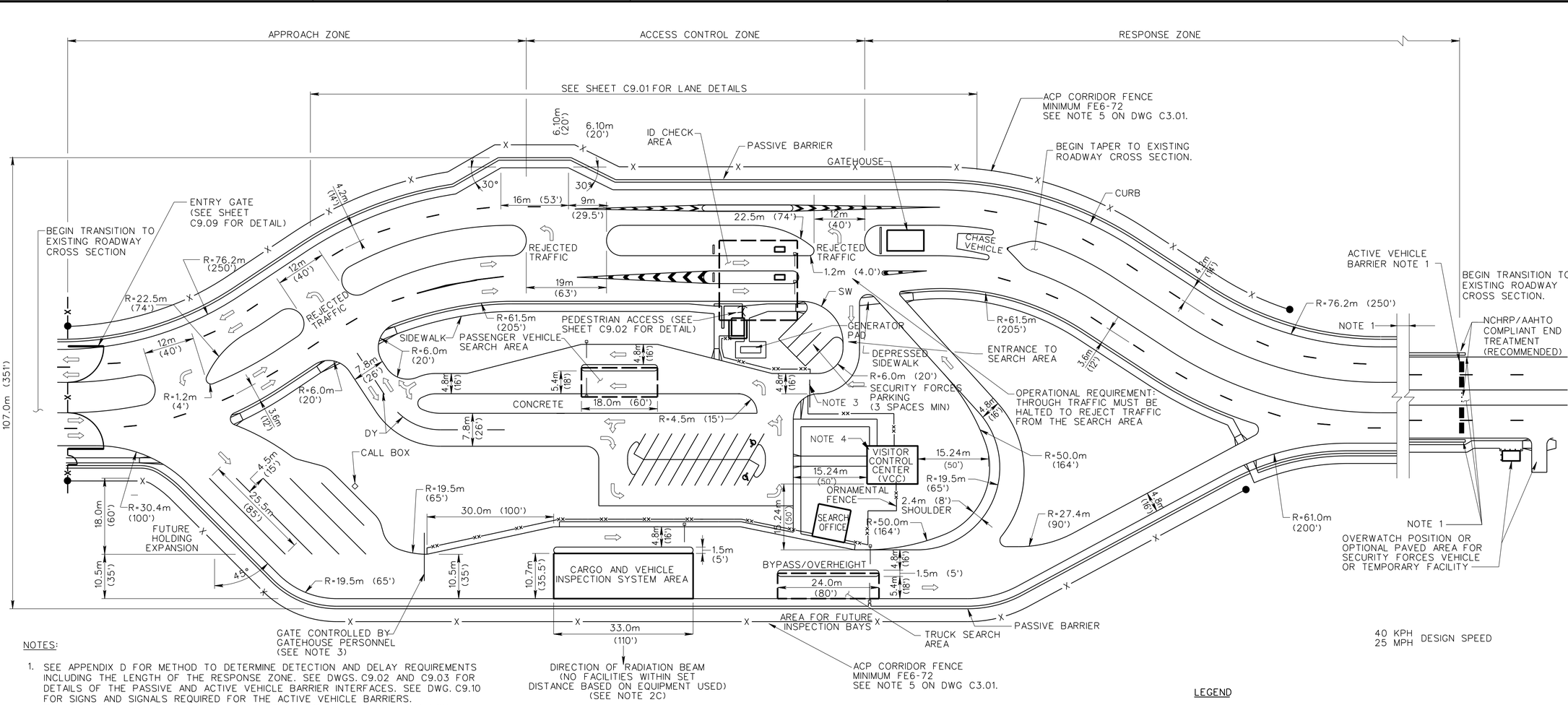
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
COMMERCIAL VEHICLE ACP
BARRIER NORMALLY OPEN OPERATION

SHEET REFERENCE NUMBER
C3.06
SHEET 9 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKING DETAILS.

2. PROVIDE A 10.7m (35') WIDE X 33.5m (110') LONG PAVED INSPECTION AREA FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM. THIS PROVIDES ENOUGH WIDTH FOR THE INSPECTION SYSTEM AND THE LANE OF TRAVEL FOR THE VEHICLES TO BE INSPECTED. THE LENGTH IS SUFFICIENT TO ALLOW THE INSPECTION SYSTEM TO SCAN A LARGE STATIONARY VEHICLE AND MANEUVER.
   - A. TO INCREASE THROUGHPUT A LONGER INSPECTION LANE CAN BE PROVIDED FOR OPERATION OF THE CARGO AND VEHICLE INSPECTION SYSTEM THAT SCANS STATIONARY VEHICLES. THIS WILL ALLOW THE SYSTEM TO SCAN SEVERAL VEHICLES AT ONE TIME.
   - B. DO NOT PROVIDE CANOPY OVER THE INSPECTION AREA PLANNED OR DEDICATED FOR USE BY THE CARGO AND VEHICLE INSPECTION SYSTEM UNLESS THE CLEAR HEIGHT IS A MINIMUM OF 6.7m (22').
   - C. SITE ALL PERMANENT FACILITIES SUCH THAT THEY ARE NOT IN THE DIRECTION OF TRAVEL OF THE RADIATION BEAM UNLESS THE DISTANCE BETWEEN THE INSPECTION VEHICLE AND THE FACILITY IS AT LEAST 90.0m (300'). THE INTENT IS TO ENSURE THAT THE 100mR/YEAR RADIATION DOSE LIMIT IS NOT EXCEEDED FOR PERSONNEL WHO MAY BE IN THE DIRECTION OF TRAVEL OF THE RADIATION. THIS DISTANCE CAN BE REDUCED TO 23.0m (75.5') IF A 305mm (12") WIDE X 2.4m (8') HIGH (MIN) CONCRETE SHIELDING WALL IS PROVIDED BETWEEN THE RADIATION SOURCE AND ANY FACILITY OF CONCERN. THE DETERMINATION OF EXCLUSION ZONES SHOULD ALSO CONSIDER OBLIQUE SCAN ANGLES, WHICH SOME INSPECTION SYSTEMS CAN EMPLOY. REFER TO ACTUAL EQUIPMENT TO BE USED FOR SPECIFIC EXCLUSION ZONE REQUIREMENTS.
   - D. ADD CONDUIT FOR ELECTRICAL POWER AND PROVIDE SUFFICIENT ELECTRICAL POWER CAPACITY FOR POSSIBLE ADDITION OF A FIXED VEHICLE INSPECTION SYSTEM.

3. SLIDING GATES CONTROLLED BY GATEHOUSE PERSONNEL TO CLOSE SEARCH AREA DURING NON-MANNED HOURS.

4. IF 11 OR MORE PEOPLE INHABIT VCC ON A ROUTINE BASIS, THEN THE VCC IS AN INHABITED BUILDING WITHIN UNCONTROLLED PERIMETER. PER DOD MINIMUM ANTI-TERRORISM STANDARDS FOR BUILDINGS (UFC 4-010-01), REQUIRED STANOFF DISTANCE FROM ROADS AND PARKING AREAS IS 25m (82") FOR CONVENTIONAL CONSTRUCTION. THIS AMOUNT OF STAND-OFF IS NOT AVAILABLE IN THIS RESTRICTED REAL ESTATE EXAMPLE, THEREFORE, THE VCC MUST BE HARDENED TO WITHSTAND THE EFFECTS OF THE THREAT EXPLOSIVE DETONATING AT THE AVAILABLE STANDOFF DISTANCE OF 50' SHOWN ON THE DRAWINGS.

RESTRICTED REAL ESTATE ACP WITH VCC AND COMMERCIAL VEHICLE BARRIER NORMALLY OPEN OPERATION

NO DENIAL BETWEEN TRUCK HOLDING & TRUCK INSPECTION

0 5 10 20 m

SCALE: 1:500

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
PLOT SCALE: 1:1
SIZE: ANSI D

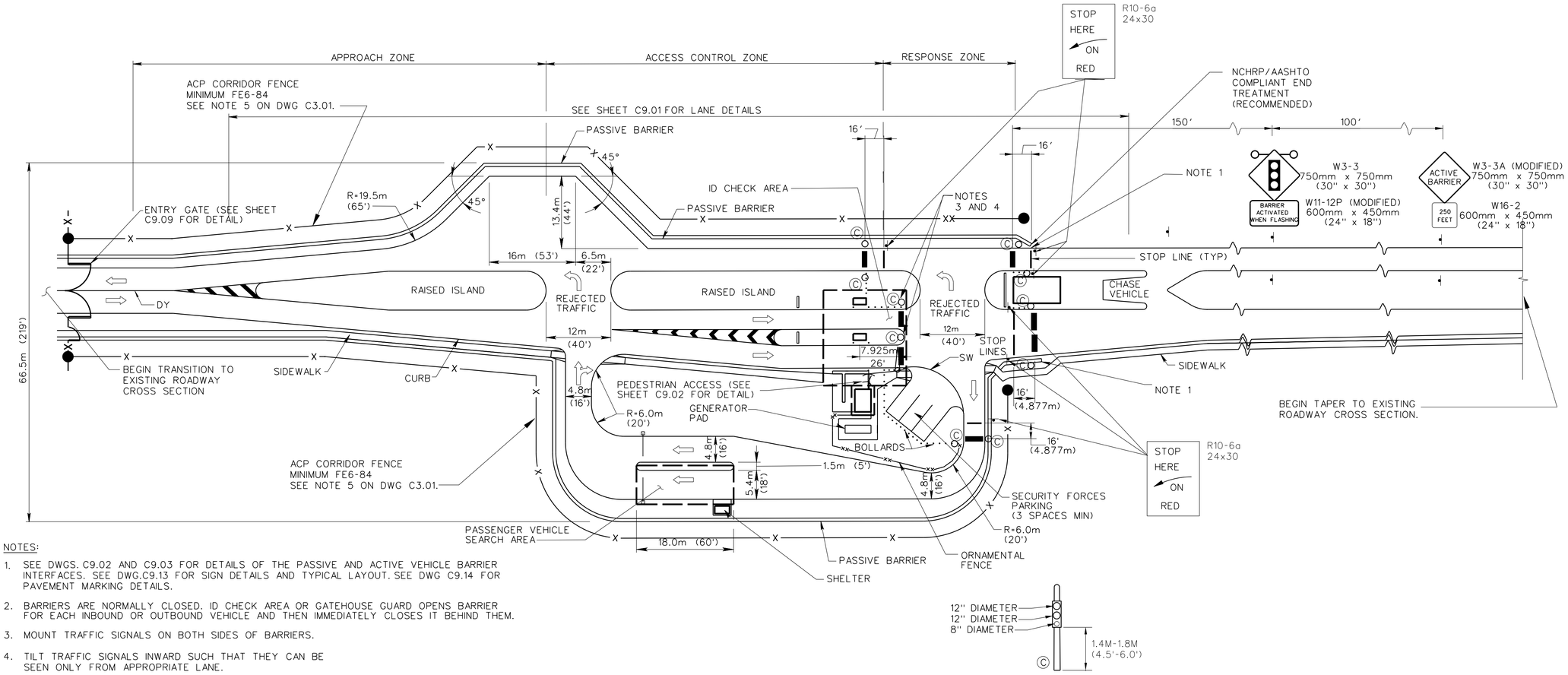
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
RESTRICTED REAL ESTATE ACP WITH VCC AND COMMERCIAL VEHICLE ACCESS BARRIER NORMALLY OPEN OPERATION

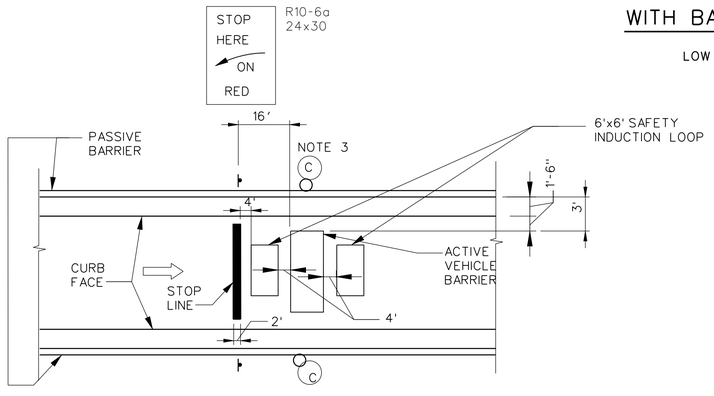
SHEET REFERENCE NUMBER
C3.07
SHEET 10 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOTES:

1. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG.C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKING DETAILS.
2. BARRIERS ARE NORMALLY CLOSED. ID CHECK AREA OR GATEHOUSE GUARD OPENS BARRIER FOR EACH INBOUND OR OUTBOUND VEHICLE AND THEN IMMEDIATELY CLOSES IT BEHIND THEM.
3. MOUNT TRAFFIC SIGNALS ON BOTH SIDES OF BARRIERS.
4. TILT TRAFFIC SIGNALS INWARD SUCH THAT THEY CAN BE SEEN ONLY FROM APPROPRIATE LANE.



SIGNALIZATION DETAIL FOR BARRIER NORMALLY CLOSED SAFETY SYSTEM

NOT TO SCALE

RESTRICTED REAL ESTATE ACP
WITH BARRIER NORMALLY CLOSED (DEPLOYED) OPERATION

NO COMMERCIAL VEHICLES ALLOWED
LOW VOLUME APPLICATIONS ONLY (NOT SUITABLE FOR > 400 VEHICLES PER HOUR)

0 5 10 20 m
SCALE: 1:400

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP
- TRAFFIC SIGNAL DETAIL

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

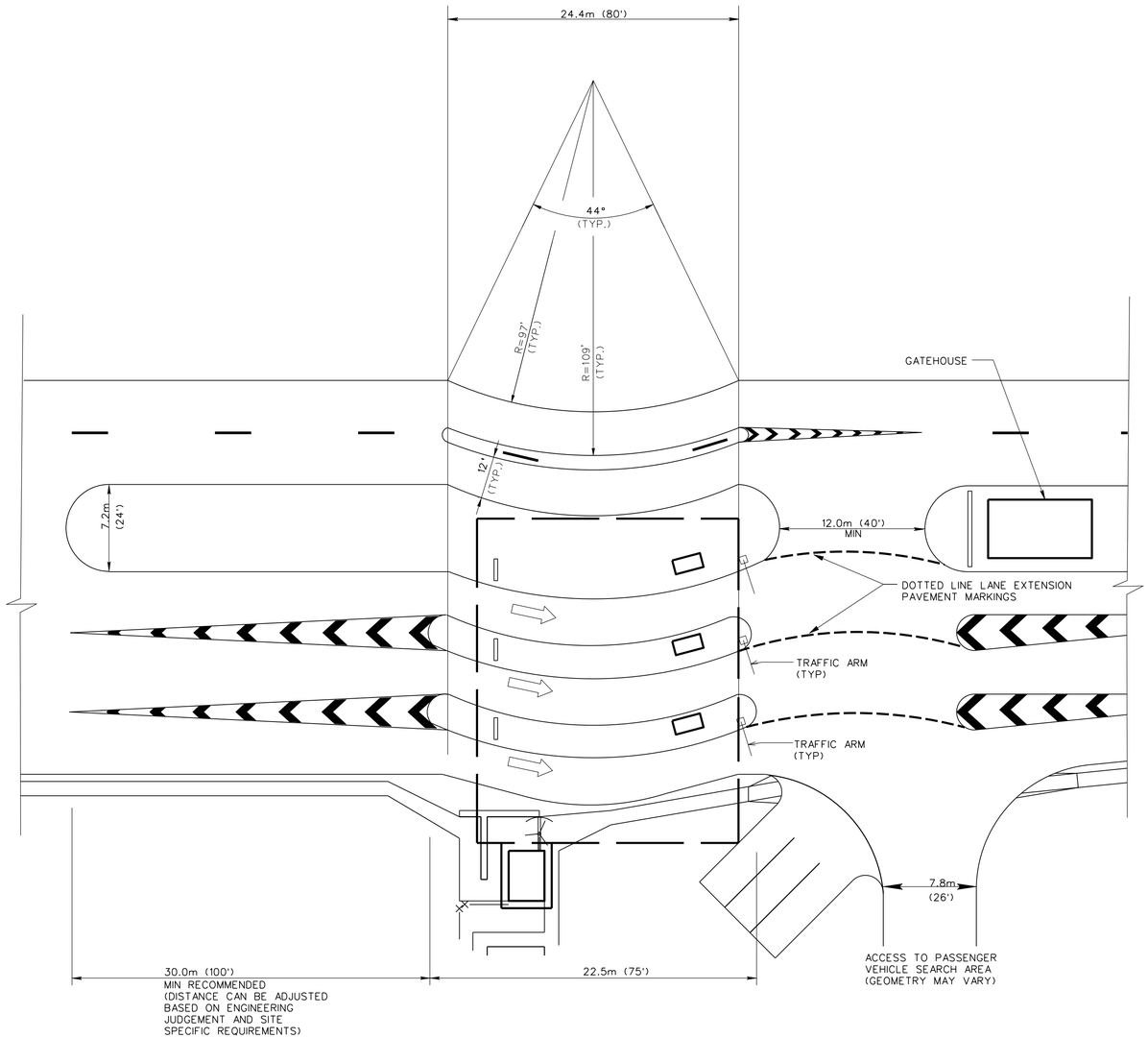
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
RESTRICTED REAL ESTATE ACP
WITH BARRIER NORMALLY CLOSED (DEPLOYED) OPERATION

SHEET REFERENCE NUMBER
C3.08
SHEET 11 OF 60

$$DGNSPEC$$
$$SYSTIME:$$
$$USERNAME:$$



ALTERNATE ID CHECK AREA CONFIGURATION

NOT TO SCALE

NOTES:
1. CURVED ID CHECK POINT ISLANDS SHOWN PROVIDE A LIMITING SPEED OF 113 KPH (70MPH) FOR PASSENGER VEHICLES. CURVED ID CHECK POINT ISLANDS ARE NOT SUITABLE FOR TRACTOR/TRAILERS.

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1 : 1
PLOT DATE:

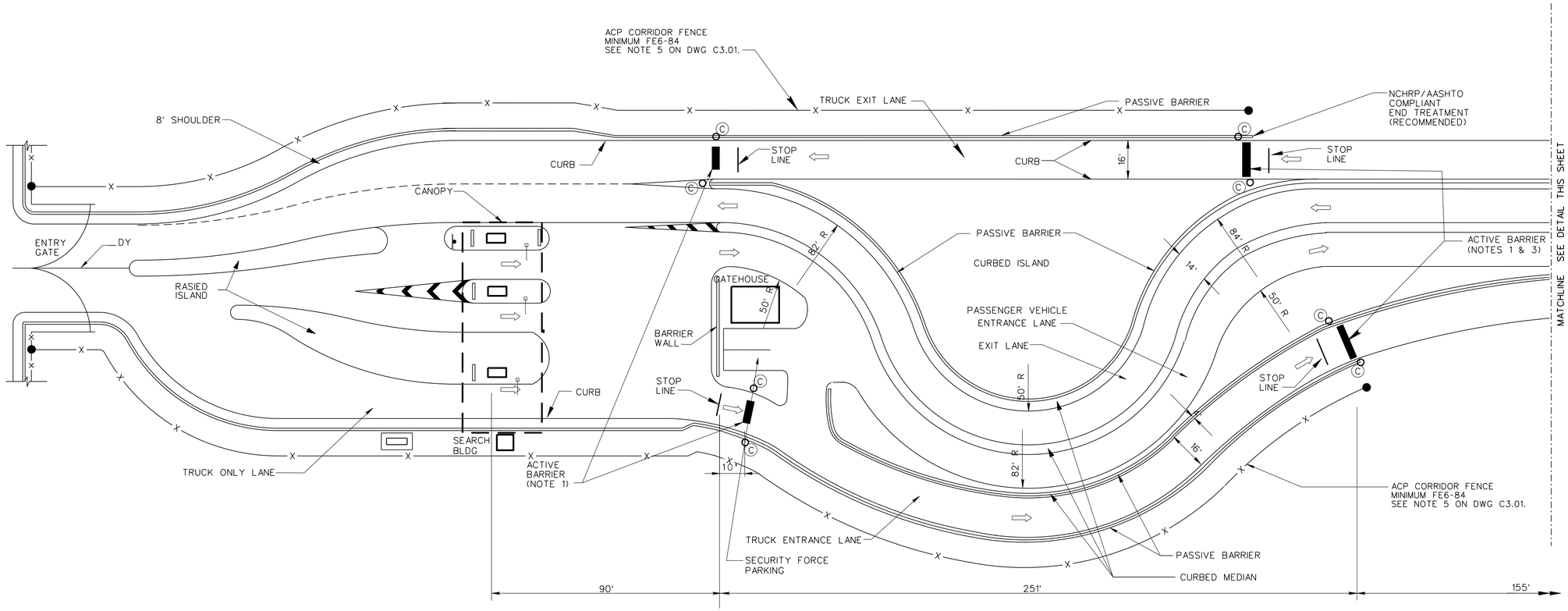
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
ALTERNATE ID CHECK AREA CONFIGURATION

SHEET REFERENCE NUMBER
C3.09
SHEET 12 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



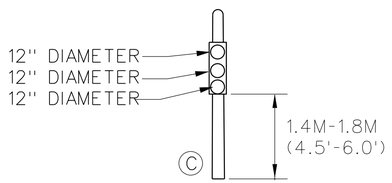
SITE PLAN
RESTRICTED REAL ESTATE ACP
WITH PASSENGER AND COMMERICAL VEHICLE ACCESS

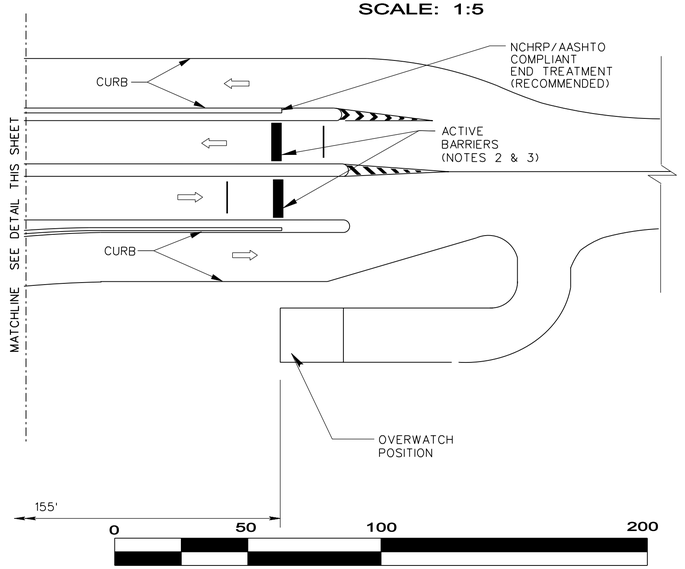
0 50 100 200

SCALE: 1:5

NOTES:

1. BARRIERS IN TRUCK ONLY LANES ARE OPERATED IN THE NORMALLY CLOSED (DEPLOYED) SAFETY SYSTEM.
2. BARRIERS IN PASSENGER VEHICLE ONLY LANES ARE NORMALLY OPEN WITH SIGNS AND SIGNALS SAFETY SYSTEM.
3. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIER IN THE PASSENGER VEHICLE ONLY LANES. SEE DWG 3.08 FOR SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS IN THE TRUCK ONLY LANES. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKINGS DETAILS.





SCALE: 1:5

LEGEND

⇨	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
SW	SOLID WHITE LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
	ORNAMENTAL FENCE
	FENCE
	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP
Ⓒ	TRAFFIC SIGNAL DETAIL

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912RN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE:

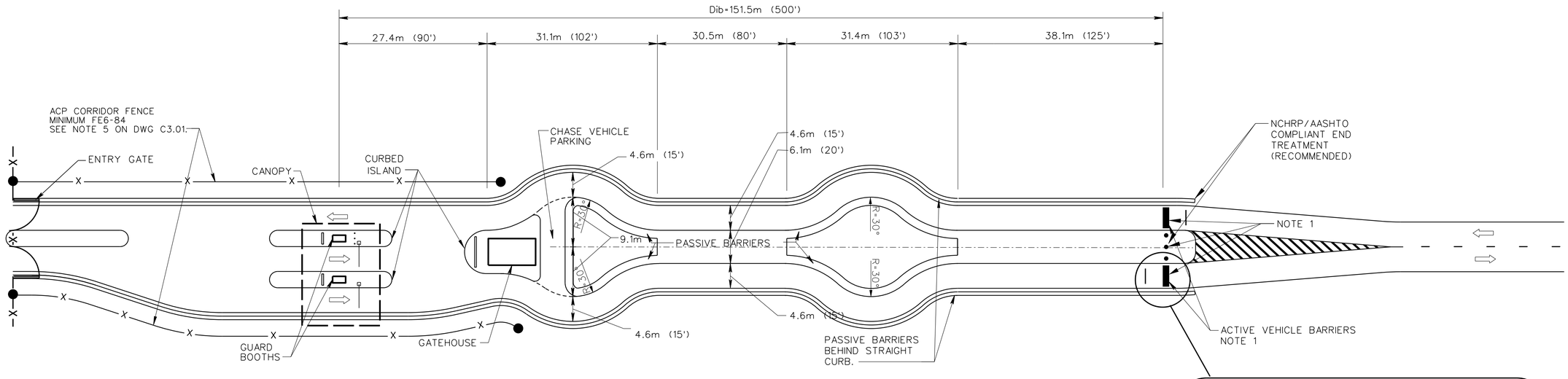
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

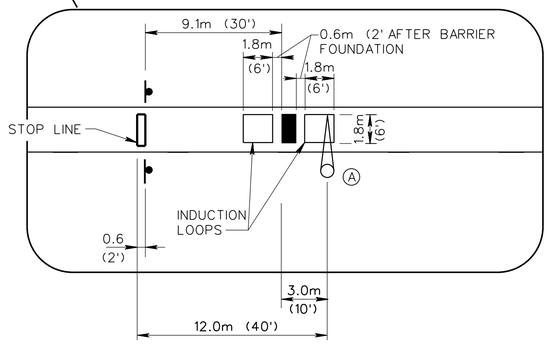
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
RESTRICTED REAL ESTATE ACP
WITH PASSENGER AND COMMERICAL VEHICLE ACCESS

SHEET REFERENCE NUMBER
C3.10
SHEET 13 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



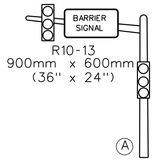


LIMITED REAL ESTATE ACP WITH HALF CIRCLES
NOT FOR COMMERCIAL VEHICLES

NOT TO SCALE

NOTES:

1. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKING DETAILS.
2. RESPONSE ZONE LENGTH IS REDUCED IN THIS EXAMPLE BY APPLYING 2 HALF CIRCLES. HALF CIRCLES ARE SIMILAR TO TRAFFIC TURNAROUNDS OR ROUND-A-BOUTS THAT ARE USED IN URBAN RESIDENTIAL AREAS.



LEGEND

⇨	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
SW	SOLID WHITE LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
—xx—	ORNAMENTAL FENCE
—x—	FENCE
• • • • •	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: X.X.X.
DWN BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
CHKD BY: X.X.X.
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6004
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

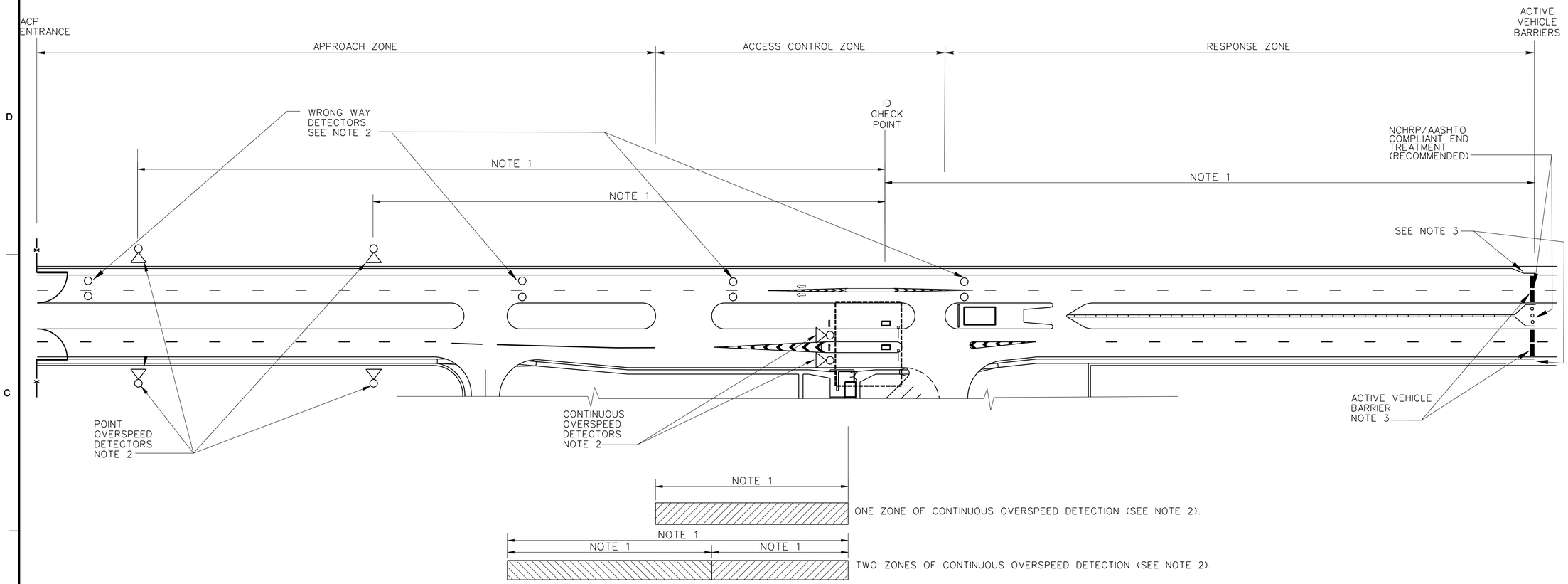
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
LIMITED REAL ESTATE ACP
WITH HALF CIRCLES

SHEET REFERENCE NUMBER
C3.11
SHEET 14 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



CONVENTIONAL ACP

NOT TO SCALE

NOTES:

1. THE CONVENTIONAL ACP HAS STRAIGHT ROADWAYS THROUGH THE ACP CORRIDOR. THE PROTECTIVE SYSTEM FOR A CONVENTIONAL ACP CONSISTS OF OVERSPEED AND WRONG-WAY SENSORS TO DETECT THE THREAT VEHICLE AS EARLY AS POSSIBLE IN ITS ATTACK. IT ALSO RELIES ON THE LENGTHS OF ROADWAY SEGMENTS IN THE ACP CORRIDOR TO DELAY THE THREAT VEHICLE. SEE EXAMPLES IN APPENDIX D FOR CALCULATIONS TO DETERMINE OVERSPEED DETECTOR LOCATIONS, RANGES, AND SETTINGS AND REQUIRED LENGTHS OF ACP ROADWAY SEGMENTS. APPENDIX D INCLUDES EXAMPLES USING THE SIGNS AND SIGNALS SAFETY SYSTEM AND THE PRESENCE DETECTION SAFETY SYSTEM.
2. SEE SECTION 4.1 OF THE STANDARD DESIGN/CRITERIA FOR DEFINITIONS OF POINT AND CONTINUOUS OVERSPEED DETECTION AND WRONG WAY DETECTION.
3. SEE DWG C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE BARRIER INTERFACES. SEE DWG. C9.10 FOR SIGNS AND SIGNALS REQUIRED FOR THE SIGNS AND SIGNALS SAFETY SYSTEM AND SEE DWGS. C3.17 AND C3.18 FOR SIGNS AND SIGNALS REQUIRED FOR THE PRESENCE DETECTION SAFETY SYSTEM. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAILS.

LEGEND

⇨	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
SW	SOLID WHITE LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
xx	ORNAMENTAL FENCE
x	FENCE
	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
CHKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE: -

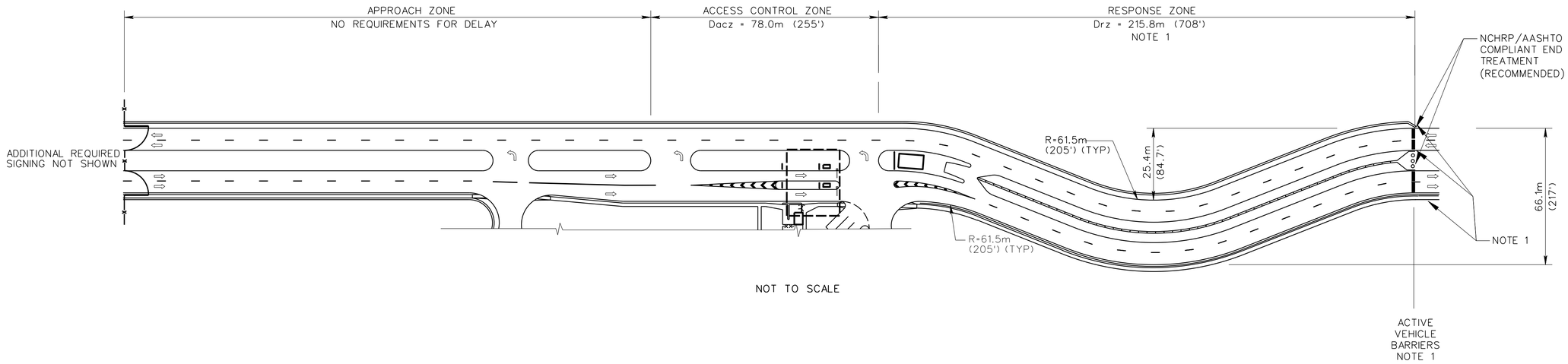
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PROTECTIVE SYSTEMS
CONVENTIONAL ACP

SHEET REFERENCE NUMBER
C3.12
SHEET 15 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOT TO SCALE

DESIGN PARAMETERS	MAX THREAT SPEED	PROS	CONS	APPLICABILITY/ CONSIDERATIONS
NORMAL CONDITIONS DESIGN SPEED = 40 KPH (25 MPH) Emax = 4% (SUPERELERATION) R = 61.5m (205') (NOTE 2) ANGLE OF DEFLECTION= 50°	SEE PARAGRAPH F AND TABLE 3 OF APPENDIX D FOR METHODOLOGY	PHYSICALLY LIMITS NORMAL AND THREAT VEHICLE SPEEDS	MAY CAUSE MINOR REDUCTIONS IN ROADWAY CAPACITY DUE TO CONTROLLED SPEEDS TRACTOR TRAILERS NEED TO USE BOTH LANES MINOR CRASHES MAY INCREASE	CURVATURE CAN ENCOMPASS ID AND/OR BARRIER AREA

CHICANE-95KPH (59 MPH) MAXIMUM SPEED

NOT TO SCALE
40 KPH (25 MPH) DESIGN SPEED

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAIL.
2. CONTACT THE PROTECTIVE DESIGN CENTER (PDC) FOR CHICANES WITH SMALLER RADII TURNS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:
SIZE: ANSI D

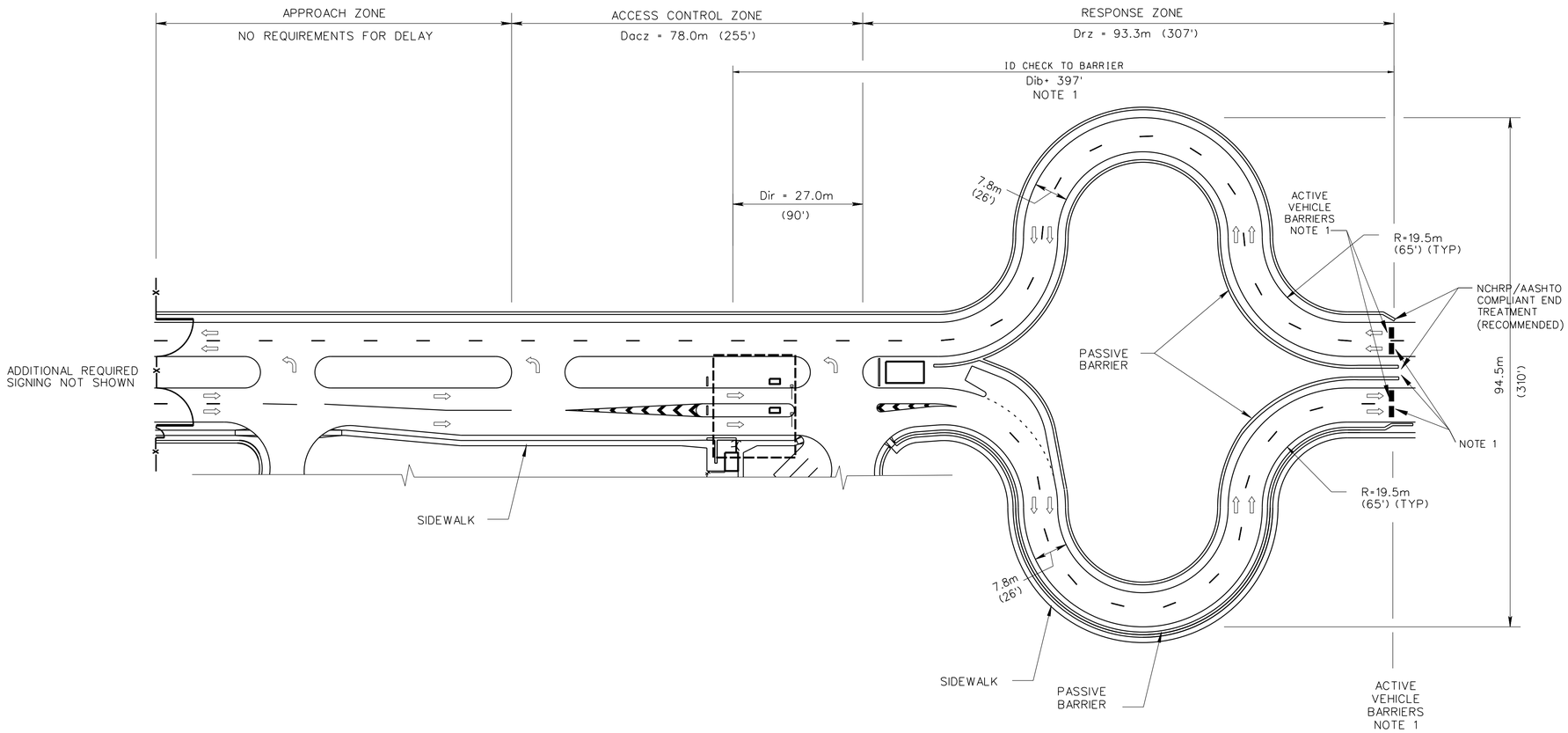
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PROTECTIVE SYSTEMS
CHICANE-95 KPH (59 MPH) MAXIMUM SPEED

SHEET REFERENCE NUMBER
C3.13
SHEET 16 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



DESIGN PARAMETERS	MAX THREAT SPEED	PROS	CONS	APPLICABILITY/ CONSIDERATIONS
NORMAL CONDITIONS DESIGN SPEED = 24 KPH (15 MPH) Emax = 2% (SUPERELEVATION) R = 19.5m (65') ANGLE OF DEFLECTION= 80°	SEE PARAGRAPH F AND TABLE 4 OF APPENDIX D FOR METHODOLOGY	CAN HELP ACHIEVE NEEDED APPROACH AND RESPONSE DISTANCE PHYSICALLY LIMITS NORMAL AND THREAT SPEEDS	REQUIRES ADDITIONAL R/W AND ROADWAY CONSTRUCTION MAY CAUSE SOME MINOR REDUCTION IN CAPACITY CONSISTS OF 4 TURNS AS DEFINED BY MUTCD MINOR CRASHES MAY INCREASE W/O LANE SEPARATION	REQUIRES MUTCD SIGNING

LOOP - 58 KPH (36 MPH) MAXIMUM SPEED

NOT TO SCALE
24 KPH (15 MPH) DESIGN SPEED
NOT FOR COMMERCIAL USE

LEGEND

- ⇨ TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAIL.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:
SIZE: ANSI D
PLOT SCALE: 1:1

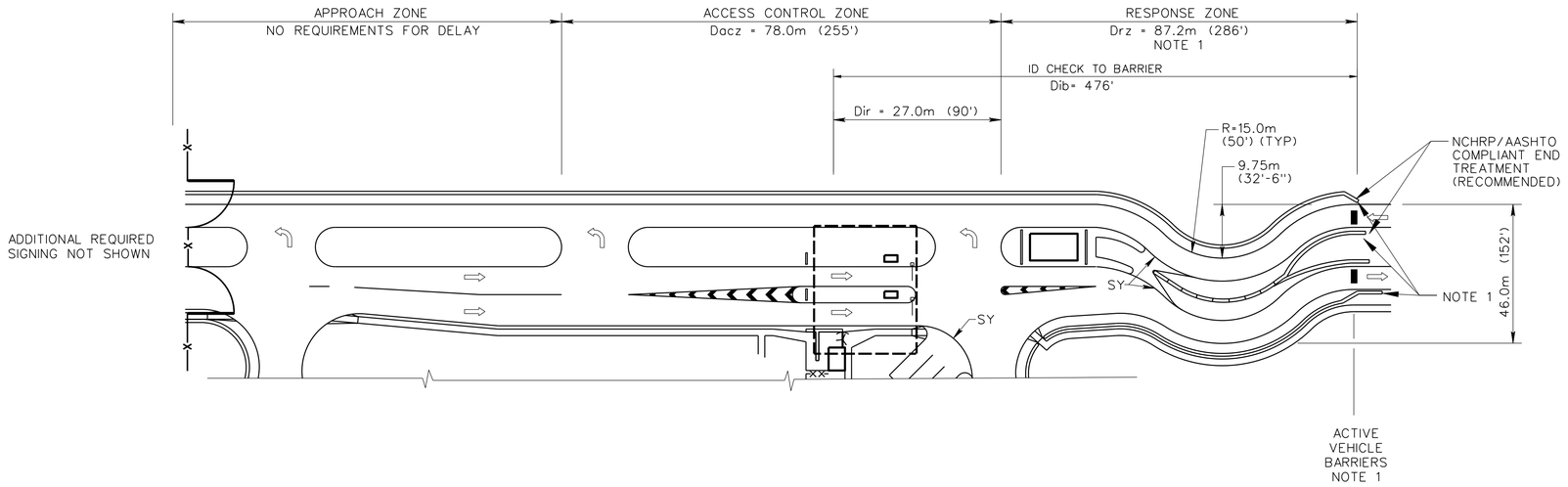
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PROTECTIVE SYSTEMS
TURN - 58 KPH (36 MPH) MAXIMUM SPEED

SHEET REFERENCE NUMBER
C3.14
SHEET 17 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



DESIGN PARAMETERS	MAX THREAT SPEED	PROS	CONS	APPLICABILITY/ CONSIDERATIONS
NORMAL CONDITIONS DESIGN SPEED < 24 KPH (15 MPH) Emax = 2% (SUPERELEVATION) R = 15.0m (50') ANGLE OF DEFLECTION= 70°	SEE PARAGRAPH F AND TABLE 3 OF APPENDIX D FOR METHODOLOGY	PHYSICALLY LIMITS NORMAL AND THREAT SPEEDS	MAY CAUSE MINOR REDUCTIONS IN ROADWAY CAPACITY DUE TO CONTROLLED SPEEDS DIFFICULT FOR LARGER VEHICLES TO MANEUVER MINOR CRASHES MAY INCREASE NOT APPROPRIATE FOR TRUCKS	CURVATURE CAN ENCOMPASS ID AND/OR BARRIER AREA MORE SUITABLE FOR LOW-VOLUME AND/OR RESIDENTIAL USE

CHICANE - 60 KPH (37.5 MPH) MAXIMUM SPEED

NOT TO SCALE
24 KPH (15 MPH) DESIGN SPEED
NOT FOR COMMERCIAL VEHICLE USE

NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.10 FOR FOR SIGNS AND SIGNALS REQUIRED FOR THE ACTIVE VEHICLE BARRIERS. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAIL.

LEGEND

- ⇨ TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
CKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
SIZE: ANSI D
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

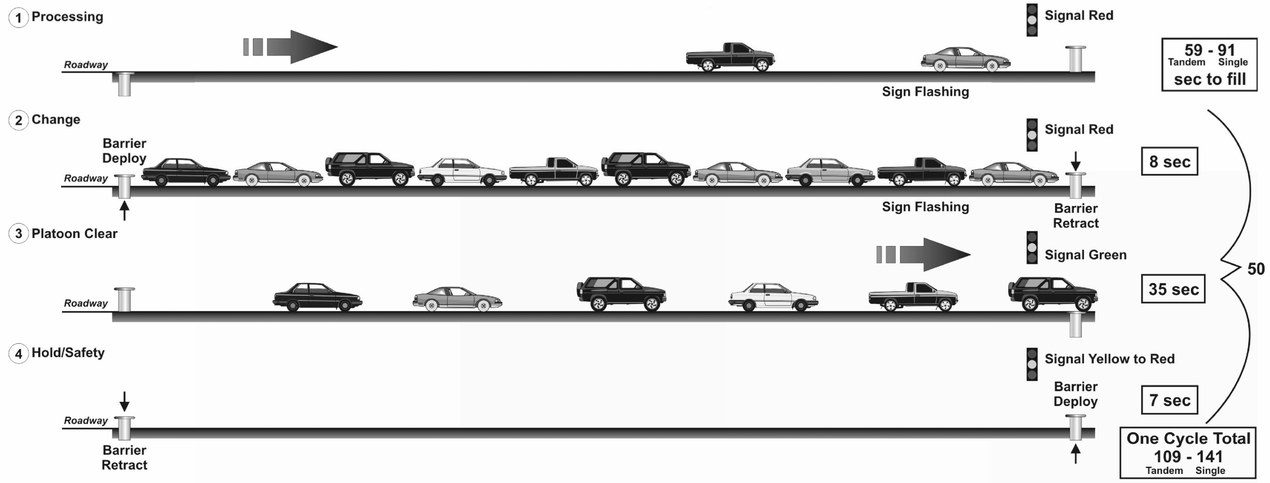
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

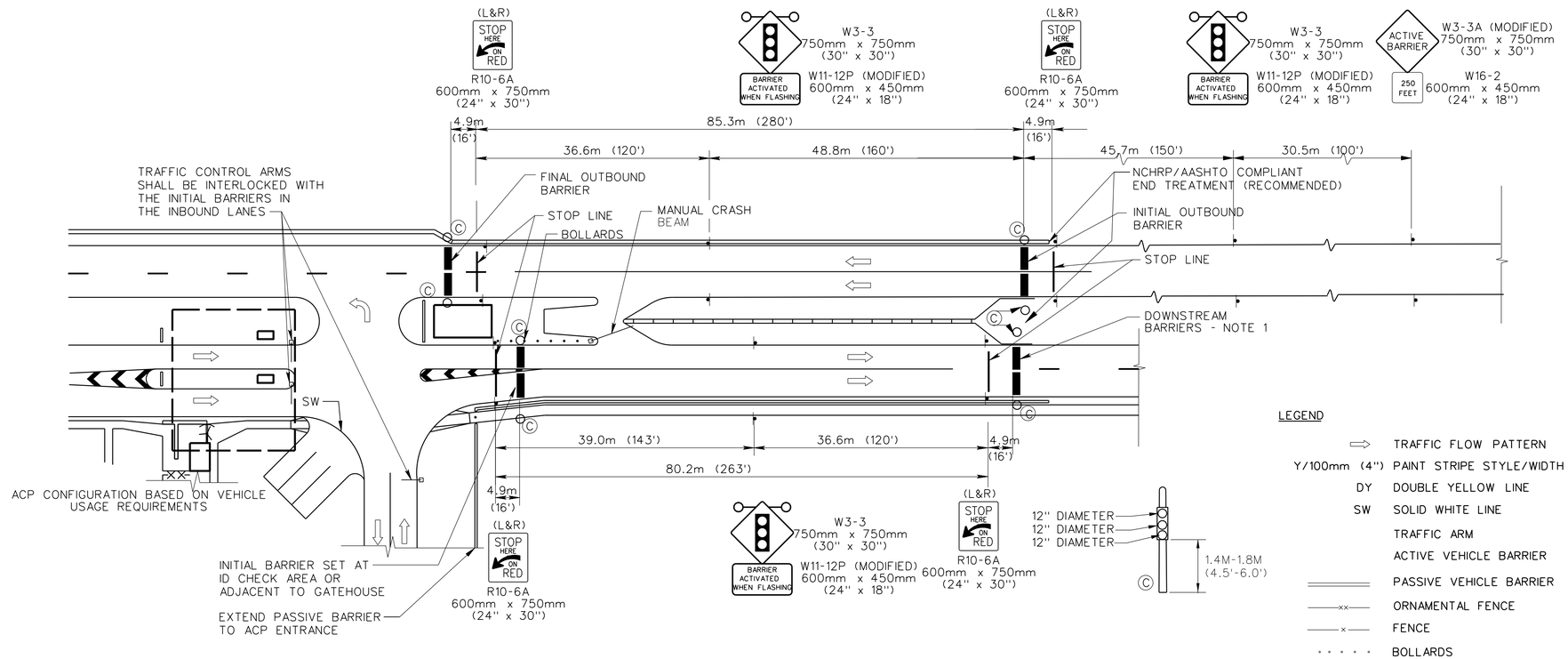
PROTECTIVE SYSTEMS
CHICANE - 60 KPH (37.5 MPH) MAXIMUM SPEED

SHEET REFERENCE NUMBER
C3.15
SHEET 18 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

Typical Operations





LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP
- Ⓒ TRAFFIC SIGNAL DETAIL

NOTES:

1. SEE DWG. C3.08 FOR SIGNS AND SIGNALS REQUIRED FOR ACTIVE VEHICLE BARRIERS. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAILS.
2. RESPONSE ZONE LENGTH VARIES WITH THE NUMBER AND TYPE OF VEHICLES TO BE QUEUED AND AVAILABLE REAL ESTATE. ADJUST SIGNS AND SIGN SPACING AS NECESSARY, BUT IN CONFORMANCE WITH THE MUTCD.

DESIGN PARAMETERS	RESPONSE ZONE	MAX THREAT SPEED WITH LANE DIVIDERS	PROS	CONS	APPLICABILITY/ CONSIDERATIONS
NORMAL CONDITIONS DESIGN SPEED - N/A Emax (SUPERELEVATION) = N/A R = N/A	N/A	N/A	MULTIPLE LINES OF SECURITY SINCE BARRIERS ARE UP OR DOWN IN A CONTROLLED SITUATION, MOTORISTS ARE MORE AWARE OF BARRIER DEPLOYMENTS	DECREASES TRAFFIC PROCESSING BY 38% FOR SINGLE PROCESSING AND 46% FOR TANDEM PROCESSING HIGHER COSTS DUE TO MORE BARRIERS AND INCREASED USAGE	FOR LOW TRAFFIC VOLUMES. SIZE ENTRAPMENT AREA FOR ANTICIPATED VOLUME.

VEHICLE PLATOONING

NOT TO SCALE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X
DRWN BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
CKD BY: X.X.X.
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

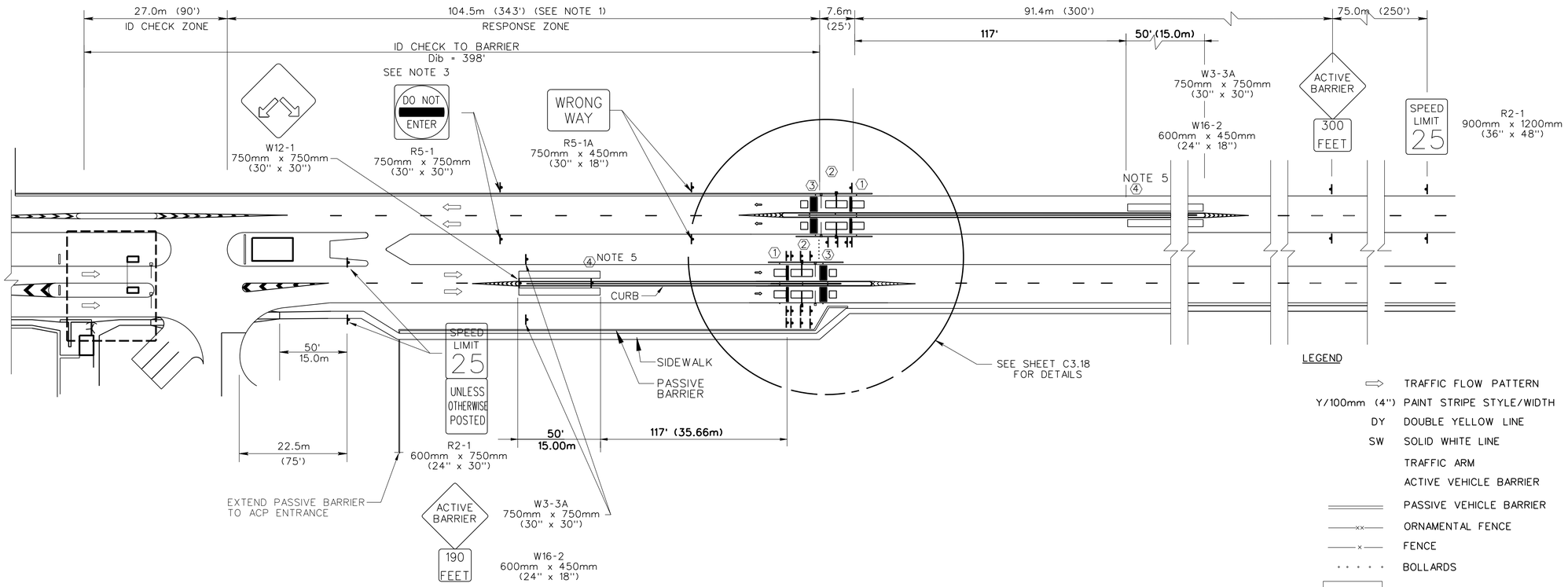
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PROTECTIVE SYSTEMS
VEHICLE PLATOONING

SHEET REFERENCE NUMBER
C3.16
SHEET 19 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



PRESENCE DETECTION WITH ONE CONTINUOUS SPEED ZONE

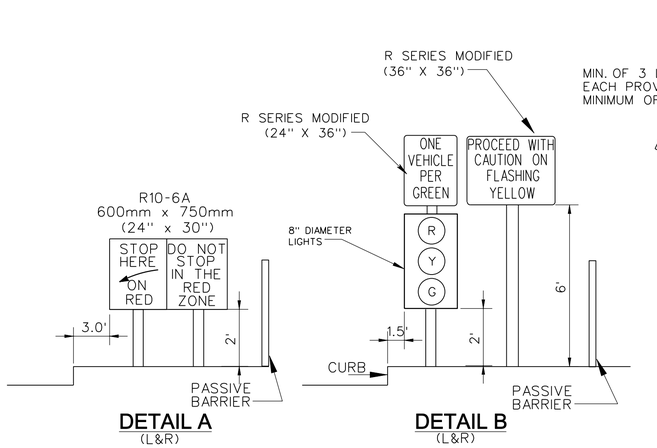
NOT TO SCALE

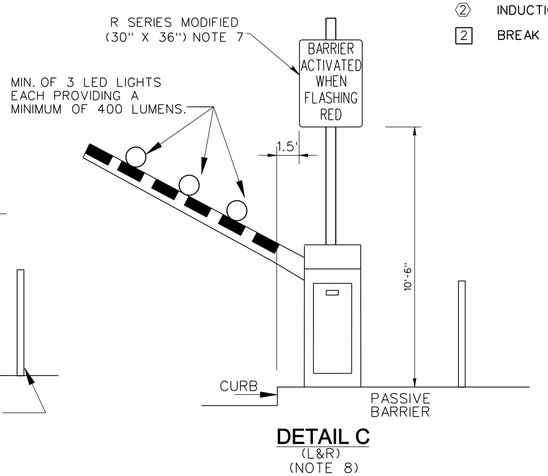
NOTES:

1. SEE APPENDIX D FOR METHOD TO DETERMINE DETECTION AND DELAY REQUIREMENTS INCLUDING THE LENGTH OF THE RESPONSE ZONE (LENGTH SHOWN IS FOR ONE ZONE OF CONTINUOUS OVERSPEED DETECTION SET AT 40 mph). SEE DWG.C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAILS.
2. ISLANDS BETWEEN INBOUND AND OUTBOUND LAMES AT THE BARRIER ARE REQUIRED FOR PLACEMENT OF SIGNS, SIGNALS AND BEAM SENSORS. PASSIVE BARRIERS BETWEEN ADJACENT LANES AT THE BARRIER ARE REQUIRED TO PREVENT THE THREAT VEHICLE FROM CHANGING FROM A LANE WITH A CLOSED BARRIER TO ONE WITH AN OPEN BARRIER. THE ROADWAY DRAINAGE SYSTEM MUST BE DESIGNED ACCORDINGLY.
3. SIGN PLACEMENT MUST BE BASED ON MUTCD, LOCAL CONDITIONS, GEOMETRY, TRAFFIC ISLAND, OTHER TRAFFIC CONTROL DEVICES, LANDSCAPING, ROADSIDE FEATURES, ETC. DRIVERS APPROACHING THE BARRIER MUST HAVE A CLEAR VIEW OF THE TRAFFIC SIGNAL AND ALL SIGNS. DIMENSIONS AND MOUNTING HEIGHTS SHOWN ON THE DRAWINGS ARE FOR A STRAIGHT RESPONSE ZONE.
4. BARRIERS SHALL BE CONTROLLED BY A TRAFFIC CONTROLLER UNIT IN ACCORDANCE WITH UFGS 34 41 26.00 10 "ACCESS CONTROL POINT CONTROL SYSTEM"; DRAWINGS E1.03, E1,05, AND E1.06; AND APPENDIX G.
5. WHEN QUEUE PREEMPTION IS REQUIRED, PROVIDE ADVANCED VEHICLE PRESENCE DETECTORS (LOOP 4) AS SHOWN ON THE DRAWINGS. SEE DRAWING E1.06 AND APPENDIX G FOR REQUIRED CONTROL SEQUENCES.
6. PAVEMENT DEFINED BY THE "DO NOT STOP IN RED ZONE" SIGN SHALL CONSIST OF RED PIGMENTED CONCRETE PAVEMENT.
7. AS ALTERNATIVE TO THE SIGN SHOWN HERE A BLANK OUT SIGN WITH THE MESSAGE "BARRIER ACTIVATED" MAY BE PROVIDED. THE MESSAGE WOULD APPEAR WHENEVER THE GATE ARM IS IN THE DOWN (CLOSED) POSITION.
8. WHEN GATE ARM IS ACTIVATED, AN 80db AUDIIBLE ALARM SHALL SOUND FOR 10 SECONDS.

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP
- ② INDUCTION LOOP SENSOR
- 2 BREAK BEAM SENSOR





US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

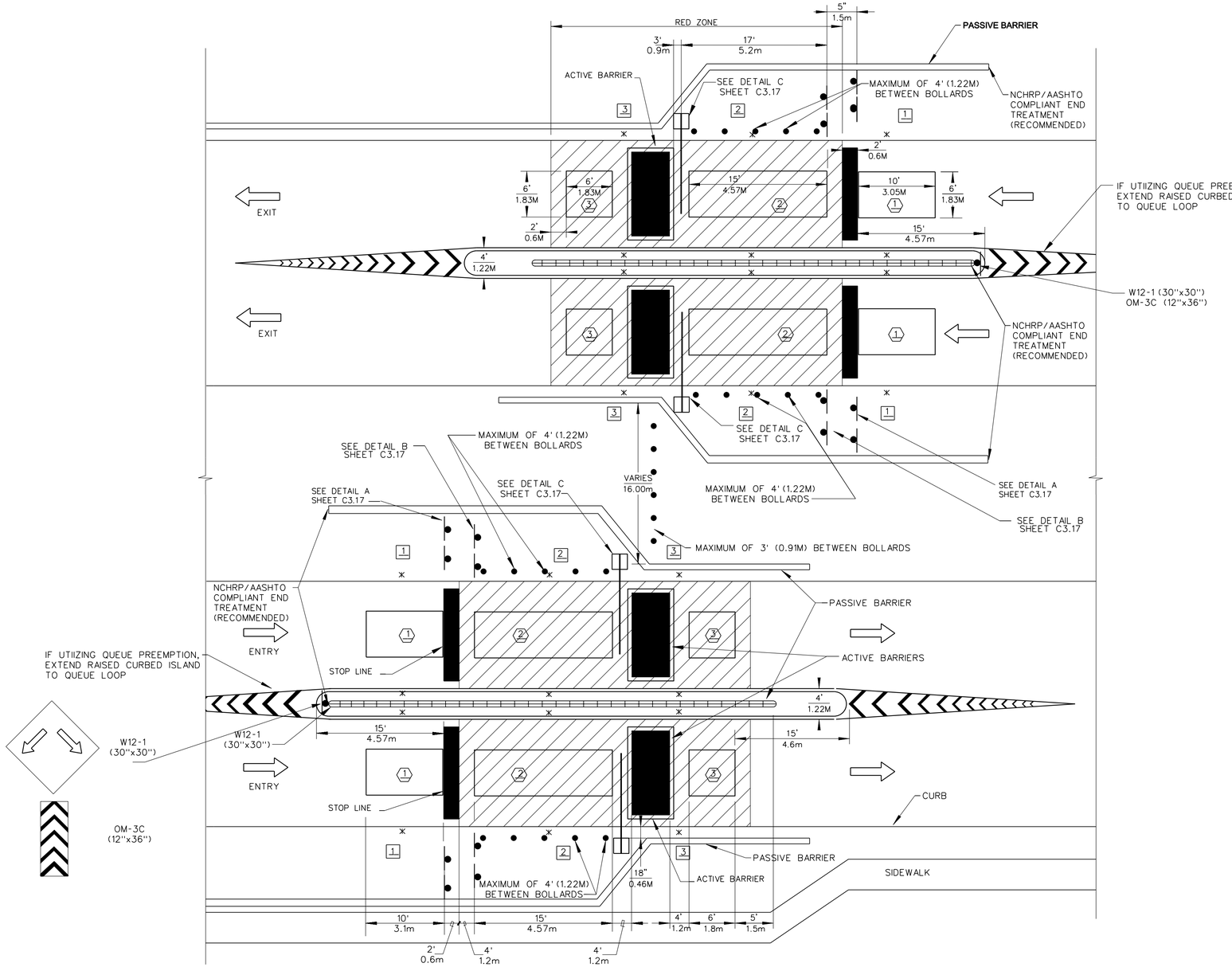
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PROTECTIVE SYSTEMS
VEHICLE PRESENCE DETECTION

SHEET REFERENCE NUMBER
C3.17
SHEET 20 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



PRESENCE DETECTION LAYOUT DETAILS

NOT TO SCALE

NOTES:
1. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG C9.14 FOR PAVEMENT MARKING DETAILS.
2. LOOP DETECTORS SHALL NOT BE INSTALLED ACROSS THE TRANSITION IN PAVING MATERIALS WITHOUT APPROPRIATE PROTECTION.

LEGEND

⇨	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
SW	SOLID WHITE LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
—xx—	ORNAMENTAL FENCE
—x—	FENCE
• • • • •	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP
3	INDUCTION LOOP SENSOR
2	BROOK BEAM SENSOR

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
CKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO: W912HN-07-X-8204
CONTRACT NO: X
CATEGORY CODE: X
PLOT DATE:

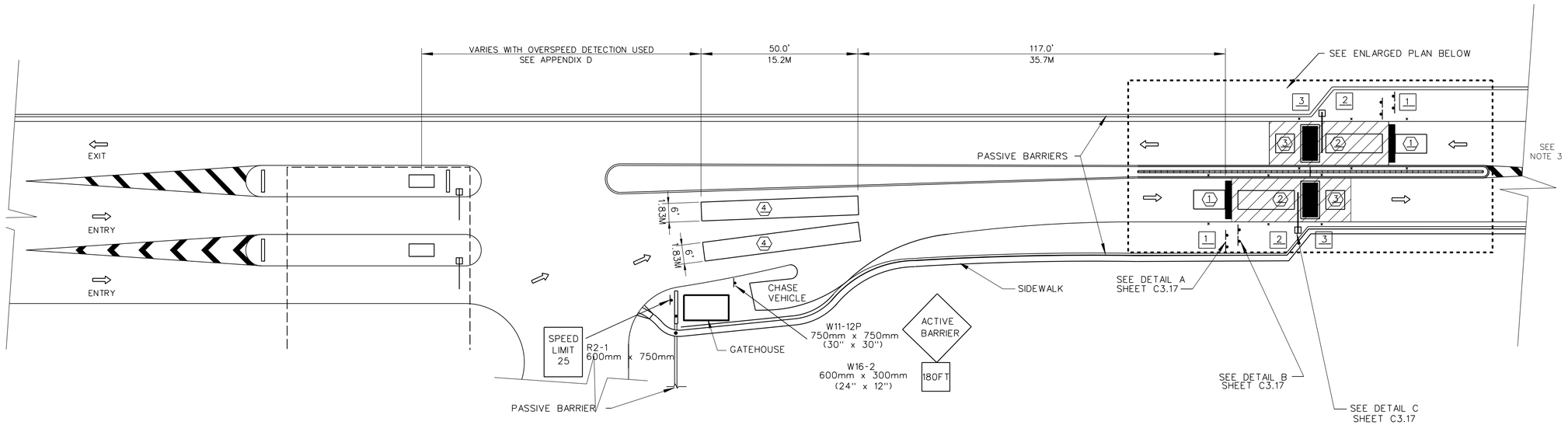
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

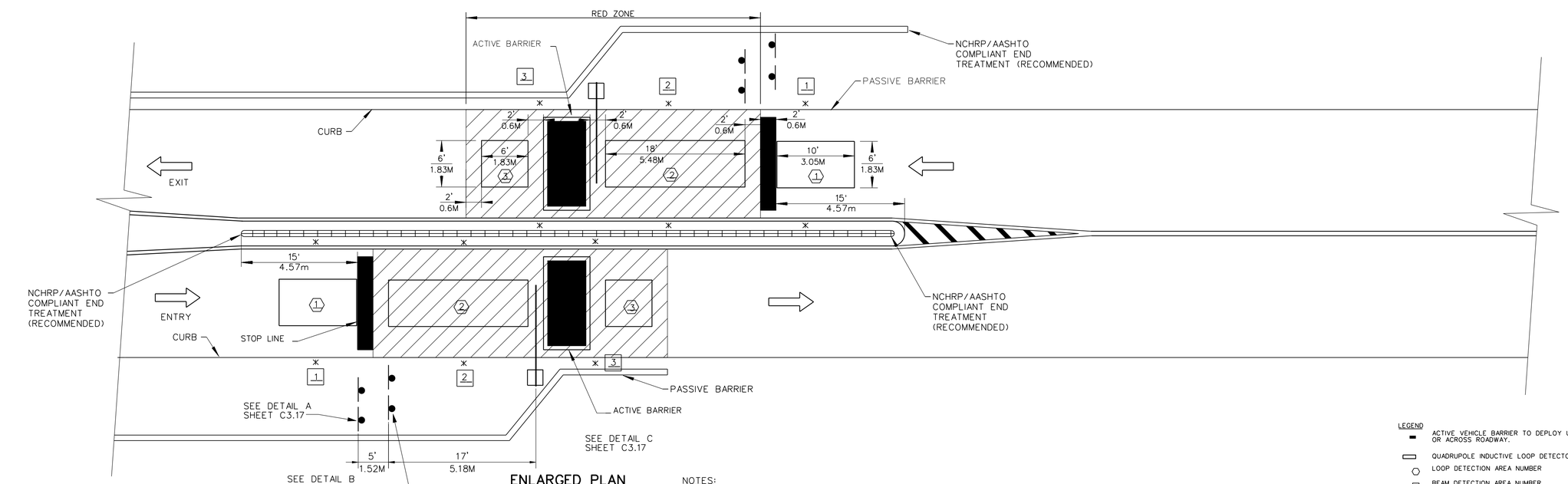
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PROTECTIVE SYSTEMS
VEHICLE PRESENCE DETECTION
4-LANE DIVIDED PLAN

SHEET REFERENCE NUMBER
C3.18
SHEET 21 OF 60

$$DGNSPEC$$
$$SYSTIME:$$
$$USERNAME:$$





ENLARGED PLAN

NOT TO SCALE

NOTES:
1. SEE DWGS. C9.02 AND C9.03 FOR DETAILS OF THE PASSIVE AND ACTIVE VEHICLE BARRIER INTERFACES. SEE DWG. C9.13 FOR SIGN DETAILS AND TYPICAL LAYOUT. SEE DWG. C9.14 FOR PAVEMENT MARKING DETAILS.
2. LOOP DETECTORS SHALL NOT BE INSTALLED ACROSS THE TRANSITION IN PAVING MATERIALS WITHOUT APPROPRIATE PROTECTION (AS DETERMINED BY PROJECT ENGINEER)
3. SEE SHEET C3.17 FOR DETAILS OF OUTBOUND QUEUE DETECTION IF REQUIRED.

LEGEND
- ACTIVE VEHICLE BARRIER TO DEPLOY UP FROM LANE OR ACROSS ROADWAY.
- QUADRUPOLE INDUCTIVE LOOP DETECTOR
- LOOP DETECTION AREA NUMBER
- BEAM DETECTION AREA NUMBER
- POST MOUNTED SIGN ON SHOULDER, LANE ISLAND, OR IN MEDIAN.
- TRAFFIC GATE ARM.
- ELECTRONIC BEAM LANE SENSORS.
- RED ZONE.
- (3) INDUCTION LOOP SENSOR
- [2] BROOK BEAM SENSOR

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:
SIZE: ANSI D
PLOT SCALE: 1:1

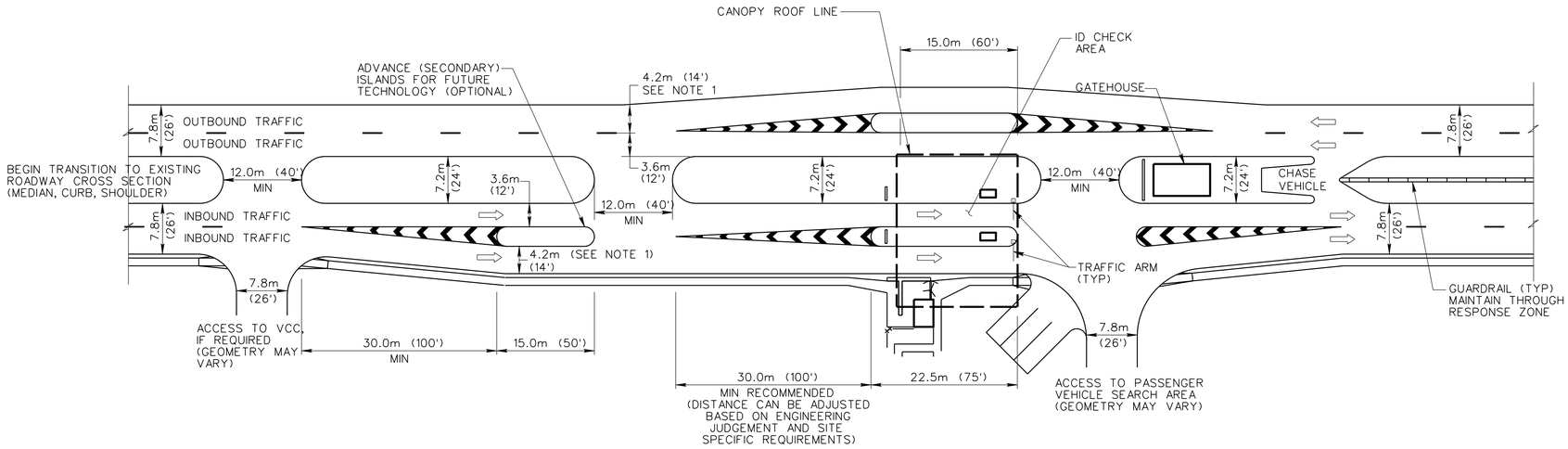
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

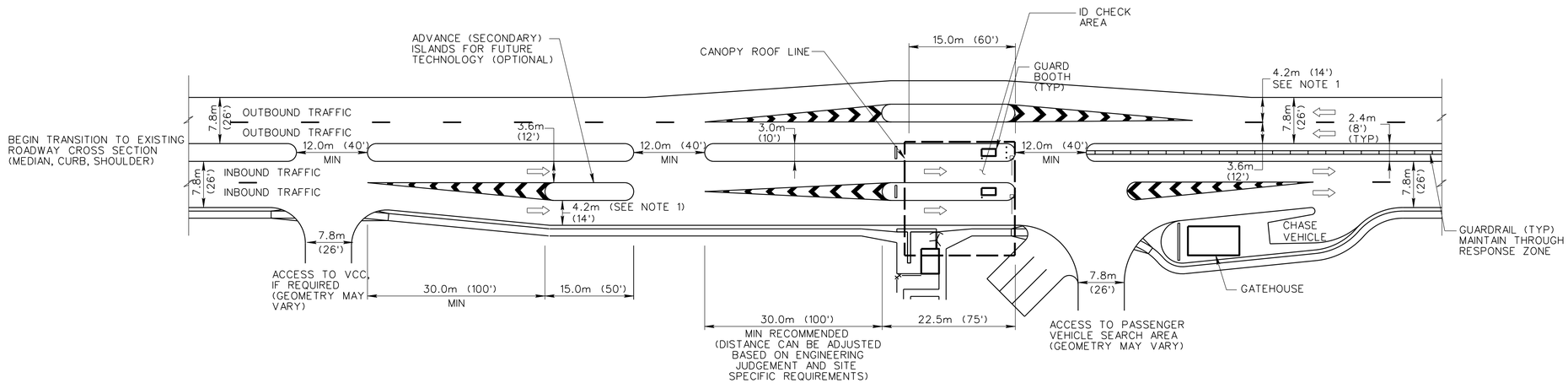
PROTECTIVE SYSTEMS
VEHICLE PRESENCE DETECTION 2-LANE PLAN

SHEET REFERENCE NUMBER
C3.19
SHEET 22 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



ACCESS CONTROL ZONE - MEDIAN GATEHOUSE LANE DETAILS



ACCESS CONTROL ZONE - RIGHT SHOULDER GATEHOUSE LANE DETAILS

NOTES:

1. LANE SHOULD BE 3.6m (12') WIDE, PLUS 0.6m (2') FOR CURB & GUTTER. PROVIDE 5.1m (17') TO ACCOMMODATE BICYCLE ACTIVITY IF APPROPRIATE.

0 5 10 20 m

SCALE: 1:400

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: XXX
DRAWN BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
CKD BY: XXX
PLOT SCALE: 1:1
SOLICITATION NO.: W9126N-07-X-6204
CONTRACT NO.:
CATEGORY CODE: X
PLOT DATE:

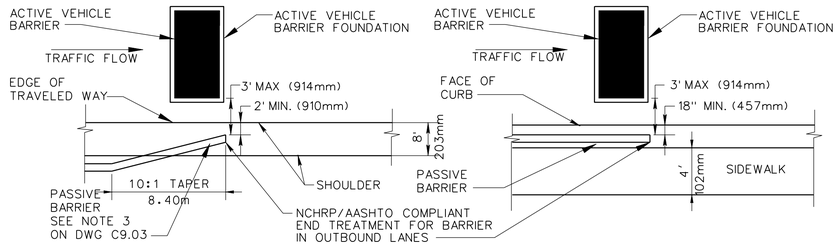
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
ACCESS CONTROL ZONE DETAILS

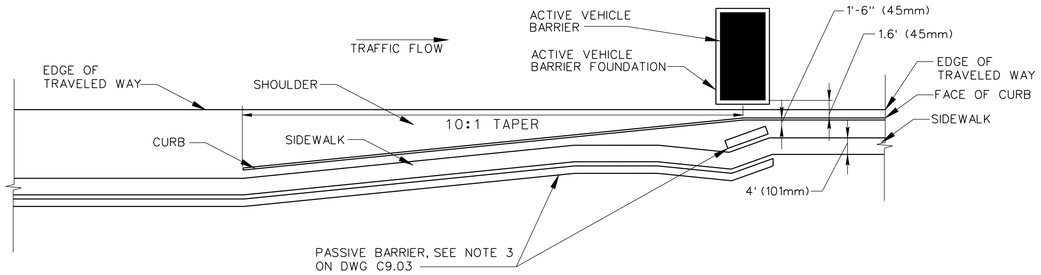
SHEET REFERENCE NUMBER
C9.01
SHEET 23 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



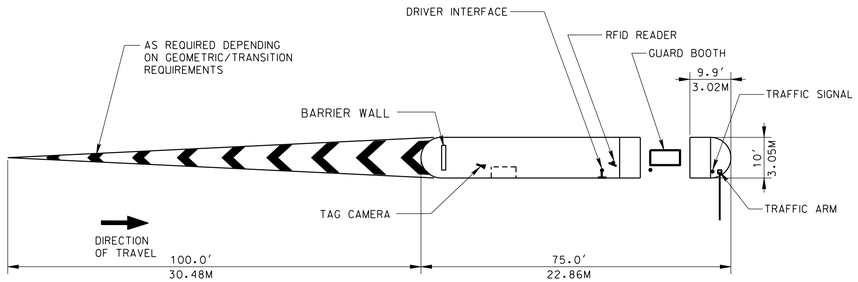
ACTIVE VEHICLE BARRIER/PASSIVE BARRIER PLANS

NOT TO SCALE



ACTIVE VEHICLE BARRIER
IN A SHOULDER TO CURB TRANSITION
(WITH SIDEWALK)

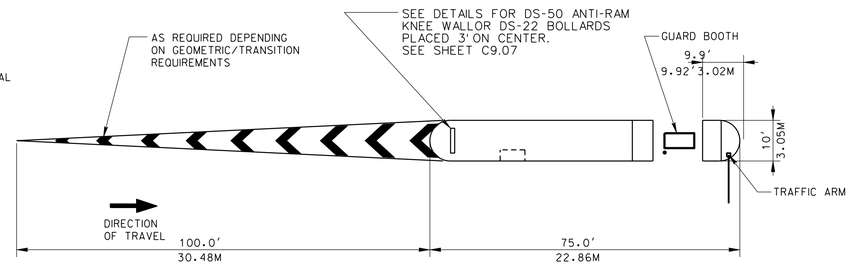
NOT TO SCALE



NOTE: DESIGN MAY VARY TO FIT EXISTING CONDITIONS

TRAFFIC ISLAND WITH AUTOMATION
GUARD BOOTH NOT ON ISLAND PLAN

NOT TO SCALE

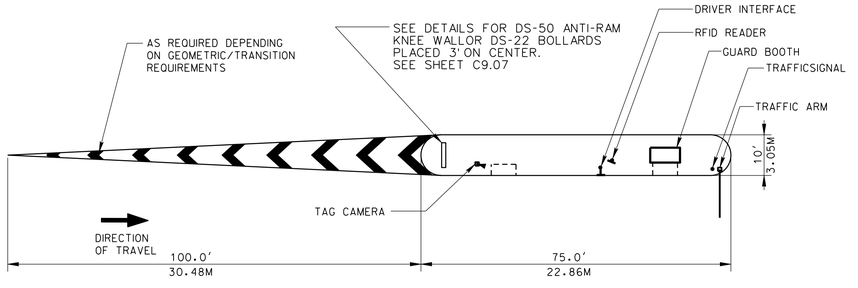


NOTE: DESIGN MAY VARY TO FIT EXISTING CONDITIONS

TRAFFIC ISLAND W/O AUTOMATION
GUARD BOOTH NOT ON ISLAND PLAN

NOT TO SCALE

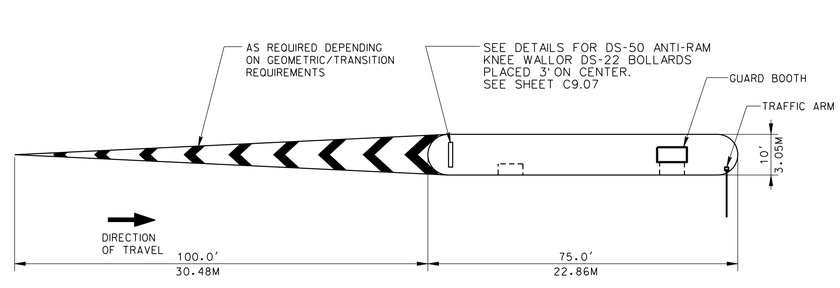
NOTE:
ALL TRAFFIC ISLANDS IN THE ID CHECK AREA SHALL BE A MINIMUM 6" HIGH AND SHALL HAVE VERTICAL FACES.



NOTE: DESIGN MAY VARY TO FIT EXISTING CONDITIONS

TRAFFIC ISLAND W/O AUTOMATION
GUARD BOOTH ON ISLAND PLAN

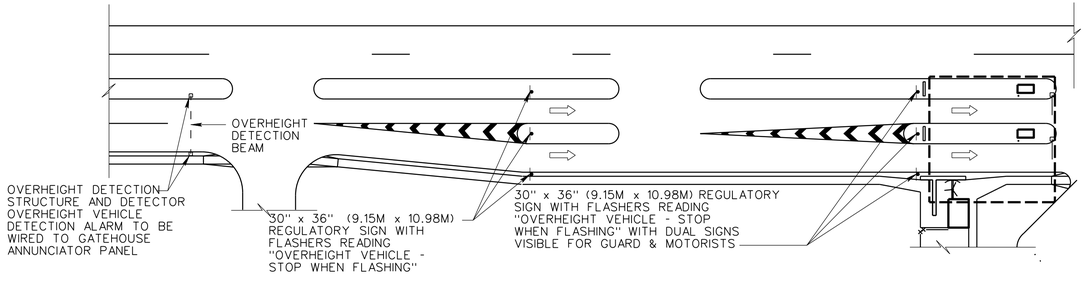
NOT TO SCALE



NOTE: DESIGN MAY VARY TO FIT EXISTING CONDITIONS

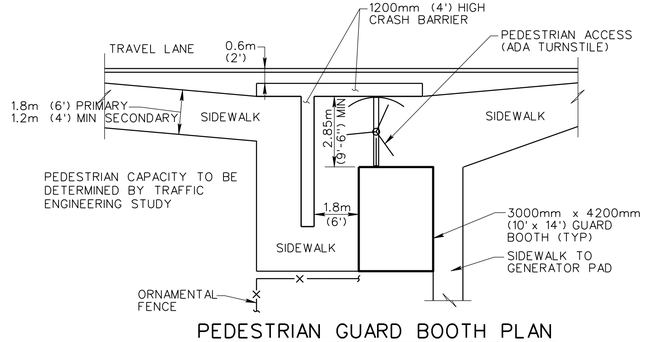
TRAFFIC ISLAND W/O AUTOMATION
GUARD BOOTH ON ISLAND PLAN

NOT TO SCALE



OPTIONAL OVERHEIGHT DETECTION

NOT TO SCALE



PEDESTRIAN GUARD BOOTH PLAN

NOT TO SCALE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.:
CATEGORY CODE: X
PLOT DATE:
DESIGNED BY: XXX
DRWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
PLOT SCALE: 1:1
SIZE: ANSI D

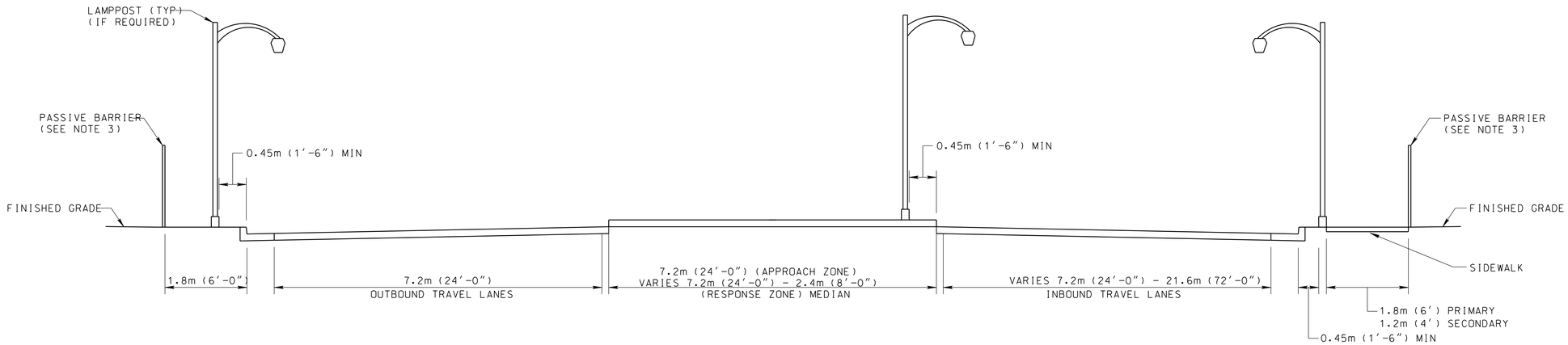
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
ACP DETAILS

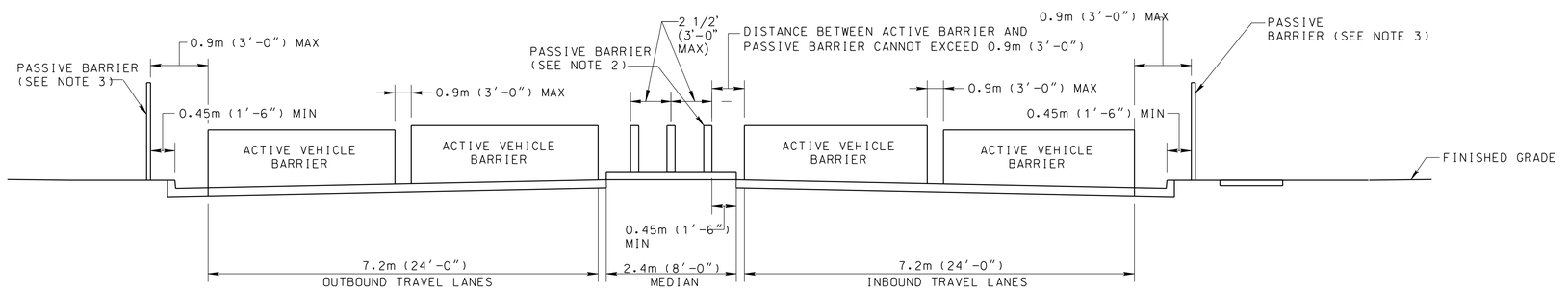
SHEET REFERENCE NUMBER
C9.02
SHEET 24 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



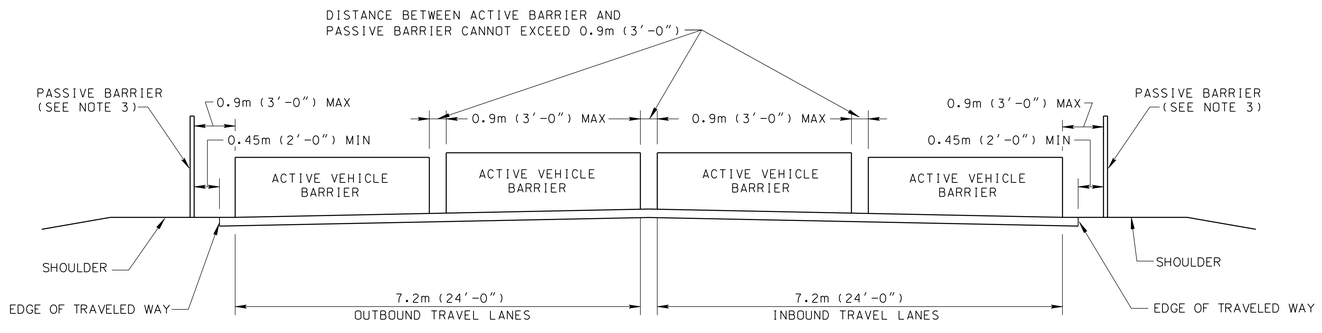
APPROACH AND RESPONSE ZONE TYPICAL SECTION

NOT TO SCALE



ACTIVE VEHICLE BARRIER TYPICAL SECTION

NOT TO SCALE



ACTIVE VEHICLE BARRIER TYPICAL SECTION
SHOULDERED ROADWAY W/O MEDIAN

NOT TO SCALE

NOTES:

1. PROVIDE 1.5m (5') BIKEWAY IF APPROPRIATE.
2. NUMBER OF PASSIVE BARRIERS IS DETERMINED BY WIDTH OF MEDIAN AND DISTANCE BETWEEN PASSIVE BARRIES NOT EXCEEDING 0.9m (3'-0").
3. TYPE AND SIZE OF PASSIVE BARRIERS TO BE DETERMINED IN FINAL DESIGN. PASSIVE BARRIERS MUST PROVIDE VEHICLE PENETRATION RESISTANCE. PASSIVE BARRIERS IN THE CLEAR ZONE MUST BE OF THE TYPI THAT REDIRECT VEHICLES BACK ON THE ROADWAY FOR A SIDE SWIPE IMPACT SEE ASSHTO ROADSIDE DESIGN GUIDE.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE:

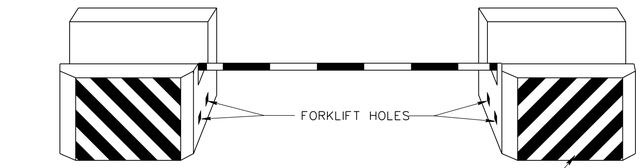
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
TYPICAL SECTIONS

SHEET REFERENCE NUMBER
C9.03
SHEET 25 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

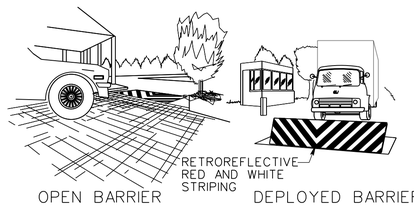


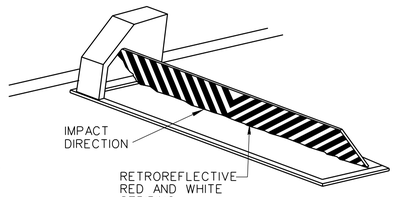
BARRIER RATING: K-4

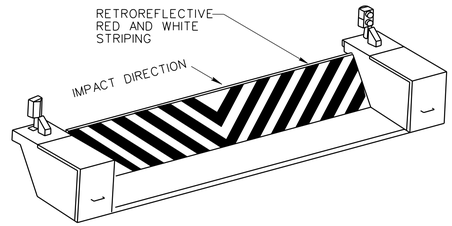
OPERATION: TRANSPORTABLE VEHICLE BARRIER, MANUAL OR HYDRAULIC OPERATION.

TRANSPORTABLE ACTIVE VEHICLE BARRIER

NOT TO SCALE





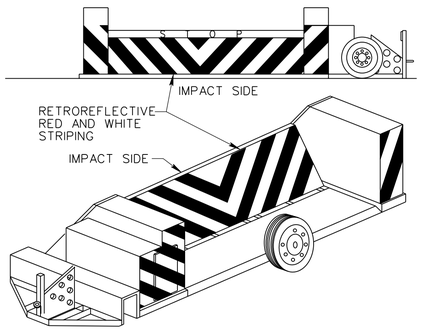


BARRIER RATING: K4, K8, K12

OPERATION: RAMP RISES FROM A RECESS IN THE ROADWAY

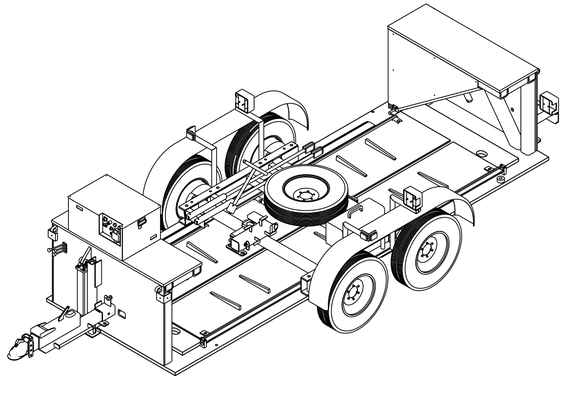
SHALLOW FOUNDATION AND SURFACE MOUNT BARRIERS

NOT TO SCALE



BARRIER RATING: CONDITION DESIGNATION K4 & K12

OPERATION: PORTABLE VEHICLE BARRIER, N & D MODELS CAN BE SPECIFIED FOR MANUAL OR HYDRAULIC OPERATION



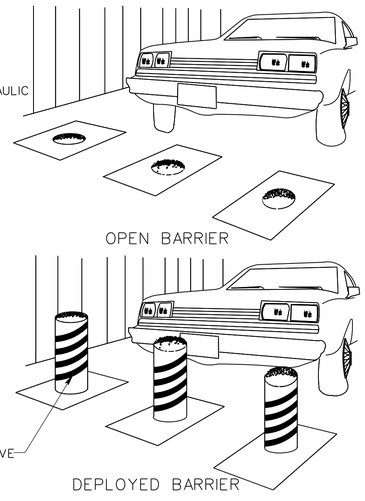
PORTABLE ACTIVE VEHICLE BARRIERS

NOT TO SCALE

BARRIER RATING: K4, K8, K12

OPERATION: THE BOLLARDS RISE FROM THE ROADWAY

COMMENT: DEPLOYMENT SPEED VARIES WITH HYDRAULIC OR PNEUMATIC OPERATORS



BOLLARDS

NOT TO SCALE

REFERENCE MATERIAL:

DEPARTMENT OF STATE AND DEPARTMENT OF DEFENSE LIST OF CERTIFIED ANTI-RAM VEHICLE BARRIERS (https://pdc.usace.army.mil/library/BarrierCertification/)

UFC 4-020-01/UFC 4-020-02 SECURITY ENGINEERING PLANNING AND DESIGN MANUALS

UFC 4-022-01 ENTRY CONTROL FACILITIES/ACCESS CONTROL POINTS

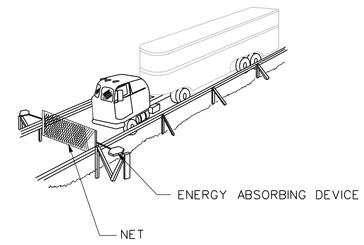
UFGS 34-71-13-19 ACTIVE BARRIERS SPECIFICATIONS

UFGS 34-41-26.00 10 2 ACCESS CONTROL POINT CONTROL SYSTEM.

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) F2656-07 STANDARD TEST METHOD FOR VEHICLE CRASH TESTING OF PERIMETER BARRIERS.

ACTIVE VEHICLE BARRIERS:

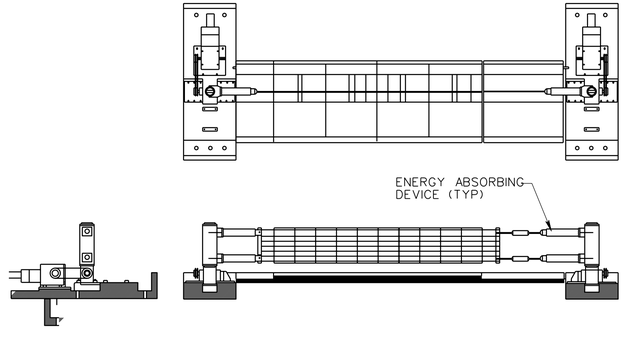
CAUTION: THE FORCE OF IMPACT CONDITIONS BASED ON A RANGE OF ANY VEHICLE RAMMING THESE BARRIERS AT SPEEDS ABOVE 20 MPH MAY BE LETHAL TO THE OCCUPANTS OF THAT VEHICLE. CERTAIN CIRCUMSTANCES MAY RESULT IN FATALITIES AT SPEEDS SIGNIFICANTLY LOWER THAT 20 MPH. THEREFORE, EXTREME CAUTION MUST BE EXERCISED TO ENSURE THAT THEY ARE NOT ACTIVATED AT THE WRONG TIME.



BARRIER RATING: K8, K12

OPERATION: ENERGY OF RAMMING VEHICLE IS ABSORBED BY A NET OR CABLE SYSTEM.

COMMENT: BRINGS VEHICLE TO A STOP IN A SHORT DISTANCE.



NET BARRIERS

NOT TO SCALE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
DWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
FILE NAME: X
PLOT SCALE: 1:1
SIZE: ANSI D
PLOT DATE:

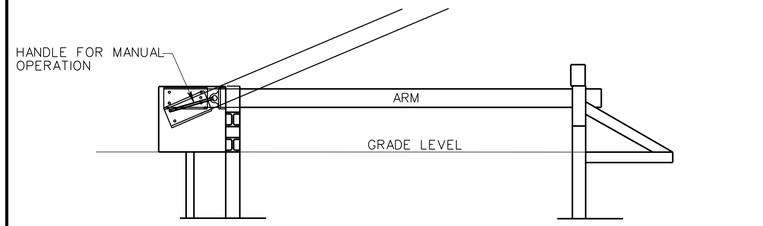
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

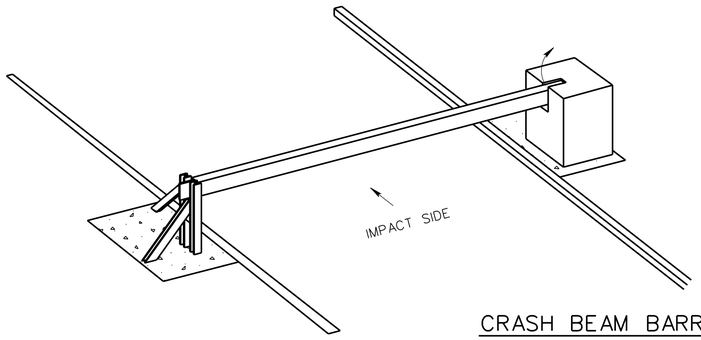
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

BARRIERS
ACTIVE VEHICLE BARRIERS

SHEET REFERENCE NUMBER
C9.04
SHEET 26 OF 60

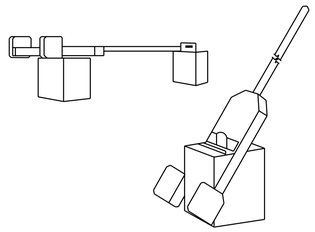
$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$





CRASH BEAM BARRIERS

NOT TO SCALE



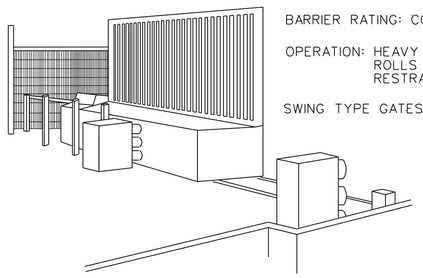
BARRIER RATING: K4, K8, K12

OPERATION: MANUAL RAISING AND LOWERING
(OPTION FOR HYDRAULIC OR ELECTRICAL OPERATION)

Notes:

1. IMPACT KINETIC ENERGY
   Impact kinetic energy in Ft-Lbs = KE = 1/2 * Mass * (Velocity)^2
   Where Mass = Weight (Lbs)/32.2 feet/(second)^2
   Velocity = Speed (feet/second) * Sin(θ)
   θ = Impact Angle in degrees between the vehicle and barrier
   For the vehicle weight (W) given in Lbs and the vehicle speed (S) given in miles per hour, the kinetic energy in Ft-Lbs is:
   KE = 0.03344 * W * (S * Sin(θ))^2
   For active barriers deployed in the roadway at the end of the ACP corridor, the vehicle impact angle is 90^. For passive barriers along the perimeter of the ACP corridor, the maximum impact angle must be determined by evaluating the vehicle's speed, the roadway alignment, and the clear roadway width. Maximum vehicle impact angles and speeds will vary along ACP corridors with speed management features such as curves and turns. Passive barrier systems must be capable of stopping the threat vehicle anywhere along the ACP corridor. See Draft UFC 4-022-02 "Selection and Application of Vehicle Barriers" and Appendix D for information on determining impact angles.

2. Examples of both active and passive barriers are shown on these drawings. Some of the examples show actual barriers supplied by barrier manufacturers. For additional information on any barrier shown or other barriers not shown, contact the Protective Design Center at the USACE, Omaha District.



BARRIER RATING: CONDITION DESIGNATION K4, K8, K12

OPERATION: HEAVY RAILING SECTION
ROLLS HORIZONTALLY INTO PLACE TO BE RESTRAINED BY HEAVY STANDARDS.

SWING TYPE GATES ARE ALSO AVAILABLE

ANTI-CRASH GATE

NOT TO SCALE

BARRIER SELECTION

THESE STANDARD DRAWINGS SHOW ACTIVE AND PASSIVE BARRIERS. THE SELECTION OF BARRIER TYPE IS LEFT TO LOCAL SECURITY PLANNERS. BASE SELECTION ON THE DEFINED THREAT, THE TERRAIN ENCOUNTERED, THE SPEED OF DEPLOYMENT, AND THE INITIAL COST OF THE BARRIERS. ALSO CONSIDER FACTORS SUCH AS ANNUAL MAINTENANCE COST, REPLACEMENT OR REPAIR COST SHOULD THE BARRIER EVER BE USED, AND THE SAFETY OF INNOCENT PERSONS WHO COULD POTENTIALLY BE CAUGHT IN THE BARRIER WHEN IT IS DEPLOYED.

STATE DEPARTMENT RATING

K4 = 15,000 POUND VEHICLE TRAVELING AT 48 KPH (30 MPH)
K8 = 15,000 POUND VEHICLE TRAVELING AT 64 KPH (40MPH)
K12 = 15,000 POUND VEHICLE TRAVELING AT 80 KPH (50 MPH)

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
CHKD BY: X.X.X.
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

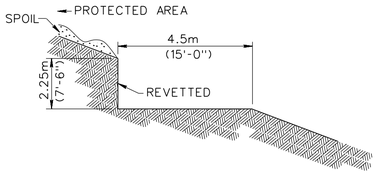
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

BARRIERS
ACTIVE VEHICLE BARRIERS

SHEET REFERENCE NUMBER
C9.05
SHEET 27 OF 60

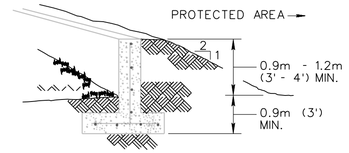
$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



DESCRIPTION: THE SIDEHILL CUT DITCH IS A VARIATION OF THE TRIANGULAR DITCH ADAPTED TO HILLY LOCATIONS. THESE DITCHES ARE RELATIVELY EASY TO CONSTRUCT; HOWEVER, A VEHICLE STOPPED IN THE DITCH CAN BACK OUT AND TRY ANOTHER ROUTE. SIDEHILL CUT DITCHES ARE USUALLY APPROXIMATELY 2.25m (7.5') DEEP AND 4.5m (15') WIDE, BUT THESE DIMENSIONS CAN BE VARIED TO MAKE THE BEST USE OF THE NATURAL TERRAIN.

SIDEHILL CUT DITCH

NOT TO SCALE

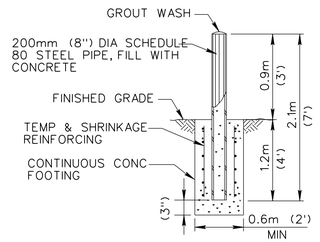


BARRIER RATING: NOT TESTED

CONSTRUCTION: CONCRETE RETAINING WALL BACKED UP WITH EARTH BERM, WALL FACES THREAT.

BERM @ RETAINING WALL

NOT TO SCALE



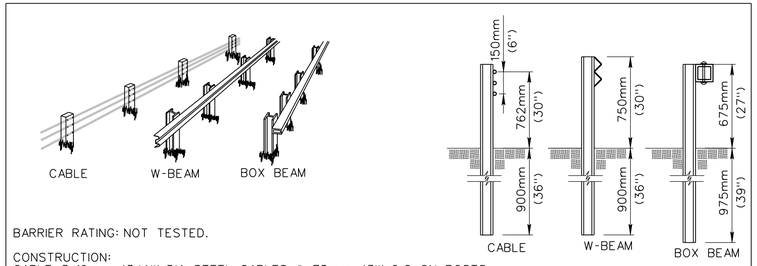
NOTE: KINETIC ENERGY RATING IS DEPENDANT ON BOLLARD SPACING

CONSTRUCTION: 200mm (8") DIA. STEEL PIPE FILLED WITH CONCRETE SET IN CONCRETE FOOTING, LOCATED 0.9m (3') ON CENTER FOR 90 IMPACT AND 1.2m (4') ON CENTER FOR PARALLEL TRAFFIC FLOW. (K.E. RATING OF 135,000 FT. LBS.)

COMMENT: A STEEL CABLE RUNNING THROUGH OR LOOPED OVER THESE POSTS MAY BE USED TO EXCLUDE MOTORCYCLES.

BOLLARDS

NOT TO SCALE



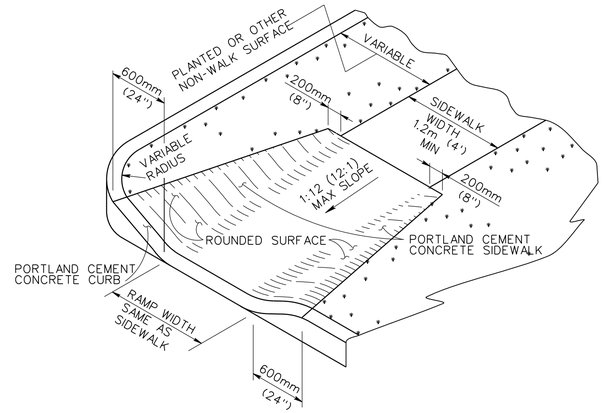
BARRIER RATING: NOT TESTED.

CONSTRUCTION:
CABLE: 3-19mm (3/4") DIA. STEEL CABLES @ 75mm (3") O.C. ON POSTS SET ON 4.8m (16') CENTERS, 762mm (30") HIGH;
W-BEAM: CORRUGATED W BEAM ON POSTS SET ON 3.66m (12') CENTERS, 762mm (30") HIGH;
BOX BEAM: 150X150 (6X6) OR 150X200 (6X8) STEEL TUBE ON POSTS SET 1.2m - 1.8m (4' - 6') APART; 685mm (27") HIGH.

COMMENT: NOT DESIGNED TO PREVENT HEAD-ON PENETRATION. DESIGNED TO DEFLECT IMPACT FROM STRIKING AT 25 DEGREE ANGLE OR LESS FOR CARS AND 15 DEGREE ANGLE OR LESS FOR SINGLE UNIT TRUCKS.

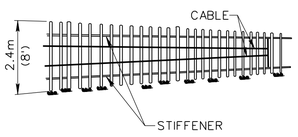
GUARDRAILS

NOT TO SCALE



CURB RAMP DETAIL

NOT TO SCALE

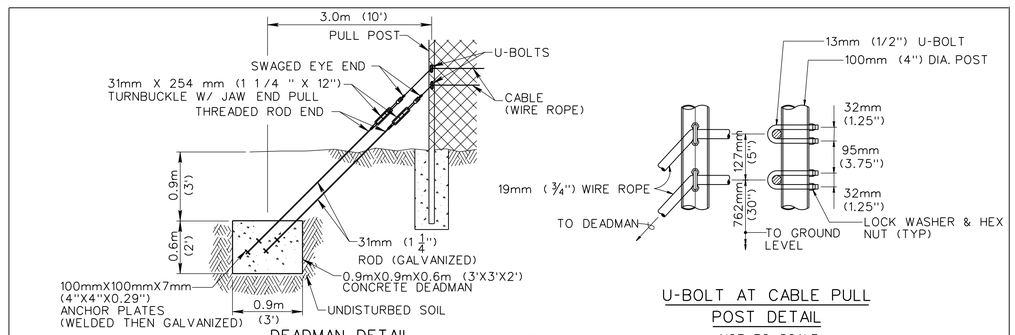


BARRIER RATING: K8, K12

CONSTRUCTION: IMPROVED STEEL FENCE.

REINFORCED ORNAMENTAL FENCE

NOT TO SCALE



DEADMAN DETAIL

NOT TO SCALE

U-BOLT AT CABLE PULL POST DETAIL

NOT TO SCALE

BARRIER RATING: LESS THAN K4

COMMENT: MINIMUM DEADMAN SPACING OF 60.0m (200')

REINFORCED CHAIN-LINK SECURITY FENCE

NOT TO SCALE

COMMENT: SEE STD 872-90-19 FOR ADDITIONAL DETAILS

PASSIVE BARRIERS

VEHICLE BARRIER

A BARRIER IS PASSIVE IF ITS EFFECTIVENESS RELIES ON ITS BULK, MASS, OR POSITION. PASSIVE BARRIERS HAVE NO MOVING PARTS. A BARRIER IS ACTIVE IF IT REQUIRES ACTION BY PERSONNEL OR EQUIPMENT TO PERMIT OR DENY ENTRY. ACTIVE BARRIERS ARE THOSE DEVICES USED TO CONTROL ACCESS THROUGH AN ACP OR ENTRANCE. PASSIVE BARRIERS ARE USED TO CHANNEL THE FLOW OF TRAFFIC TO PREVENT VEHICLES FROM BYPASSING ACCESS POINTS.

SELECTION OF PASSIVE BARRIERS

THE SELECTION OF A SPECIFIC BARRIER IS LEFT TO THE LOCAL SECURITY PLANNERS. SELECT BARRIERS BASED ON THE THREAT IDENTIFIED, THE TERRAIN ENCOUNTERED, THE VISUAL APPEARANCE DESIRED, AND THE BUDGET FOR THE BARRIERS. ALSO CONSIDER MAINTENANCE COSTS INCLUDING REMOVAL OF PLANT GROWTH, TRASH AND SNOW REMOVAL; REPAIR OR REPLACEMENT COSTS IF THE BARRIER IS BREACHED; EASE OF RELOCATING THE BARRIER; AND THE HAZARD PRESENTED TO INNOCENT PERSONNEL WHO MAY ACCIDENTALLY STRIKE THE BARRIER.

NOTES

1. APPEARANCE IS OFTEN A MAJOR CONSIDERATION WHEN SELECTING PASSIVE BARRIERS. THE INSTALLATION OF VEHICLE BARRIERS AROUND A SITE WILL NOT PREVENT PENETRATION OF THE SITE BY UNAUTHORIZED PERSONNEL. GIVEN TIME, ANY OF THESE BARRIERS MAY BE PENETRATED. THE BARRIERS DO PREVENT EASY MOBILE ACCESS FROM BOTH OUTSIDE AND INSIDE, DO DELAY BREACHING, AND DO DEMONSTRATE AN ADVERSARY'S INTENT. PLACING BARRIERS NEAR THE OUTSIDE PERIMETER FORCES THE ADVERSARY TO HAND CARRY HIS WEAPON TO HIS TARGET.
2. MOST PASSIVE BARRIERS WILL NOT EXCLUDE PERSONNEL ON FOOT OR ON MOTORCYCLES. THESE BARRIERS SHOULD BE SUPPLEMENTED TO EXCLUDE MOTORCYCLES AND PEDESTRIANS IF THEY ARE IDENTIFIED AS THREATS.
3. IN ADDITION TO THE PROBLEMS OF PLANT GROWTH, WINDBLOWN TRASH, AND SNOW, DETECTION SENSOR LOCATIONS AND VIDEO ASSESSMENT POSITIONS MUST BE CONSIDERED WHEN ADDING PASSIVE BARRIERS TO A SITE. ALSO PASSIVE BARRIERS MAY BE USED BY AN ADVERSARY FOR FIRING POSITIONS OR CONCEALMENT. GROWTH CHARACTERISTICS OF PLANTS USED IN PLANTERS MUST BE CONSIDERED TO AVOID OBSTRUCTING THE GUARD'S VIEWS OF ONCOMING TRAFFIC.

REFERENCE MATERIAL

1. DEPT. OF STATE, D.O.S., SD-SDT-02.01: SPECIFICATION FOR VEHICLE CRASH TESTING OF PERIMETER BARRIERS AND GATES
2. UFC 4-020-01 SECURITY ENGINEERING: PLANNING MANUAL
3. UFC 4-020-02 SECURITY ENGINEERING: DESIGN MANUAL
4. UFC 4-022-01 ENTRY CONTROL FACILITIES/ACCESS CONTROL POINTS

RELATED DRAWINGS

STD 872-90-01 STANDARD DETAILS FOR CHAIN-LINK SECURITY FENCES, FARM STYLE FENCES AND A DOUBLE CABLE BARRIER

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE:

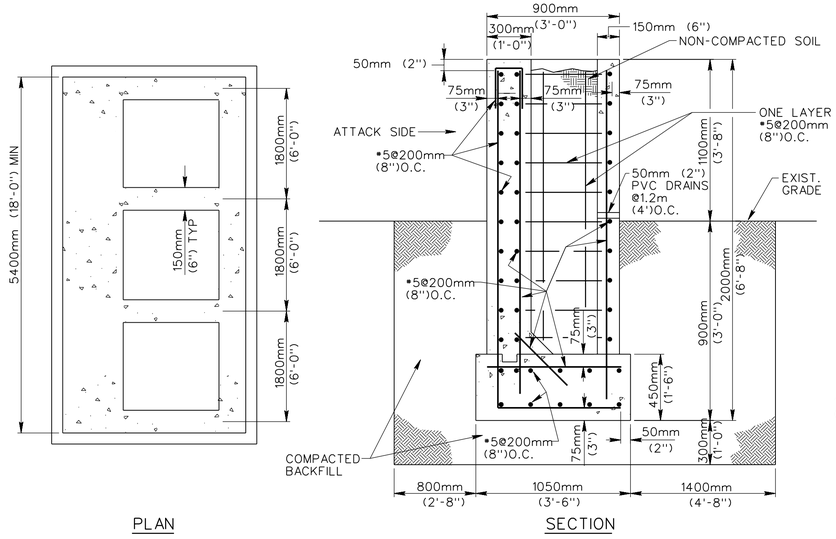
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

BARRIERS
PASSIVE VEHICLE BARRIERS

SHEET REFERENCE NUMBER
C9.06
SHEET 28 OF 60

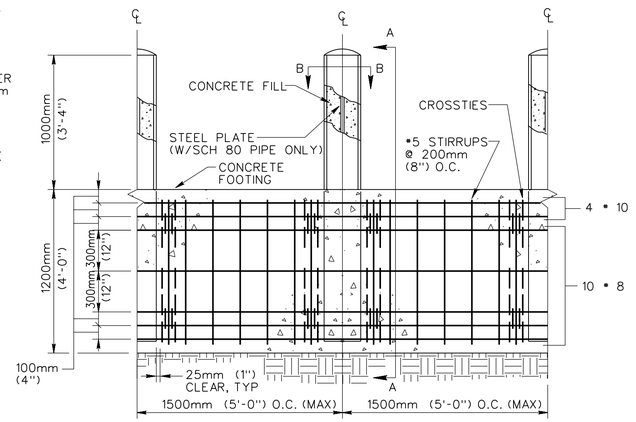
$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



PLAN SECTION

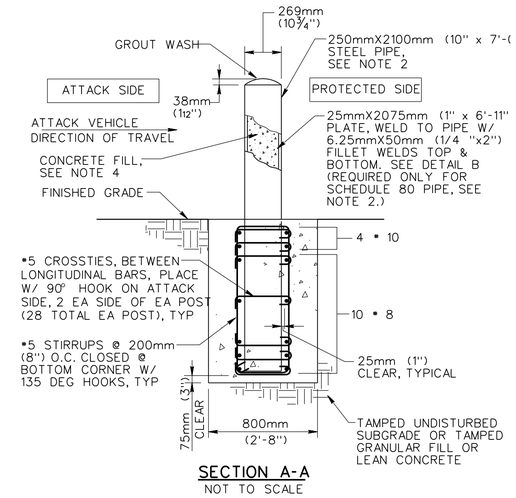
DS-9 PLANTER; K12 RATING

NOT TO SCALE



ELEVATION (ATTACK SIDE)

NOT TO SCALE



SECTION A-A

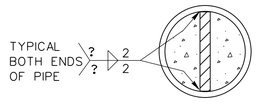
NOT TO SCALE

GENERAL NOTES:

1. REINFORCING SHALL BE ASTM A-615, Fy = 60 KSI.
2. STEEL PIPE SHALL BE ASTM A-53 GRADE B, Fy = 36 KSI

OPTION 1: SCHEDULE 140 (25mm (1") WALL THICKNESS)
OPTION 2: SCHEDULE 80 (12mm (1•2") WALL THICKNESS WITH 25mmX2075mm (1"X83") PLATE (SEE DETAILS).

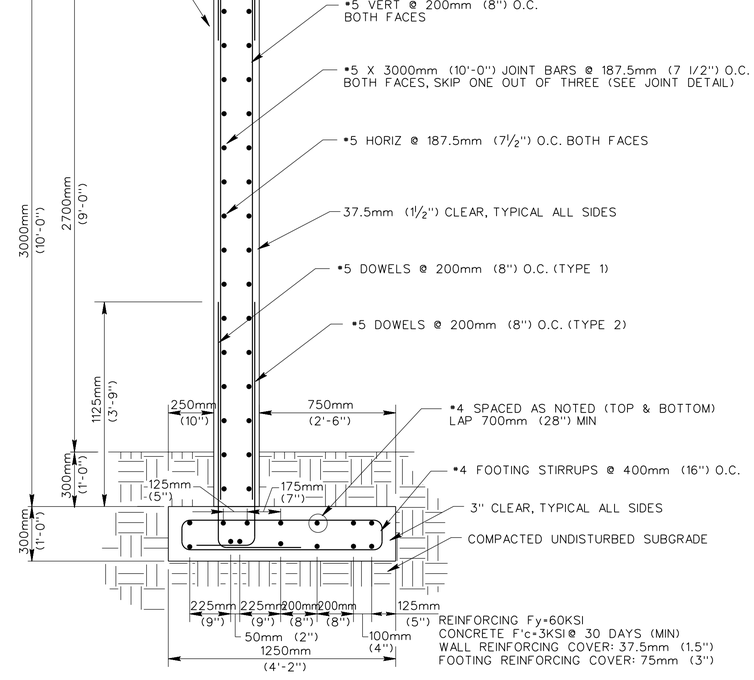
3. STEEL PLATE SHALL BE ASTM A-36, Fy = 36 KSI.
4. CONCRETE MINIMUM F'c = 24,130 kPa (3500 PSI) IN ACCORDANCE WITH ASTM C31, C39 AND C470.
5. SOILS SHALL BE COMPACTED TO 90% MAXIMUM DENSITY.
6. STAGGERED CLASS A TENSION SPLICES SHALL BA ALLOWED FOR HORIZONTAL REINFORCING.
7. CROSSTIES SHALL HAVE STANDARD 90 AND 180 BENDS AND SHALL BE PLACED WITH 90 BEND TOWARD THE ATTACK SIDE OF THE FOOTING. PROVIDE 7 PAIRS OF CROSSTIES COMBINED WITH FIRST STIRRUP EACH SIDE OF EACH BOLLARD (SEE ELEVATION).
8. ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER.



WELD STEEL PLATE WITHIN STEEL PIPE PARALLEL TO VEHICLE TRAVEL DIRECTION. PLATE REQUIRED ONLY FOR SCHEDULE 80 PIPE. (SEE NOTE 2, OPTION 2)

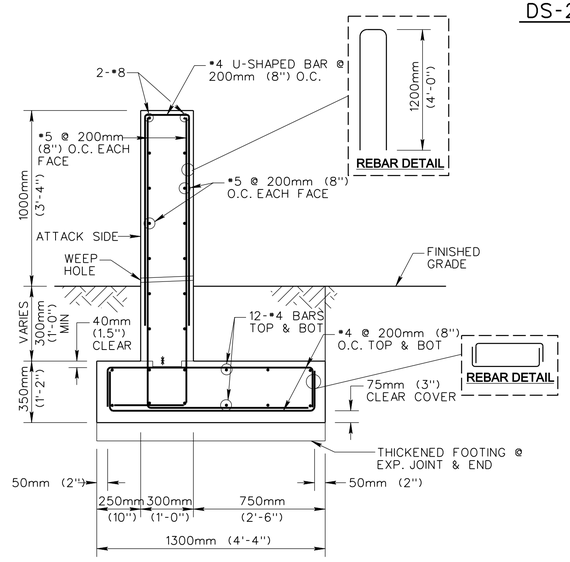
SECTION B-B

NOT TO SCALE



ANTI-RAM WALL; K12 RATING

NOT TO SCALE

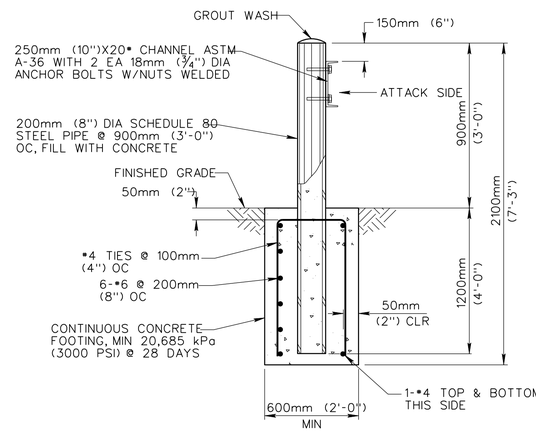


DS-50 1 METER ANTI-RAM KNEE WALL, K12 RATING

NOT TO SCALE

DS-22 BOLLARD; K12 RATING

NOT TO SCALE



DS-3 BOLLARD W/C CHANNEL RAIL; K12 RATING

NOT TO SCALE

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
CHKD BY: XXX
PLOT SCALE: 1:1
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

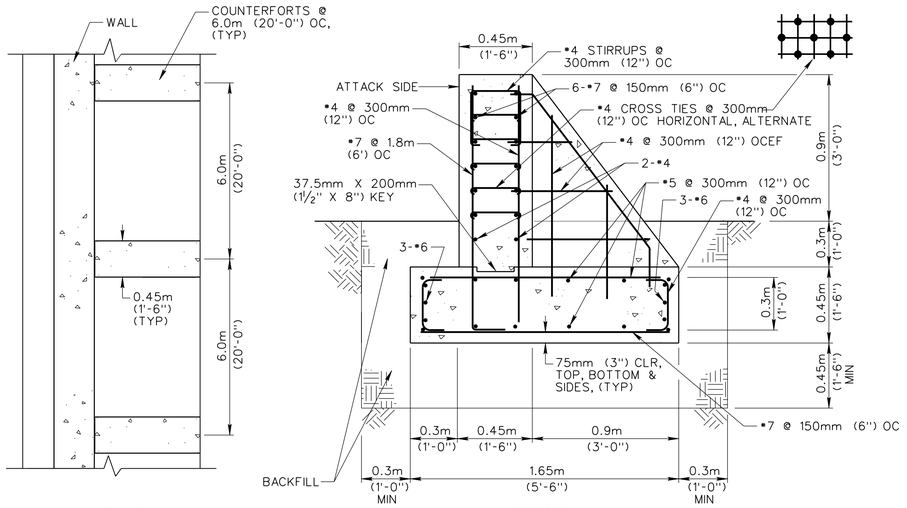
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

BARRIERS
PASSIVE VEHICLE BARRIERS

SHEET REFERENCE NUMBER
C9.07
SHEET 29 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

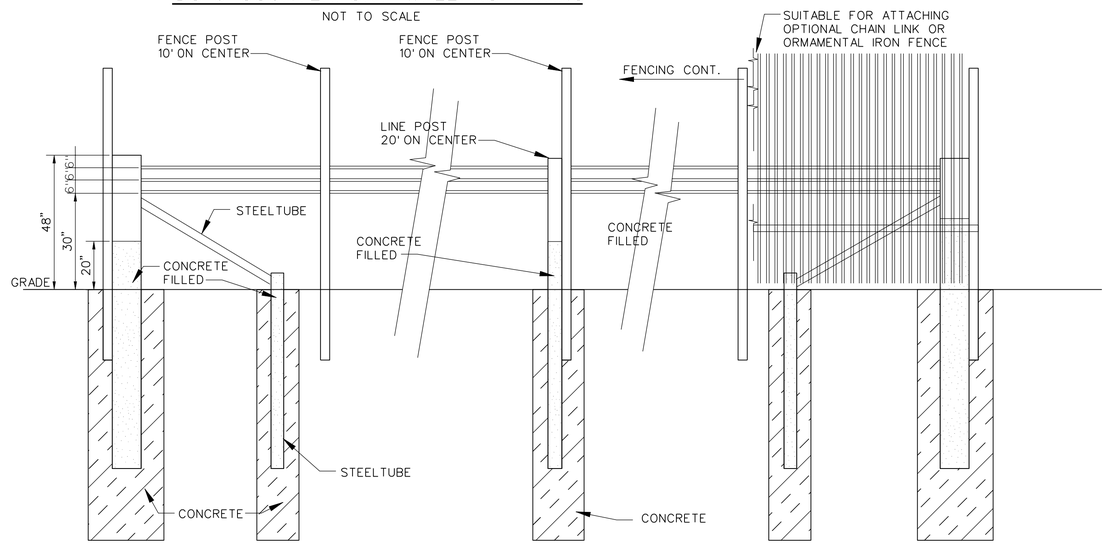


PLAN

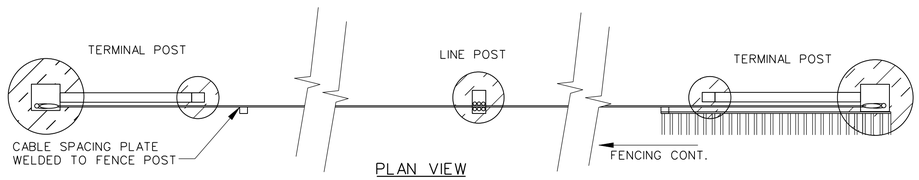
SECTION

DS-6 COUNTERFORT WALL; K8 RATING

NOT TO SCALE



ELEVATION VIEW



PLAN VIEW

CABLE BARRIER: K12, P1 RATING

ALSO AVAILABLE IN K4 AND K8 CONFIGURATIONS
WITH P2 PENETRATION RATINGS
PER ASTM F2656-07

NOTES:

1. FOR ADDITIONAL INFORMATION ON ANY BARRIER SHOWN ON THESE DRAWINGS, CONTACT THE PROTECTIVE DESIGN CENTER (PDC).

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE: ;

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

BARRIERS
PASSIVE VEHICLE BARRIERS

SHEET REFERENCE NUMBER
C9.08
SHEET 30 OF 60

$$DGNSPEC$$
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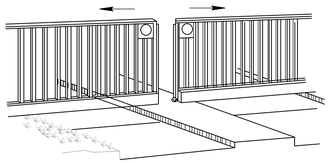
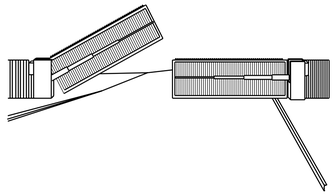


OPERATION: GATE SLIDES HORIZONTALLY, MANUALLY OR MOTOR OPERATED

SLIDING GATE

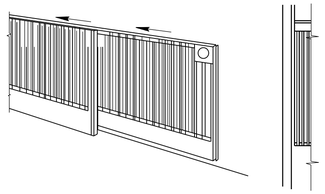
NOT TO SCALE



OPERATION: ARM AND GATE OPEN VERTICALLY, MOTORIZED.

VERTICAL PIVOT GATE

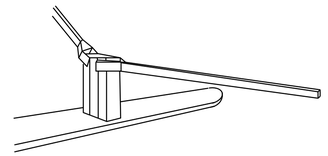
NOT TO SCALE



OPERATION: MULTIPLE SECTIONS MOVE HORIZONTALLY, MANUALLY OR MOTOR OPERATED.

TELESCOPING GATE

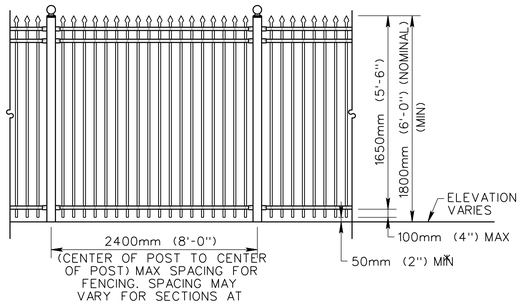
NOT TO SCALE



OPERATION: BEAMED RAISED TO ALLOW TRAFFIC TO PASS.

TRAFFIC ARM

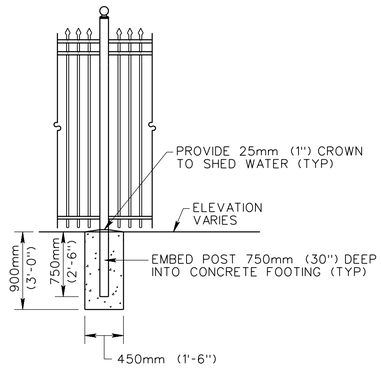
NOT TO SCALE



FENCING ELEVATION DETAIL

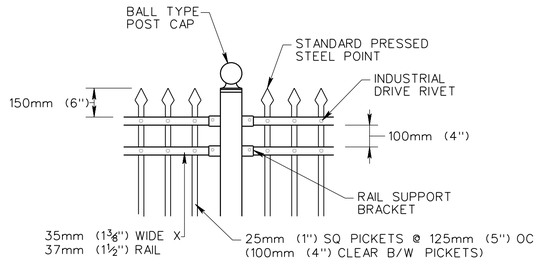
NOT TO SCALE

* CLEARANCE BETWEEN FENCE AND GROUND SHALL BE BETWEEN 50mm (2") MIN AND 100mm (4") MAX.



FENCE POST DETAIL

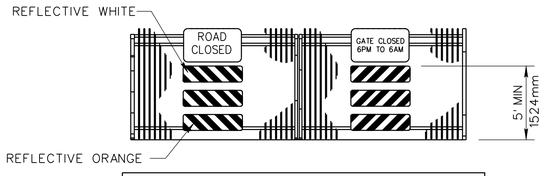
NOT TO SCALE



RAIL/POST DETAIL

NOT TO SCALE

SIGNAGE POSTED AT GATES ARE R11-2 SIZED TO 48x30



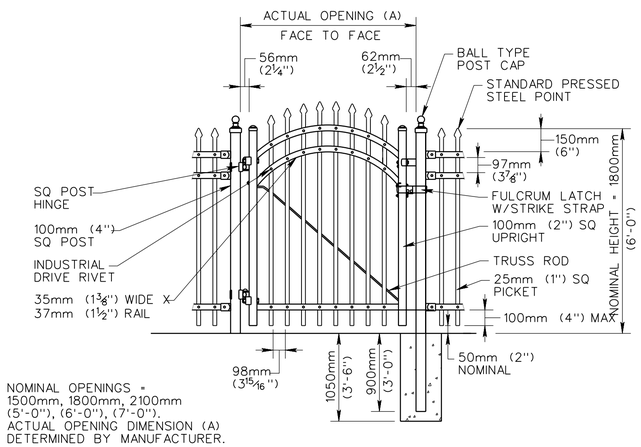
TYPE III BARRICADES

- TYPE III BARRICADES SHOULD BE USED DURING THE TIMES WHEN THE ACP IS CLOSED TO TRAFFIC
- A "GATE CLOSED" SIGN LISTING THE HOURS OF OPERATION SHOULD BE INSTALLED PRIOR TO THE BARRICADE, AND AT THE BARRICADE AS WELL.

FOR ACPs THAT HAVE FIXED HOURS AND ARE MORE THAN ONE MILE AWAY FROM THE PRIMARY ROADWAY, INSTALL SIGNS SHOWING THE HOURS OF ACP OPERATION IN ADVANCE OF THE ACP.

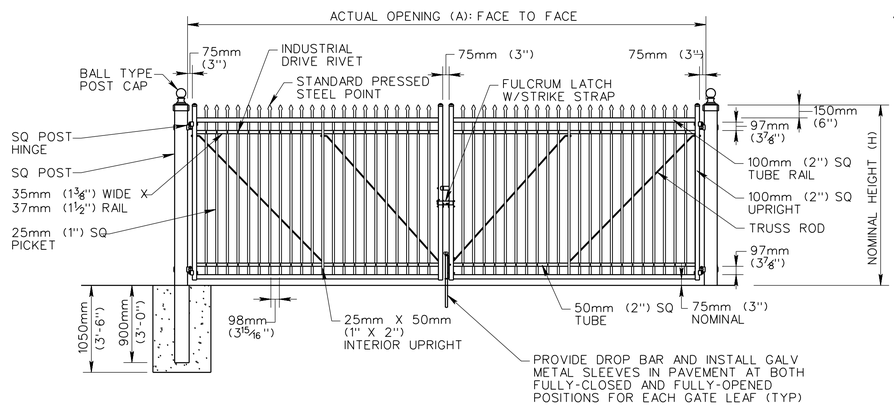
SIGNAGE DETAIL FOR ENTRY GATE

NOT TO SCALE



PERSONNEL SWING GATE DETAIL

NOT TO SCALE



ORNAMENTAL METAL FENCE DOUBLE SWING GATE ELEVATION DETAIL

NOT TO SCALE

NOTE: ITEMS SHOWN ON THIS PAGE ARE NOT VEHICLE IMPACT RESISTANT

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-0204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

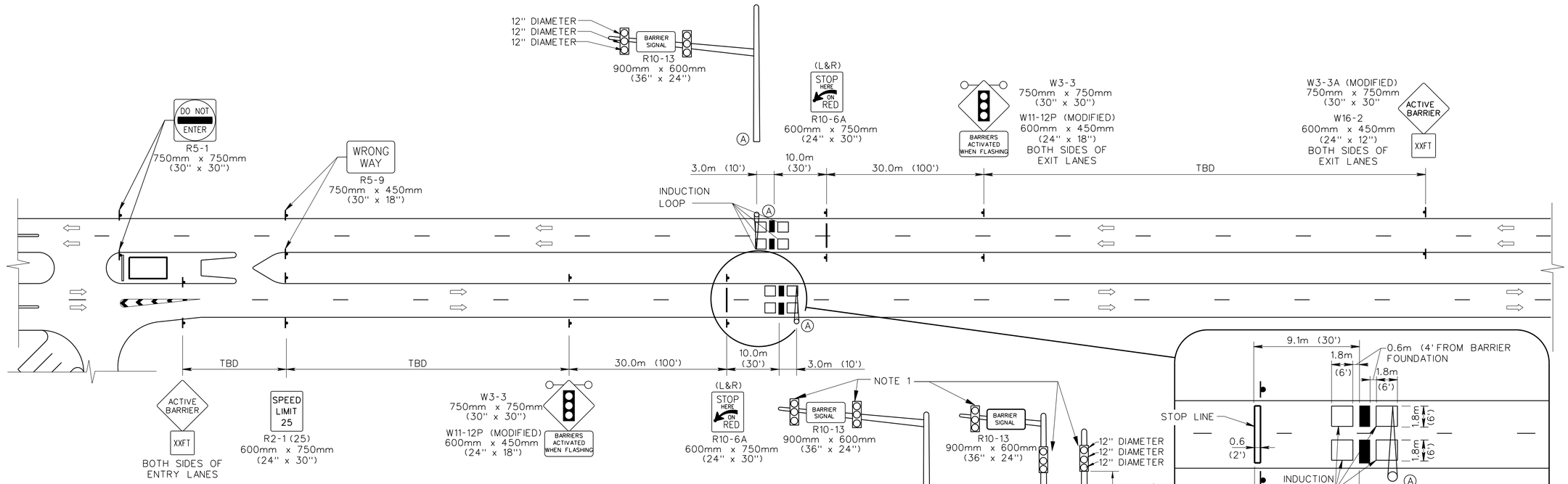
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

GATES AND FENCES

SHEET REFERENCE NUMBER
C9.09
SHEET 31 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



TRAFFIC CONTROL AND SAFETY AT ACTIVE BARRIERS	OPERATIONAL SEQUENCE PER SECOND (MIN FOR SAFETY - 40 KPH (25 MPH) DESIGN SPEED)											
	TRAFFIC CONTROL	--	1	2	3	4	5	6	7	8	9	10
		NORMAL OPS	GUARD PERCEPTION AND REACTION TIME TO THREAT (BUTTON)			YELLOW CLEARANCE (MUTCD MINIMUM)			ALL RED	DEPLOYING BARRIER		THREAT CONTAINED
	WARNING SIGN WITH BEACONS	BLANK	BLANK	BLANK	BLANK	ALT FY	ALT FY	ALT FY	ALT FY	ALT FY	ALT FY	ALT FY
	TRAFFIC SIGNAL	FY OR SOLID GREEN	FY OR G	FY OR G	FY OR G	Y	Y	Y	R	R	R	R
SIGN AND SIGNAL WARNING SYSTEM	BARRIER LIGHTS	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	FR	FR	FR	FR
	ACTIVE BARRIER	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	ACTIVATED	ACTIVATED	DEPLOYED

NOTE:
R = RED
Y = YELLOW
FY = FLASHING YELLOW
G = GREEN

NOTES:

1. ALL TRAFFIC SIGNAL FACES SHALL HAVE THE FOLLOWING SIGNAL INDICATIONS:
   RED – 12" DIAMETER
   YELLOW – 12" DIAMETER
   FLASHING YELLOW OR GREEN – 8" DIAMETER

2. FOR MULTIPLE INBOUND OR MULTIPLE OUTBOUND LANES, USE DETAIL A WITH A SIGNAL FACE OVER EACH LANE.

3. FOR TWO LANE ROADWAYS WITH ONE INBOUND LANE AND ONE OUTBOUND LANE, THE PREFERREDTRAFFIC SIGNALIZATION IS ONE POST AND MAST STRUCTURE WITH SIGNAL FACES ON BOTH THE MAST AND THE POST (DETAIL B) FOR EACH LANE. AN ALTERNATIVE FOR ROADWAYS WITH ONE INBOUND AND ONE OUTBOUND LANE THAT ARE SEPARATED BY A MEDIAN ISLAND OF AT LEAST 5 FOOT WIDE, USE POST MOUNTED SIGNAL FACES (DETAIL C) WITH ONE POST MOUNTED ON THE RIGHT SHOULDER AND ANOTHER POST MOUNTED ON THE LEFT SHOULDER (MEDIAN ISLAND) FOR EACH LANE, THIS ALTERNATIVE REQUIRES A TOTAL OF 4 POSTS WITH SIGNAL FACES.

4. BARRIERS SHALL BE CONTROLLED BY A TRAFFIC CONTROLLER UNIT IN ACCORDANCE WITH UFGS 34 41 26.00 10 "ACCESS CONTROL POINT CONTROL SYSTEM" AND DRAWINGS E1.03 AND E1.04.

ACTIVE BARRIER SIGNS AND SIGNALS

NOT TO SCALE

LEGEND

- TRAFFIC FLOW PATTERN
- Y/100mm (4") PAINT STRIPE STYLE/WIDTH
- DY DOUBLE YELLOW LINE
- SW SOLID WHITE LINE
- TRAFFIC ARM
- ACTIVE VEHICLE BARRIER
- PASSIVE VEHICLE BARRIER
- ORNAMENTAL FENCE
- FENCE
- BOLLARDS
- CANOPY
- BARRIER WALL
- DOUBLE FACE GUARD RAIL
- SINGLE FACE GUARD RAIL
- GUARD BOOTH
- GENERATOR PAD W/SIDEWALK
- CURB RAMP
- (A) TRAFFIC SIGNAL DETAILS

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
FILE NAME:
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ACTIVE BARRIER SIGNS AND SIGNALS

SHEET REFERENCE NUMBER
C9.10
SHEET 32 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

NOTES:

GENERAL

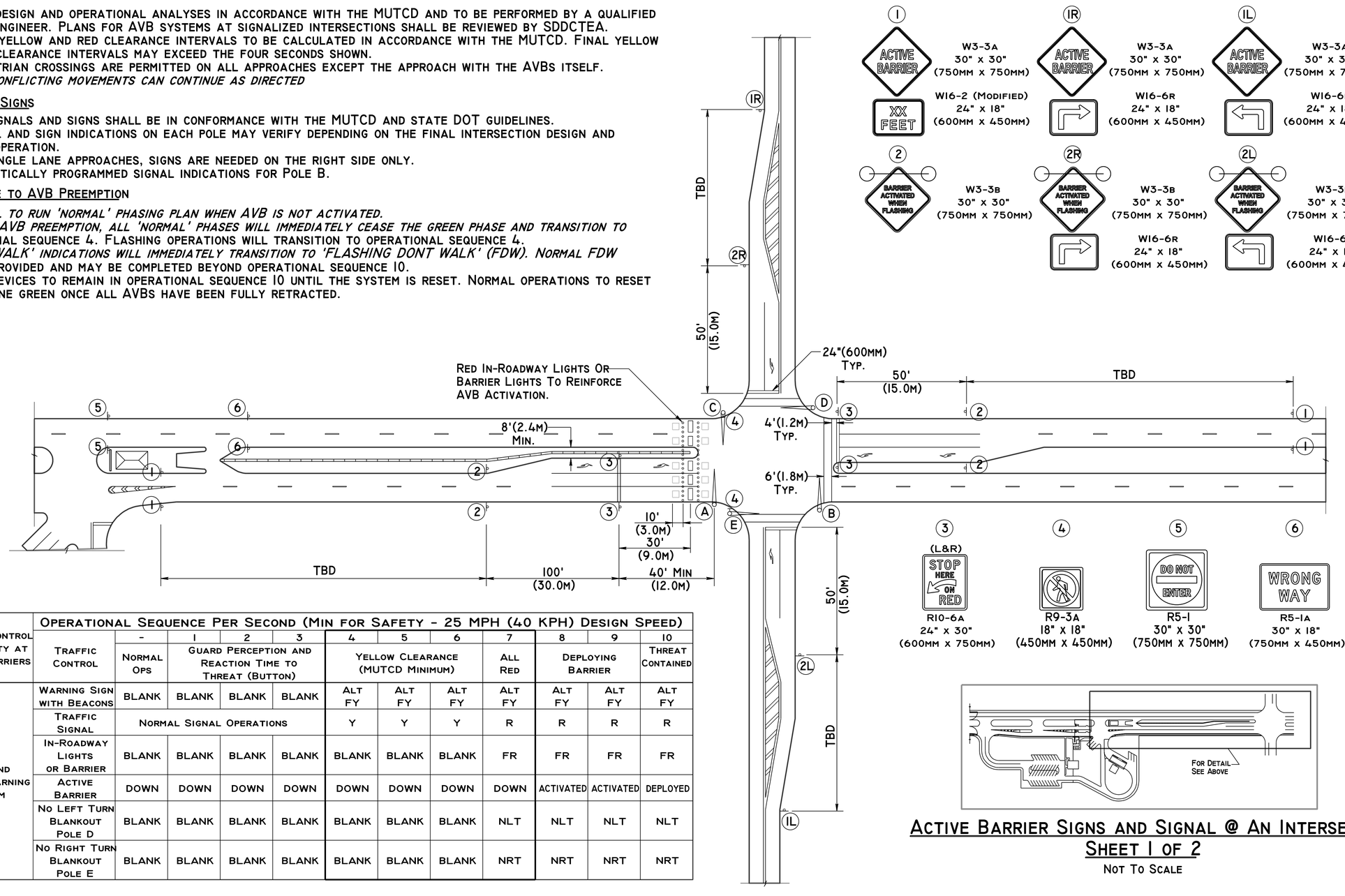
1. FINAL DESIGN AND OPERATIONAL ANALYSES IN ACCORDANCE WITH THE MUTCD AND TO BE PERFORMED BY A QUALIFIED TRAFFIC ENGINEER. PLANS FOR AVB SYSTEMS AT SIGNALIZED INTERSECTIONS SHALL BE REVIEWED BY SDDCTEA.
2. FINAL YELLOW AND RED CLEARANCE INTERVALS TO BE CALCULATED IN ACCORDANCE WITH THE MUTCD. FINAL YELLOW AND RED CLEARANCE INTERVALS MAY EXCEED THE FOUR SECONDS SHOWN.
3. PEDESTRIAN CROSSINGS ARE PERMITTED ON ALL APPROACHES EXCEPT THE APPROACH WITH THE AVBS ITSELF.
4. *NON-CONFLICTING MOVEMENTS CAN CONTINUE AS DIRECTED*

SIGNALS AND SIGNS

5. ALL SIGNALS AND SIGNS SHALL BE IN CONFORMANCE WITH THE MUTCD AND STATE DOT GUIDELINES.
6. SIGNAL AND SIGN INDICATIONS ON EACH POLE MAY VERIFY DEPENDING ON THE FINAL INTERSECTION DESIGN AND PHASING OPERATION.
7. FOR SINGLE LANE APPROACHES, SIGNS ARE NEEDED ON THE RIGHT SIDE ONLY.
8. USE OPTICALLY PROGRAMMED SIGNAL INDICATIONS FOR POLE B.

NORMAL MODE TO AVB PREEMPTION

9. SIGNAL TO RUN 'NORMAL' PHASING PLAN WHEN AVB IS NOT ACTIVATED.
10. UPON AVB PREEMPTION, ALL 'NORMAL' PHASES WILL IMMEDIATELY CEASE THE GREEN PHASE AND TRANSITION TO OPERATIONAL SEQUENCE 4. FLASHING OPERATIONS WILL TRANSITION TO OPERATIONAL SEQUENCE 4.
11. ALL 'WALK' INDICATIONS WILL IMMEDIATELY TRANSITION TO 'FLASHING DONT WALK' (FDW). NORMAL FDW WILL BE PROVIDED AND MAY BE COMPLETED BEYOND OPERATIONAL SEQUENCE 10.
12. ALL DEVICES TO REMAIN IN OPERATIONAL SEQUENCE 10 UNTIL THE SYSTEM IS RESET. NORMAL OPERATIONS TO RESET TO MAINLINE GREEN ONCE ALL AVBS HAVE BEEN FULLY RETRACTED.



TRAFFIC CONTROL AND SAFETY AT ACTIVE BARRIERS	OPERATIONAL SEQUENCE PER SECOND (MIN FOR SAFETY - 25 MPH (40 KPH) DESIGN SPEED)										
	TRAFFIC CONTROL	-	1	2	3	4	5	6	7	8	9	10
		NORMAL OPS	GUARD PERCEPTION AND REACTION TIME TO THREAT (BUTTON)			YELLOW CLEARANCE (MUTCD MINIMUM)			ALL RED	DEPLOYING BARRIER		THREAT CONTAINED
SIGN AND SIGNAL WARNING SYSTEM	WARNING SIGN WITH BEACONS	BLANK	BLANK	BLANK	BLANK	ALT FY	ALT FY	ALT FY	ALT FY	ALT FY	ALT FY	ALT FY
	TRAFFIC SIGNAL	NORMAL SIGNAL OPERATIONS				Y	Y	Y	R	R	R	R
	IN-ROADWAY LIGHTS OR BARRIER	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	FR	FR	FR	FR
	ACTIVE BARRIER	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	ACTIVATED	ACTIVATED	DEPLOYED
	NO LEFT TURN BLANKOUT POLE D	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	NLT	NLT	NLT	NLT
	NO RIGHT TURN BLANKOUT POLE E	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	NRT	NRT	NRT	NRT

ACTIVE BARRIER SIGNS AND SIGNAL @ AN INTERSECTION SHEET 1 OF 2

NOT TO SCALE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME:
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

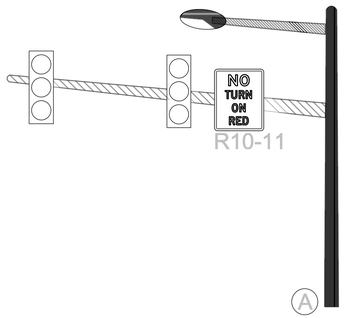
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

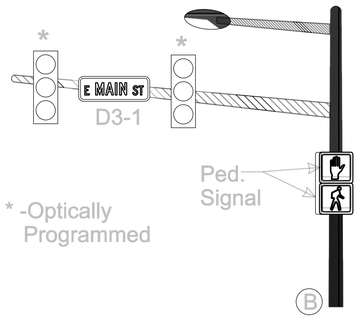
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

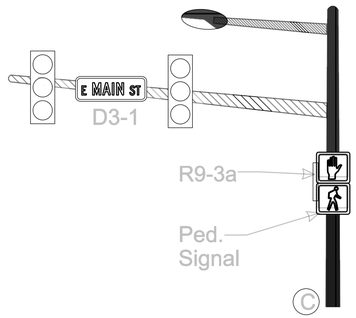
ACTIVE BARRIER SIGNS AND SIGNALS AT AN INTERSECTION SHEET 1 OF 2

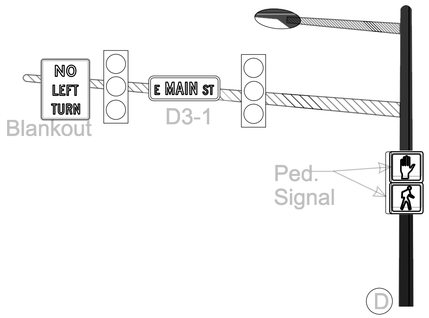
SHEET REFERENCE NUMBER
C9.11
SHEET 33 OF 60

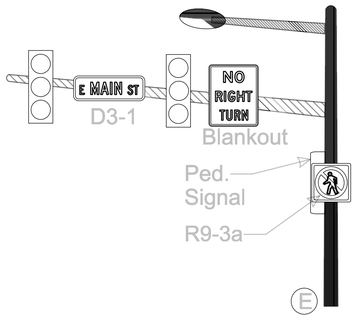
$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$





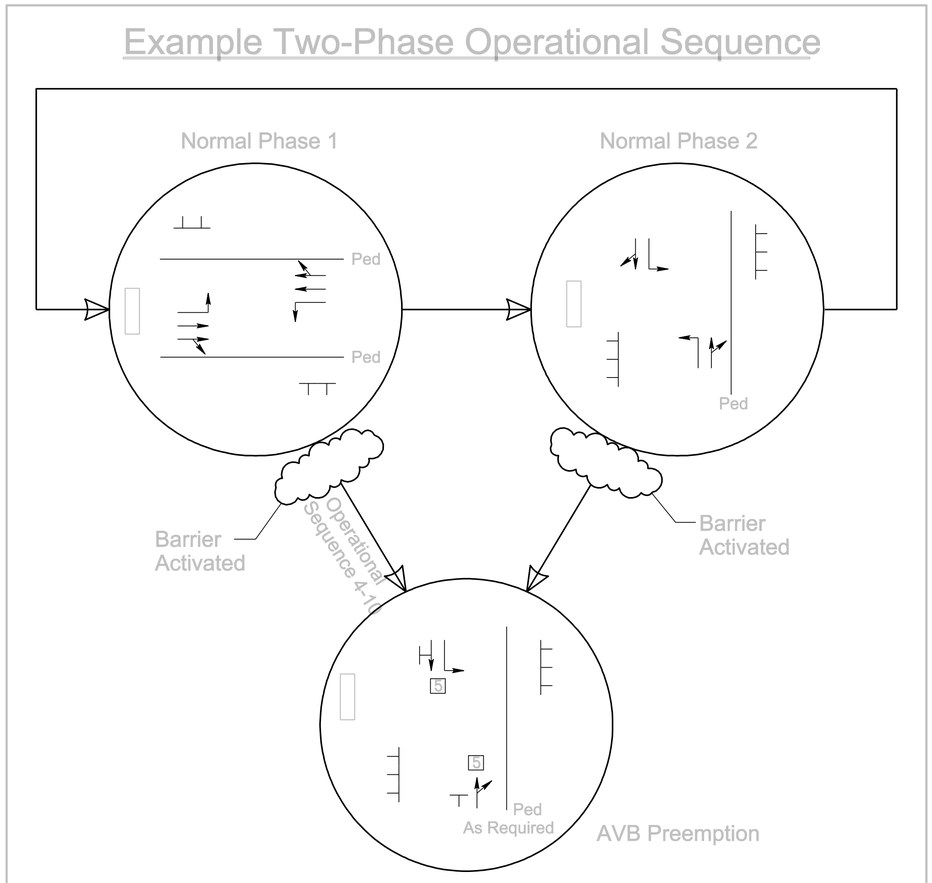






Active Barrier Signs and Signal @ An Intersection
Sheet 2 of 2

Not To Scale



STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE: 1

DESIGNED BY: X.X.X.
DWN BY: X.X.X.
CKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
PLOT SCALE: 1:1
SIZE: ANSI D

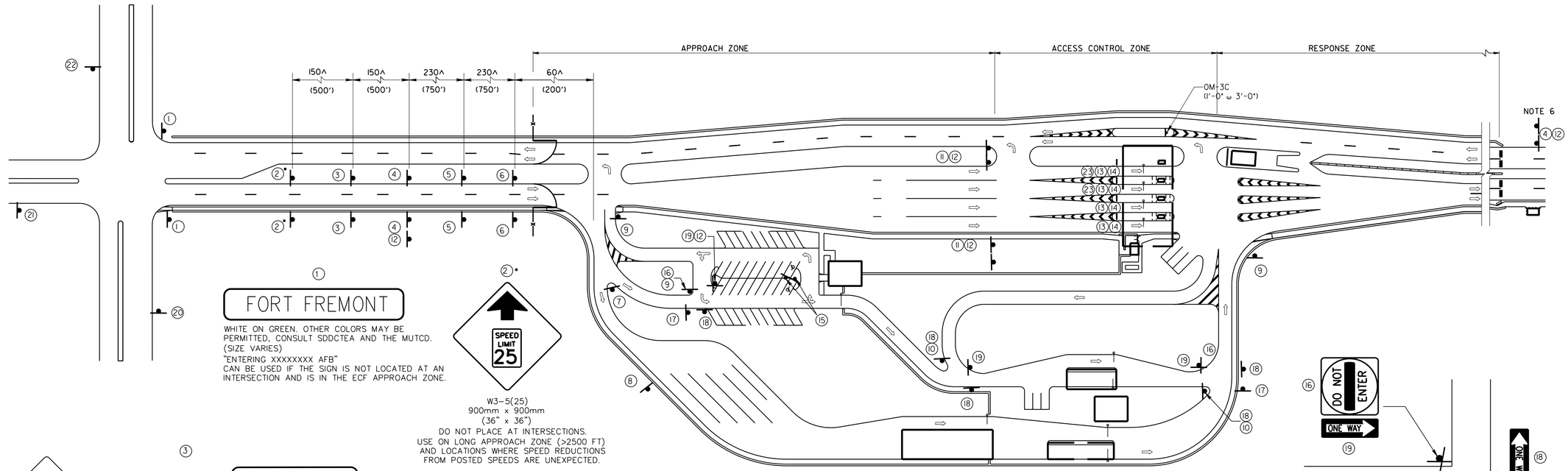
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ACTIVE BARRIER SIGNS AND SIGNALS
AT AN INTERSECTION SHEET 2 OF 2

SHEET REFERENCE NUMBER
C9.12
SHEET 34 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



① FORT FREMONT

WHITE ON GREEN. OTHER COLORS MAY BE PERMITTED, CONSULT SDDCTEA AND THE MUTCD. (SIZE VARIES)
"ENTERING XXXXXXXX AFB" CAN BE USED IF THE SIGN IS NOT LOCATED AT AN INTERSECTION AND IS IN THE ECF APPROACH ZONE.

② SPEED LIMIT 25

W3-5(25)
900mm x 900mm
(36" x 36")
DO NOT PLACE AT INTERSECTIONS. USE ON LONG APPROACH ZONE (>2500 FT) AND LOCATIONS WHERE SPEED REDUCTIONS FROM POSTED SPEEDS ARE UNEXPECTED.

③ CHECKPOINT

(BLACK ON YELLOW)
900mm x 900mm
(36" x 36")

OR

CHECKPOINT XXXX FT BE PREPARED TO STOP

(BLACK ON YELLOW)
13700mm x 915mm
(4'-6" x 3'-0")

XXXX FEET

W16-2
600mm x 450mm
(24" x 18")

PREFERRED

④ SPEED LIMIT 25

R2-1(25)
600mm x 750mm
(24" x 30")

⑤ WHITE LETTERS ON PURPLE WITH WHITE BORDER

ACP *PASS*
LEFT LANES

(WHITE ON GREEN)
2895mm x 1830mm
(9'-6" x 6'-0")

NOTES:

1. FOR SPEEDS GREATER THAN 40 KPH (25 MPH), SEE CURRENT MUTCD FOR SIGN DIMENSIONS.
2. NO CLEARANCE SIGNS ARE REQUIRED FOR CANOPIES 15 FEET IN HEIGHT OR GREATER. FOR CANOPIES LESS THAN 15 FEET CONSULT SDDCTEA AND THE MUTCD.
3. CONSULT SDDCTEA FOR VEHICLE BARRIER SIGNING APPLICATIONS.
4. SIGN PLAN AND DETAILS ARE INTENDED TO PROVIDE GUIDANCE. THE FINAL SIGNING PLAN SHOULD BE DEVELOPED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
5. LOCATE SIGNS AT INTERSECTIONS PER MUTCD FIG. 2A-2.
6. FOR SIGNING AT ACTIVE VEHICLE BARRIERS, SEE THE FOLLOWING:
   C9.10 FOR SIGNS AND SIGNALS SAFETY SYSTEM
   C3.17 AND 18 FOR PRESENCE DETECTION SAFETY SYSTEM
   C3.08 AND C3.16 FOR BARRIER NORMALLY CLOSED SAFETY SYSTEM

⑥ VISITORS TRUCKS

(BLACK ON WHITE)
1200mm x 600mm
(48" x 24")

⑦ CARS TRUCKS

(BLACK ON WHITE)
1200mm x 600mm
(48" x 24")

⑧ HOLDING AREA

(BLACK ON WHITE)
600mm x 600mm
(24" x 24")

⑨ STOP

R1-1
750mm x 750mm
(30" x 30")

⑩ YIELD

R1-2
900mm x 900mm
(36" x 36")

⑪ SPEED LIMIT 15

457mm x 457mm
(18" x 18")

⑫ RADER ENFORCED

457mm x 457mm
(18" x 18")

⑬ ⑭ CONTROLLABLE BACK LIT

RED
457mm x 457mm
(18" x 18")

GREEN
457mm x 457mm
(18" x 18")

LANE USE
(OPTIONAL)

⑮ RESERVED PARKING

R7-8
300mm x 450mm
(12" x 18")

⑯ DO NOT ENTER

R5-1
750mm x 750mm
(30" x 30")

⑰

R3-2
600mm x 600mm
(24" x 24")

⑱ ONE WAY

R6-1L
900mm x 300mm
(36" x 12")

⑲ ONE WAY

R6-1R
900mm x 300mm
(36" x 12")

⑳ FORT FREMONT
West Gate
Main Gate

2745mm x 1525mm
(9'-0" x 5'-0")
(SIZE VARIES)

㉑ FORT FREMONT
Main Gate
West Gate
East Gate

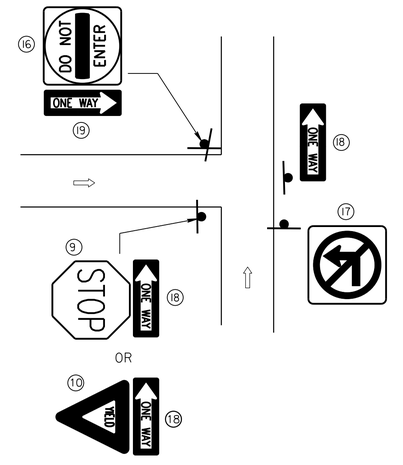
2745mm x 1980mm
(9'-0" x 6'-6")
(SIZE VARIES)

㉒ FORT FREMONT
East Gate
Main Gate

2745mm x 1525mm
(9'-0" x 5'-0")
(SIZE VARIES)

㉓ WHITE ON PURPLE
ACP *PASS*
ONLY
BLACK ON WHITE

1830mm x 1220mm
(6'-0" x 4'-0")
(SIZE VARIES)



TYPICAL ONE WAY INTERSECTION SIGNING
NOT TO SCALE

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

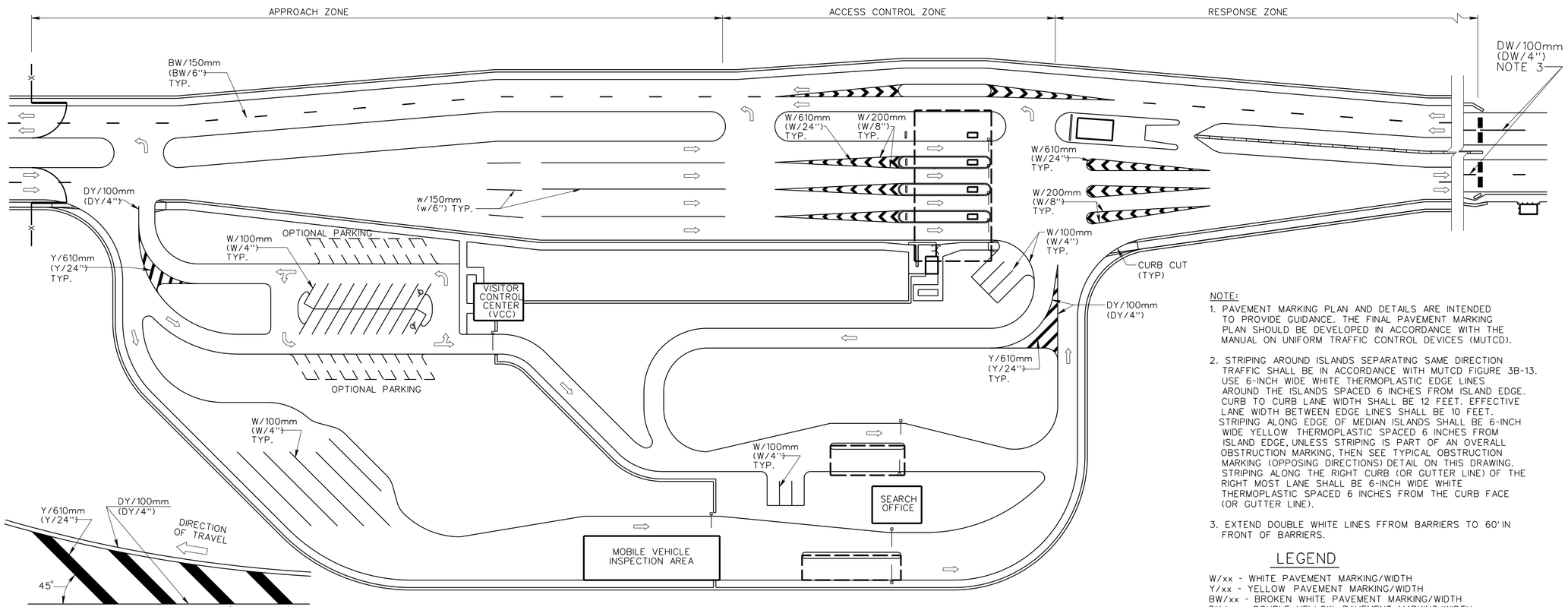
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
SIGN DETAILS AND TYPICAL SIGN LAYOUT

SHEET REFERENCE NUMBER
C9.13
SHEET 35 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



TYPICAL ACP PAVEMENT MARKINGS

NOT TO SCALE

NOTE:

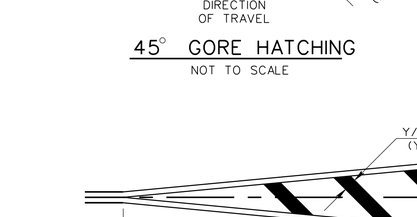
1. PAVEMENT MARKING PLAN AND DETAILS ARE INTENDED TO PROVIDE GUIDANCE. THE FINAL PAVEMENT MARKING PLAN SHOULD BE DEVELOPED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

2. STRIPING AROUND ISLANDS SEPARATING SAME DIRECTION TRAFFIC SHALL BE IN ACCORDANCE WITH MUTCD FIGURE 3B-13. USE 6-INCH WIDE WHITE THERMOPLASTIC EDGE LINES AROUND THE ISLANDS SPACED 6 INCHES FROM ISLAND EDGE. CURB TO CURB LANE WIDTH SHALL BE 12 FEET. EFFECTIVE LANE WIDTH BETWEEN EDGE LINES SHALL BE 10 FEET. STRIPING ALONG EDGE OF MEDIAN ISLANDS SHALL BE 6-INCH WIDE YELLOW THERMOPLASTIC SPACED 6 INCHES FROM ISLAND EDGE, UNLESS STRIPING IS PART OF AN OVERALL OBSTRUCTION MARKING, THEN SEE TYPICAL OBSTRUCTION MARKING (OPPOSING DIRECTIONS) DETAIL ON THIS DRAWING. STRIPING ALONG THE RIGHT CURB (OR GUTTER LINE) OF THE RIGHT MOST LANE SHALL BE 6-INCH WIDE WHITE THERMOPLASTIC SPACED 6 INCHES FROM THE CURB FACE (OR GUTTER LINE).

3. EXTEND DOUBLE WHITE LINES FFROM BARRIERS TO 60' IN FRONT OF BARRIERS.

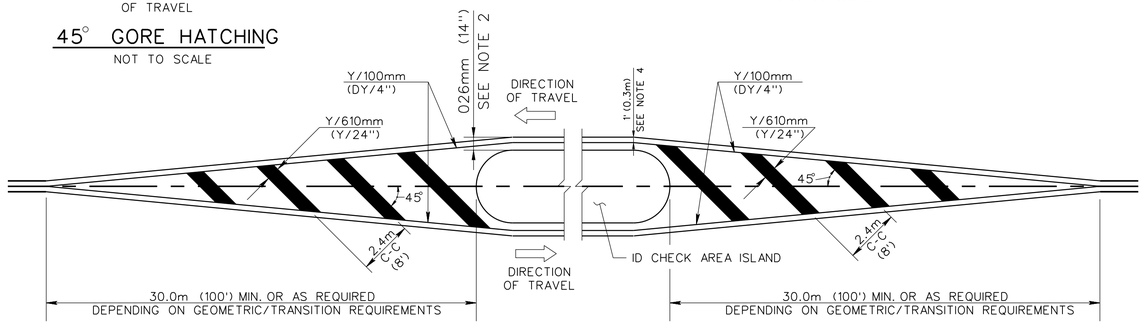
LEGEND

W/xx - WHITE PAVEMENT MARKING/WIDTH
Y/xx - YELLOW PAVEMENT MARKING/WIDTH
BW/xx - BROKEN WHITE PAVEMENT MARKING/WIDTH
DY/xx - DOUBLE YELLOW PAVEMENT MARKING/WIDTH



45° GORE HATCHING

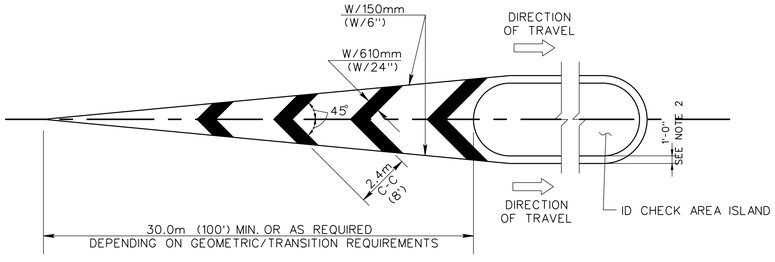
NOT TO SCALE



TYPICAL OBSTRUCTION MARKINGS

(OPPOSING DIRECTIONS)

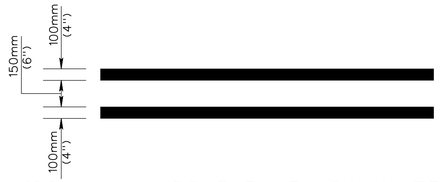
NOT TO SCALE



TYPICAL OBSTRUCTION MARKINGS

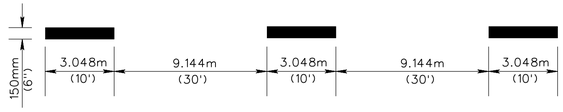
(SAME DIRECTION)

NOT TO SCALE



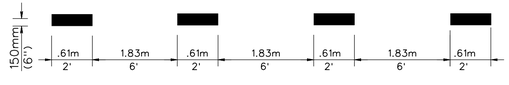
100mm (4") DOUBLE YELLOW/WHITE LINE

NOT TO SCALE



150mm (6") BROKEN LANE LINE

NOT TO SCALE



150mm (6") DOTTED LINE

NOT TO SCALE

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE: 1

DESIGNED BY: X.X.X.
DWN.BY: X.X.X.
CKD.BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
PLOT SCALE: 1:1"
SIZE: ANSI D

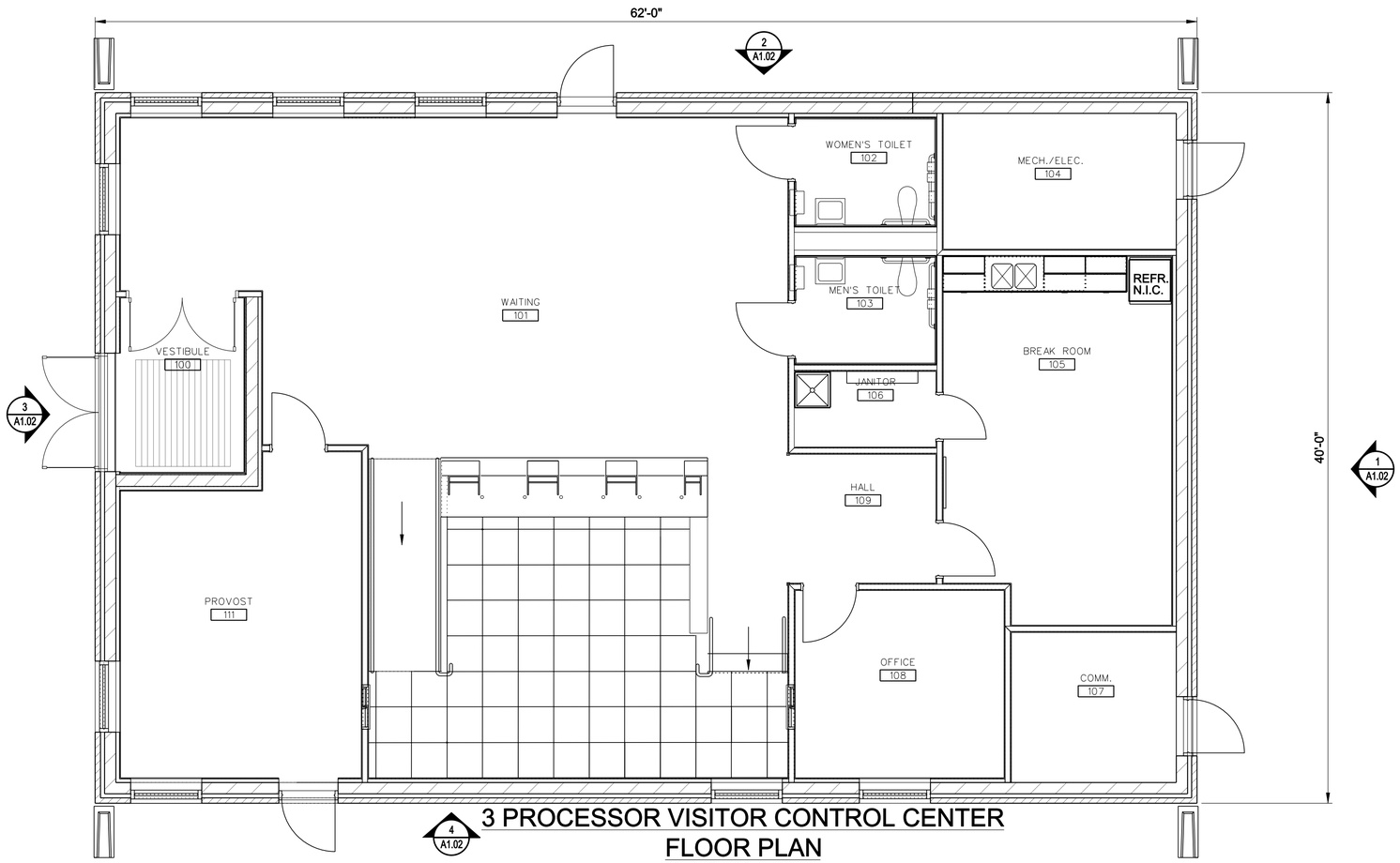
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

PAVEMENT MARKING DETAILS

SHEET REFERENCE NUMBER
C9.14
SHEET 36 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



3 PROCESSOR VISITOR CONTROL CENTER FLOOR PLAN

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. See BIM drawings for construction details. BIM drawings for Access Control Points are maintained by the Center of Standardization for Access Control Points (COS for ACPs) located in the Omaha District.

2. The VCC is the only building at the ACP that must meet the requirements of UFC 4-010-01 "DOD Minimum Antiterrorist Standards for Buildings". VCC's that are projected to have 11 or more people in them on a routine basis are considered to be Inhabited Buildings within an uncontrolled perimeter for the purposes of UFC 4-010-01. The COS for ACPs maintains designs for the following two types of VCC (note the following standoff distances apply only if the VCC will be routinely inhabited by 11 or more people):
   a. VCC using conventional construction, which requires a standoff distance per UFC 4-010-01 of 82 feet from parking areas and roadways.
   b. VCC using hardened construction, which requires a standoff distance of 50 feet from parking areas and roadways.

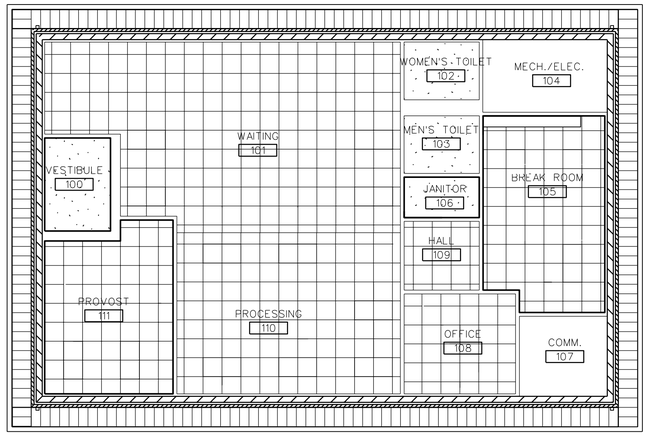
3. The VCC shown on this drawing includes spaces for 3 visitor processing stations. The COS for ACPs maintains VCC designs for 6 and 9 processing stations also. VCC dimensions are as follows:
   a. VCC with 3 visitor processing stations - 62' x 40'
   b. VCC with 6 visitor processing stations - 74' x 40'
   c. VCC with 9 visitor processing stations - 86' x 40'

4. The VCC must be Americans with Disabilities Act (ADA) compliant.

5. Exterior masonry patterning and coursing to be determined during design.

6. Luminaire and diffuser types and locations to be determined during design.

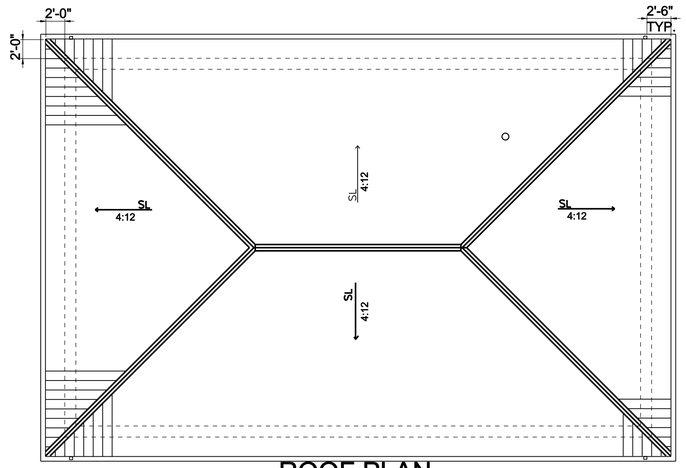
7. All windows should be tinted.



REFLECTED CEILING PLAN

8' 4' 0 8'

SCALE: 1/8" = 1'-0"



ROOF PLAN

8' 4' 0 8'

SCALE: 1/8" = 1'-0"

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
CHKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1 : 1
PLOT DATE:

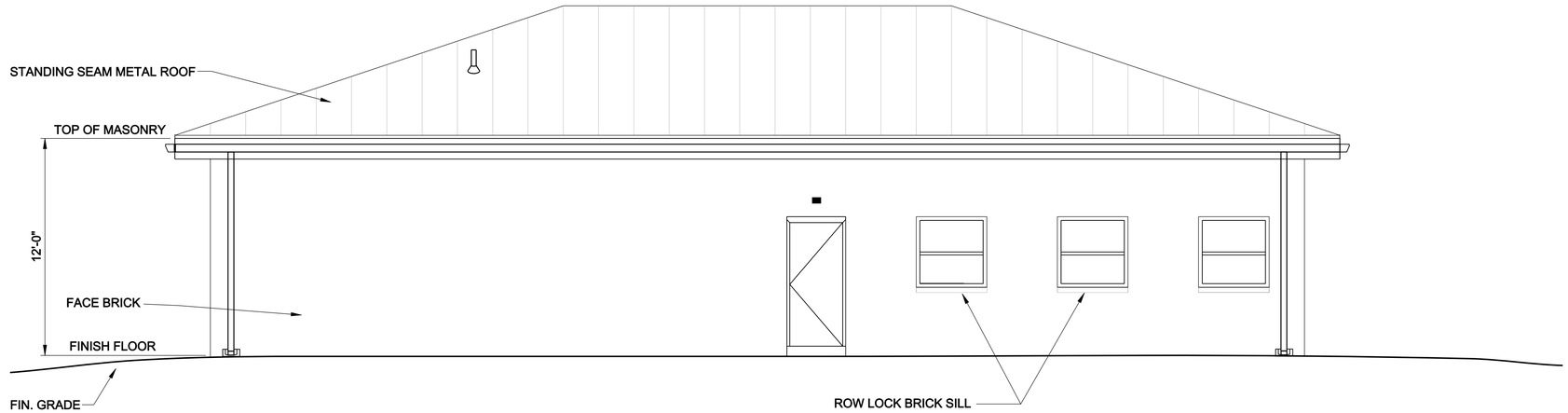
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

VISITOR CONTROL CENTER (VCC)
3 PROCESSOR VERSION
FLOOR PLAN

SHEET REFERENCE NUMBER
A1.01
SHEET 37 OF 60

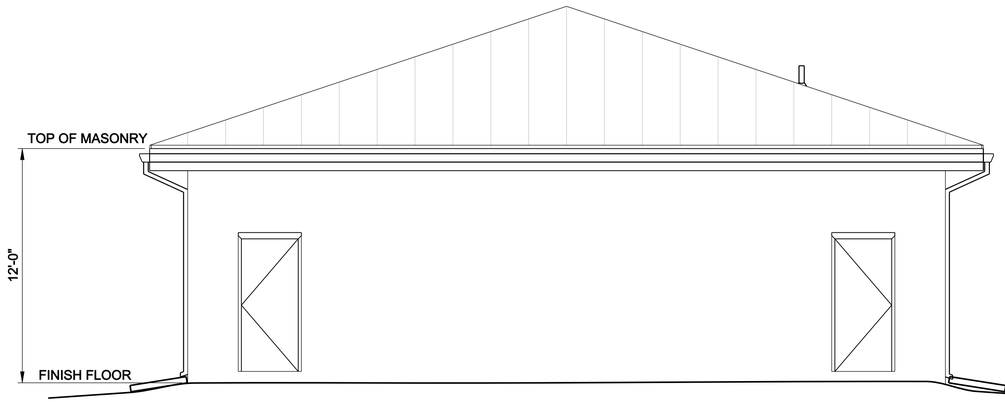
$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



VCC ELEVATION

SCALE: 1/4" = 1'-0"

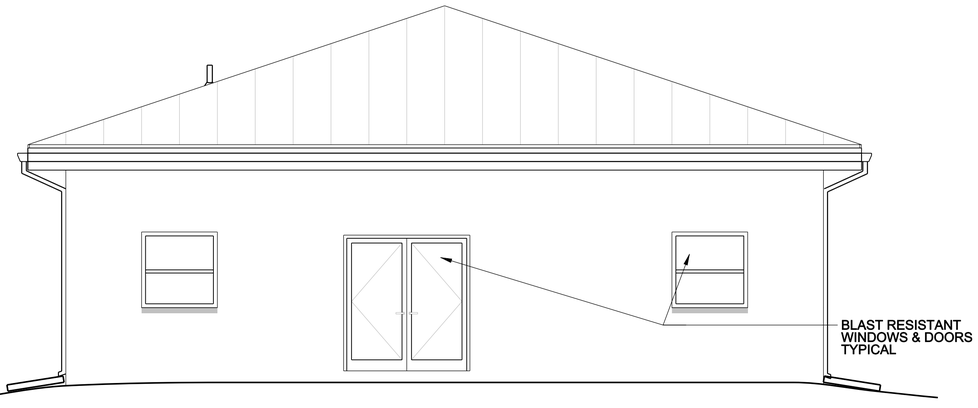
2 A1.01



VCC ELEVATION

SCALE: 1/4" = 1'-0"

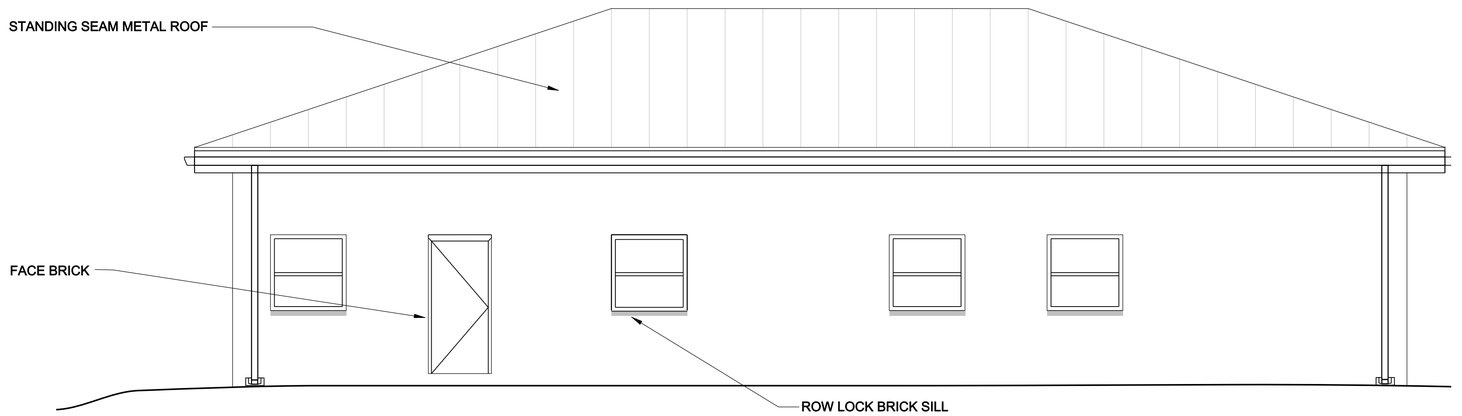
1 A1.01



VCC ELEVATION

SCALE: 1/4" = 1'-0"

3 A1.01



VCC ELEVATION

SCALE: 1/4" = 1'-0"

4 A1.01

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

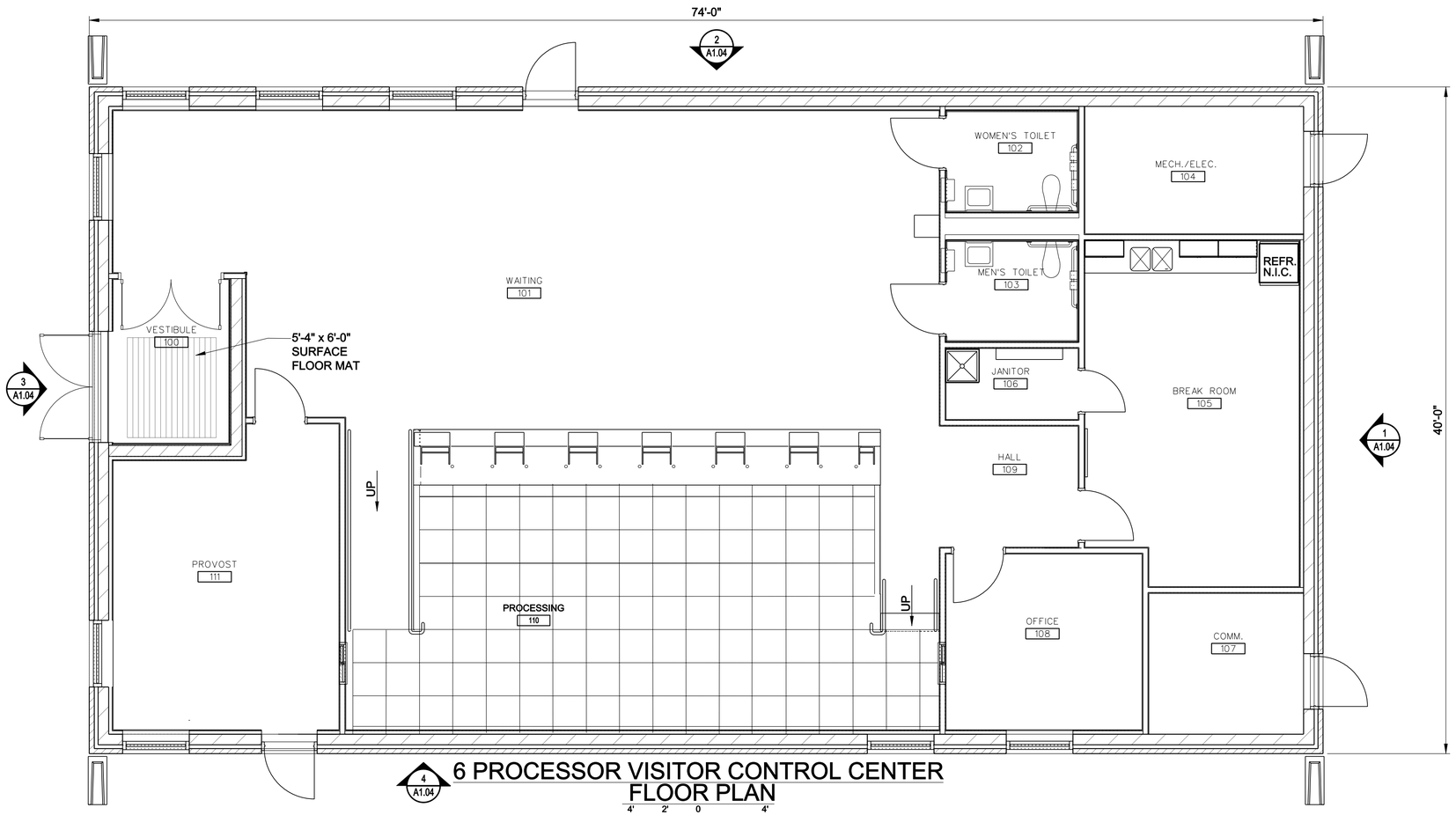
DESIGNED BY: X.X.X.
DRN BY: X.X.X.
CKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE: ;
SIZE: ANSI D

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

VISITOR CONTROL CENTER (VCC)
3 PROCESSOR VERSION
BUILDING ELEVATIONS

SHEET REFERENCE NUMBER
A1.02
SHEET 38 OF 60



4 A1.04 **6 PROCESSOR VISITOR CONTROL CENTER FLOOR PLAN**

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. See BIM drawings for construction details. BIM drawings for Access Control Points are maintained by the Center of Standardization for Access Control Points (COS for ACPs) located in the Omaha District.

2. The VCC is the only building at the ACP that must meet the requirements of UFC 4-010-01 "DOD Minimum Antiterrorist Standards for Buildings". VCC's that are projected to have 11 or more people in them on a routine basis are considered to be Inhabited Buildings within an uncontrolled perimeter for the purposes of UFC 4-010-01. The COS for ACPs maintains designs for the following two types of VCC (note the following standoff distances apply only if the VCC will be routinely inhabited by 11 or more people):
   a. VCC using conventional construction, which requires a standoff distance per UFC 4-010-01 of 82 feet from parking areas and roadways.
   b. VCC using hardened construction, which requires a standoff distance of 50 feet from parking areas and roadways.

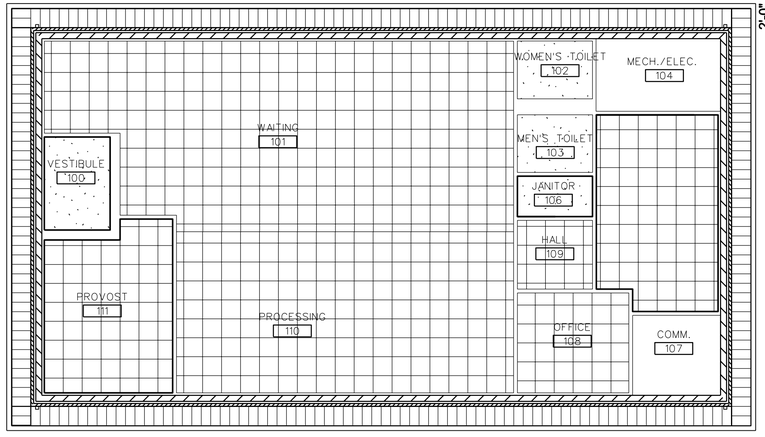
3. The VCC shown on this drawing includes spaces for 3 visitor processing stations. The COS for ACPs maintains VCC designs for 6 and 9 processing stations also. VCC dimensions are as follows:
   a. VCC with 3 visitor processing stations - 62' x 40'
   b. VCC with 6 visitor processing stations - 74' x 40'
   c. VCC with 9 visitor processing stations - 86' x 40'

4. The VCC must be Americans with Disabilities Act (ADA) compliant.

5. Exterior masonry patterning and coursing to be determined during design.

6. Luminaire and diffuser types and locations to be determined during design.

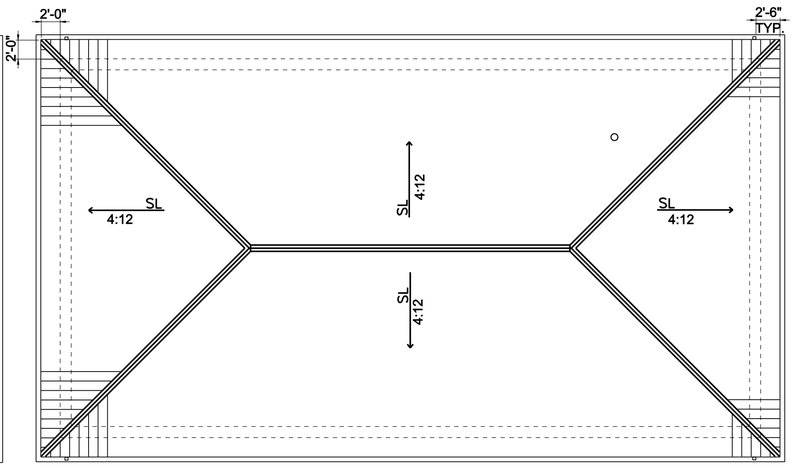
7. All windows should be tinted.



REFLECTED CEILING PLAN

8' 4' 0 8'

SCALE: 1/8" = 1'-0"



ROOF PLAN

8' 4' 0 8'

SCALE: 1/8" = 1'-0"

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1 : 1
PLOT DATE:

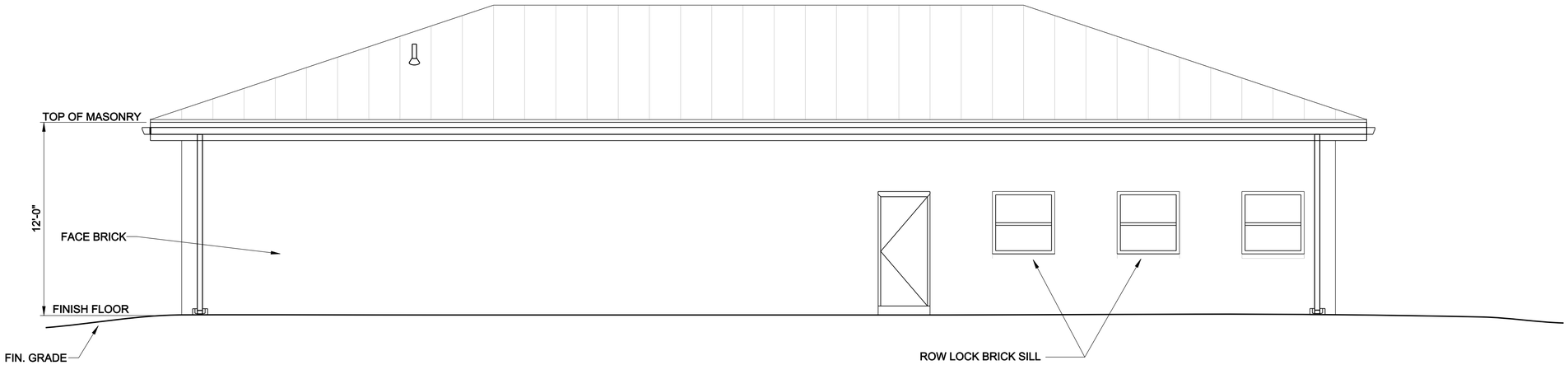
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

VISITOR CONTROL CENTER (VCC)
6 PROCESSOR VERSION
FLOOR PLAN

SHEET REFERENCE NUMBER
A1.03
SHEET 39 OF 60

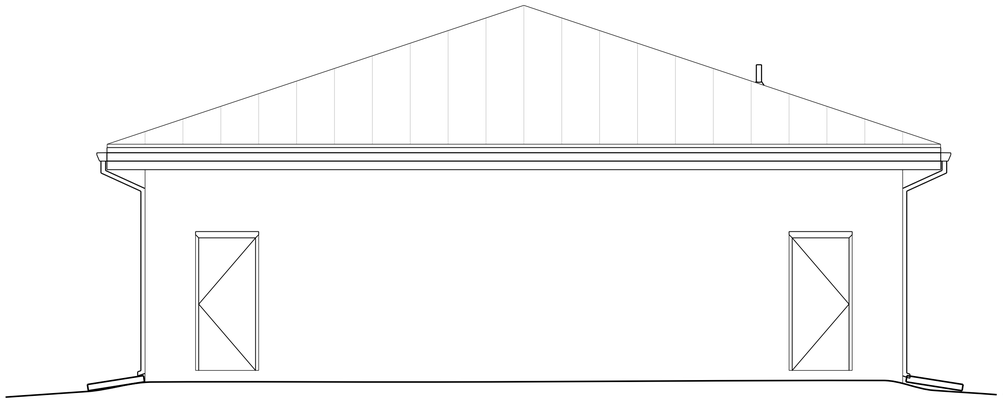
$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



VCC ELEVATION

SCALE: 1/4" = 1'-0"

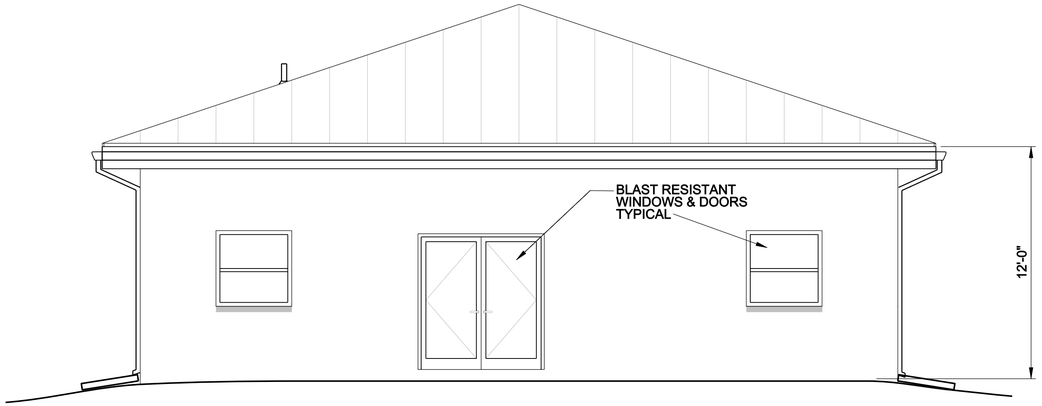
2 A1.03



VCC ELEVATION

SCALE: 1/4" = 1'-0"

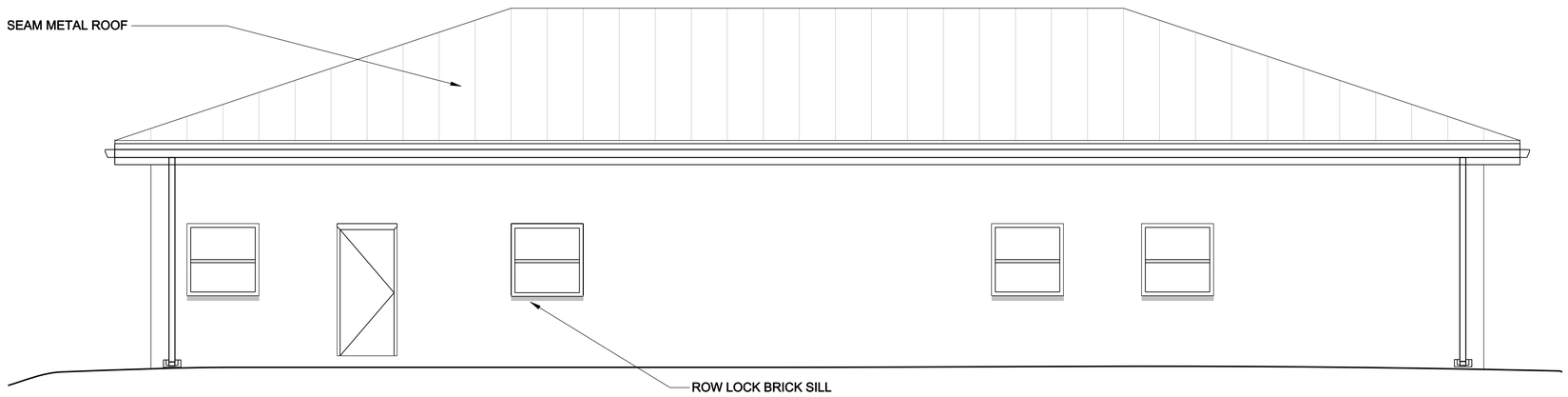
1 A1.03



VCC ELEVATION

SCALE: 1/4" = 1'-0"

3 A1.03



VCC ELEVATION

SCALE: 1/4" = 1'-0"

4 A1.03

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX		DATE: NOV 2007	
DWN BY: XXX	CKD BY: XXX	SOLICITATION NO.: W912HN-07-X-8204	
SUBMITTED BY: X		CONTRACT NO.: X	CATEGORY CODE: X
FILE NAME: X		SIZE: ANSI D	PLOT SCALE: 1:1
			PLOT DATE:

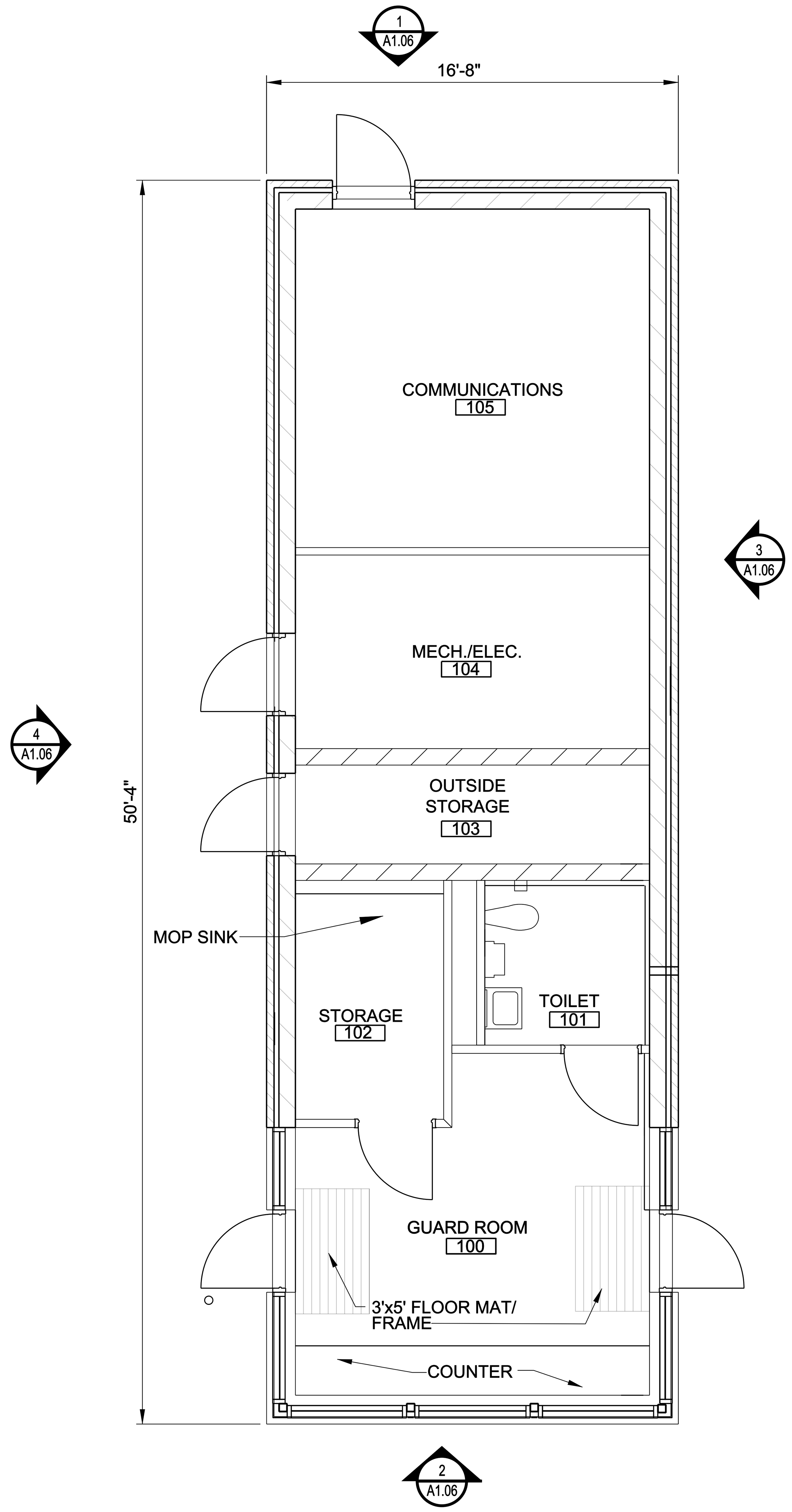
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

VISITOR CONTROL CENTER (VCC)
6 PROCESSOR VERSION
BUILDING ELEVATIONS

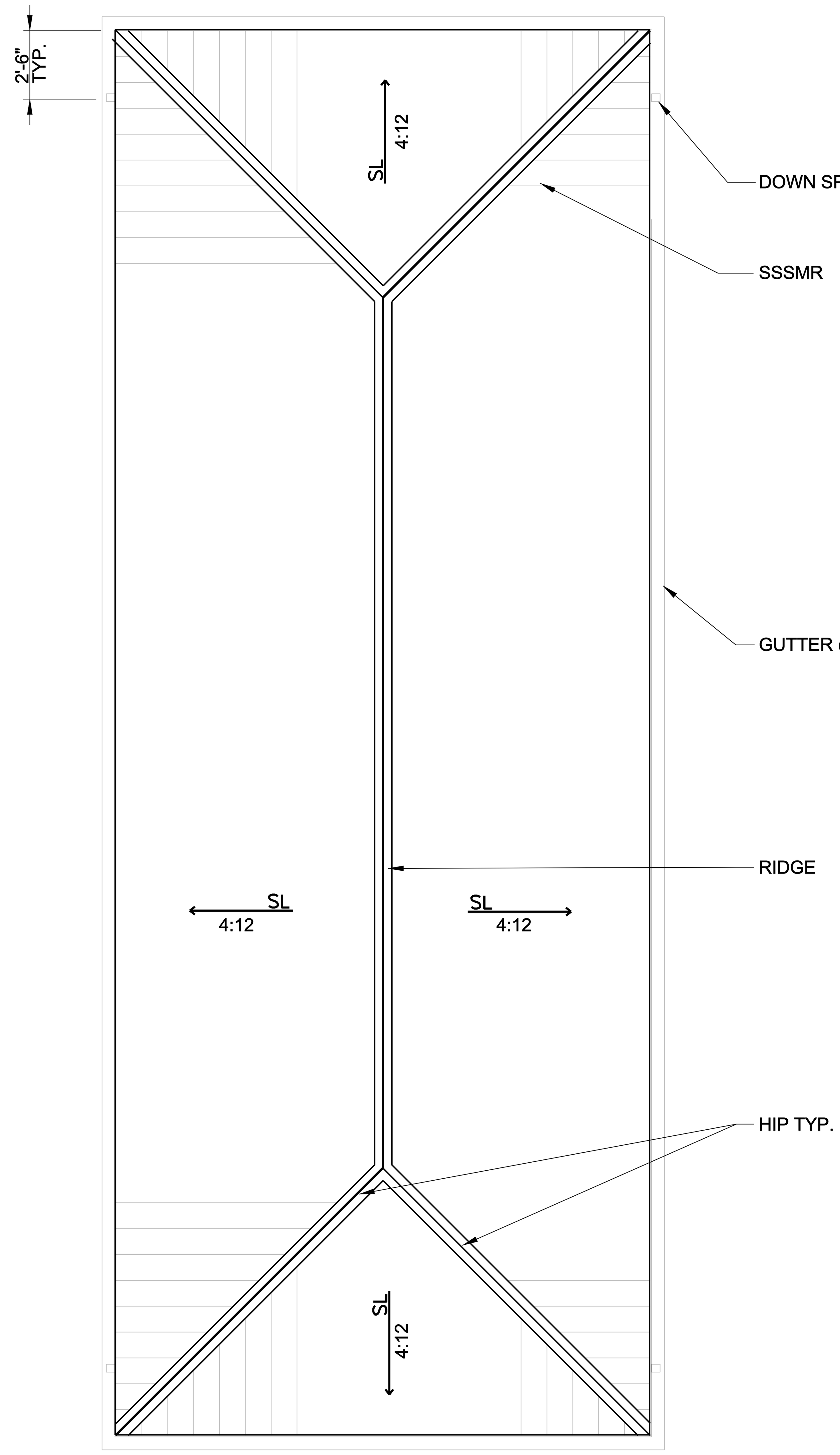
SHEET REFERENCE NUMBER
A1.04
SHEET 40 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



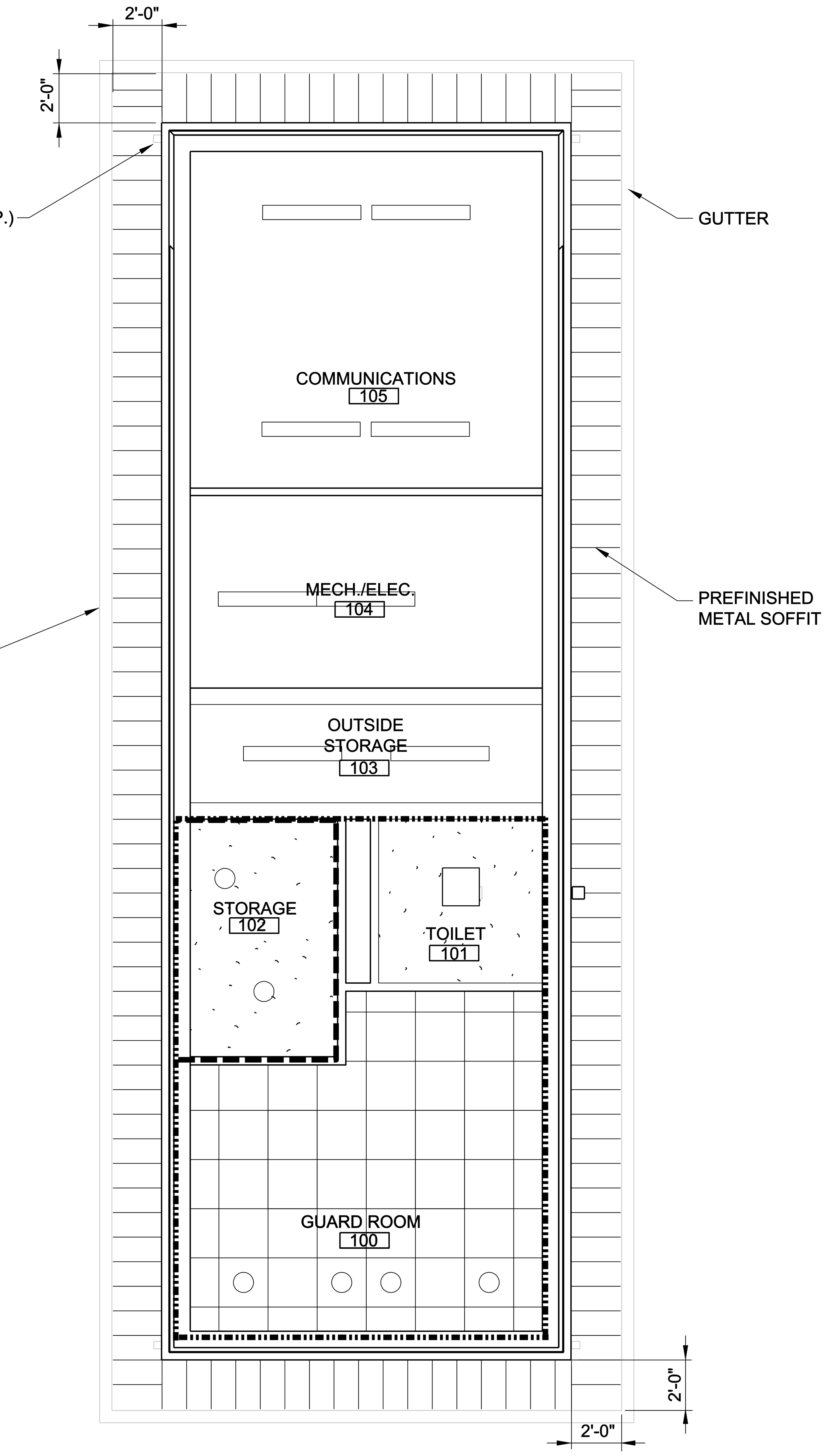
FLOOR PLAN

SCALE: 1/4" = 1'-0"



ROOF PLAN

SCALE: 1/4" = 1'-0"



REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. See BIM drawings for construction details. BIM drawings for Access Control Points are maintained by the Center of Standardization for Access Control Points (COS for ACPs) located in the Omaha District.
2. The building, doors, widows, and frames around the guard areas shall meet Level 3 Ballistics Standard UL-752 as a minimum.
3. Exterior masonry patterning and coursing to be determined during design.
4. Luminaire and diffuser types and locations to be determined during design.
5. All windows should be tinted. Interior surfaces in the Gatehouse should be dark in color.

LEGEND:

- GWB CEILING
- 2 X 2 ACOUSTICAL CEILING TILE
- ONE-HOUR FIRE RATED WALL & CEILING
- BULLET RESISTANT WALL

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

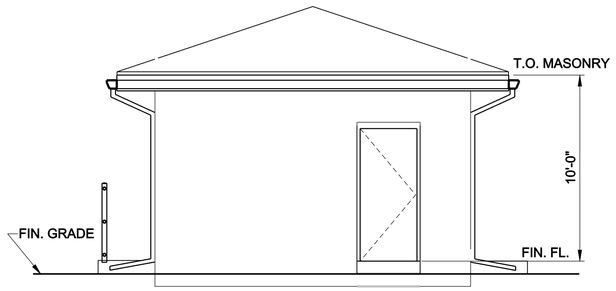
DESIGNED BY: X.X.X. | DWN BY: X.X.X. | CKD BY: X.X.X. | SUBMITTED BY: X | FILE NAME: XD01A105.dgn | SIZE: ANSI D | PLOT SCALE: 1:11/32 | DATE: NOV 2008 | SOLICITATION NO.: W912HN-07-X-6204 | CONTRACT NO.: X | CATEGORY CODE: X | PLOT DATE: 3/11/2009

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

GATEHOUSE
FLOOR PLAN, REFLECTED CEILING PLAN & ROOF PLAN

SHEET REFERENCE NUMBER
A1.05
SHEET 41 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

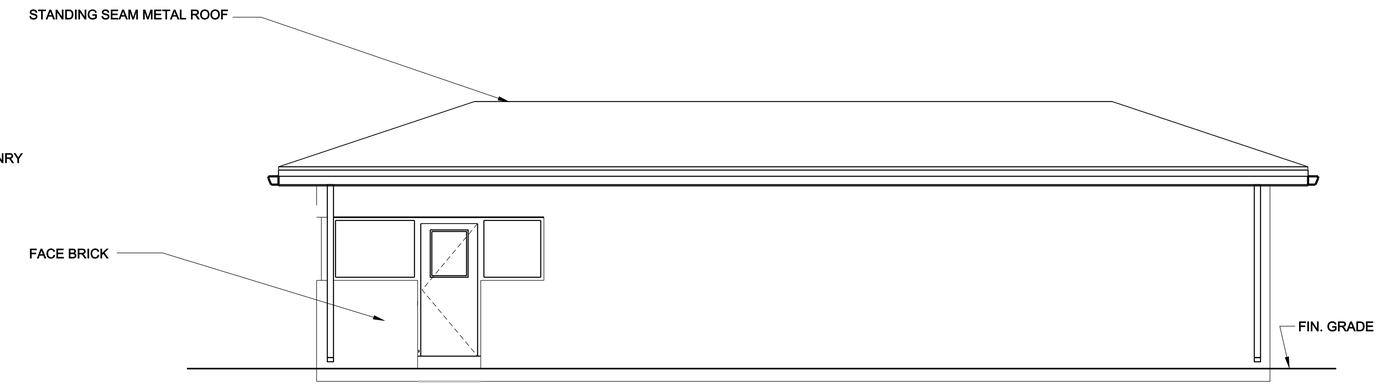


BUILDING ELEVATION

1 A1.05

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

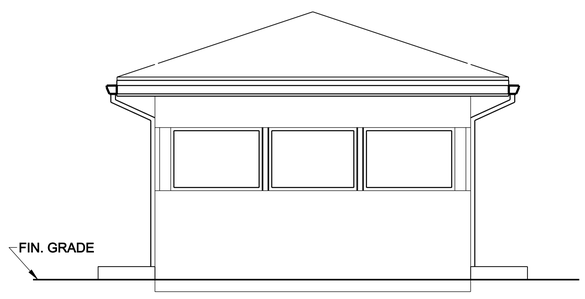


BUILDING ELEVATION

3 A1.05

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

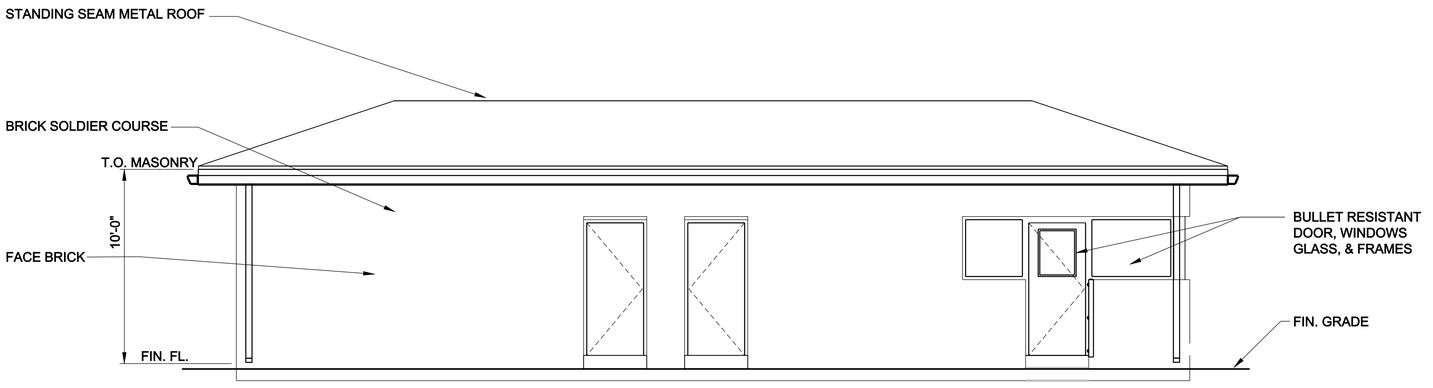


BUILDING ELEVATION

2 A1.05

4' 2' 0 4'

SCALE: 1/4" = 1'-0"



BUILDING ELEVATION

4 A1.05

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: XXX
DRN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
PLOT SCALE: 1:1
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

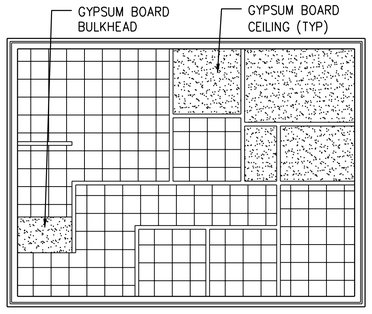
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

GATEHOUSE
BUILDING ELEVATIONS

SHEET REFERENCE NUMBER
A1.06
SHEET 42 OF 60

GENERAL NOTES

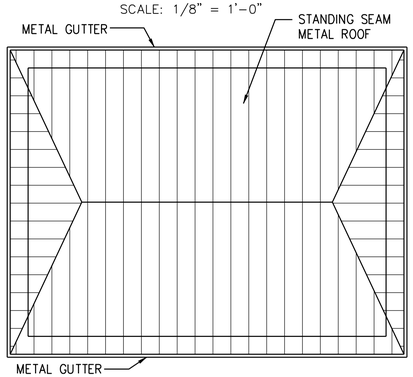
1. LINEAR DIMENSION REFERENCES ARE BASED ON THE RECOGNIZED BUILDING DESIGN MODULE OF 100mm = 4".
2. LOCATE INTERIOR DOOR FRAMES 4" FROM THE OUTSIDE FACE OF THE DOOR FRAME TO THE NEAREST INSIDE WALL CORNER UNLESS NOTED OTHERWISE.
3. LIGHTS AND DIFFUSERS ARE NOT SHOWN ON THE REFLECTED CEILING PLAN. QUANTITY AND LOCATIONS TO BE DETERMINED DURING DESIGN.
4. EXTERIOR MASONRY PATTERNING AND COURSING TO BE DETERMINED DURING DESIGN.
5. THE SEARCH OFFICE WILL INCLUDE A CONTROL CONSOLE WITH CCTV MONITORS, AN ANNUNCIATION PANEL, AND COMMUNICATIONS TO THE INSTALLATION'S CENTRAL SECURITY MONITORING STATION.
6. SIZE WAITING AREA FOR EXPECTED NUMBER OF SEARCHED VEHICLES.



SEARCH OFFICE WITH PACKAGE SCANNER AND METAL DETECTOR REFLECTED CEILING PLAN

8' 4' 0 8'

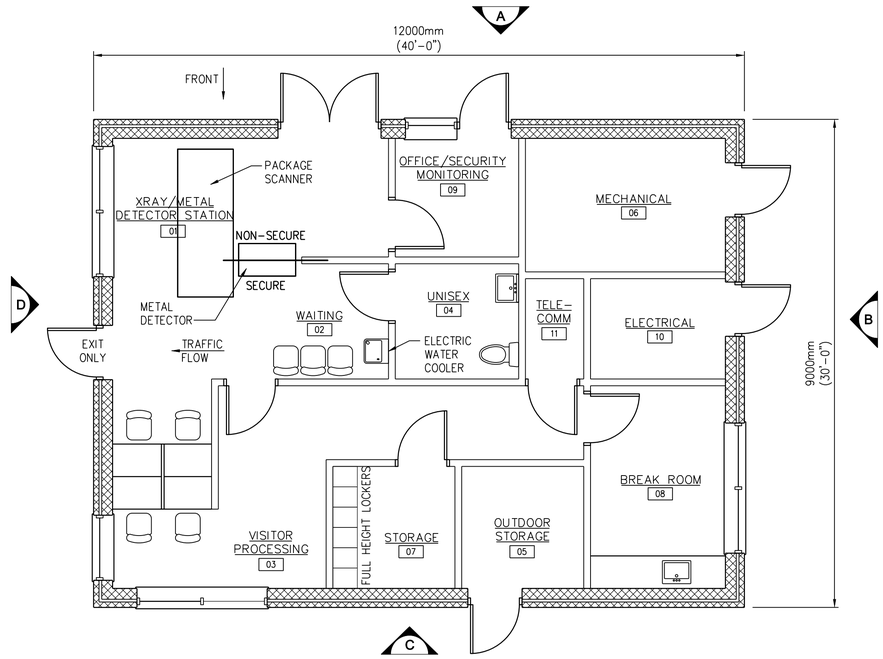
SCALE: 1/8" = 1'-0"



SEARCH OFFICE WITH PACKAGE SCANNER AND METAL DETECTOR ROOF PLAN

8' 4' 0 8'

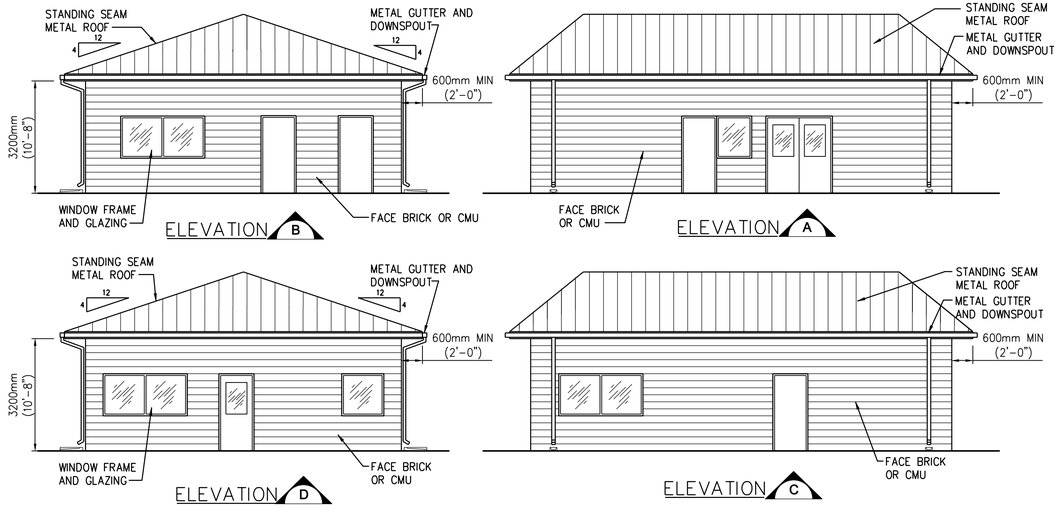
SCALE: 1/8" = 1'-0"



SEARCH OFFICE WITH PACKAGE SCANNER AND METAL DETECTOR FLOOR PLAN

4' 2' 0 4'

SCALE: 1/4" = 1'-0"



SEARCH OFFICE WITH PACKAGE SCANNER AND METAL DETECTOR ELEVATIONS

8' 4' 0 8'

SCALE: 1/8" = 1'-0"

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: X.X.X. | DATE: NOV 2007 | SOLICITATION NO.: W912HN-07-X-6204
DWN BY: X.X.X. | CKD BY: X.X.X. | CONTRACT NO.: X
SUBMITTED BY: X | CATEGORY CODE: X
FILE NAME: X | PLOT SCALE: 1:1 | PLOT DATE:
SIZE: ANSI D

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

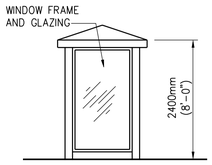
ARCHITECTURAL
SEARCH OFFICE WITH PACKAGE SCANNER AND METAL DETECTOR

SHEET REFERENCE NUMBER
A1.07
SHEET 43 OF 60

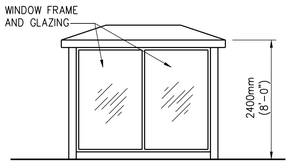
$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

GENERAL NOTES

1. EXTERIOR MASONRY PATTERNING AND COURSING TO BE DETERMINED DURING DESIGN.
2. LUMINAIRE AND DIFFUER TYPES AND LOCATIONS TO BE DETERMINED DURING DESIGN.
3. SIZE WAITING ROOM FOR EXPECTED NUMBER OF VEHICLES TO BE SEARCHED.
4. FOR ACP's NOT REQUIRING A SEARCH OFFICE, A SEARCH AREA SHELTER MUST BE PROVIDED NEAR THE SEARCH LANE(S) TO SHELTER VEHICLE OCCUPANTS WHILE THEIR VEHICLE IS BEING SEARCHED. THE SHELTER MAY BE SIMILIAR TO BUS TYPE SHELTERS WITH SEE-THROUGH WALLS TO ALLOW SECURITY PERSONNEL TO OBSERVE VEHICLE OCCUPANTS DURING THE SEARCH.



SIDE ELEVATION

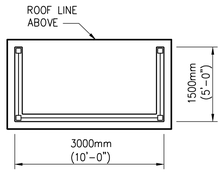


FRONT ELEVATION

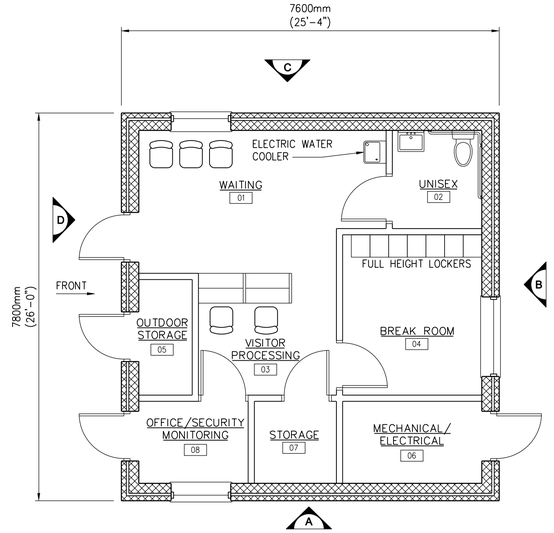
SEARCH AREA SHELTER (NOTE 5)

4' 2' 0 4'

SCALE: 1/4" = 1'-0"



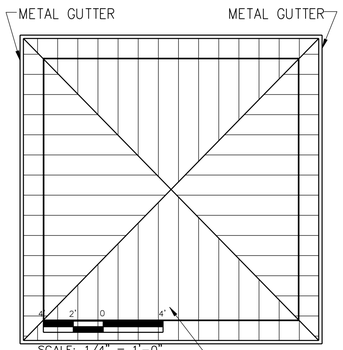
FLOOR PLAN



SEARCH OFFICE W/O PACKAGE SCANNER AND METAL DETECTOR FLOOR PLAN

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

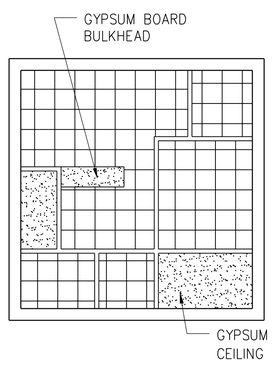


SCALE: 1/4" = 1'-0"

SEARCH OFFICE W/O PACKAGE SCANNER AND METAL DETECTOR ROOF PLAN

8' 4' 0 8'

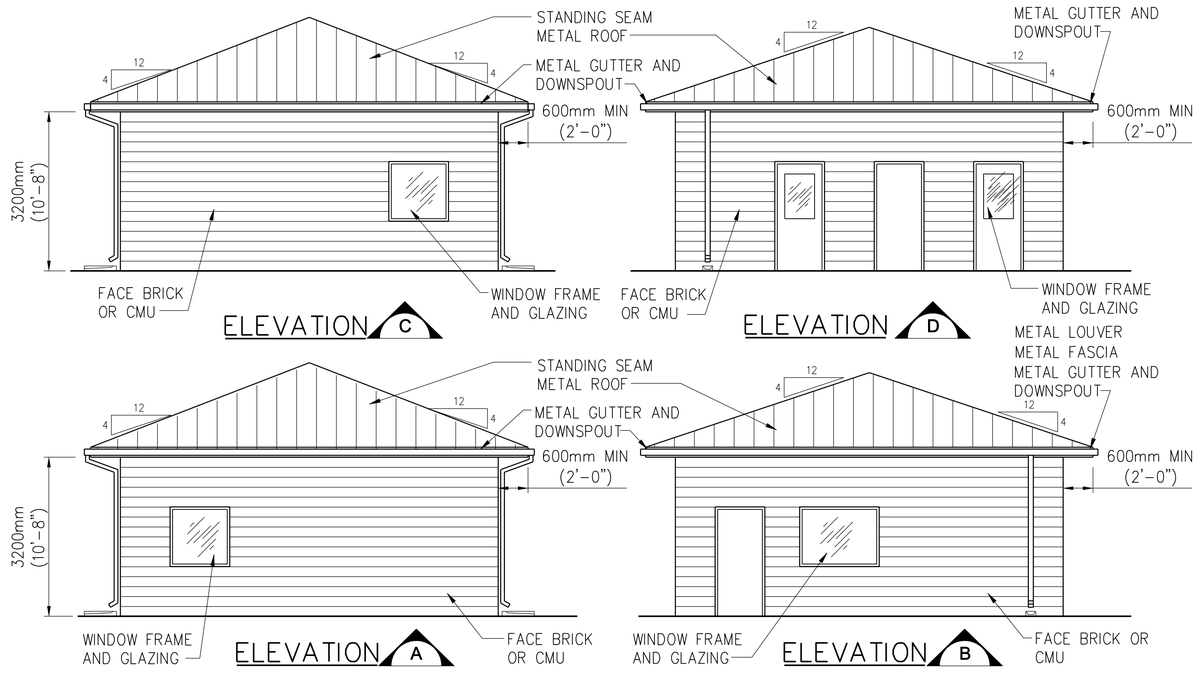
SCALE: 1/8" = 1'-0"



SEARCH OFFICE W/O PACKAGE SCANNER AND METAL DETECTOR REFLECTED CEILING PLAN

8' 4' 0 8'

SCALE: 1/8" = 1'-0"



SEARCH OFFICE W/O PACKAGE SCANNER AND METAL DETECTOR ELEVATIONS

4' 2' 0 4'

SCALE: 1/4" = 1'-0"

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRN BY: X.X.X.
CKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT DATE: .
SIZE: ANSI D
PLOT SCALE: 1:1

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

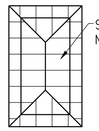
ARCHITECTURAL
SEARCH OFFICE W/O PACKAGE SCANNER AND METAL DETECTOR

SHEET REFERENCE NUMBER
A1.08
SHEET 44 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

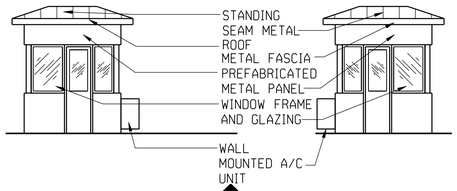
GENERAL NOTES

1. **LIGHTS AND DIFFUSERS ARE NOT SHOWN ON THE REFLECTED CEILING PLAN. QUANTITY AND LOCATIONS TO BE DETERMINED DURING DESIGN OR PROCUREMENT.**
2. **EXTERIOR FIISH MATCHING INSTALLATION ARCHITECTURAL THEME TO BE SELECTED DURING DESIGN AND OR PROCUREMENT.**
3. **OVERWATCH POSITION, GUARD BOOTH, AND PEDESTRIAN GUARD BOOTH DOORS, WINDOWS, AND FRAMES SHALL MEET LEVEL 3 BALLISTIC STANDARDS LL-752 AS A MINIMUM.**
4. **EXTERIOR MASONRY PATTERNING AND COURSING TO BE DETERMINDED DURING DESIGN.**
5. **ALL WINDOWS SHOULD BE TINTED, INTERIOR SURFACES SHOULD BE DARK IN COLOR.**
6. **RECOMMEND ANTI-FATIGUE MATS BE PROVIDED FOR EACH GUARD BOOTH.**
7. **GUARD BOOTHS AND PEDESTRIAN GUARD BOOTHS NOT COVERED BY A CANOPY WILL HAVE 2 FOOT SIFFITS ON ALL SIDES WITH GUTTERS AND DOWNSPOUTS.**

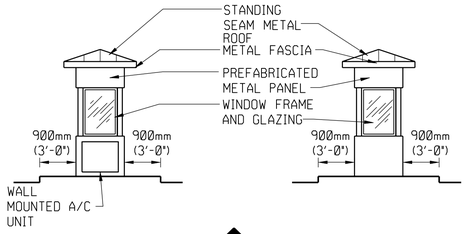


PREFABRICATED GUARDBOOTH ROOF PLAN

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION D



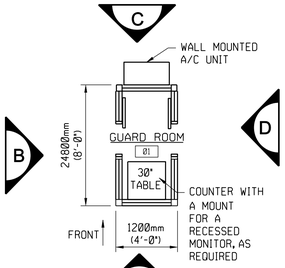
LEFT ELEVATION B

REAR ELEVATION C

FRONT ELEVATION A

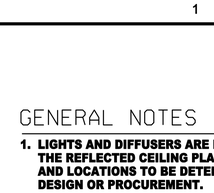
PREFABRICATED GUARDBOOTH ELEVATIONS

SCALE: 1/4" = 1'-0"



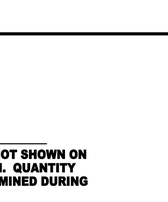
PREFABRICATED GUARDBOOTH FLOOR PLAN

SCALE: 1/4" = 1'-0"



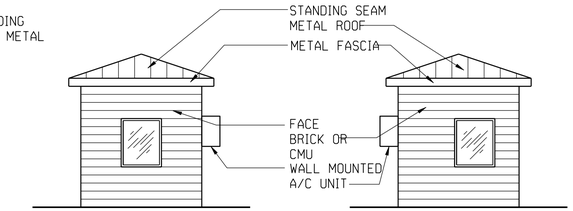
SITE-BUILT PEDESTRIAN GUARDBOOTH REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

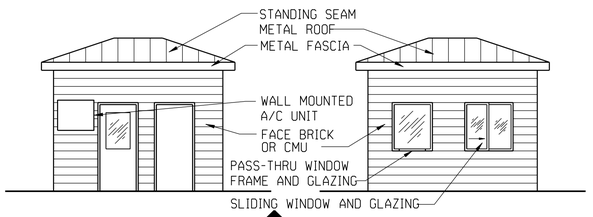


SITE-BUILT PEDESTRIAN GUARDBOOTH ROOF PLAN

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION D



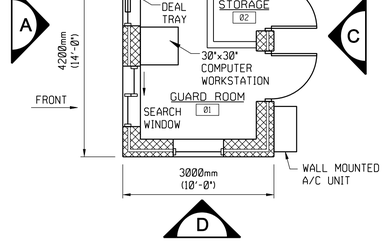
LEFT ELEVATION B

REAR ELEVATION C

FRONT ELEVATION A

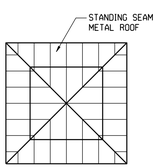
SITE-BUILT PEDESTRIAN GUARDBOOTH ELEVATIONS

SCALE: 1/4" = 1'-0"



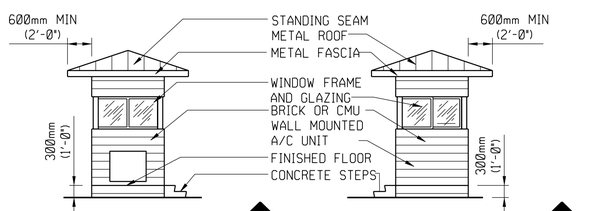
SITE-BUILT PEDESTRIAN GUARDBOOTH FLOOR PLAN

SCALE: 1/4" = 1'-0"

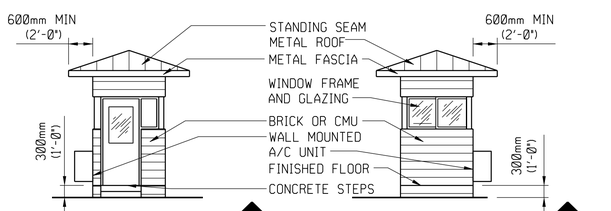


OVERWATCH POSITION ROOF PLAN

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION D



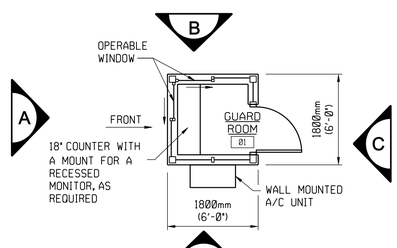
LEFT ELEVATION B

REAR ELEVATION C

FRONT ELEVATION A

SITE-BUILT OVERWATCH POSITION ELEVATIONS

SCALE: 1/4" = 1'-0"



SITE-BUILT OVERWATCH POSITION FLOOR PLAN

SCALE: 1/4" = 1'-0"

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
CATEGORY CODE: X
FILE NAME: X
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

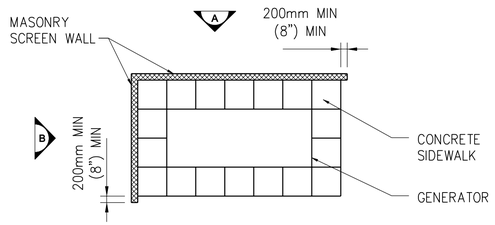
ARCHITECTURAL
GUARDBOOTH, PEDESTRIAN GUARDBOOTH, AND OVERWATCH POSITION

SHEET REFERENCE NUMBER
A1.09
SHEET 45 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

GENERAL NOTES

1. LIGHTS AND DIFFUSERS ARE NOT SHOWN ON THE SOFFIT PLAN. QUANTITY AND LOCATIONS TO BE DETERMINED DURING DESIGN.
2. CANOPIES MUST PROVIDE 15'-0" VERTICAL CLEARANCE ABOVE FINISHED ROADWAY SURFACE. IF A LARGE NUMBER OF OVERHEIGHT VEHICLES ARE EXPECTED, PROVIDE 17'-0" VERTICAL CLEARANCE A BOVE ROADWAY SURFACE.
3. BOLLARDS OR OTHER COLUMN PROTECTION MEASURES SHOULD BE PLACED AS REQUIRED.
4. CANOPY COLUMNS TO BE PLACED 5'-0" FROM THE EDGE OF THE CURB.
5. CANOPY WIDTH DETERMINED BY ADDING THE LANES, COLUMN SETBACKS, AND CANOPY OVERHANG.
6. CANOPIES WILL BE CONSTRUCTED SO COLUMNS DO NOT OBSTRUCT GUARD'S LINE OF SIGHT.

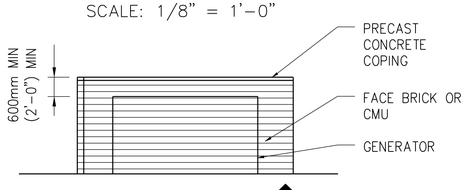


NOTE: DIMENSIONS OF SCREEN WALL TO BE DETERMINED BASED ON SELECTED GENERATOR

GENERATOR SCREEN WALL PLAN

8' 4' 0 8'

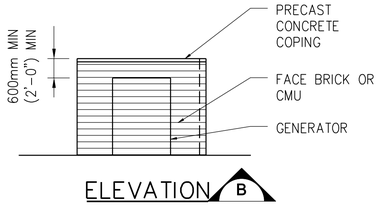
SCALE: 1/8" = 1'-0"



ELEVATION A

8' 4' 0 8'

SCALE: 1/8" = 1'-0"

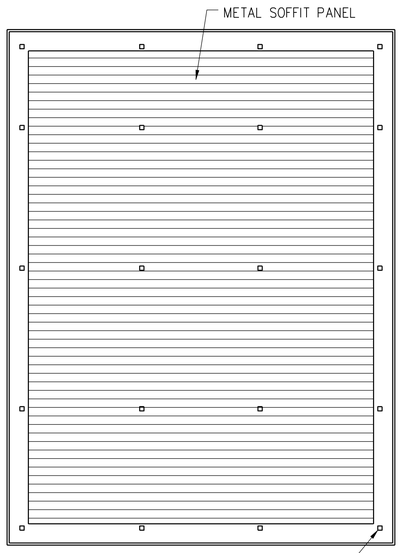


ELEVATION B

GENERATOR SCREEN WALL ELEVATIONS

8' 4' 0 8'

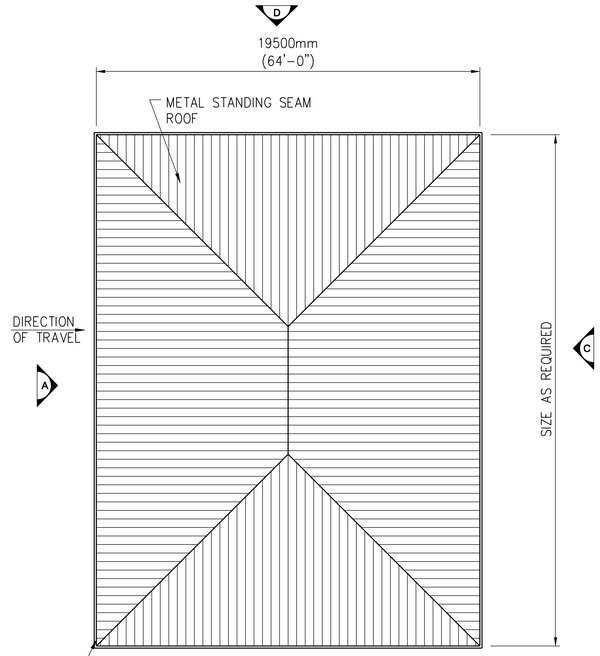
SCALE: 1/8" = 1'-0"



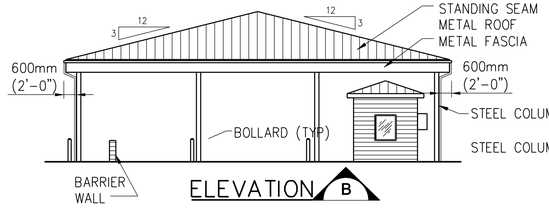
CANOPY SOFFIT PLAN

16' 8' 0 16'

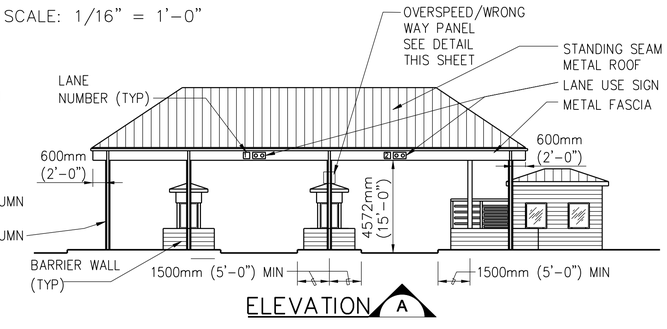
SCALE: 1/16" = 1'-0"



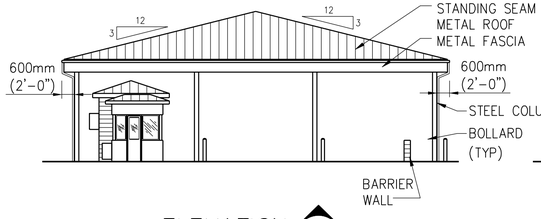
CANOPY ROOF PLAN



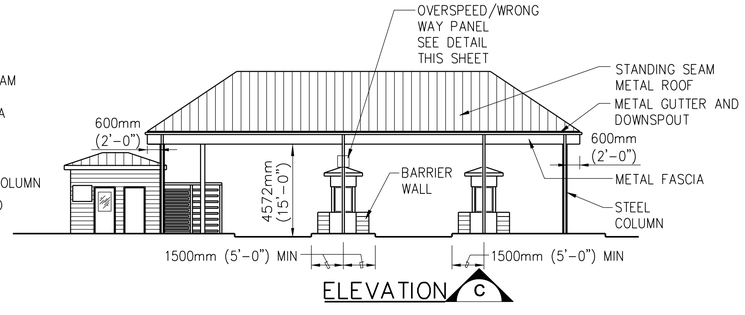
ELEVATION B



ELEVATION A



ELEVATION D



ELEVATION C

ID CHECK AREA CANOPY ELEVATIONS

16' 8' 0 16'

SCALE: 1/16" = 1'-0"

US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6204
CONTRACT NO.: X
FILE NAME: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:
SIZE: ANSI D

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

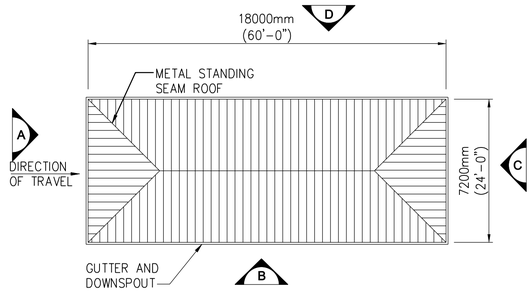
ARCHITECTURAL
ID CHECK AREA CANOPY

SHEET REFERENCE NUMBER
A1.10
SHEET 46 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

GENERAL NOTES

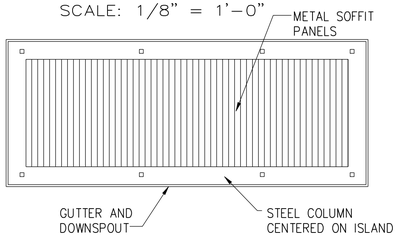
1. LIGHTS AND DIFFUSERS ARE NOT SHOWN ON THE SOFFIT PLAN. QUANITY AND LOCATIONS TO BE DETERMINED DURING DESIGN.
2. CANOPIES ARE SHOWN AT 15'-0" VERTICAL CLEARANCE FOR POV LANES AND 17'-0" VERTICAL CLEARANCE FOR TRUCKS ABOVE FINISHED ROAD SURFACE.
3. BOLLARDS OR OTHER COLUMN PROTECTION MEASURES SHOULD BE PLACED AS REQUIRED.
4. CANOPY COLUMNS TO BE PLACED 2'-6" FROM THE EDGE OF CURB OR CENTERED IN THE ISLAND.
5. CANOPY WIDTH DETERMINED BY ADDING THE LANES, COLUMN SETBACKS, AND CANOPY OVERHANG.
6. CURB RAMPS ARE REQUIRED FROM THE ISLAND AND SIDEWALKS TO THE SEARCH OFFICE.
7. 150mm (6") VERTICAL CURBING PROVIDED ADJACENT TO THE TRAVEL WAY AND INSPECTION AREAS UNLESS OTHERWISE NOTED.
8. PROVIDE DELINEATION OF ISLANDS TO ONCOMING VEHICLES.



PASSENGER VEHICLE SEARCH AREA CANOPY ROOF PLAN

8' 4' 0 8'

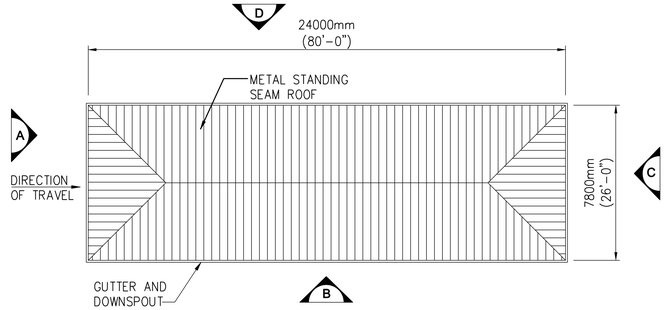
SCALE: 1/8" = 1'-0"



PASSENGER VEHICLE SEARCH AREA CANOPY SOFFIT PLAN

8' 4' 0 8'

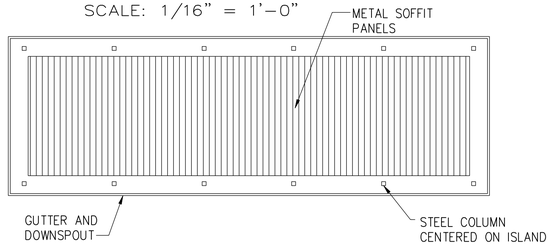
SCALE: 1/8" = 1'-0"



TRUCK SEARCH AREA CANOPY ROOF PLAN

16' 8' 0 16'

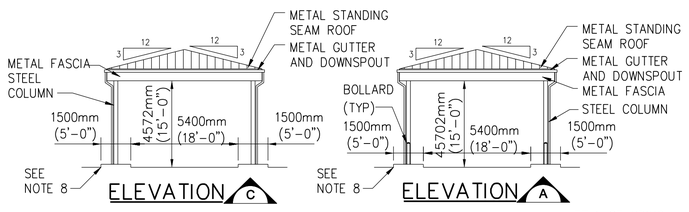
SCALE: 1/16" = 1'-0"

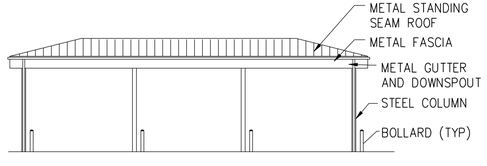


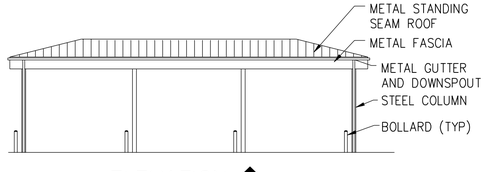
TRUCK SEARCH AREA CANOPY SOFFIT PLAN

16' 8' 0 16'

SCALE: 1/16" = 1'-0"



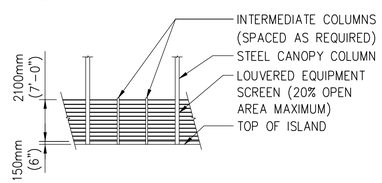




PASSENGER VEHICLE SEARCH AREA CANOPY ELEVATIONS

8' 4' 0 8'

SCALE: 1/8" = 1'-0"



CANOPY SCREEN WALL
PARTIAL ELEVATION

8' 4' 0 8'

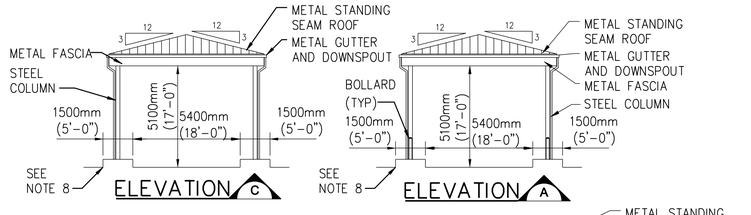
SCALE: 1/8" = 1'-0"

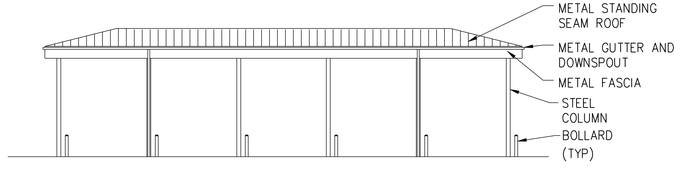
NOTE: SCREENING OF INSPECTIONS CAN BE ACCOMPLISHED THROUGH A VARIETY OF NATURAL OR MAN MADE FEATURES. IF SCREENING CANNOT BE DESIGNED INTO THE SITE LAYOUT THEN ADD SCREENING TO THE STRUCTURES THEMSELVES, BUT PEDESTRIAN ACCESSIBILITY MUST BE MAINTAINED. THE FOLLOWING MANUFACTURERS OF LOUVERED SCREENS HAVE BEEN IDENTIFIED. UNDOUBTEDLY THERE ARE OTHERS. THESE ARE LISTED TO PROVIDE USERS WITH SOURCES OF INFORMATION AND ARE NOT AN ENDORSEMENT OF ANY ONE PRODUCT LINE.

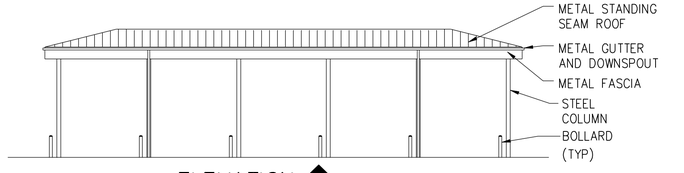
AMETCO MANUFACTURING CORP.
4326 HAMANN PKWY
PO BOX 1210
WILLOUGHBY, OH 44096
(800)321-7042 FAX (440)951-2542

AT&T IRONWORKS, INC
25 CUFF ST
NEW ROCHELLE, NY 10801
(800)523-0973 FAX (914)632-2645

BARNETTBATES CORP
500 MILLS RD
JOLIET, IL 60433
(800) 541-3912 FAX (815)726-9210







TRUCK SEARCH AREA CANOPY ELEVATIONS

8' 4' 0 8'

SCALE: 1/8" = 1'-0"

US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: XXX	CKD BY: XXX	SOLICITATION NO.: W912PH-07-X-8204	CATEGORY CODE: X
DWN BY: XXX		CONTRACT NO.: X	PLOT DATE:
DATE: NOV 2007		SUBMITTED BY: X	PLOT SCALE: 1:1
		FILE NAME: X	SIZE: ANSI D

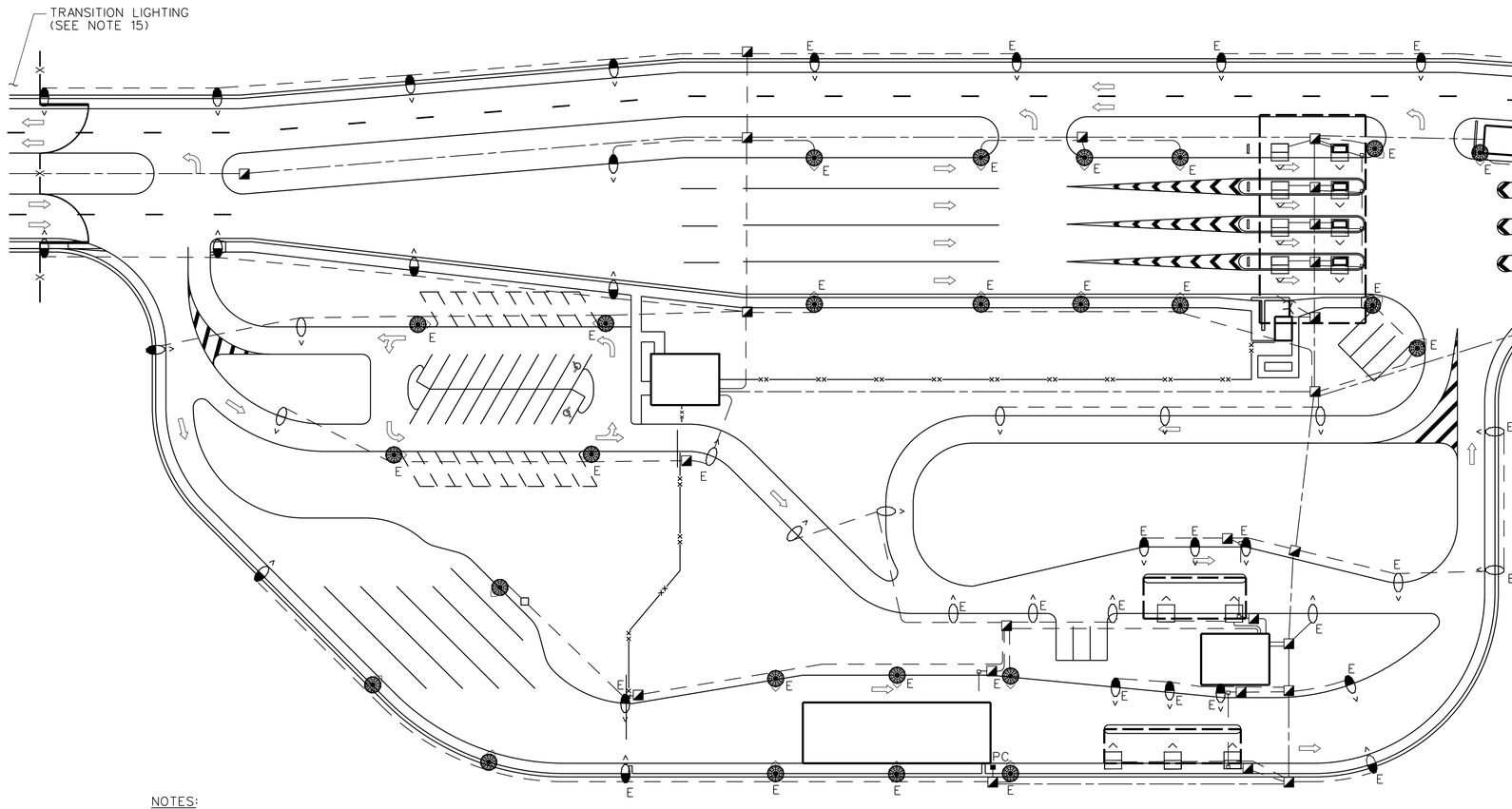
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ARCHITECTURAL
PASSENGER VEHICLE AREA AND TRUCK
SEARCH AREA CANOPIES

SHEET
REFERENCE
NUMBER
A1.11
SHEET 47 OF 60

$$DCNSPEC$$
$$SYSTIME$$
$$USERNAME$$



LEGEND

	250W PULSE START METAL HALIDE AREA LUMINAIRE 6.1m (20') MOUNTING HEIGHT (NARROW DISTRIBUTION)
	400W PULSE START METAL HALIDE AREA LUMINAIRE 6.1m (20') MOUNTING HEIGHT (NARROW DISTRIBUTION)
	400W PULSE START METAL HALIDE AREA LUMINAIRE 6.1m (20') MOUNTING HEIGHT (FORWARD THROW DISTRIBUTION)
	250W PULSE START METAL HALIDE WALL PACK LUMINAIRE WITH TIME DELAY AUTOMATICALLY SWITCHED QUARTZ (FOR CEILING MOUNTING PROVIDE SPECIAL VERTICAL BRACKET)
Q	PROVIDE ADDITIONAL SEPARATE QUARTZ LUMINAIRE WITH TIME DELAY AUTOMATICALLY SWITCHED
E	PROVIDE EMERGENCY GENERATOR BACK-UP POWER AND LUMINAIRE WITH TIME DELAY AUTOMATICALLY SWITCHED QUARTZ
	TRAFFIC FLOW PATTERN
Y/100mm (4")	PAINT STRIPE STYLE/WIDTH
DY	DOUBLE YELLOW LINE
	TRAFFIC ARM
	ACTIVE VEHICLE BARRIER
	PASSIVE VEHICLE BARRIER
	ORNAMENTAL FENCE
	BOLLARDS
	CANOPY
	BARRIER WALL
	DOUBLE FACE GUARD RAIL
	SINGLE FACE GUARD RAIL
	GUARD BOOTH
	GENERATOR PAD W/SIDEWALK
	CURB RAMP
■ PC	POWER AND COMMUNICATIONS CABINET
	JUNCTION BOX
	DUCT BANK: POWER/LIGHTING, COMMUNICATIONS CCTV/SECURITY, BARRIER/TRAFFIC CONTROL
	BRANCH POWER CIRCUIT
	CALL BOX

NOTES:

1. SEE DESIGN CRITERIA FOR LIGHTING LEVEL REQUIREMENTS.
2. SEE DESIGN CRITERIA FOR DESCRIPTIONS OF REQUIREMENTS FOR COMMUNICATIONS, DURESS ALARMS, INTRUSION DETECTION SENSORS, SPEED DETECTORS, WRONG-WAY DETECTORS, VEHICLE PRESENCE DETECTORS, AND ACTIVE VEHICLE BARRIER CONTROLS.
3. SIZE CONDUIT TO 40% FILL MAXIMUM PER CONDUIT.
4. PROVIDE THE REQUIRED NUMBER OF CONDUITS PLUS 2 SPARE CONDUITS FOR EACH DUCT BANK. SPARES SHOULD BE A MINIMUM OF 3" IN DIAMETER.
5. CONDUIT RUNS SHOULD NOT EXCEED 150.0m (500') IN TOTAL LENGTH.
6. SIZE CONDUCTORS FOR MAXIMUM 5% VOLTAGE DROP AND MAXIMUM AMPERES.
7. SPECIFY DIRECT BURIAL CABLE TO BE INSTALLED IN DIRECT BURIAL CONDUIT FOR LIGHTING CONDUCTORS. MINIMUM SIZE CONDUCTOR TO BE USED UNDERGROUND IS AWG#8.
8. SPECIFY CUTOFF TYPE LUMINAIRES TO REDUCE GLARE AND LIGHT TRESPASS.
9. LUMINAIRES SHOULD BE LOCATED PERPENDICULAR TO ROADWAY PAVEMENT UNLESS INDICATED OTHERWISE.
10. LOCATE POLES 0.6m (2') CLEAR FACE OF CURB OR AT BACK EDGE OF SIDEWALK OR 1.5m (5') FROM EDGE OF PAVEMENT OR SHOULDER.
11. FOR ANY UNPROTECTED POLES LOCATED INSIDE THE AASHTO CLEAR ZONE, PROVIDE POLES WITH BREAKAWAY BASES.
12. FOR ANY POLES LOCATED BEHIND GUARDRAIL, PROVIDE CLEARANCE FOR THE REQUIRED AASHTO GUARDRAIL DEFLECTION.
13. SPECIFY JUNCTION BOXES SIZED FOR SUFFICIENT SPACE TO MAKE REQUIRED CABLE CONNECTIONS. PROVIDE CONCRETE JUNCTION BOXES WITH TAMPER PROOF HARDWARE.
14. SPECIFY WATERTIGHT, SUBMERSIBLE, NON-FUSIBLE, PREMOLDED, DISCONNECTABLE CONNECTOR KITS FOR SPLICES IN JUNCTION BOXES.
15. TRANSITION LIGHTING - FOR 2 LANE ROADWAYS PROVIDE 2 ADDITIONAL LUMINAIRE/POLE LOCATIONS AND FOR ROADWAYS WITH 3 OR MORE LANES PROVIDE 4 ADDITIONAL LUMINAIRE/POLE LOCATIONS (2 EACH SIDE). TRANSITION TO EXISTING LIGHTING WHEN PRESENT IN THE SAME AREA.
16. PROVIDE COMMUNICATIONS LINK FROM GATEHOUSE TO CSMS FOR CCTV, STATUS AND ALARMS, AND FUTURE AUTOMATION INSTALLATION ENTRY (AIE) SYSTEMS.
17. SEE DWG. EL.02 FOR CONDUIT LAYOUT ON TRAFFIC ISLANDS FOR AUTOMATED INSTALLATION ENTRY.

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CHKD BY: XXX
SUBMITTED BY: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
FILE NAME: X
PLOT SCALE: 1:1
PLOT DATE:
SIZE: ANSI D

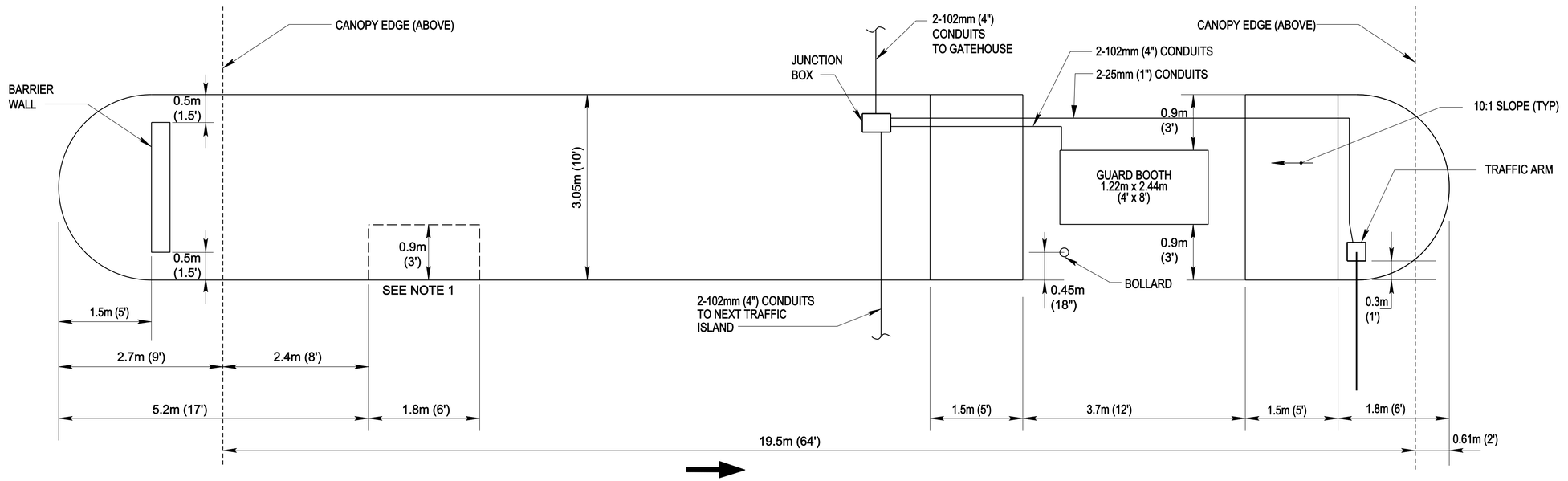
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

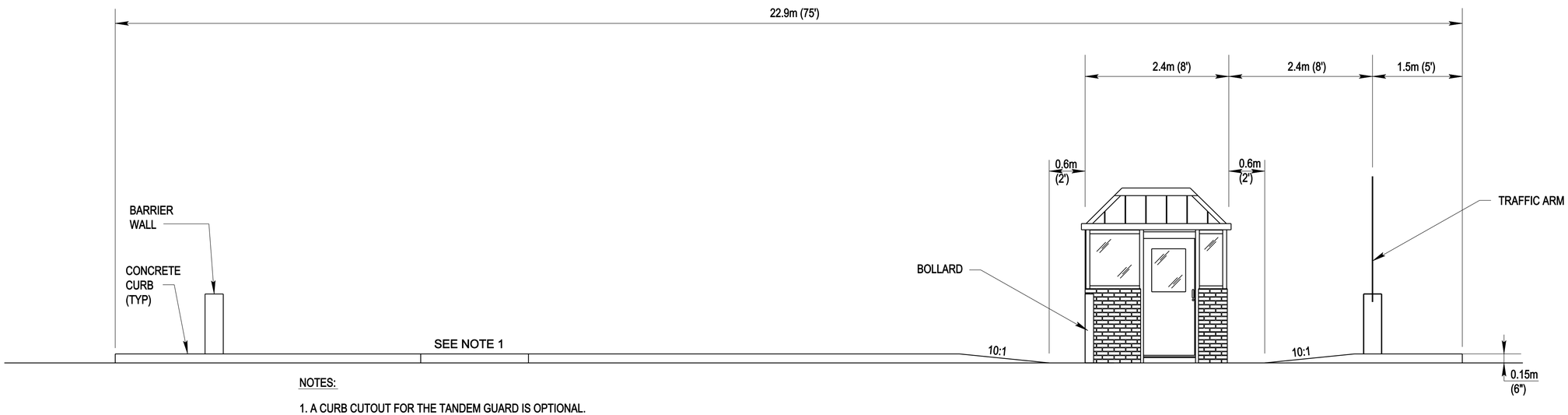
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

SITE PLAN
LIGHTING AND CONDUIT PLAN

SHEET REFERENCE NUMBER
EL.01
SHEET 48 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$





NOTES:

1. A CURB CUTOUT FOR THE TANDEM GUARD IS OPTIONAL. IF PROVIDED, CUTOUT SHALL BE 3' DEEP BY 6' WIDE AS SHOWN AND SHALL HAVE VERTICAL FACES.

2. DESIGN MAY VARY TO FIT EXISTING CONDITIONS.

CONDUIT PLAN
TRAFFIC ISLAND W/O AUTOMATION
GUARD BOOTH NOT ON ISLAND
NOT TO SCALE

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

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OMAHA DISTRICT

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CONTRACT NO.: X
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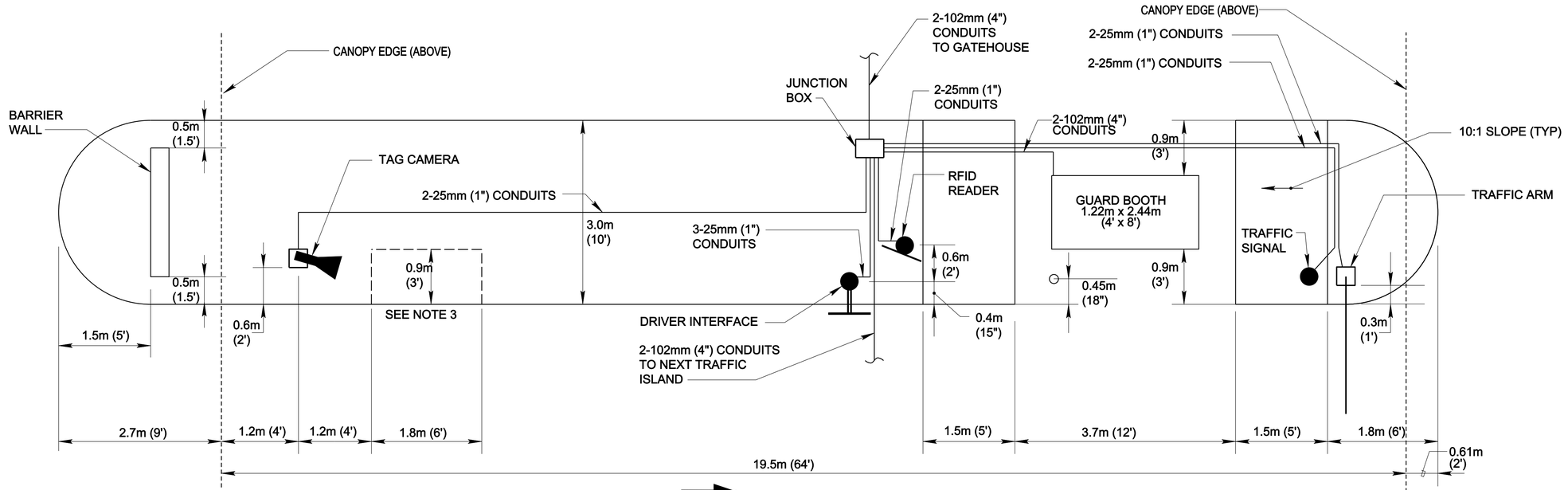
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

CONDUIT PLAN
W/O AUTOMATION AND NO ISLAND

SHEET REFERENCE NUMBER
EL.02
SHEET 48 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOTES:

1. DEVICE LOCATIONS SHOWN ARE ADVISORY, EXCEPT THE DISTANCE BETWEEN THE GATE ARM AND THE DRIVER INTERFACE PEDESTAL SHOULD BE 27' AS SHOWN. FOR EXISTING ACPs WITH SHORTER TRAFFIC ISLANDS, THIS DISTANCE SHALL BE A MINIMUM OF 16 FEET.
2. FOR EXISTING ACPs WITH TRAFFIC ISLANDS SHORTER THAN 75 FEET, EVALUATE EXISTING CONDITIONS TO DETERMINE THE OPTIMAL LOCATION OF THE REAR TAG CAMERA TO ENSURE PROPER COVERAGE.
3. A CURB CUTOUT FOR THE TANDEM GUARD IS OPTIONAL. IF PROVIDED, CUTOUT SHALL BE 3' DEEP BY 6' WIDE AS SHOWN AND SHALL HAVE VERTICAL FACES.
4. DESIGN MAY VARY TO FIT EXISTING CONDITIONS.

CONDUIT PLAN
TRAFFIC ISLAND WITH AUTOMATION
GUARD BOOTH NOT ON ISLAND
NOT TO SCALE

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$$SYSTIME$$
$$USERNAME$$

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

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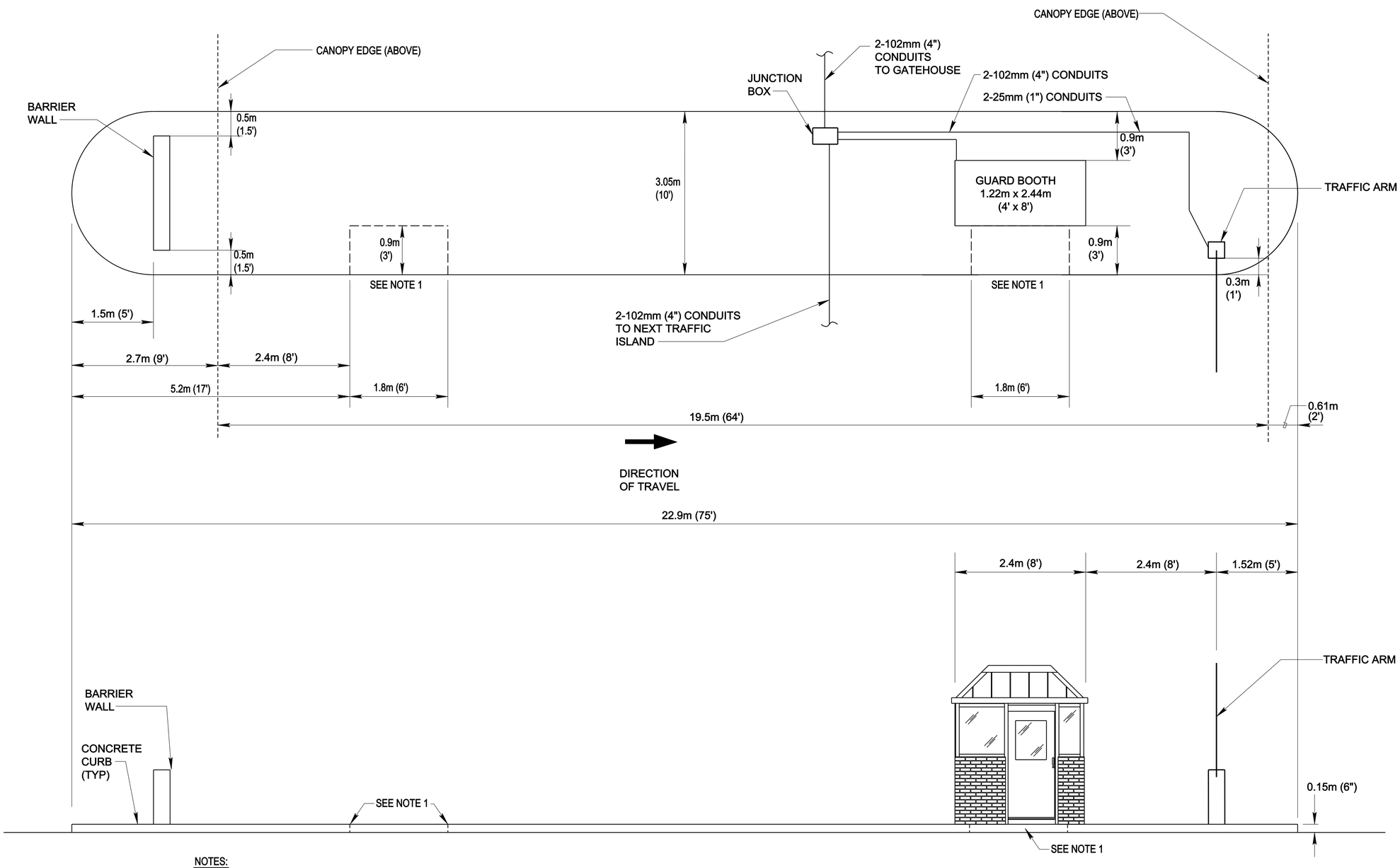
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

CONDUIT PLAN
WITH AUTOMATION AND NO ISLAND

SHEET REFERENCE NUMBER
EL.03
SHEET 50 OF 60



NOTES:

1. A CURB CUTOUT FOR THE TANDEM GUARD IS OPTIONAL. IF PROVIDED, CUTOUT SHALL BE 3' DEEP BY 6' WIDE AS SHOWN AND SHALL HAVE VERTICAL FACES.
2. NOTE: DESIGN MAY VARY TO FIT EXISTING CONDITIONS

CONDUIT PLAN
TRAFFIC ISLAND W/O AUTOMATION
GUARD BOOTH ON ISLAND
NOT TO SCALE

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

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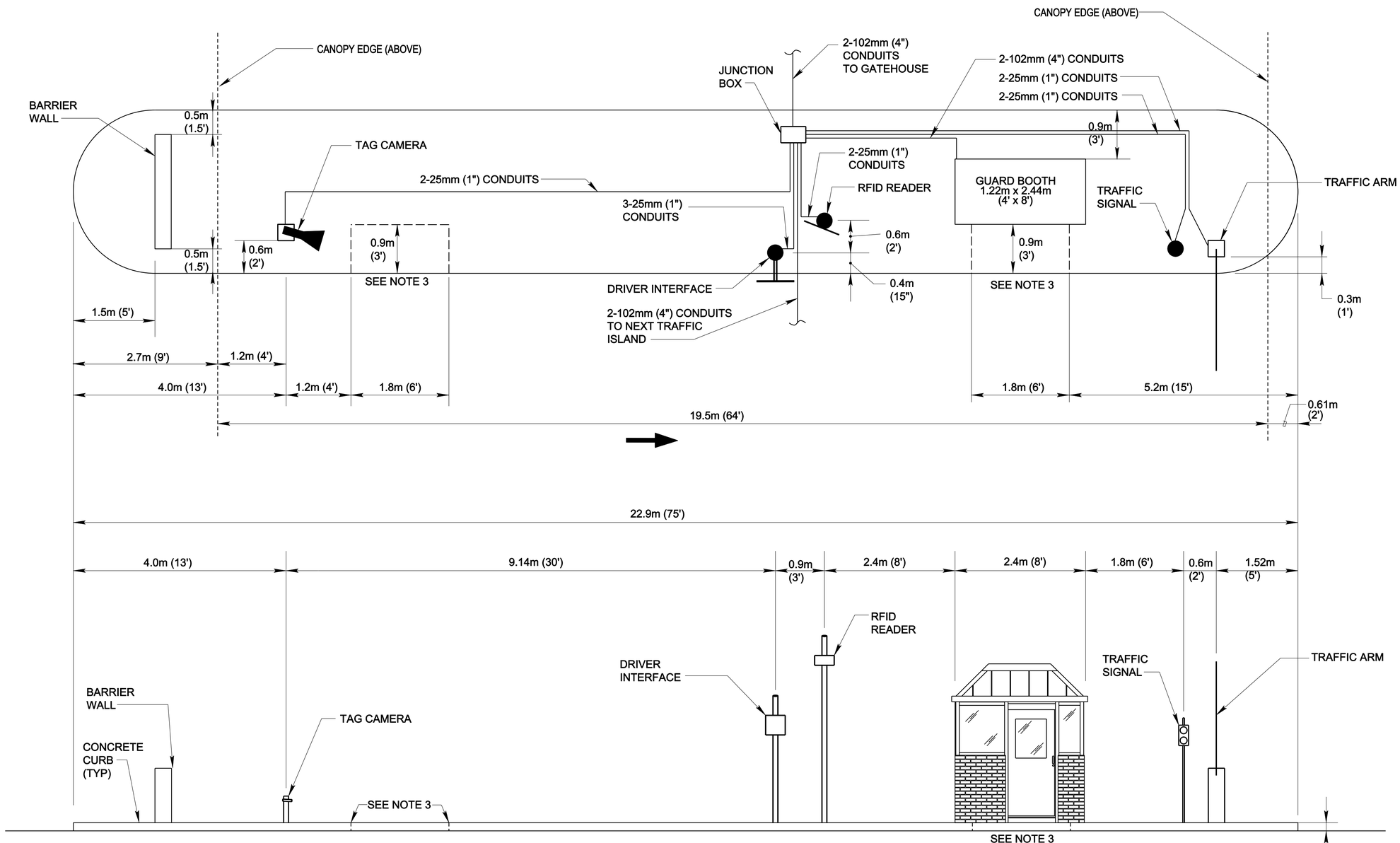
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

CONDUIT PLAN
W/O AUTOMATION ON ISLAND

SHEET REFERENCE NUMBER
EL.04
SHEET 51 OF 60



NOTES:

1. DEVICE LOCATIONS SHOWN ARE ADVISORY, EXCEPT THE DISTANCE BETWEEN THE GATE ARM AND THE DRIVER INTERFACE PEDESTAL SHOULD BE 27' AS SHOWN. FOR EXISTING ACPs WITH SHORTER TRAFFIC ISLANDS, THIS DISTANCE SHALL BE A MINIMUM OF 16 FEET.
2. FOR EXISTING ACPs WITH TRAFFIC ISLANDS SHORTER THAN 75 FEET, EVALUATE EXISTING CONDITIONS TO DETERMINE THE OPTIMAL LOCATION OF THE REAR TAG CAMERA TO ENSURE PROPER COVERAGE.
3. A CURB CUTOUT FOR THE TANDEM GUARD IS OPTIONAL. IF PROVIDED, CUTOUT SHALL BE 3' DEEP BY 6' WIDE AS SHOWN AND SHALL HAVE VERTICAL FACES.
4. NOTE: DESIGN MAY VARY TO FIT EXISTING CONDITIONS.

CONDUIT PLAN
TRAFFIC ISLAND WITH AUTOMATION
GUARD BOOTH ON ISLAND
NOT TO SCALE

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OMAHA DISTRICT

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U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

CONDUIT PLAN
WITH AUTOMATION ON ISLAND

SHEET REFERENCE NUMBER
EL.05
SHEET 52 OF 60

$$DONSPEC$$
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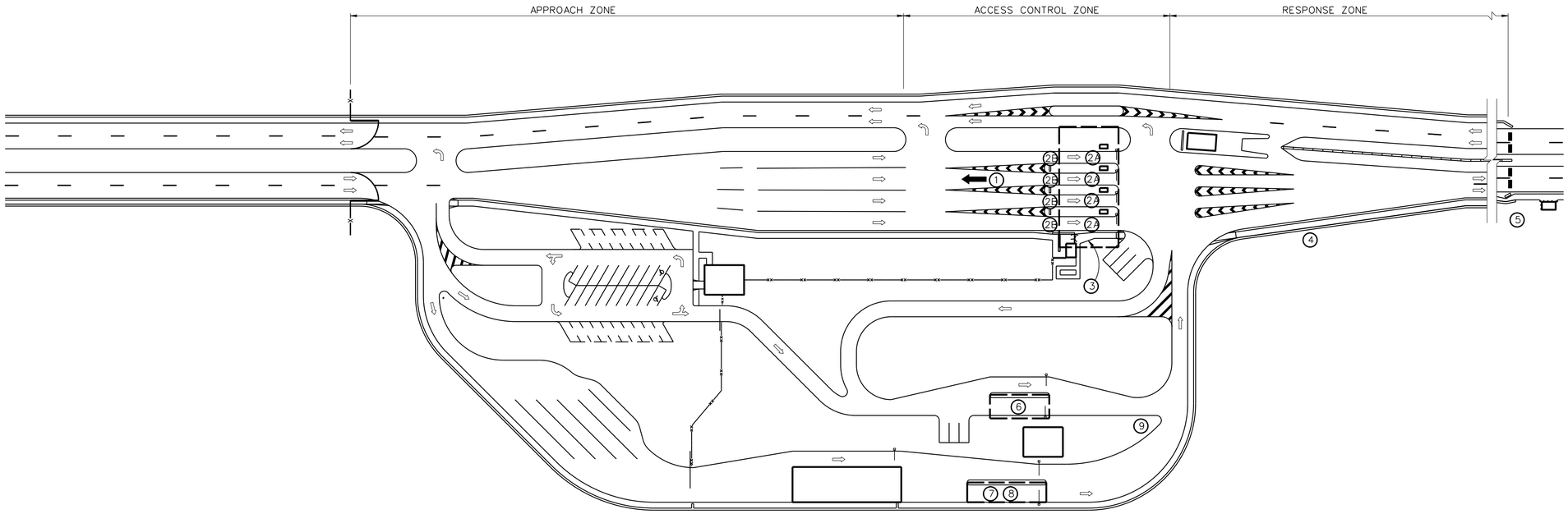

PRIMARY ACP WITH VCC AND COMMERCIAL VEHICLE

ZONE/FACILITY	NUMBER	DESCRIPTION	VIEW	CAMERA LOCATION	MONITOR LOCATION	LOCATION TYPE	NUMBER OF CAMERAS	FIXED OR PTZ
APPROACH ZONE	①	APPROACH ZONE OVERWATCH	VIEW APPROACHING TRAFFIC	POLE OR CANOPY ROOF	GATEHOUSE	EXTERNAL	1 OR 2 (SEE NOTE 1)	F
ID CHECK AREA	②A	LANE OPERATIONS	DRIVER, VEHICLE, AND ID CHECK GUARD	UNDERSIDE OF CANOPY	GATEHOUSE	COVERED	1 PER LANE	F
	②B	REAR LICENSE PLATE - FUTURE	REAR LICENSE PLATE USING SPECIAL LIGHTING	PRIMARY ISLANDS	TBD	COVERED	1 PER LANE (SEE NOTE 2)	F
	③	PEDESTRIAN ID CHECK OPERATIONS	PEDESTRIAN GUARD BOOTH AND PEDESTRIAN ACTIVE BARRIER	UNDERSIDE OF CANOPY	GATEHOUSE	COVERED	1	F
	④	ID CHECK AREA OVERWATCH	ID CHECK AREA, TURNAROUND, AND SEARCH AREA ENTRANCE/EXIT	POLE OR GATEHOUSE ROOF	CENTRAL SECURITY MONITORING STATION	EXTERNAL	1	PTZ
RESPONSE ZONE	⑤	FINAL BARRIER OVERWATCH	FINAL BARRIERS	POLE	GATEHOUSE	EXTERNAL	1	F
PASSENGER VEHICLE SEARCH AREA	⑥	SEARCH OPERATIONS	DRIVER, VEHICLE, AND SEARCH AREA GUARD	UNDERSIDE OF CANOPY	GATEHOUSE	COVERED	1	F
TRUCK SEARCH AREA	⑦	SEARCH OPERATIONS	DRIVER, VEHICLE, AND SEARCH AREA GUARD	UNDERSIDE OF CANOPY	GATEHOUSE	COVERED	1	F
	⑧	AID SEARCH AREA GUARDS - OPTIONAL (SEE NOTE 3)	TOP OF VEHICLE BEING SEARCHED	UNDERSIDE OF CANOPY	SEARCH AREA	COVERED	1	PTZ
SEARCH AREA	⑨	SEARCH AREA OVERWATCH	SEARCH AREAS	POLE	GATEHOUSE	EXTERNAL	1 (SEE NOTE 4)	PTZ
						TOTAL	12-16 ** FOR 4 LANE ENTRANCE	

NOTES:

1. AN ADDITIONAL CAMERA MAY BE REQUIRED TO VIEW APPROACH ZONE FOR PEDESTRIANS.
2. PROVIDE CONDUIT ONLY FOR FUTURE CAMERA AND LIGHTS.
3. OPTIONAL CAMERA TO AID SEARCH AREA GUARDS.
4. MAY REQUIRE 2 CAMERAS IF TRUCK AND PASSENGER VEHICLE SEARCH AREAS CANNOT BE COVERED BY ONE CAMERA.
5. SEE DESIGN CRITERIA (APPENDIX B) FOR DESCRIPTION OF CCTV REQUIREMENTS.
6. CAMERA PLAN INTENDED TO PROVIDE INITIAL GUIDANCE PER POLICY REQUIREMENTS. LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS AND NUMBER OF CAMERAS TO BE DETERMINED BASED ON SITE CONDITIONS AND LEVEL OF NEED.

** 10-12 FOR 2 LANE ENTRANCE
11-14 FOR 3 LANE ENTRANCE

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

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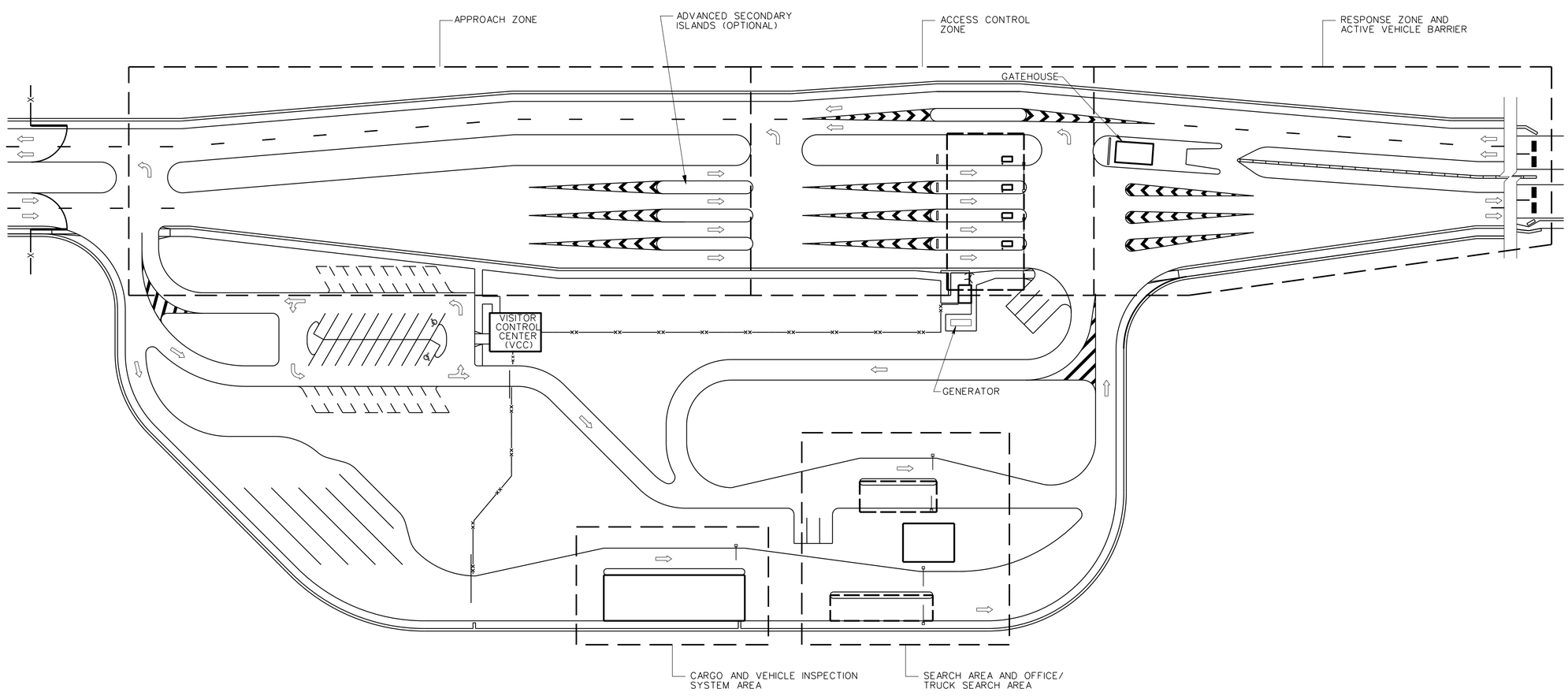
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ELECTRICAL PLAN
CAMERA PLAN

SHEET REFERENCE NUMBER
E1.01
SHEET 53 OF 60



POWER REQUIREMENTS

NOT TO SCALE

AREA	VA - CONNECTED			VA - DEMAND		
	UTILITY	GENERATOR	UPS	UTILITY	GENERATOR	UPS
APPROACH ZONE	7120.0	7120.0	2400.0	7120.0	7120.0	2400.0
ADVANCE (SECONDARY) ISLANDS	6240.0	6240.0	1200.0	1440.0	1440.0	1200.0
ACCESS CONTROL ZONE	32632.2	23919.2	9020.0	16992.2	16079.2	5980.0
GATEHOUSE	15184.6	8343.6	6934.0	11704.6	8343.6	6934.0
RESPONSE ZONE AND ACTIVE VEHICLE BARRIER	22578.0	22578.0	18550.0	4098.0	4098.0	70.0
OVERWATCH POSITION	2430.8	1276.8	1056.0	1710.8	1276.8	1056.0
VISITOR CONTROL CENTER (VCC)	24730.2	8555.2	3864.0	15740.2	8555.2	3864.0
SEARCH AREA AND OFFICE	38860.2	25685.2	6180.0	30910.2	23725.2	5420.0
TRUCK SEARCH AREA	8482.0	8482.0	830.0	7722.0	7722.0	70.0
CARGO AND VEHICLE INSPECTION SYSTEM AREA	100000.0	0.0	0.0	100000.0	0.0	0.0
ALL	258258.0	112200.0	50034.0	197438.0	78360.0	26994.0

NOTES:

1. POWER REQUIREMENTS PER ACP CRITERIA REQUIREMENTS AND STANDARD DRAWINGS.
2. BACKUP POWER & UPS REQUIREMENTS PER ACP CRITERIA (APPENDIX B).
3. DESIGNER TO VERIFY UPS INTERFACE CAPABILITIES.
4. PHYSICAL LOCATION(S) AND SIZE OF UPS(S) SHALL BE DETERMINED BY THE ELECTRICAL DESIGNER.
5. SEE APPENDIX F FOR DETAILED LIST OF ELECTRICAL LOADS.

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

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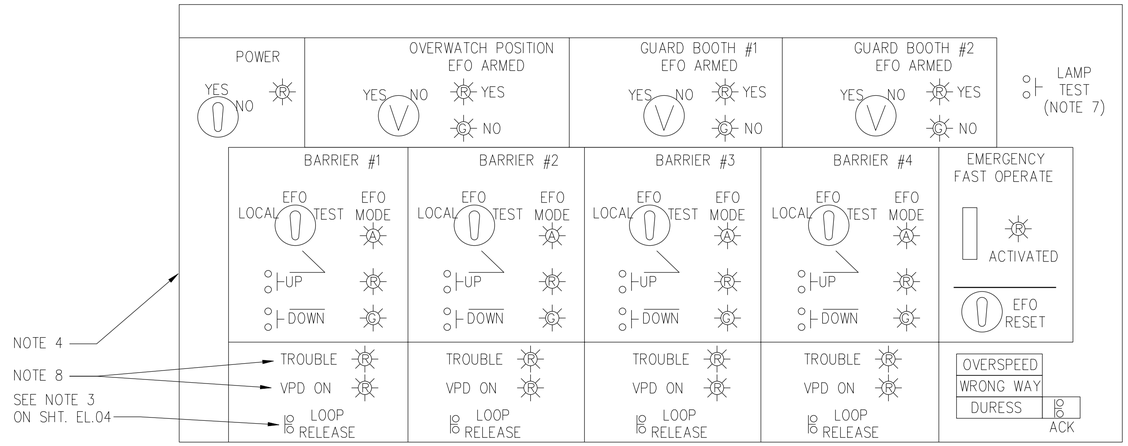
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ELECTRICAL PLAN
POWER REQUIREMENTS

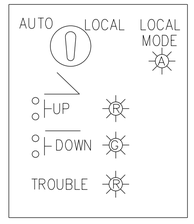
SHEET REFERENCE NUMBER
E1.02
SHEET 54 OF 60



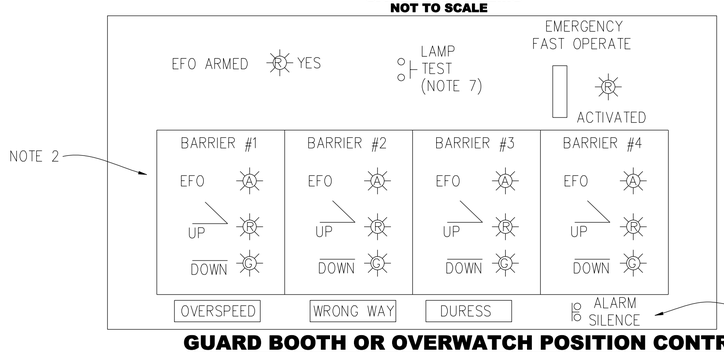
GATEHOUSE MASTER CONTROL PANEL

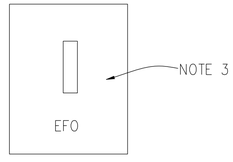
SIGNS AND SIGNALS AND PRESSURE DETECTION SAFETY SYSTEMS

NOT TO SCALE



LOCAL CONTROL PANEL AT BARRIER





GUARD BOOTH OR OVERWATCH POSITION CONTROL PANELS

SIGNS AND SIGNALS AND PRESSURE DETECTION SAFETY SYSTEMS

NOT TO SCALE

LEGEND

- GREEN INDICATING LIGHT
- RED INDICATING LIGHT
- AMBER INDICATING LIGHT
- CONTROL SWITCHES
- SELECTOR SWITCH
- KEY OPERATED CONTROL SWITCH
- EFO SWITCH WITH SAFETY COVER

NOTES:

1. THE CONTROL PANEL LAYOUTS DEPICT AN ACP WITH A GATEHOUSE, 2 GUARD BOOTHS, AN OVER WATCH POSITION, AND 4 ACTIVE VEHICLE BARRIERS.
2. BARRIER MODE AND STATUS INDICATING LIGHTS ARE OPTIONAL.
3. PROVIDE A SEPARATE STAND ALONE EFO TOGGLE SWITCH WITH SAFETY COVER MOUNTED ON THE INSIDE OF THE GUARD BOOTH TO THE LEFT OF THE DOOR FRAME FOR EASY ACCESS BY THE GUARD WHO MAY BE STANDING OUTSIDE GUARD BOOTH DURING ID CHECKS.
4. THE BARRIER MODE SELECTOR SWITCHES SHALL BE KEY OPERATED WITH THE KEY REMOVABLE IN ALL MODES. EACH BARRIER SHALL HAVE A UNIQUE KEY.
   a. UNDER NORMAL OPERATIONS, THE BARRIER MODE SELECTOR SWITCHES WILL BE IN THEIR EFO POSITIONS WITH KEYS REMOVED AND STORED IN A LOCKED CABINET IN THE GATEHOUSE ACCESSIBLE ONLY BY THE CHIEF OF THE GUARDS.
   b. WHEN PERFORMING BARRIER MAINTENANCE, MAINTENANCE PERSONNEL WILL OBTAIN THE KEY FROM THE CHIEF OF THE GUARDS, PUT THE SWITCH IN THE "LOCAL" POSITION, AND THEN REMOVE AND RETAIN THE KEY. THE MAINTENANCE PERSON WILL THEN PUT THE KEY IN THE MODE SELECTOR SWITCH ON THE BARRIERS LOCAL CONTROL PANEL LOCATED AT THE BARRIER AND TURN THE KEY TO THE "LOCAL" POSITION TO ACTIVATE THE OPEN AND CLOSE SWITCHES ON THE LOCAL CONTROL PANEL. WHEN MAINTENANCE IS COMPLETE, THE MAINTENANCE PERSON WILL PLACE THE MODE SELECTOR SWITCH ON THE LOCAL CONTROL PANEL BACK TO "AUTO" MODE, REMOVE THE KEY, AND RETURN THE KEY TO THE CHIEF OF THE GUARDS. THE CHIEF OF THE GUARDS WILL USE THE KEY TO PLACE THE BARRIER'S MODE SELECTOR SWITCH ON THE MASTER CONTROL PANEL IN THE "EFO" POSITION,AND THEN WILL REMOVE AND LOCKUP THE KEY.
   c. A GUARD MAY TEST OPERATE A BARRIER BY FIRST OBTAINING THE BARRIER'S MODE SWITCH KEY FROM THE CHIEF OF THE GUARDS, PUTTING THE MODE SWITCH IN THE "TEST" POSITION, AND THEN OPENING OR CLOSING THE BARRIER WITH THE PUSHBUTTONS ON THE MASTER CONTROL PANEL. UPON COMPLETION OF THE TEST OPERATIONS, THE GUARD WILL RETURN MODE TO "EFO", REMOVE THE KEY, AND RETURN IT TO THE CHIEF OF THE GUARDS. PROCEDURES MUST BE IN PLACE TO ENSURE ALL OPERABLE BARRIERS' MODE SELECTOR SWITCHES ARE PLACED IN THE EFO POSITIONS FOR THE PROPER RESPONSE TO AN EFO COMMAND.
5. SEE UFGS 34 41 26.00 10 "ACCESS CONTROL POINT CONTROL SYSTEM" APPENDIX A "SIGNS AND SIGNALS SAFETY SYSTEM" OR APPENDIX A "PRESENCE DETECTION SAFETY SYSTEM" FOR DESCRIPTIONS OF THE REQUIRED BARRIER AND TRAFFIC CONTROL SEQUENCES.
6. THE BARRIER MODE SELECTOR SWITCHES, BARRIER "DOWN" AND "UP" SWITCHES AND THE EFO RESET SWITCH MAY BE LOCATED ON A SEPARATE PANEL CALLED THE MAINTENANCE PANEL. THE MAINTENANCE PANEL MUST BE LOCATED IN THE GATEHOUSE IN AN AREA OR CABINET THAT IS ONLY ACCESSIBLE TO THE CHIEF OF THE GUARDS.

NOTES (CONT.):

7. LAMP TEST PUSH BUTTON SHALL TURN ON ALL INDICATING LIGHTS WHILE BUTTON IS PUSHED WITHOUT EFFECTING ANY CONTROLS.
8. THE INDICATING LIGHT LABELED 'TROUBLE' SHALL COME ON FOR ANY PROBLEMS OR ALARM CONDITIONS AT THE BARRIER, e.g. LOW OIL AIR PRESSURE, LOW VOLTAGE, ETC. THE INDICATING LIGHT LABELED 'VPD ON' SHALL COME ON WHEN ANY OF THE BARRIER'S VEHICLE PRESENCE DETECTORS (VPD'S) GETS A CALL (VEHICLE DETECTED) FOR MORE THAN 15 SECONDS.
9. OVERSPEED, WRONG-WAY, AND DURESS ALARMS SHALL INCLUDE BACK LIT WINDOWS AND ADJUSTABLE AUDIBLE ALARMS. DURESS ALARMS SHALL BE ON OVERWATCH POSITION PANEL AND GATEHOUSE PANEL ONLY. DURESS ALARM ACKNOWLEDGEMENT SWITCH SHALL BE ON GATEOUSE PANEL ONLY. OVERWATCH POSITION PANEL SHALL INCLUDE A DURESS ALARM SILENCE SWITCH TO SILENCE THE AUDIBLE ALARM. ALL OVERSPEED AND WRONG WAY ALARMS SHALL BE SELF CLEARING.

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DRAWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-6004
CONTRACT NO.: X
CATEGORY CODE: X
FILE NAME: X
PLOT SCALE: 1:1
PLOT DATE: .
SIZE: ANSI D

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

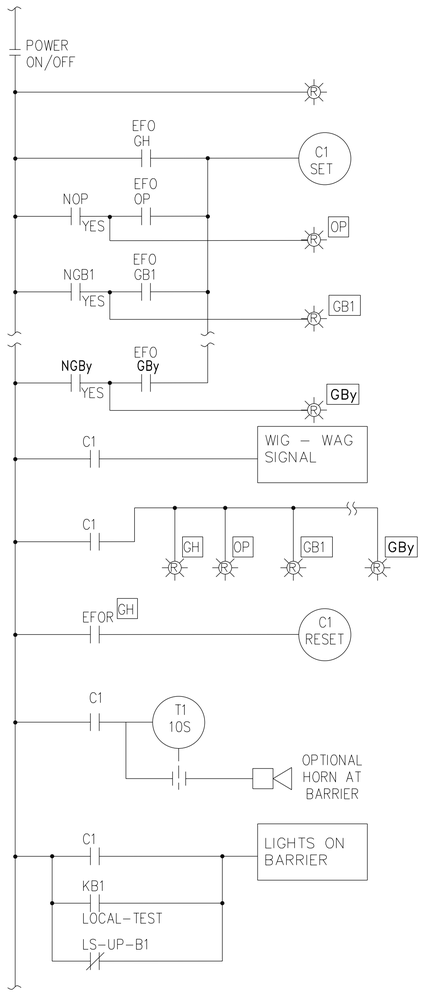
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ELECTRICAL PLAN
ACTIVE VEHICLE BARRIER CONTROLS

SHEET REFERENCE NUMBER
E1.03
SHEET 55 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

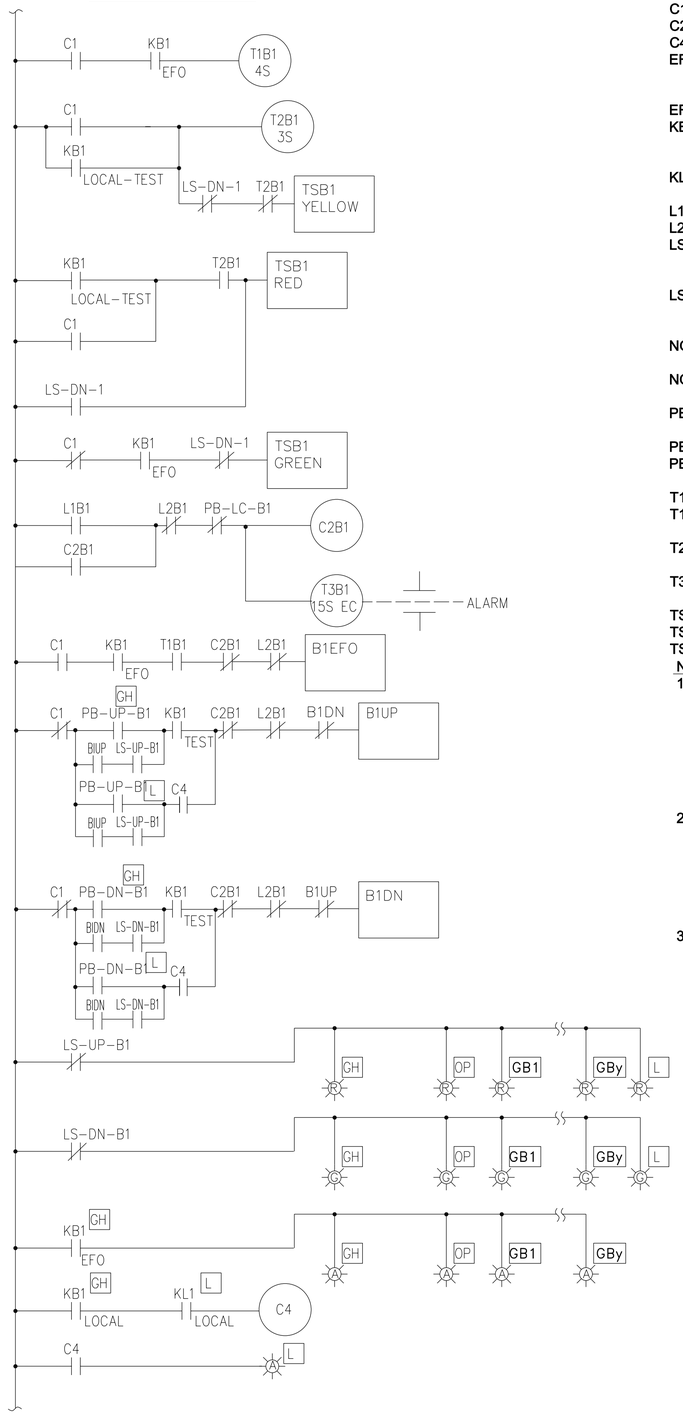
COMMON EFO CIRCUIT



DEVICE LOCATION SYMBOLS

- GH – GATEHOUSE MASTER CONTROL PANEL
- GBy – GUARD BOOTH CONTROL PANEL – "y" DENOTES GUARD BOOTH NUMBER
- OP – OVERWATCH POSITION CONTROL PANEL
- L – LOCAL CONTROL PANEL AT BARRIER

TYPICAL BARRIER CONTROLS SHOWN FOR BARRIER #1



DEVICE LEGEND

BxUP	BARRIER # x NORMAL UP (RAISE) ACTUATOR.
BxDN	BARRIER # x DOWN (LOWER) ACTUATOR.
BxEFO	BARRIER # x EFO ACTUATOR.
C1	EFO LATCHING RELAY WITH BOTH SET AND RESET COILS.
C2Bx	CONTROL RELAY FOR LOOP #1 AT BARRIER # x.
C4	CONTROL RELAY FOR LOCAL MODE
EFO-a	EFO CONTROL SWITCH WITH MOMENTARY CONTACT. "a" DENOTES LOCATION, GH (GATEHOUSE), OP (OVERWATCH POSITION), GBy GUARD BOOTH # y)
EFOR	EFO RESET CONTROL SWITCH WITH MOMENTARY CONTACT.
KBx	MODE SELECTOR SWITCH WITH LOCAL-EFO-TEST MODES FOR BARRIER # x. MAINTAINED CONTACTS. KEY OPERATED UNIQUE KEY REMOVABLE IN THE OFF POSITION ONLY.
KLI	MODE SELECTOR SWITCH WITH AUTO-LOCAL MODES FOR BARRIER x OPERATED BY SAME KEY THAT OPERATES KBx.
L1Bx	MAGNETIC INDUCTION LOOP #1 IN FRONT OF BARRIER # x.
L2Bx	MAGNETIC INDUCTION LOOP #2 IN BACK OF BARRIER # x.
LS-UP-Bx	UP LIMIT SWITCH FOR BARRIER # x. CONTACT POSITION SHOWN (OPEN OR CLOSED) WHEN THE BARRIER IS IN THE FULLY "UP" OR "CLOSED" POSITION.
LS-DN-Bx	DOWN LIMIT SWITCH FOR BARRIER # x. CONTACT POSITION SHOWN (OPEN OR CLOSED) WHEN THE BARRIER IS IN THE FULLY "DOWN" OR "OPENED" POSITION.
NGBy	EFO ARMED YES-NO SELECTOR SWITCH WITH MAINTAINED CONTACTS FOR GUARD BOOTH # y.
NOP	EFO ARMED YES-NO SELECTOR SWITCH WITH MAINTAINED CONTACTS FOR OVERWATCH POSITION.
PB-DN-Bx	DOWN PUSHBUTTON FOR BARRIER # X ON MASTER CONTROL PANEL GH AND IN LOCAL PANEL AT BARRIER L .
PB-LC-Bx	PUSH BUTTON TO CLEAR THE LOOP LATCHING CIRCUIT. SEE NOTE 3.
PB-UP-Bx	UP PUSHBUTTON FOR BARRIER # x ON MASTER CONTROL PANEL GH AND IN LOCAL PANEL AT BARRIER L .
T1	TIMING RELAY FOR HORN AT THE BARRIER.
T1Bx	TIMING RELAY TO DELAY EFO FOR BARRIER # x. 4 SECOND TIME DELAY IS ON ENERGIZATION.
T2Bx	TIMING RELAY FOR YELLOW TRAFFIC SIGNAL FOR BARRIER # x. 3 SECOND TIME DELAY IS ON ENERGIZATION.
T3Bx	TIMING RELAY FOR LOOP #1 ALARM. 15 SECOND TIME DELAY IS ON ENERGIZATION.
TSBx-G	TRAFFIC SIGNAL (GREEN) AT BARRIER # x.
TSBx-R	TRAFFIC SIGNAL (RED) AT BARRIER # x.
TSBx-Y	TRAFFIC SIGNAL (YELLOW) AT BARRIER # x.

NOTES:

1. THIS DRAWING SHOWS REPRESENTATIVE LADDER DIAGRAMS INDICATING THE REQUIRED FUNCTIONS OF THE BARRIER AND TRAFFIC SIGNAL CONTROLS USING THE CONTROL SWITCHES SHOWN ON SHEET E1.03. THE CONTRACTOR'S ACTUAL LADDER LOGIC MUST INCLUDE ALL OF THE CONTROL FUNCTIONS SHOWN HERE AND DESCRIBED IN APPENDIX A (SIGNS AND SIGNALS SAFETY SYSTEM) OF UFGS 34 21 26.00 10. ANY DEVIATIONS FROM THE SIMPLE LADDER LOGIC SHOWN ON THIS DRAWING MUST BE JUSTIFIED AND EXPLAINED ON CONTRACTORS CONTROL SUBMITTALS.
2. THE PREFERRED CONTROL SEQUENCE SHOWN REQUIRES AN INDIVIDUAL TRAFFIC SIGNAL FOR EACH LANE WITH A BARRIER. IF INDIVIDUAL TRAFFIC SIGNALS PER LANE ARE NOT POSSIBLE, PLACING ANY BARRIER'S MODE SELECTOR SWITCH IN THE TEST OR LOCAL POSITIONS SHALL NOT CHANGE THE TRAFFIC SIGNAL. FOR THIS CONDITION, CARE MUST BE TAKEN BY THE GUARDS TO ENSURE THAT A LANE IS BLOCKED OFF AND PROPERLY SIGNED BEFORE THE BARRIER'S MODE IS CHANGED TO EITHER TEST OR LOCAL.
3. LOOP SAFETY. WHEN THE PRESENCE DETECTION LOOPS IN FRONT OF AND BEHIND THE BARRIER ARE MORE THAN 10 FEET APART, A SAFETY CIRCUIT MUST BE ADDED TO ENSURE THAT THE BARRIER WILL NOT CLOSE (DEPLOY) ON A VEHICLE THAT IS OVER THE BARRIER BUT BETWEEN THE LOOPS SO IS NOT DETECTED BY EITHER LOOP. THE FOLLOWING ARE APPROVED CIRCUITS:
   a. LATCHING CIRCUIT (SHOWN ON THE DRAWING). WHEN A VEHICLE IS DETECTED BY LOOP 1, RELAY C2Bx PICKS-UP AND SEALS ITSELF IN. AFTER THE VEHICLE PASSES OVER THE BARRIER IT SHOULD BE DETECTED BY LOOP 2 WHICH WILL DROP OUT RELAY C2Bx. PUSHBUTTON PB-CL-Bx IS REQUIRED TO DROPOUT RELAY C2Bx IN THE EVENT A VEHICLE IS DETECTED BY LOOP 1 (CAUSING C2BX TO PICK UP AND SEAL-IN) BUT IS NOT DETECTED BY LOOP 2 AS IT PASSES OVER THE BARRIER. IF THE VEHICLE PASSES OVER THE BARRIER BUT IS NOT DETECTED BY LOOP 2, RELAY C2Bx STAYS PICKED-UP EVEN THOUGH THERE IS NO VEHICLE OVER THE BARRIER. AFTER 15 SECONDS AT THIS CONDITION, AN ALARM SOUNDS TO ALERT THE GUARD THAT BARRIER x'S LOOP CURCUIT IS LATCHED. THE GUARD MUST VISUALLY CHECK THE BARRIER AND, IF THERE IS NOT A VEHICLE OVER IT, HE/SHE MUST PUSH THE PB-CL-Bx TO DROP OUT C2Bx AND CLEAR THE LOOP LATCH.
   b. TIME DELAY CIRCUIT. AN ALTERNATIVE TO THE LOOP LATCH CIRCUIT DESCRIBED ABOVE IS A CIRCUIT USING A SHORT (0.5 SECOND) TIME DELAY. A VEHICLE PASSING OVER LOOP 1 PICKS-UP A TIMER RELAY WHICH IMMEDIATELY OPENS ONE OF ITS NORMALLY CLOSED CONTACTS. AFTER THE VEHICLE CLEARS LOOP 1, THE NORMALLY CLOSED TIMER CONTACT STAYS OPEN FOR 0.5 SECONDS BEFORE CLOSING (TIME DELAY ON DROP-OUT LOGIC). THE ADDED 0.5 SECONDS BEFORE CLOSING ALLOWS THE PASSING VEHICLE TO TRAVEL THE DISTANCE BETWEEN LOOPS 1 AND 2. BEFORE THE TIMER RUNS OUT, THE VEHICLE SHOULD BE DETECTED BY LOOP 2, WHICH WILL CONTINUE TO PREVENT BARRIER CLOSURE (DEPLOYMENT) UNTIL THE VEHICLE CLEARS LOOP 2.

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US ARMY CORPS OF ENGINEERS OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: XXX
DWN BY: XXX
CKD BY: XXX
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
PLOT SCALE: 1:1
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

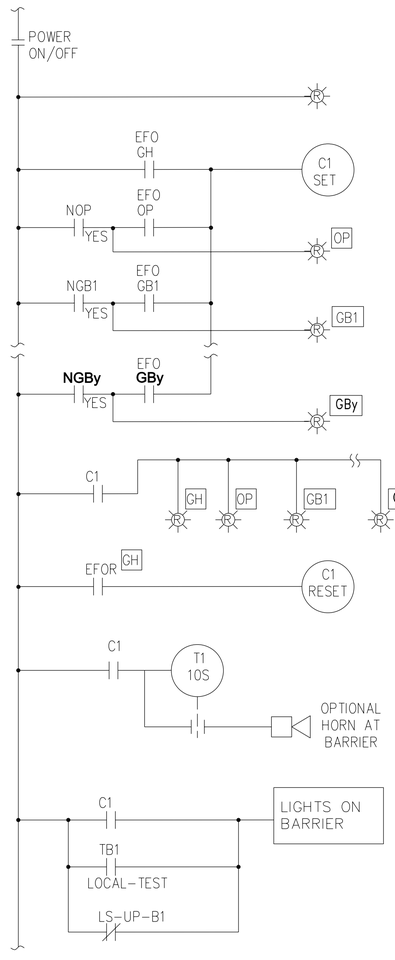
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

CONTROL LOGIC FOR
SIGNS AND SIGNALS SAFETY SYSTEM

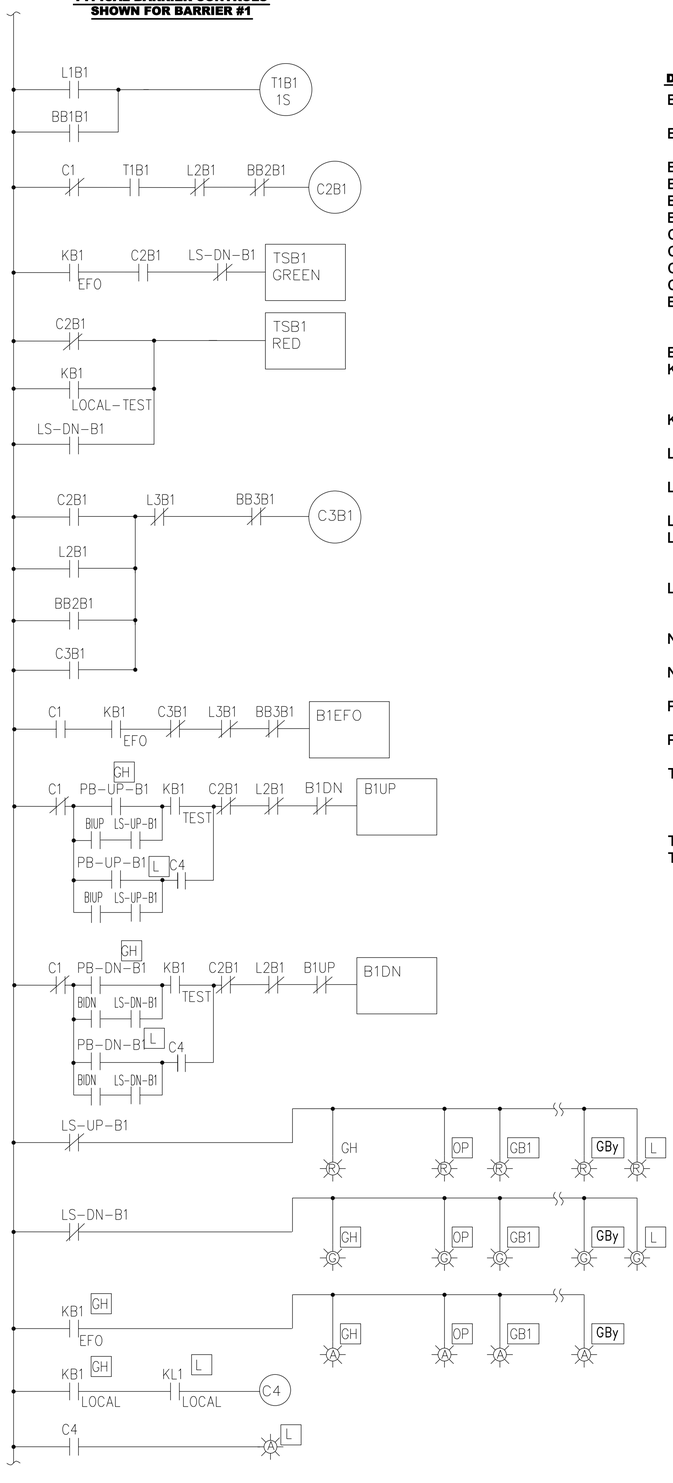
SHEET REFERENCE NUMBER
E1.04
SHEET 56 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

COMMON EFO CIRCUIT



TYPICAL BARRIER CONTROLS SHOWN FOR BARRIER #1



DEVICE LEGEND

BB1Bx	BREAK BEAM SENSOR #1 IN FRONT OF BARRIER # x's STOP LINE.
BB2Bx	BREAK BEAM SENSOR #2 IN BACK OF THE STOP LINE BUT IN FRONT OF BARRIER # x.
BB3Bx	BREAK BEAM SENSOR #3 IN BACK OF BARRIER # x.
BxUP	BARRIER # x NORMAL UP (RAISE) ACTUATOR.
BxDN	BARRIER # x DOWN (LOWER) ACTUATOR.
BxEFO	BARRIER # x EFO ACTUATOR.
C1	EFO LATCHING RELAY WITH BOTH SET AND RESET COILS.
C2Bx	CONTROL RELAY FOR TRAFFIC SIGNAL AT BARRIER # x.
C3Bx	CONTROL RELAY FOR EFO PREEMPTION OF THE BARRIER # x.
C4	CONTROL RELAY FOR LOCAL MODE
EFO-a	EFO CONTROL SWITCH WITH MOMENTARY CONTACT. "a" DENOTES LOCATION, GH (GATEHOUSE), OP (OVERWATCH POSITION), GBy GUARD BOOTH # y)
EFOR	EFO RESET CONTROL SWITCH WITH MOMENTARY CONTACT.
KBx	MODE SELECTOR SWITCH WITH LOCAL-EFO-TEST MODES FOR BARRIER # x. MAINTAINED CONTACTS. KEY OPERATED UNIQUE KEY REMOVABLE IN THE LOCAL POSITION ONLY.
KL1	MODE SELECTOR SWITCH WITH AUTO-LOCAL MODES FOR BARRIER x OPERATED BY SAME KEY THAT OPERATES KBx.
L1Bx	MAGNETIC INDUCTION LOOP #1 IN FRONT OF BARRIER # x's STOP LINE.
L2Bx	MAGNETIC INDUCTION LOOP #2 IN BACK OF THE STOP LINE BUT ON FRONT OF BARRIER # x.
L3Bx	MAGNETIC INDUCTION LOOP #3 IN BACK OF BARRIER # x.
LS-UP-Bx	UP LIMIT SWITCH FOR BARRIER # x. CONTACT POSITION SHOWN (OPEN OR CLOSED) WHEN THE BARRIER IS IN THE FULLY "UP" OR "RAISED" POSITION.
LS-DN-Bx	DOWN LIMIT SWITCH FOR BARRIER # x. CONTACT POSITION SHOWN (OPEN OR CLOSED) WHEN THE BARRIER IS IN THE FULLY "DOWN" OR "LOWERED" POSITION.
NGBy	EFO ARMED YES-NO SELECTOR SWITCH WITH MAINTAINED CONTACTS FOR GUARD BOOTH # y.
NOP	EFO ARMED YES-NO SELECTOR SWITCH WITH MAINTAINED CONTACTS FOR OVERWATCH POSITION.
PB-DN-Bx	DOWN PUSHBUTTON FOR BARRIER # X ON MASTER CONTROL PANEL GH AND IN LOCAL PANEL AT BARRIER L.
PB-UP-Bx	UP PUSHBUTTON FOR BARRIER # X ON MASTER CONTROL PANEL GH AND IN LOCAL PANEL AT BARRIER L.
T1Bx	TIMING RELAY FOR TRAFFIC SIGNALS FOR BARRIER # x. 1 SECOND TIME DELAY IS ON ENERGIZATION, i.e., NO CONTACTS CLOSE (AND NC CONTACTS OPEN) 1 SECOND AFTER COIL IS ENERGIZED.
TSBx-G	TRAFFIC SIGNAL (GREEN) AT BARRIER # x.
TSBx-R	TRAFFIC SIGNAL (RED) AT BARRIER # x.

NOTES:

1. THIS DRAWING SHOWS REPRESENTATIVE LADDER DIAGRAMS INDICATING THE REQUIRED FUNCTIONS OF THE BARRIER AND TRAFFIC SIGNAL CONTROLS USING THE CONTROL SWITCHES SHOWN ON SHEET E1.03. THE CONTRACTOR'S ACTUAL LADDER LOGIC MUST INCLUDE ALL OF THE CONTROL FUNCTIONS SHOWN HERE AND DESCRIBED IN APPENDIX A (PRESENCE DETECTION SAFETY SYSTEM) OF UFGS 34 21 26.00 10.
2. SEE NOTE 3 ON DRAWING E1.04 FOR LOOP SAFETY REQUIREMENT.
3. SEE APPENDIX G FOR DESCRIPTION OF CONTROLS.

DEVICE LOCATION SYMBOLS

GH – GATEHOUSE MASTER CONTROL PANEL
GBy – GUARD BOOTH CONTROL PANEL – "y" DENOTES GUARD BOOTH NUMBER
OP – OVERWATCH POSITION CONTROL PANEL
L – LOCAL CONTROL PANEL AT BARRIER

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

DESIGNED BY: X.X.X.
DRN BY: X.X.X.
CKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
SIZE: ANSI D
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:

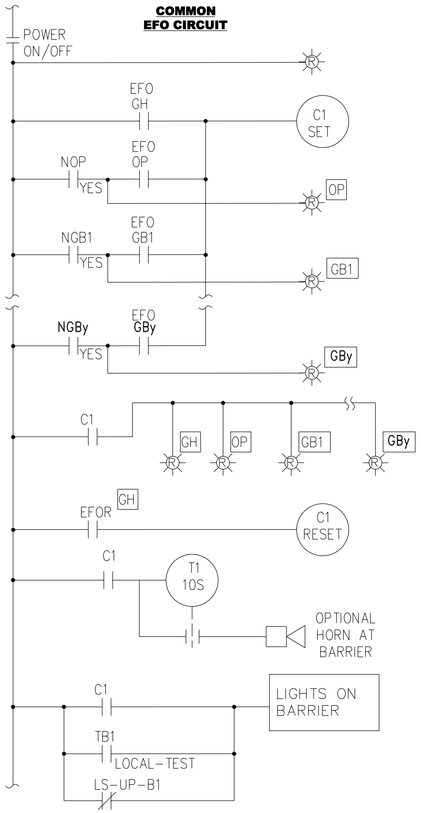
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

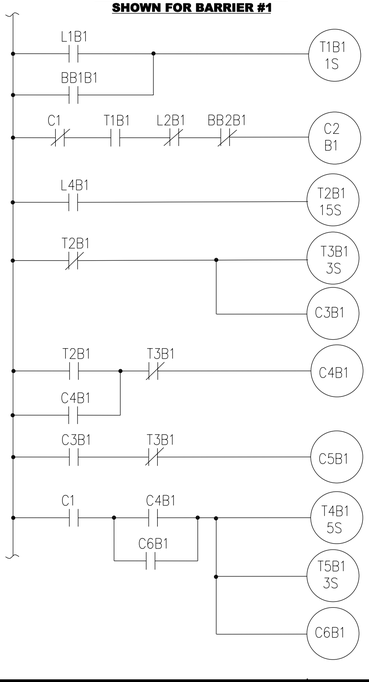
FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

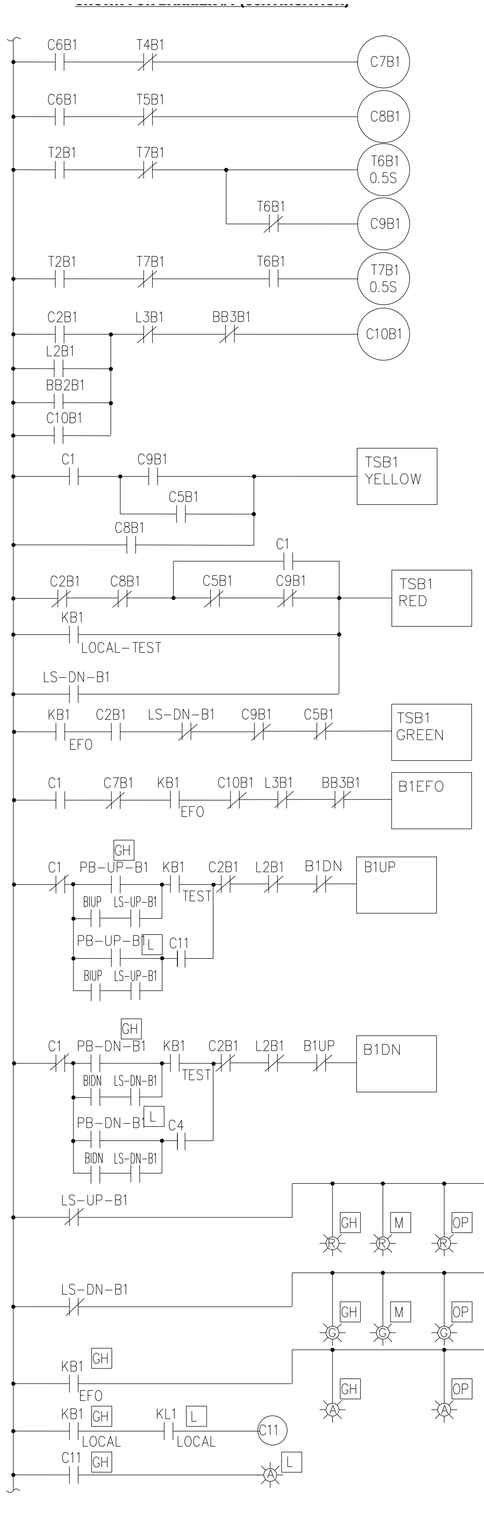
CONTROL LOGIC FOR
PRESENCE DETECTION SAFETY SYSTEM

SHEET REFERENCE NUMBER
E1.05
SHEET 57 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$







DEVICE LEGEND

BB1Bx	BREAK BEAM SENSOR #1 IN FRONT OF BARRIER'S STOP LINE.
BB2Bx	BREAK BEAM SENSOR #2 IN BACK OF STOP LINE BUT IN FRONT OF BARRIER.
BB3Bx	BREAK BEAM SENSOR #3 IN BACK OF BARRIER.
BxUP	BARRIER UP (CLOSE) ACTUATOR.
BxDN	BARRIER DOWN (OPEN) ACTUATOR.
BxEFO	BARRIER EFO ACTUATOR.
C1	EFO INITIATION RELAY WITH BOTH SET AND RESET COILS.
C2Bx	CONTROL RELAY TO CONTROL TRAFFIC SIGNAL.
C3Bx	CONTROL RELAY FOR QUEUE MODE.
C4Bx	CONTROL RELAY THAT PICKS-UP AT BEGINNING OF QUEUE (T2 TIMES OUT), AND DROPS OUT 3 SECONDS AFTER QUEUE ENDS (T3 TIMES OUT).
C5Bx	CONTROL RELAY THAT PICKS-UP AT END OF QUEUE (T2 DROPS OUT AND PICKS UP C3), AND DROPS OUT 3 SECONDS LATER (T3 TIMES OUT).
C6BX	CONTROL RELAY FOR EFO PREEMPTION DURING QUEUE MODE.
C7Bx	CONTROL RELAY THAT PICKS UP WHEN THERE IS AN EFO ACTUATION (C1) DURING THE PERIOD OF THE QUEUE PLUS 3 SECONDS AFTER THE QUEUE ENDS (C4). DROPS OUT 5 SECONDS LATER (T4 TIMES OUT).
C8Bx	CONTROL RELAY THAT PICKS UP WHEN THERE IS AN EFO ACTUATION (C1) DURING THE PERIOD OF THE QUEUE PLUS 3 SECONDS AFTER THE QUEUE ENDS (C4). DROPS OUT 3 SECONDS LATER (T5 TIMES OUT).
C9Bx	CONTROL RELAY TO CONTROL FLASHING YELLOW ON TRAFFIC SIGNAL.
C10Bx	CONTROL RELAY TO SUPPRESS BARRIER CLOSURE WHEN VEHICLE IS PRESENT.
C11	CONTROL RELAY FOR LOCAL MODE
EFO-a	EFO CONTROL SWITCH WITH MOMENTARY CONTACT. "a" DENOTES LOCATION, GH (GATEHOUSE), OP (OVERWATCH POSITION), GBy GUARD BOOTH # y)
EFOR	EFO RESET CONTROL SWITCH WITH MOMENTARY CONTACT.
KBx	BARRIER MODE SELECTOR SWITCH WITH LOCAL-EFO-TEST MODES FOR BARRIER #1. MAINTAINED CONTACTS. KEY OPERATED WITH UNIQUE KEY REMOVABLE IN THE LOCAL POSITION ONLY.
KL1	MODE SELECTOR SWITCH WITH AUTO-LOCAL MODES FOR BARRIER x OPERATED BY SAME KEY THAT OPERATES KBx.
L1Bx	INDUCTION LOOP SENSOR #1 IN FRONT OF BARRIER'S STOP LINE.
L2Bx	INDUCTION LOOP SENSOR #2 IN BACK OF STOP LINE BUT IN FRONT OF BARRIER.
L3Bx	INDUCTION LOOP SENSOR #3 IN BACK OF BARRIER.
L4Bx	INDUCTION LOOP SENSOR #4 FOR QUEUE INITIATION.
LS-UP-Bx	UP (CLOSED) LIMIT SWITCH ON BARRIER. CONTACT POSITION SHOWN (OPEN OR CLOSED) WHEN THE BARRIER IS IN THE FULLY UP POSITION.
LS-DN-Bx	DOWN (OPEN) LIMIT SWITCH ON BARRIER. CONTACT POSITION SHOWN (OPEN OR CLOSED) IS WHEN THE BARRIER IS IN THE FULLY DOWN POSITION.
NGBy	EFO ARMED YES-NO SELECTOR SWITCH WITH MAINTAINED CONTACTS FOR GUARD BOOTH # y.
NOP	EFO ARMED YES-NO SELECTOR SWITCH WITH MAINTAINED CONTACTS FOR OVERWATCH POSITION.
PB-DN-Bx	PUSHBUTTON TO LOWER (DOWN) BARRIER # X ON MASTER CONTROL PANEL GH AND IN LOCAL PANEL AT BARRIER L .
PB-UP-Bx	PUSHBUTTON TO RAISE (UP) BARRIER # X ON MASTER CONTROL PANEL GH AND IN LOCAL PANEL AT BARRIER L .
T1Bx	TIMING RELAY WITH 1 SECOND DELAY TO CONTRL RED/GREEN CYCLE ON THE TRAFFIC SIGNAL AT THE BARRIER.
T2Bx	TIMING RELAY WHOSE NO CONTACTS CLOSE AND NC CONTACTS OPEN 15 SECONDS AFTER A CONTINUOUS CALL ON THE QUEUE LOOP (L4). CONTACTS REVERT BACK TO NORMAL POSITION WHEN THE CALL ON L4 DROPS. T2 MARKS THE DURATION OF THE QUEUE PERIOD.
T3Bx	TIMING RELAY SET AT 3 SECONDS TO CONTROL YELLOW CYCLE ON THE TRAFFIC SIGNAL AT THE BARRIER AT THE END OF QUEUE MODE.
T4Bx	TIMING RELAY SET AT 5 SECONDS TO CONTROL BARRIER SUPPRESSION UPON EFO ACTIVATION DURING QUEUE MODE.
T5Bx	TIMING RELAY SET AT 3 SECONDS TO CONTROL YELLOW CYCLE OF THE TRAFFIC SIGNAL UPON ACTIVATION OF EFO DURING QUEUE MODE.
T6Bx	TIMING RELAY SET AT 0.5 SECONDS TO CONTROL FLASHING YELLOW CYCLE OF THE TRAFFIC SIGNAL DURING QUEUE MODE.
T7Bx	TIMING RELAY SET AT 0.5 SECONDS TO CONTROL FLASHING TELLOW CYCLE OF THE TRAFFIC SIGNAL DURING QUEUE MODE.
TS1-GREEN	GREEN LIGHT ACTUATOR FOR THE TRAFFIC SIGNAL AT BARRIER #1.
TS1-YELLOW	YELLOW LIGHT ACTUATOR FOR THE TRAFFIC SIGNAL AT BARRIER #1.
TS1-RED	RED LIGHT ACTUATOR FOR THE TRAFFIC SIGNAL AT BARRIER #1.

NOTES:
1. THIS DRAWING SHOWS REPRESENTATIVE LADDER DIAGRAMS INDICATING THE REQUIRED FUNCTIONS OF THE BARRIER AND TRAFFIC SIGNAL CONTROLS USING THE CONTROL SWITCHES SHOWN ON SHEET E1.03. THE CONTRACTOR'S ACTUAL LADDER LOGIC MUST INCLUDE ALL OF THE CONTROL FUNCTIONS SHOWN HERE AND DESCRIBED IN APPENDIX A (PRESENCE DETECTION SAFETY SYSTEM) OF UFGS 34 21 26.00 10.
2. SEE NOTE 3 ON DWG E1.04 FOR LOOP SAFETY REQUIREMENT.
3. SEE APPENDIX G FOR DESCRIPTION OF CONTROLS.

DEVICE LOCATION SYMBOLS

GH – GATEHOUSE MASTER CONTROL PANEL
GBy – GUARD BOOTH CONTROL PANEL – "y" DENOTES GUARD BOOTH NUMBER
OP – OVERWATCH POSITION CONTROL PANEL
L – LOCAL CONTROL PANEL AT BARRIER

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

BY	DATE	DESCRIPTION	SYMBOL

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DRN BY: X.X.X.
CKD BY: X.X.X.
DATE: NOV 2007
SUBMITTED BY: X
FILE NAME: X
SOLICITATION NO.: W912HN-07-X-4004
CONTRACT NO.: X
CATEGORY CODE: X
SIZE: ANSI D
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PLOT DATE:

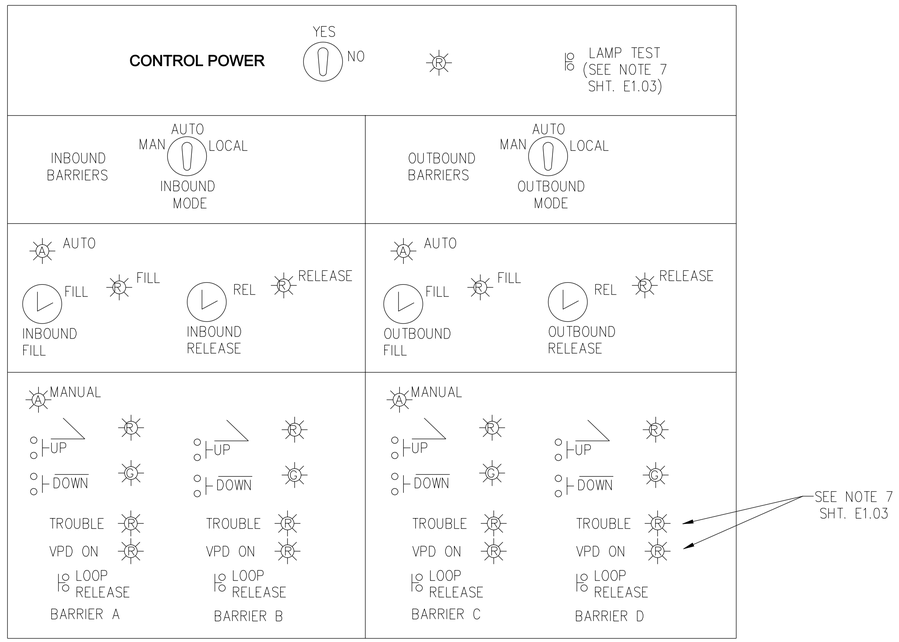
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

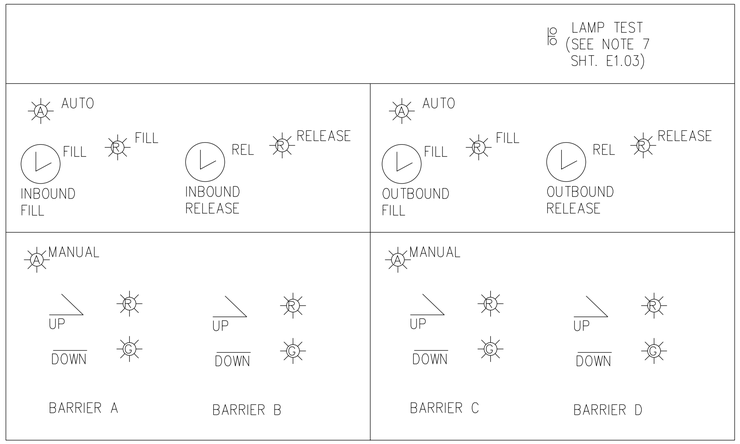
CONTROL LOGIC FOR
PRESENCE DETECTION SAFETY SYSTEM WITH
QUEUE CLEARANCE

SHEET REFERENCE NUMBER
E1.06
SHEET 58 OF 60

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



GATEHOUSE MASTER CONTROL PANEL
(BARRIER NORMALLY CLOSED SAFETY SYSTEM)
NOT TO SCALE



GUARD BOOTH CONTROL PANEL
(BARRIER NORMALLY CLOSED SAFETY SYSTEM)
NOT TO SCALE

LEGEND

- GREEN INDICATING LIGHT
- RED INDICATING LIGHT
- AMBER INDICATING LIGHT
- CONTROL SWITCHES
- SELECTOR SWITCH
- KEY OPERATED CONTROL SWITCH

NOTES

1. **THE CONTROL PANEL LAYOUTS DEPICT AN ACP WITH A GATEHOUSE, 2 GUARD BOOTHS, AND 4 ACTIVE VEHICLE BARRIERS. (2 FOR INBOUND ENTRAPMENT AREA AND 2 FOR OUTBOUND ENTRAPMENT AREA).**
2. **SEE UFGS 34 41 26.00 10 "ACCESS CONTROL POINT CONTROL SYSTEM" APPENDIX A "BARRIER NORMALLY CLOSED SAFETY SYSTEM" FOR DESCRIPTION OF REQUIRED BARRIER AND TRAFFIC CONTROL SEQUENCES.**

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
CHKD BY: X.X.X.
SUBMITTED BY: X
FILE NAME: X
DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
CONTRACT NO.: X
CATEGORY CODE: X
PLOT SCALE: 1:1
PLOT DATE:
SIZE: ANSI D

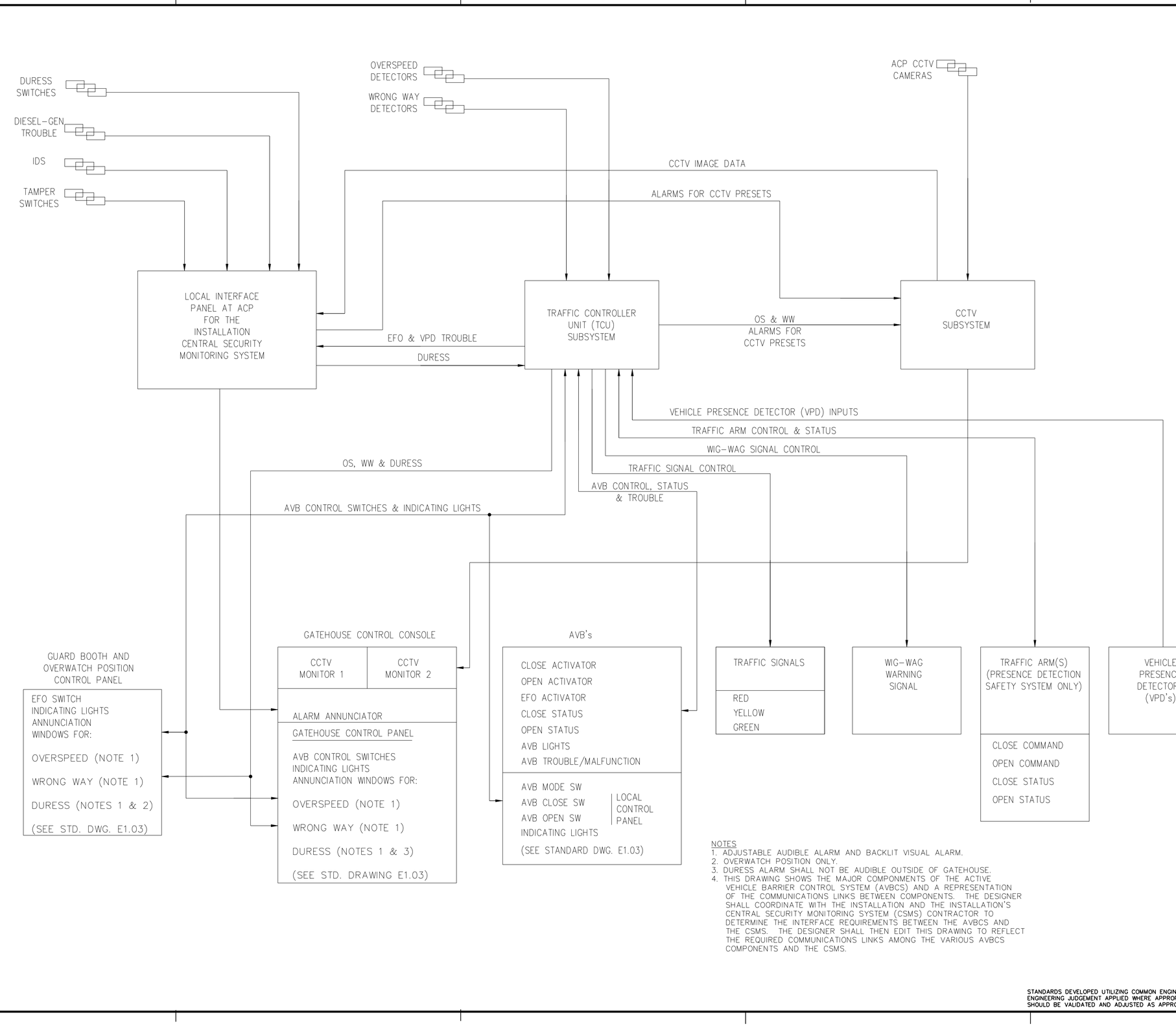
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ELECTRICAL PLAN
BARRIER NORMALLY CLOSED SAFETY SYSTEM

SHEET REFERENCE NUMBER
E1.07
SHEET 59 OF 60

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$



NOTES
1. ADJUSTABLE AUDIBLE ALARM AND BACKLIT VISUAL ALARM.
2. OVERWATCH POSITION ONLY.
3. DURESS ALARM SHALL NOT BE AUDIBLE OUTSIDE OF GATEHOUSE.
4. THIS DRAWING SHOWS THE MAJOR COMPONMENTS OF THE ACTIVE VEHICLE BARRIER CONTROL SYSTEM (AVBCS) AND A REPRESENTATION OF THE COMMUNICATIONS LINKS BETWEEN COMPONENTS. THE DESIGNER SHALL COORDINATE WITH THE INSTALLATION AND THE INSTALLATION'S CENTRAL SECURITY MONITORING SYSTEM (CSMS) CONTRACTOR TO DETERMINE THE INTERFACE REQUIREMENTS BETWEEN THE AVBCS AND THE CSMS. THE DESIGNER SHALL THEN EDIT THIS DRAWING TO REFLECT THE REQUIRED COMMUNICATIONS LINKS AMONG THE VARIOUS AVBCS COMPONENTS AND THE CSMS.

STANDARDS DEVELOPED UTILIZING COMMON ENGINEERING AND ARCHITECTURAL RESOURCES. ENGINEERING JUDGEMENT APPLIED WHERE APPROPRIATE. ALL FEATURES AND DIMENSIONS SHOULD BE VALIDATED AND ADJUSTED AS APPROPRIATE AS PART OF THE DESIGN PROCESS.

$$DONSPEC$$
$$SYSTIME$$
$$USERNAME$$

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: X.X.X.
DRAWN BY: X.X.X.
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DATE: NOV 2007
SOLICITATION NO.: W912HN-07-X-8204
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SIZE: ANSI D

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

FACILITIES STANDARDIZATION PROGRAM
ACCESS CONTROL POINTS FOR U.S. ARMY INSTALLATIONS

ACTIVE VEHICLE BARRIER CONTROL SYSTEM (AVBCS) CONFIGURATION

SHEET REFERENCE NUMBER
E1.08
SHEET 60 OF 60

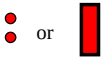
APPENDIX G

PRESENCE DETECTION SAFETY SCHEME

Symbols for Traffic Control Layouts

Note: Sheets show a typical 4-lane divided roadway on a straight section. Similar controls would exist for a two-lane, two-way roadway. In the 4-lane divided examples, median and shoulder guardrail or longitudinal barriers are assumed to be in place (not shown). The primary objective is to show traffic control devices on a conceptual layout.

In all situations, lane barrier curbs exist instead of pavement markings shown. The detailed sheet shows a 3 lane inbound roadway with the barrier islands. Roadway islands need to separate lanes for security, control, barrier signal operations, and placement of signs, signals, and beam sensors. Under roadway drainage must be designed with the roadway islands.



— Symbol for barrier to deploy up from lane or across roadway.

— Red In-Roadway Lights that flash red when barrier is activated. For use when barriers do not contain lights at activation.

— Red zone quadrupole inductive loop detector (6’ X L’), with L being 6 feet beyond Stop line to 4 feet in advance of active barrier that provides input to the lane barrier signal operation.

— Queue quadrupole loop detector (6’ X 20’) about 80 feet inbound from checkpoint to provide lane barrier signal preemption capability for a preset time to clear the pocket of secured vehicles between the queue loop detector and signal Stop line.

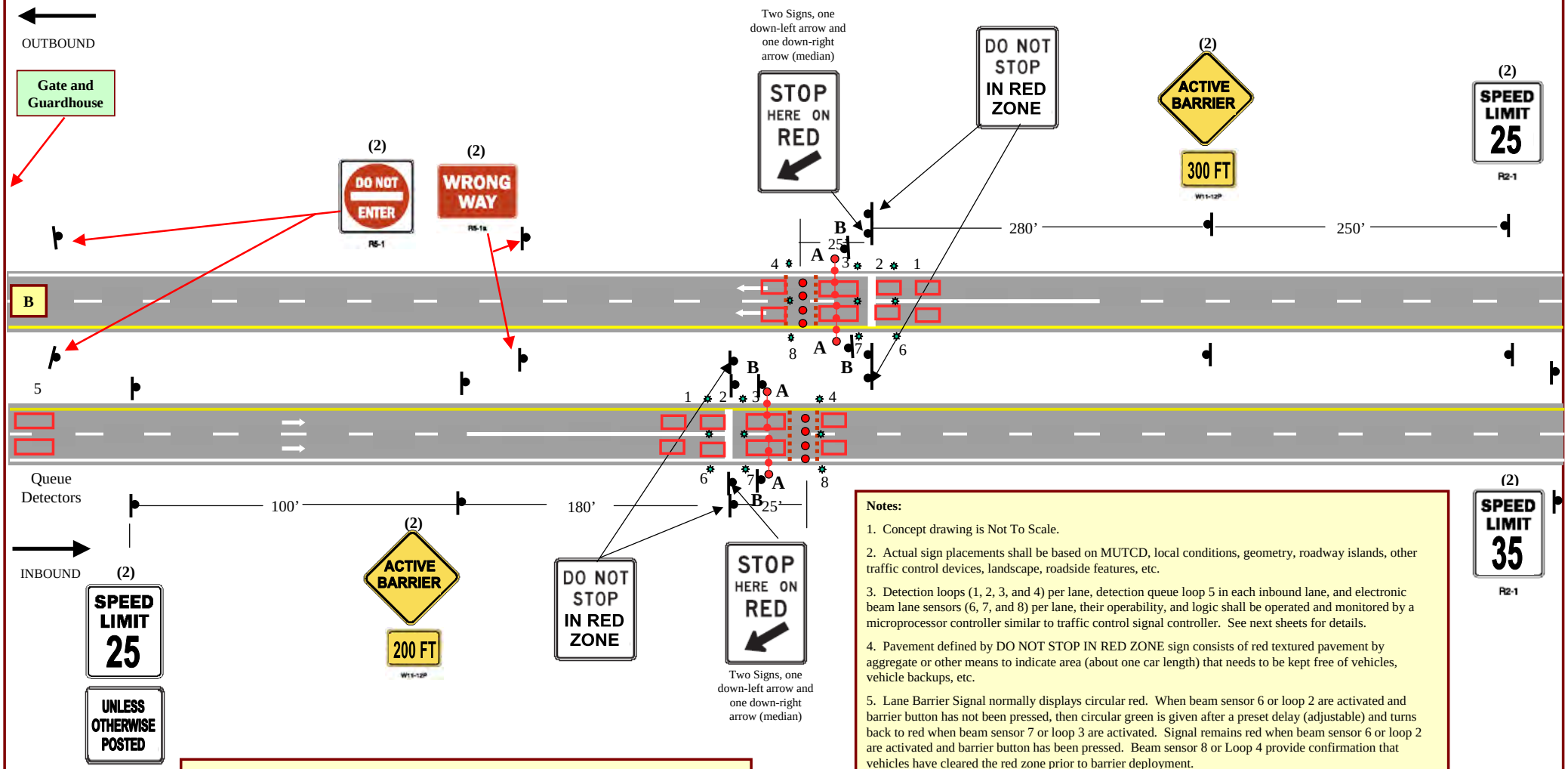
— One or more induction loop detectors that provide input to the microprocessor controller for lane barrier signal operations for the following functions: (1) One or more loops extending back from Stop line that detect presence of vehicles at or near Stop line, and (2) loop that provides input confirmation that vehicle has cleared the active barrier.

— Post mounted sign on shoulder, lane island, or in median.

— Traffic Gate Arm in the down horizontal position with flashing red lights when barrier deployment command has been initiated by guard pressing a button or by other automated means.

— Electronic beam lane sensors that provide input to the lane barrier signal operation for low metal-mass vehicles such as scooters, motorcycles, mopeds and bicycles.

SDDCTEA Recommended Concept Plan for Lane Barrier Signal Operation (Limited Real Estate Response Zone)



Notes:

1. Concept drawing is Not To Scale.
2. Actual sign placements shall be based on MUTCD, local conditions, geometry, roadway islands, other traffic control devices, landscape, roadside features, etc.
3. Detection loops (1, 2, 3, and 4) per lane, detection queue loop 5 in each inbound lane, and electronic beam lane sensors (6, 7, and 8) per lane, their operability, and logic shall be operated and monitored by a microprocessor controller similar to traffic control signal controller. See next sheets for details.
4. Pavement defined by DO NOT STOP IN RED ZONE sign consists of red textured pavement by aggregate or other means to indicate area (about one car length) that needs to be kept free of vehicles, vehicle backups, etc.
5. Lane Barrier Signal normally displays circular red. When beam sensor 6 or loop 2 are activated and barrier button has not been pressed, then circular green is given after a preset delay (adjustable) and turns back to red when beam sensor 7 or loop 3 are activated. Signal remains red when beam sensor 6 or loop 2 are activated and barrier button has been pressed. Beam sensor 8 or Loop 4 provide confirmation that vehicles have cleared the red zone prior to barrier deployment.
6. Detection loop 5 shall preempt the microprocessor controller for a preset time (adjustable) after it detects vehicle presence for 15 seconds (adjustable). The preset preemption time is the time required to clear the number of guard approved vehicles stopped between the Stop line and Queue loop detector 5.

B – Logic, Video, and other Detection methods and alarms are available to detect a vehicle traveling the wrong direction (in on out-bound side) with automatic traffic control devices response such as vertically aligned, red beacons (not shown above) start alternating flash on the DO NOT ENTER and WRONG WAY signs prior to outbound barriers being fully deployed from guard response.

SDDCTEA Recommended Concept Plan for Lane Barrier Signal Operation (Limited Real Estate Response Zone)

Basic Layout Operation:

1. Road users warned of **ACTIVE BARRIER** and distance (Advance Warning Sign).

2. Motorists come to complete stop at the **Lane Barrier Signal** that normally displays a circular red at 24" Thermoplastic Stop Line. Military Police shall periodically monitor motorists compliance with the lane barrier signal and stopping at Stop line on the circular red and prior to red zone. Red zone is red textured pavement or other acceptable means.

3. Motorists told **ONE VEHICLE PER GREEN** (Regulatory Sign below **Lane Barrier Signal**). If barrier button has not been pressed, the green signal is given when detection loops 1 or 2 detect presence for 2 seconds (adjustable) or lane sensor number 6 beam has been broken (with adjustable delay). Lane control signal reverts back to normally red after loop 3 is activated or after beam sensor 7 is broken. All times shall be adjustable.

4. Steady green LED lights at the guardhouse shall indicate the satisfactory operation of each individual loop detector and beam sensor. Similarly, LED light(s) shall flash red for the specific loop or beam sensor that fails or is offline with the microprocessor controller. The lane barrier signal operation shall safeguard innocent road users at the active barriers.

5. Upon guard activation of lane barrier, lane control signal shall "hold" circular red. Traffic Gate Arm is flashed and lowered after delay. Active barriers shall not deploy until after loops 3 and 4 are cleared of vehicles and after beam sensors 8 has cleared following an adjustable delay after beam sensor 7 activation. See beam sensor and loop table.

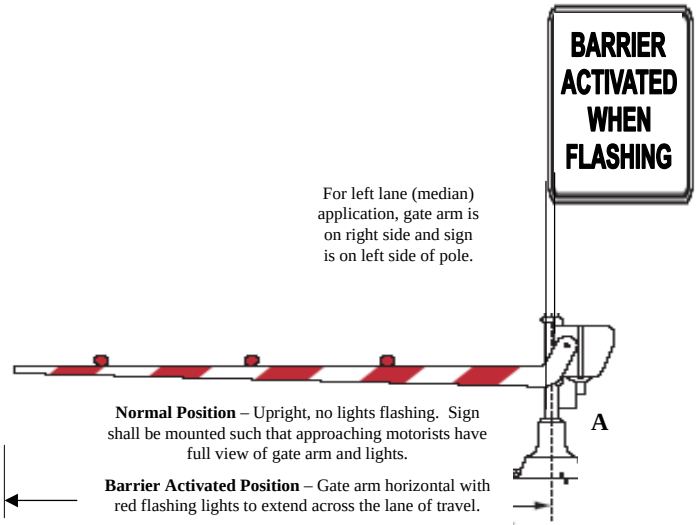
6. Use red color pavement (aggregate instead of paint) from 2 feet forward of the Stop line to 10 feet beyond the pop-up barrier. Install **DO NOT STOP IN RED ZONE** Sign (Regulatory).

7. The following controls prevent vehicles extending into red zone: (1) Normally **Red Lane Barrier Signal**, (2) Stop Line, (3) **DO NOT STOP IN RED ZONE**, and (4) Traffic Gate Arm location.

3-Section Programmed Visibility Signals to the applicable lane

B

Static Signs – Signs below signal shall be black legend on white background.



For left lane (median) application, gate arm is on right side and sign is on left side of pole.

Normal Position – Upright, no lights flashing. Sign shall be mounted such that approaching motorists have full view of gate arm and lights.

Barrier Activated Position – Gate arm horizontal with red flashing lights to extend across the lane of travel.

Operation shall be similar to Railroad Crossings except as modified herein.

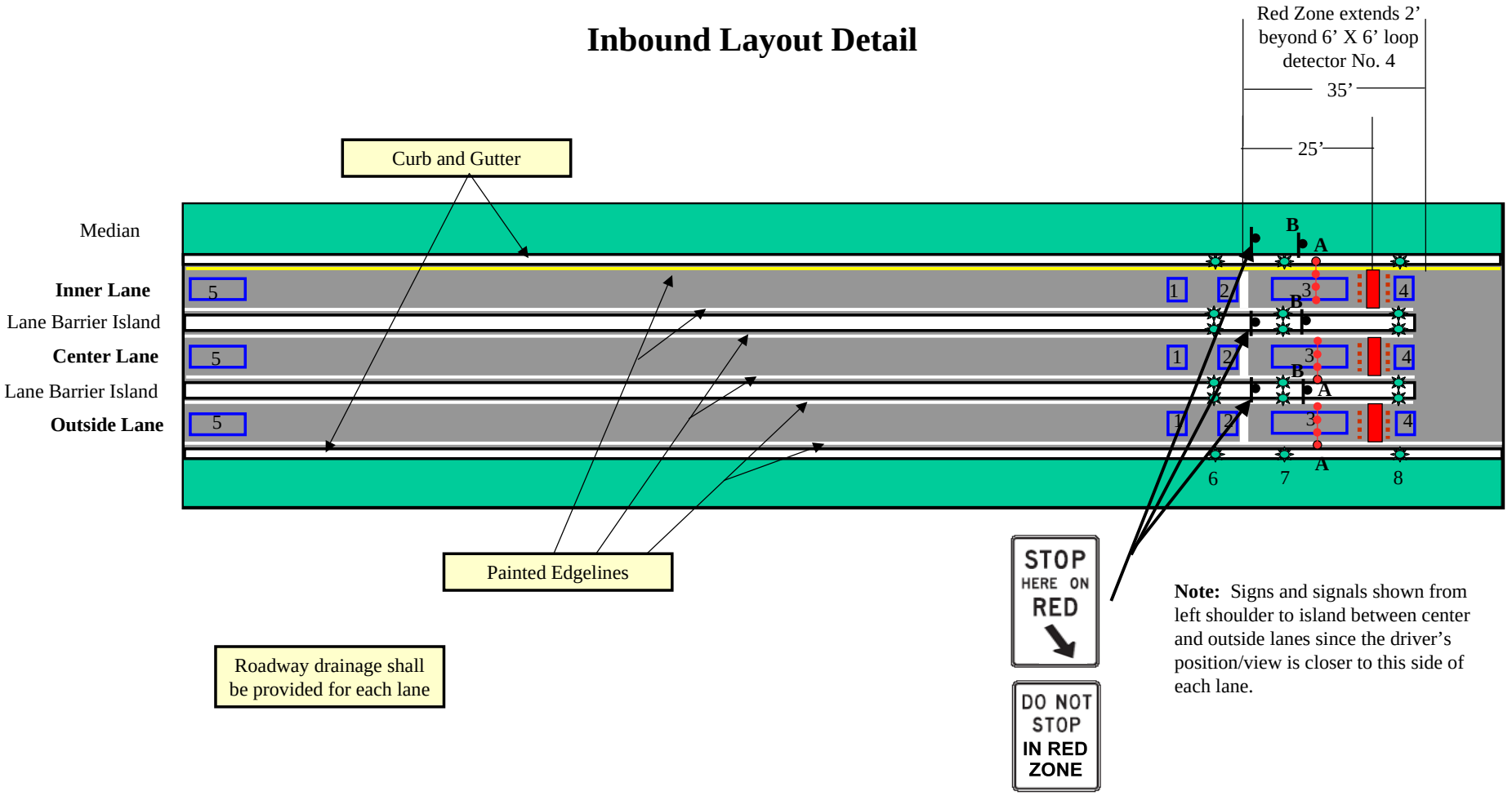
3-Section Programmed Visibility Signals to the applicable lane

B

Electronic Blank-out Signs – If electronic blank-out signs are used, then legend shall be white on a black or opaque background. The ONE VEHICLE PER GREEN sign shall illuminate message only when the circular red and green operate in the "metering for security" mode. If blank-out, the PROCEED WITH CAUTION ON FLASHING YELLOW sign shall be modified to PROCEED WITH CAUTION. The latter message shall illuminate only when the circular yellow is flashing. Circular yellow is used for (1) Queue Preemption to clear approved vehicles in a backup, (2) system start-up, (3) low-threat conditions, and (4) other situations per the Commanding Officer.

SDDCTEA Recommended Concept Plan for Lane Barrier Signal Operation (Limited Real Estate Response Zone)

Inbound Layout Detail



Note: Signs and signals shown from left shoulder to island between center and outside lanes since the driver's position/view is closer to this side of each lane.

SDDCTEA Recommended Concept Plan for Lane Barrier Signal Operation (Limited Real Estate Response Zone)

Barrier Activated Regard-less of Reason T=0	Signal Color Time After Activation, T = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9	SAFETY CONTROLS (separately for each lane)							Barrier Status
		Vehicle Presence on Loop (L) or Beam Sensor Broken (BB)			Automatic Gate		Barrier Lights		
		L – 1 & 2 or BB – 6	L – 3 or BB – 7	L – 4 or BB – 8	Lights	Arm	Pavement or Barrier	Post Mounted	
	Normal State	-	-	-	Dark	Upright	Dark	Dark	Down
X	Red (hold), 0	N	N	N	FR	Start Down	FR	R	Start Up
	Red (hold), 1	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 2	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 3	Y or N	N	N	FR	Down	FR	R	Up
X	Red (hold), 0	N	N	Y	FR	Upright	FR	R	Down
	Red (hold), 1	Y or N	N	N	FR	Start Down	FR	R	Start Up
	Red (hold), 2	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 3	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 4	Y or N	N	N	FR	Down	FR	R	UP
X	Red (hold), 0	N	Y	Y	FR	Upright	Dark	Dark	Down
	Red (hold), 1	Y or N	N	Y	FR	Upright	FR	R	Down
	Red (hold), 2	Y or N	N	N	FR	Start Down	FR	R	Start Up
	Red (hold), 3	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 4	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 5	Y or N	N	N	FR	Down	FR	R	Up
X	Red (hold), 0	Y	Y	Y or N	Dark	Upright	Dark	Dark	Down
	Red (hold), 1	Y or N	Y	Y or N	Dark	Upright	Dark	Dark	Down
	Red (hold), 2	Y or N	Y or N	Y	FR	Upright	Dark	Dark	Down
	Red (hold), 3	Y or N	N	Y	FR	Upright	FR	R	Down
	Red (hold), 4	Y or N	N	N	FR	Start Down	FR	R	Start Up
	Red (hold), 5	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 6	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 7	Y or N	N	N	FR	Down	FR	R	Up

Loop Detector and Signal Operation:

1. Loops 1, 2, 3, 4, and 5 shall operate in the presence mode. Loop No. 5 operates as a queue detector.

2. Barrier Close Suppression Logic – When guards initiate a barrier "Emergency Fast Operate" command to close the barriers, each barrier's "close" circuit will be suppressed until the Lane Control Signal in that barrier's lane is circular red and loop detectors 3 and 4 and break beam sensors 7 and 8 in that barrier's lane do not detect a vehicle. In the case of break beam 7, the logic will include an adjustable time delay after break beam 7 drops out to hold the suppression circuit for the time delay. This time delay will allow a small vehicle (e.g., a bicycle), which may not have been detected by the loops, to proceed safely beyond the barrier if the barrier "Emergency Fast Operate" command was initiated right after the bicycle passed break beam 7. See "Loop Detection and Beam Sensor Priority Control During Preemption" table next sheet.

3. The microprocessor controller shall meet NEMA standards for timing, preemption, and detector capabilities. The basic operation is lane metering for threat response of each lane separately (having barrier island) with two preemption capabilities:

a.) Normal Operation – Normal operation is circular red signal in each lane with a circular green given after an adjustable delay on loops 1 and 2 (typically just enough for the vehicle to come to a complete stop) or beam sensor 6 is broken. The signal reverts back to red when loop 3 detects presence or beam sensor 7 is broken.

b.) Barrier Deployment Preemption – Barrier deployment preemption is initiated by gatehouse or checkpoint guards pressing a button. Lane barrier signals are preempted for lane barrier deployment according to the logic shown in the table.

c.) Queue Preemption during Peak Demand Periods – Queue detector preemption is initiated after loop 5 detects constant presence for a preset adjustable time (for example 15 seconds). Lane barrier signal shall go to flashing yellow for a preset time to clear vehicles between loop 5 and the Stop line. After the preset (adjustable) preemption time expires, the signal shall time 4 seconds of steady circular yellow before going to circular red, and then to standard lane barrier signal metering operation.

d.) Barrier Deployment During Queue Preemption – If guards initiate the "Emergency Fast Operate" command during queue preemption, the lane control signal shall change from flashing "Yellow" to solid "Yellow" for 3 seconds and then to solid "Red" for 2 second. When lane barrier signal is red (hold), the sequence shall follow "Clear to Barrier Preemption" shown in the chart. The barrier "close" circuit shall be suppressed in accordance with the table and clearance sequence chart.

SDDCTEA Recommended Concept Plan for Lane Barrier Signal Operation (Limited Real Estate Response Zone)

Cont.

Barrier Activated Regard-less of Reason T=0	Signal Color Time After Activation, T = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9	SAFETY CONTROLS							Barrier Status
		Vehicle Presence on Loop (L) or Beam Sensor Broken (BB)			Automatic Gate		Barrier Lights		
		L – 1 & 2 or BB – 6	L – 3 or BB – 7	L – 4 or BB – 8	Lights	Arm	Pavement or Barrier	Post Mounted	
	Normal State	-	-	-	Dark	Upright	Dark	Dark	Down
X	Green, 0	Y	Y or N	Y or N	Dark	Upright	Dark	Dark	Down
	Red (hold), 1	Y or N	Y	Y or N	Dark	Upright	Dark	Dark	Down
	Red (hold), 2	Y or N	Y or N	Y	FR	Upright	Dark	Dark	Down
	Red (hold), 3	Y or N	N	Y	FR	Upright	FR	R	Down
	Red (hold), 4	Y or N	N	N	FR	Start Down	FR	R	Start Up
	Red (hold), 5	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 6	Y or N	N	N	FR	Going Down	FR	R	Going Up
	Red (hold), 7	Y or N	N	N	FR	Down	FR	R	Up

Cont.

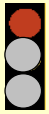
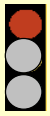
Loop Detector and Signal Operation:

4. System Safety Check prior to Barrier Deployment – The microprocessor controller shall check both operational status and detection status of L-3, L-4, BB-7, and BB-8 prior to its "Start Up" deployment. Under no circumstance will the lane barrier deploy when one or more detectors is (are) not operational, is (are) off line with system, or have a call.

Loop Detection and Beam Sensor Priority Control During Preemption

Loop	Break Beam Sensor	Likely Signature	Governs Microprocessor Timing/Clearance prior to Barrier Deployment
Presence on 3	Beam 7 broken	Motor vehicle	Loop Governs
No call on 3	Beam 7 broken	Bicycle, Moped, scooter, etc.	Beam Sensor 7 governs and times 3 seconds passage (adjustable) after beam 7 reconnects. Additional breaks of beam 7 resets passage time. If Beam 8 is not broken within 5 seconds (adjustable), the call is assumed false (bird, animal, leaf, weather, etc.) and the barrier deploys.
Presence on 4	Beam 8 broken	Motor Vehicle	Loop Governs
No call on 4	Beam 8 broken following Beam 7	Bicycle, Moped, scooter, etc.	Beam 8 Governs and times one second passage (adjustable) after each beam 8 reconnects. Additional breaks of beam 8 resets passage time.
No call on 4	Beam 8 broken following no breaks of Beam 7	False Call (bird, animal, leaf,weather, etc.)	Beam 8 Governs and times one second passage (adjustable) after each beam 8 reconnects. Additional breaks of beam 8 resets passage time of one second.

SDDCTEA Recommended Concept Plan for Lane Barrier Signal Operation (Limited Real Estate Response Zone)

Control	Normal Operation Signal Control by Detection System			Clear to Barrier Preemption	Clear 1 from Barrier Preemption	Clear 2 from Barrier Preemption	Clear to Queue Preemption	Clear 1 from Queue Preemption to Normal Ops	Clear 2 from Queue Preemption to Normal Ops	Clear 1 from Queue Preemption to Barrier Preempt	Clear 2 from Queue Preemption to Barrier Preempt
	No activation on Loops 1 and 2 or BB 6	Activation on Loops 1 and 2 or BB 6 and after set delay	Activation on Loop 3 or BB 7 regardless of activation on Loops 1 and 2 or BB6	Traffic held at Stop line. Activations on Loops 3 or 4 or BB 7 or 8 holds barrier from deployment.	Activation on Loops 1 and 2 or BB 6. Traffic held at Stop line.	Activation on Loops 1 and 2 or BB 6. Traffic held at Stop line.	Loop 5 activated by vehicle occupancy greater than preset time, say 15 seconds (adjustable)	Automatic 3 seconds yellow clearance	All red for 2 seconds before return to Normal Operation	Automatic 3 seconds yellow clearance	Traffic held at Stop line. Activations on Loops 3 or 4 or BB 7 or 8 holds barrier from deployment.
Signal				**(Red Hold)** 	**(Red Hold)** 	**(Red Hold)** 	**Flashing Yellow** 	**Steady Yellow** 		**Steady Yellow** 	**(Red Hold)** 
Signs  	**Static Signs or Electronic Blank-out**  			**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 	**Static Signs or Electronic Blank-out** 
Barrier Safety Controls	Gate Arm – Up Gate Lights – Dark Barrier Lights – Dark			Gate Arm – See Table Gate Lights – See Table Barrier Lights – See Table Barrier – See Table	Gate Arm – Down Gate Lights – FR Barrier Lights – FR Barrier – Going Down/retracting	Gate Arm – Going Up Gate Lights – FR Barrier Lights – Dark Barrier – Down/ retracted	Gate Arm – Up Gate Lights – Dark Barrier Lights – Dark Barrier – Down/ retracted	Gate Arm – Up Gate Lights – Dark Barrier Lights – Dark Barrier – Down/ retracted	Gate Arm – Up Gate Lights – Dark Barrier Lights – Dark Barrier – Down/ retracted	Gate Arm – Up Gate Lights – FR Barrier Lights – Dark Barrier – Down/ retracted	Gate Arm – Going Down Gate Lights – FR Barrier Lights – FR Barrier – See Table