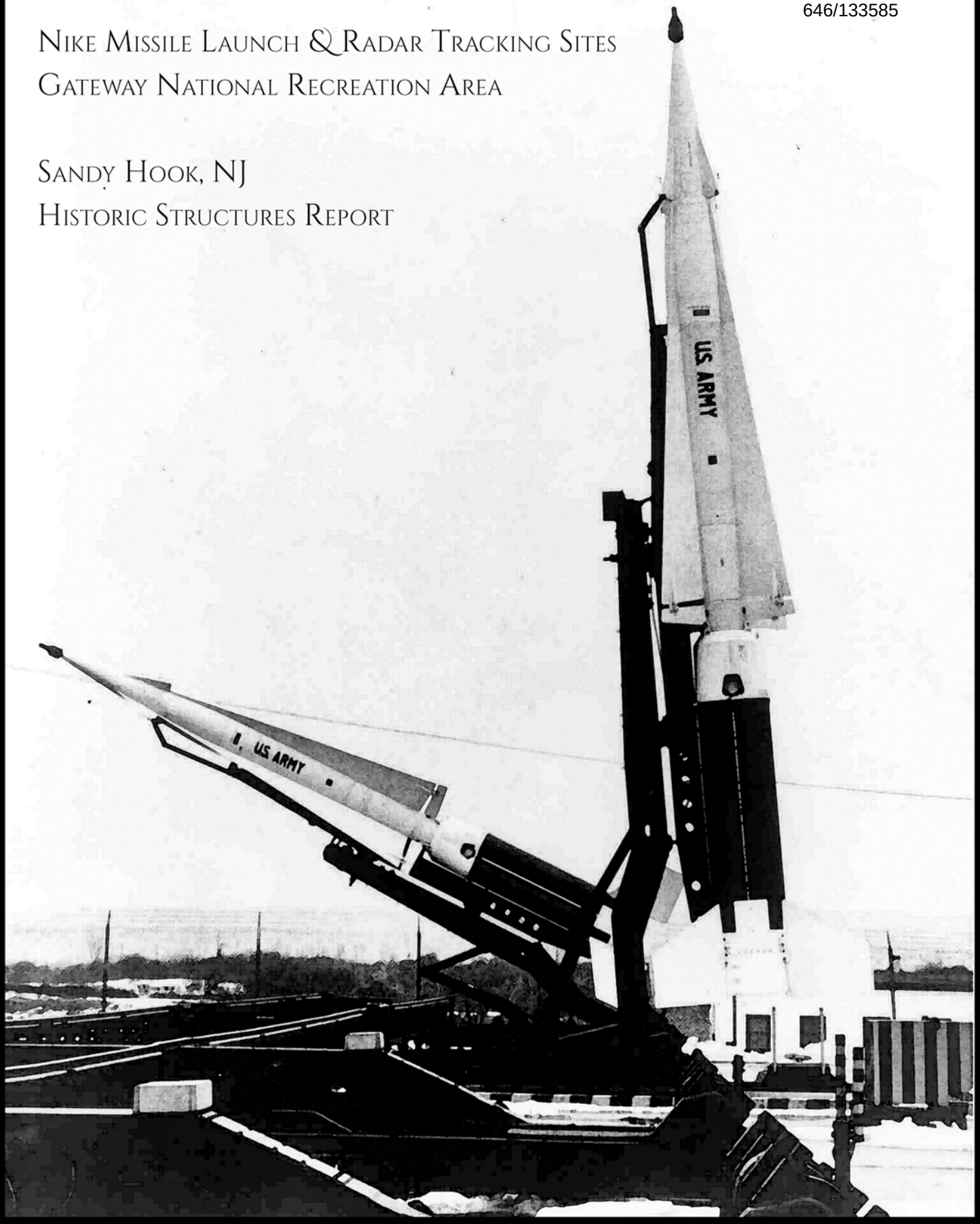
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Nike Missile Launch & Radar Tracking Sites
Gateway National Recreation Area

Sandy Hook, NJ
Historic Structures Report



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2.1 ALTERNATIVES FOR TREATMENT

Outlined below are alternatives for establishing a treatment philosophy for the Radar Tracking Site, including the associated advantages and disadvantages of each proposed alternative.

2.1.1 Radar Tracking Site

2.1.1.1 Control Area #1

Control Area #1 has been partially restored and includes a Generator House (410), various Radar Stands (420, 421, 422, 467, 469 and 472), a Sentry Box (423), the Interconnecting Corridor Building and Vans (409), a group of transformers and the HIPAR building (468), which is currently being used for winter storage, but will be available for other uses when the new maintenance facility is completed. Other features include roadways, a sidewalk with lighting fixtures between Control Area #1 and the Administrative Area, a former parking lot near the Administrative Area and a basketball court. It previously included a tool shed and there is a slab which is associated with the Equipment and Operations Building. No work is recommended at these slabs. The Ultimate Treatment proposed for Control Area #1 is to clean, restore and interpret the site, including the roadways, sidewalks, the parking lot and basketball court. One alternative for Control Area #1 is to stabilize the site and update the safety of the buildings. A second alternative is to leave the site in existing condition and perform no work. A final alternative is to completely restore a single radar stand including the radar antenna.

Ultimate Treatment for Control Area #1 is to clean, restore and interpret the site.

Advantages:

- This option realizes the full potential to interpret the buildings and stands for their significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the buildings and stands.
- This option allows for accessible buildings for visitors.
- Permits public use and education.

Disadvantages:

- This option will require extensive rehabilitation including new or restored windows, doors, ceilings and walls.
- The site will need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements including roof replacement and crack repair.
- This option will require accessibility improvements and remediation of some building code deficiencies to permit public use.
- This option will require the restoration of electrical power to the buildings and stands, along with providing new lighting fixtures and convenience power receptacles as needed for the program.
- At a minimum, heating will need to be provided for the buildings. The historic components of the air conditioning systems will remain in place for interpretation, however they will be non-functioning as a full upgrade will not be required since the radar equipment will also be non-functioning/in place for interpretation.

- This option will also require modifications to existing plumbing systems as needed to meet the interpretive program.

Alternative Treatment No. 1: Stabilize the site and update the safety of the buildings.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.

Disadvantages:

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.

No. 409: Inter-Connecting Corridor and Control Vans

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair stepped crack in CMU at southeast corner.
- Replace broken units in northeast corner.
- Reset CMU at rusting lintel on the north end.
- Repair large cracks and replace missing mortar on the west side of the north elevation.
- Fill penetrations and replace fasteners and anchors that have been abandoned.
- Repair areas that have been infilled and ailing patches.

Doors

- Stabilize and paint all doors.

Windows

- Repair or replace windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.
- Replace flashing and soffits.

Structural

- Differential settlement:
  - Level 1: Repoint cracks in walls; remove existing vinyl tile flooring to apply a leveling compound to settled slab area to create level floor surface.
  - Level 2: Underpin existing foundation to prevent further settlement; repair as described in Level 1.

Building Systems

- Remove remnants of electrical distribution equipment.

Scope for Interior:

Walls

- Repair interior cracks in CMU, especially in Room 101 where cracks are severe.
- Repair damaged CMU near windows at east wall in Room 103.
- Remove plasterboard walls.

Ceiling

- Remove plasterboard and acoustical ceilings in conjunction with roof replacement to prevent further deterioration.

Flooring

- Remove debris and clean concrete floors.
- Remove deteriorated vinyl asbestos tile, and clean floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 410: Generator House

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair vertical cracks and areas of spalling and deterioration on the north and west elevations.
- Repair large horizontal crack and broken, spalled or deteriorated CMU on east elevation.
- Check for soundness of infilled penetrations near foundation and repair if necessary.
- Repair deteriorating mortar in CMU on south elevation.

Doors

- Stabilize and paint all doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Flashing and Sheet Metal

- Stabilize downspouts to protect building from water damage.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- At vertical transition and crack, rout crack and install sealant joint with backer rod.
- At rear dividing walls, replace heavily deteriorated blocks and repoint open joints. Assume 20% replacement and 50% repointing.

Building Systems

- Remove remnants of electrical distribution equipment.

Other

- Replace broken light fixture on east elevation.

Scope for Interior:

Walls

- Remove interior particle board walls.
- Repair interior CMU walls where necessary.

Ceiling

- Remove deteriorated particle board ceilings and vapor barrier in conjunction with roof replacement to prevent further deterioration.

Flooring

- Remove debris and clean concrete floor.
- Repair/clean deteriorated rusted floor trenches.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

Nos. 420, 421, 422, 467, 469 (Foundation), 472: Radar Stands

Overall

- Remove vegetation and biological growth throughout structures.
- Stabilize or replace railings.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- Remove concrete encasement around steel column bases. Assume 10% (100% for No. 467) reinforcement of steel columns. Clean all corroded steel and coat all steel with zinc-rich rust inhibitive coating. Replace concrete encasement.
- At cracked concrete columns, remove spalls, clean corroded reinforcing steel, and coat with zinc-rich rust inhibitive coating. Repair spalls with concrete repair mortar.
- At underside of platforms, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating.
- Upper Platform of 467:

    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- Upper Platform of HIPAR Target Tracking Radar 473:
    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- For Stand 473, clean all corroded steel and coat all steel with a zinc-rich rust inhibitive coating. Assume 100% clean and coat, exclusive of corrugated wind screen.

Building Systems

- Remove remnants of electrical distribution equipment.

No. 423: Sentry Box

Overall

- Remove minor vegetation and biological growth.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair minor CMU spalling on south and west elevations.
- Repair cracks on southwest corner and south side of concrete slab.
- Stabilize concrete slab on west and east sides where it is pulling away from building.

Doors

- Repair door near bottom rail and touch up paint.

Windows

- Repair windows, including broken pane on east window, and install vent to allow for air circulation.

Building Systems

- Remove remnants of electrical distribution equipment.

Scope for Interior:

Walls

- Repair minor holes and penetrations on interior CMU walls.
- Clean biological staining on walls.

Flooring

- Clean biological staining on concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 452: Slab for the Equipment and Operations Building

Overall

- Remove vegetation and biological growth throughout slab.

Number 455: Tool Shed *(Missing)*

Overall

- Remove vegetation and biological growth throughout slab.

No. 468: HIPAR Building

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair stepped cracks and unit cracks at corners and openings of CMU.
- Fill abandoned penetrations and repair broken or missing units at the loading dock.

- Stabilize significant displacement in corners and restore deteriorated mortar throughout.

Doors

- Repair or replace exterior doors and trim on north, south and west elevations.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Flashing and Sheet Metal

- Replace flashing.
- Stabilize or replace downspouts to protect building from water damage.

Building Systems

- Remove remnants of electrical distribution equipment.

Structural

- Repoint entire structure.
- Replace missing joist extension and missing roof. Evaluate existing joists for corrosion and repair as required.
- Repoint step cracking and replace CMU where crack extends through unit.
- Replace any damaged CMU at front entrance.

Scope for Interior:

Walls

- Remove interior plasterboard walls.
- Repair interior CMU walls where necessary.
- Remove deteriorated wood baseboards.

Ceiling

- Repair rusted metal ceiling.

Flooring

- Remove debris and clean concrete floor.
- Remove vinyl asbestos tile and clean.

Doors

- Repair or replace interior doors.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

Transformers Pen

Overall

- Remove vegetation and biological growth throughout entire area.

Building Systems

- Remove deteriorated electrical distribution panels, transformers and related equipment.

Alternative Treatment No. 2: Leave the site in existing condition and perform no work.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The buildings will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option does not allow for interpretation of the buildings.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

Alternative Treatment No. 3: Fully restore one radar stand, including the radar antenna.

Advantages:

- This option realizes the potential to interpret one of the stands for its significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the stand.
- This option will demonstrate how a Radar Detector was used during the period of significance.

Disadvantages:

- The stand will need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements.
- This option does not allow for full interpretation of the other stands.
- This option does not address any observed structural deficiencies of the other stands.
- The buildings and stands that are not restored will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the rest of the stands at a later date.
- This option will require electrical power to be restored to the chosen stand if the desire is to operate it as an operational installation.

Nos. 420, 421, 422, 467, 469 (Foundation), 472: Radar Stands *(One stand to be restored)*

Scope of Work:

Overall

- Remove biological growth and vegetation surrounding radar stand.
- Restore or replace rusted metal.
- Replace dilapidated railing and chain-link fence.
- Strip and paint stand including new ladder.
- Replace ladder.

Structural

- At underside of platforms, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating.
- Remove concrete encasement around steel column bases. Assume 100% reinforcement of steel columns. Clean all corroded steel and coat all steel with zinc-rich rust inhibitive coating. Replace concrete encasement.
- At cracked concrete columns, remove spalls, clean corroded reinforcing steel. Assume 100% spliced reinforcing of steel required. Coat all exposed steel with zinc-rich rust inhibitive coating. Repair spalls with concrete repair mortar.
- Upper Platform:
    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- Regrade area around stand where necessary to reinstate sufficient bearing for foundations.

Building Systems

- Remove remnants of existing electrical wiring. Existing disconnect switches may be removed or cleaned and painted to remain as part of the interpretation.

2.1.1.2 Control Area #2

Control Area #2 includes the Interconnecting Corridor Building (411), a Sentry Box (413), the Generator House (414), four Radar Stands (417, 418, 419 and 473) and the Equipment and Operations Building (454). Ultimate treatment for Control Area #2 is to retain the buildings (shells), making them safe, and possibly repairing some of them to potentially interpret the site as part of the larger story. One alternative for Control Area #2 is to restore and interpret all of the buildings. A second alternative is to stabilize the buildings and fully restore one stand, including the radar antenna. A final alternative is to leave the site in its existing condition and perform no work. No work is recommended for the Pedestal Radar Tower (453).

Ultimate Treatment: Stabilize the buildings and make them flow through (repair masonry and roofs, remove doors and windows, and leave shells as "ruins" for interpretation or use as camping shelters). Ultimate Treatment for Building 414 is to stabilize; mothball and update the safety of the building.

Advantages (Stabilize/Flow Through):

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- This option allows for water to flow through during storms to minimize water damage to the structure.
- By retaining, stabilizing the buildings, and making them flow through, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.
- Permits public use and education.
- No significant construction costs would be incurred.

Advantages (Stabilize Building 414):

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- By retaining, cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages (Stabilize/Flow Through):

- This option does not allow for full interpretation of the buildings.
- Does not address any observed building code or accessibility deficiencies.
- The site may need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements including roof replacement and crack repair.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

Disadvantages (Stabilize Building 414):

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.

Alternative Treatment No. 1: Restore and interpret buildings.

Advantages:

- This option realizes the full potential to interpret the buildings for their significance within a NIKE Defense Site during the Cold War.
- In combination with Control Area #1, provides the opportunity to fully interpret NY-56's rare quality as a double-site.
- This option improves the stability and safety of the buildings.
- Permits public use and education.

Disadvantages:

- The site may need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements including roof replacement and crack repair.
- This option would likely require accessibility upgrades to facilitate interpretation.
- This option will require the restoration of electrical power to the buildings and stands, along with providing new lighting fixtures and convenience power receptacles as needed for the program. The remnants of the existing electrical distribution system will need to be removed.
- At a minimum, heating will need to be provided for the building, although a full HVAC system may be desired.

No. 411: Interconnecting Corridor

Scope for Exterior:

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Repair associated spalls, stepped cracks and holes in CMU.
- Repair mechanical, electrical and plumbing penetrations throughout CMU.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace all doors and associated elements including frames and lintels.
- Treat all wood surfaces with a wood preservative.
- Prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Restore all windows including rusted sills, splitting casing, missing glass, damaged glazing beads and open joints.
- Replace windows that are missing or that cannot be restored.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Install new windows following acceptable standard practice.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- Sand wood to a smooth surface, prime and paint all windows.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement.
- Replace edge flashing and soffits.
- Restore wood portions that are weathered and have abandoned penetrations.

Flashing and Sheet Metal

- Replace all gutters and downspouts.

Building Systems

- Restore electrical power to the building.

Scope for Interior:

Walls

- Repair cracks and broken corners on interior CMU, especially in the southeast corner of Room 103.
- Clean, patch and paint CMU walls.
- Replace all interior plasterboard walls as they are in poor condition with holes, cracks and open joints (especially in the front entry and back room).

Ceiling

- Replace all plasterboard and acoustical ceilings.

Flooring

- Remove debris and clean floors throughout.
- Replace vinyl asbestos tile floors with new tile, laminate flooring or concrete.

Doors

- Restore doors and door casings in Room 103 where they are loose, deteriorating or rotting.
- Restore transoms that have open joints.
- Restore rollup doors in Room 105 as the rails are rusting and the casing is badly rotting.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 413: Sentry Box

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair horizontal and stepped cracks in CMU (north elevation).
- Repair CMU that is deteriorating due to the installation of plywood (south and west elevations).
- Strip and repaint CMU throughout.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace door on east elevation.

- Restore trim that is exhibiting rotting wood and peeling paint.
- Replace missing threshold and rusted hinges.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frame to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace hardware in kind.

Windows

- Restore rusted window frames, replace broken glass and strip and repaint all windows.
- Replace missing window trim on the north and west windows.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Mechanically remove rust from metal window frames, particularly on the louvered windows.
- Install new sashes following acceptable standard practice.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement including flashing.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.
- Replace roof 100%, including sill plate, joists, sheathing, and rim board.

Building Systems

- Restore electrical power to the building.

Other

- Replace light fixture on the east elevation.

Scope for Interior:

Walls

- Remove asbestos particle board and replace with new interior wall coverings or leave CMU exposed.
- Repair damaged CMU.
- Clean, patch and paint CMU walls.

Ceiling

- Replace plasterboard ceilings in conjunction with roof replacement.

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

Other

- Replace light fixture in ceiling.

No. 414: Generator House

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Masonry

- Repair minor cracks on north elevation.
- Repair horizontal cracks, stepped cracks, minor spalling and deterioration on east elevation.
- Strip paint, clean biological staining (particularly near foundation on east elevation) and repaint CMU.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace missing door on north elevation, including trim.
- Replace broken door on the south elevation, including trim.

- Replace all other exterior doors, including trim.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Replace missing glass in each window.
- Restore rotting and warping wood trim and sashes, and strip and repaint windows (including sills which are otherwise in good condition).
- Restore or replace all exterior louvers on the structure.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Install new sashes following acceptable standard practice.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement.
- Replace wood bed moulding board on all elevations.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.

Building Systems

- Restore electrical power to the building.

Scope for Interior:

Walls

- Replace all interior plasterboard walls and repair plywood walls where necessary.

- Restore wood baseboards where necessary.

Ceiling

- Replace plasterboard and acoustical ceilings.

Flooring

- Remove debris from metal trenches in floor and replace missing trench covers.
- Repair cracks in concrete floor and clean concrete.
- Replace vinyl asbestos tile with new tile, laminate flooring or concrete.

Windows

- Restore rotting interior window stools.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

Nos. 417, 418, 419, 473: Radar Stands

Scope of Work:

Overall

- Remove biological growth and vegetation surrounding Radar Stands.
- Repair rusted metal on Stand 417.
- Replace dilapidated railing and chain-link fence on Stands 417 and 418.
- Strip and paint Stand 417, 418, 419 and 473.
- Replace ladders on Stands 417, 418 and 419.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating on Stands 417, 418 and 419.
- For Stands 417, 418 and 419, remove concrete encasement around steel column bases. Assume 10% reinforcement of steel columns. Clean all corroded steel and coat all steel with zinc-rich rust inhibitive coating. Replace concrete encasement.
- At underside of platform, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating on Stands 417, 418 and 419.
- At cracked concrete column on Stand 418, remove spall, clean corroded reinforcing steel, and coat with zinc-rich rust inhibitive coating. Repair spall with concrete repair mortar.

Structural Scope for HIPAR Target Tracking Radar 473:

- Access top of platform to evaluate the condition of the upper platform.
- Clean all corroded steel and coat with a zinc-rich rust inhibitive coating. Assume 100% clean and coat, exclusive of corrugated wind screen.
- Upper Platform:
    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- Regrade area to reinstate sufficient bearing for foundations.
- At cracked concrete column base, remove spall, clean corroded reinforcing steel, and coat with a zinc-rich rust inhibitive coating. Repair spall with concrete repair mortar.

Building Systems

- Restore electrical power to the Stands.

No. 453: Pedestal Radar Tower

Scope of Work:

- Remove vegetation and biological growth throughout.

No. 454: Equipment and Operations Building

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Remove later addition on west side of structure as it is severely dilapidated and not associated with the period of significance.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair large vertical crack in CMU on south elevation
- Repair vertical crack at north door.
- Repair stepped cracks at the window heads.
- Repair major cracks and displacement in CMU addition as it is near collapse.
- Fill holes throughout the exterior of the building.

- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Restore or replace all exterior doors as they are either missing or badly rotting.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Restore or replace all windows as they are either missing or badly rotting.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Install new sashes following acceptable standard practice.

Roofing

- Replace deteriorating roof and all elements associated with roof replacement, including soffits, fascia and edge flashing; fascia is rotting and badly weathered in several places and edge flashing is rusted and missing in several places.

Building Systems

- Restore electrical power to the building.

Scope for Interior:

Walls

- Repair large interior vertical crack in CMU on south side and large vertical crack at the north door.
- Repair holes and stepped cracks at window heads throughout.
- Repair interior cracks in CMU.
- Clean, patch and paint CMU walls.

Ceiling

- Replace plasterboard ceilings in conjunction with roof replacement.

Flooring

- Remove debris from vinyl asbestos tile floor.
- Replace vinyl asbestos tile floors with new tile, laminate flooring or concrete.

Doors

- Restore or replace all interior doors; the north door is missing and frame is rotting, and the casing on the west door is almost entirely missing.
- Repair lintel at west door.

Windows

- Restore or replace interior trim, as it is almost entirely missing and the remaining trim is splitting or loose.
- Repair gouges and rusting dowels where necessary.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

Alternative Treatment No. 2: Fully restore one radar stand, including the radar detector.

Advantages:

- This option realizes the potential to interpret one stand for its significance with the NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the stand.
- Permits public use and education.

Disadvantages:

- The stand will need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements.
- This option does not allow for interpretation of the other stands.
- This option does not address any observed structural deficiencies of the other stands.
- The buildings and stands that are not restored will continue to deteriorate and may become a safety hazard. Ultimately, they may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.
- This option will require electrical power to be restored to the chosen stand if the desire is to operate it as an operational installation.

Nos. 417, 418, 419, 473: Radar Stands *(choose one to restore)*

Scope of Work:

Overall

- Remove biological growth and vegetation surrounding radar stand.
- Restore or replace rusted metal.
- Replace dilapidated railing and chain-link fence.
- Strip and paint stand.
- Replace ladder.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- Remove concrete encasement around steel column bases. Assume 10% reinforcement of steel columns. Clean all corroded steel and coat all steel with zinc-rich rust inhibitive coating. Replace concrete encasement.
- At underside of platform, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating.
- At cracked concrete columns, remove spall, clean corroded reinforcing steel, and coat with zinc-rich rust inhibitive coating. Repair spall with concrete repair mortar.

Building Systems

- Remove remnants of existing electrical wiring. Existing disconnect switches may be removed or cleaned and painted to remain as part of the interpretation.

Alternative Treatment No. 3: Leave the site in existing condition and perform no work.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The buildings will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option does not allow for full interpretation of the buildings.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

Alternative Treatment No. 4: Stabilize the site; mothball and update the safety of the buildings.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- By retaining, cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the buildings.
- Does not address any observed building code or accessibility deficiencies.

No. 411: Interconnecting Corridor

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Remove abandoned anchors and repair associated spalls, stepped cracks and holes in CMU.
- Repair mechanical, electrical and plumbing penetrations throughout CMU.

Doors

- Stabilize and paint all doors.

Windows

- Repair or replace windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Walls

- Remove plasterboard walls.

Ceiling

- Remove plasterboard ceilings in conjunction with roof replacement to prevent further deterioration.

Flooring

- Remove debris and deteriorated vinyl asbestos tile, and clean floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 413: Sentry Box

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair horizontal and stepped cracks in CMU (north elevation).
- Repair CMU that is deteriorating due to the installation of plywood (south and west elevations).

Door

- Replace and paint door.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.
- Replace roof 100%, including sill plate, joists, sheathing, and rim board.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Walls

- Remove plasterboard walls with exposed CMU walls to remain.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 414: Generator House

Overall

- Remove vegetation and biological growth throughout entire structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair minor cracks on north elevation.
- Repair horizontal cracks, stepped cracks, minor spalling and deterioration on east elevation.

Doors

- Stabilize and paint door.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Ceiling

- Remove deteriorated ceiling in conjunction with roof replacement.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

Nos. 417, 418, 419, 473: Radar Stands

Overall

- Remove vegetation and debris around entire structure.
- Stabilize or replace railings.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- Remove concrete encasement around steel column bases. Assume 10% reinforcement of steel columns. Clean all corroded steel and coat all steel with zinc-rich rust inhibitive coating. Replace concrete encasement.
- At cracked concrete columns, remove spalls, clean corroded reinforcing steel, and coat with zinc-rich rust inhibitive coating. Repair spalls with concrete repair mortar.
- At underside of platforms, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating.
- For Stand 473, clean all corroded steel and coat all steel with a zinc-rich rust inhibitive coating. Assume 100% clean and coat, exclusive of corrugated wind screen.
- Upper Platform of HIPAR Target Tracking Radar 473:
    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- Regrade area around HIPAR Target Tracking Radar Stand 473 to reinstate sufficient bearing for foundations.

Building Systems

- Remove remnants of electrical distribution equipment.

No. 453: Pedestal Radar Tower

Overall

- Remove vegetation and debris around pedestal.

No. 454: Equipment and Operations Building

Overall

- Remove vegetation and debris around structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Remove later addition on west side of structure as it is severely dilapidated and not associated with the period of significance.

Exterior Walls (Masonry)

- Repair large vertical crack in CMU on south elevation, vertical crack at north door and stepped cracks at the window heads.
- Fill holes throughout the exterior of the building.

Doors

- Stabilize and paint doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Walls:

- Repair large interior vertical crack in CMU on south side and large vertical crack at the north door.
- Repair holes and stepped cracks at window heads throughout.

Ceiling

- Remove what is left of deteriorated ceiling in conjunction with roof replacement.

Flooring

- Remove debris and deteriorated vinyl asbestos tile, and clean floors.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

2.1.1.3 Administrative Area

This area consists of two Barracks (402 and 403), a Latrine (406), a Central Heating Plant (407), and a Telephone Booth. There were originally four barracks, but two were removed and only the foundations remain (404 and 405). Ultimate treatment for the Administrative Area is to partially restore and interpret the site and adaptively reuse the resources for camping. One alternative for the Administrative Area is to clean, stabilize and improve the safety of the buildings. A second alternative is to leave the site in existing condition and perform no work.

Ultimate Treatment: Restore and adaptively reuse the site for camping

Advantages:

- Permits public and recreational use.
- Allows visitors to interpret the buildings for their significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the buildings.

Disadvantages:

- The buildings will need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements.
- This option will require accessibility improvements and remediation of some building code deficiencies to permit public use.
- This option will require the restoration of electrical power to the buildings, along with providing new lighting fixtures and convenience power receptacles as needed for the program.
- At a minimum, heating will need to be provided for each building, although a full HVAC system may be desired.
- Water and sanitary sewer service will need to be re-established to the building. New plumbing fixtures will be required to meet the program needs.
- A similar approach can be taken to distribute heat from the hot water boiler in the Central Heating Plant, or independent electric heating can be provided at each building and the Central Heating Plant can be interpreted with a mock installation.

Alternative Treatment No. 1: Stabilize the site and update the safety of the buildings.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- By retaining and stabilizing the buildings, they can be partially interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the buildings.

- This option does not address any observed building code or accessibility deficiencies.

No. 402: Barrack

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Doors

- Stabilize and paint all doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Building Systems

- Remove remnants of existing electrical wiring.

Scope for Interior:

Ceiling

- Remove plasterboard ceilings in conjunction with roof replacement to prevent further deterioration.

Flooring

- Remove debris and vinyl asbestos floor tile and clean floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 403: Barrack

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Doors

- Stabilize and paint all doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all elements associated with roof replacement to preserve the building for several decades.

Building Systems

- Remove remnants of existing electrical wiring.

Scope for Interior:

Walls

- Remove all particle board and insulation on interior walls.

Ceiling

- Remove all particle board and insulation on ceiling.

Flooring

- Remove vinyl asbestos tile flooring and clean.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 406: Latrine

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Doors

- Stabilize and paint doors on north, south and west elevations.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Repair roof where necessary.

Flashing and Sheet Metal

- Replace rusted flashing throughout the structure where necessary.

Building Systems

- Remove remnants of existing electrical wiring.

Scope for Interior:

Walls

- Remove plasterboard partitions and tile walls.

Ceiling

- Remove plasterboard ceilings in conjunction with roof replacement to prevent further deterioration.

Flooring

- Remove debris and clean concrete floor.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 407: Central Heating Plant

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Doors

- Replace and paint door.

Windows

- Repair windows and install vent to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- Corrosion of cladding is minor but may require replacement. Cut and patch areas of rust, particularly around the foundation, rooflines and fenestrations. Assume 10% replacement required.
- Inspect interior steel framing for condition. Assume 25% of interior elements will need to be cleaned of corrosion and coated with a rust-inhibitive coating.

Building Systems

- Remove remnants of existing electrical wiring. 09

Scope for Interior:

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

Telephone Booth

Overall

- Remove vegetation and biological growth throughout entire structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Stabilize door.
- Replace glass/plastic panels throughout structure.

Scope for Interior:

- Remove debris and vegetation, and clean concrete floor.

Alternative Treatment No. 2: Leave the site in existing condition and perform no work.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The buildings will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option does not allow for full interpretation of the buildings.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

2.1.2 Missile Launch Site

Outlined below are alternatives for establishing a treatment philosophy for the Missile Launch Site, including the associated advantages and disadvantages of each proposed alternative.

2.1.2.1 Missile Launch

The Missile Launch Area includes the Underground Missile Storage (425-428), a Generator Building (429), a non-contributing Enclosure (429 A) and a concrete slab (448). The Ultimate Treatment proposed for the Missile Range Launching Area is to clean, restore and interpret the site. Underground Storage 428 will be restored for interpretation, while 425, 426 and 427 will be filled in. If funding permits, the site will be restored to its appearance during the period of significance. One alternative for the Launching Area is to stabilize the site and update the safety of the buildings. A second alternative is to leave the site in existing condition and perform no work.

Ultimate Treatment: Clean, restore and interpret site; restore Underground Storage 428 and fill in the others. (The interior of Generator Building 429 will not be restored as it is subject to flooding).

Advantages:

- This option realizes the full potential to interpret the site for its significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the site.
- Permits public use and education.

Disadvantages:

- The site may need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements, including the construction of an additional stair for access to Underground Storage 428.
- Re-establish electrical service to Underground Storage 428.
- Provide new interior lighting fixtures and convenience power as needed for the interpretative program.
- Provide HVAC systems as needed for the interpretative program. At a minimum, heating and ventilation are anticipated for Underground Storage 428, although a full system including air conditioning may be desired.
- Re-establish active sump pumps.

Alternative Treatment No. 1: Retain, stabilize and update the safety of the site.

Advantages:

- This option preserves the site for future restoration.
- This option improves the stability and safety of the site.
- By retaining and stabilizing the site, it can be partially interpreted as part of the larger story of the significance of the NIKE site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the site.
- This option does not address any observed building code or accessibility deficiencies.
- It may be desired to establish electrical service for minimal lighting and sump pumps in order to allow for ease of maintenance of the structures.
- This option will require the removal of the deteriorated remnants of the electrical, HVAC and plumbing systems.

Nos. 425-428: Underground Missile Storage

Overall

- Remove vegetation and biological growth throughout entire structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Stabilize and paint all doors.

Scope for Interior:

Walls

- Remove perforated acoustic wall panels.

Ceiling

- Remove perforated acoustic ceiling panels.

Doors

- Remove all doors, frames and hardware. Remove lift doors and man doors as they are disintegrating and not operable.

Other

- Remove debris and drain elevator pit.
- Restore angles on rusted elevator pit edges.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 429: Generator Building

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Repair chain-link enclosure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Doors

- Stabilize and paint all doors.

Windows

- Repair or replace windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.

Scope for Interior:

Ceiling

- Remove plasterboard and acoustical ceilings in conjunction with roof replacement to prevent further deterioration.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 429 A: Enclosure

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Exterior Walls (Masonry)

- Repair minor cracks in CMU joints, remove abandoned anchors and patch CMU.

Scope for Interior:

Flooring

- Remove debris from concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

Alternative Treatment No. 2: Leave the site in existing condition and perform no work.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The site will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option does not allow for full interpretation of the structures.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

2.1.2.2 Missile Ready

The Missile Ready Area includes the Flammable Materials Storehouse (447), the Missile Assembly and Test Building (449), two non-contributing storage buildings, and the Warhead Building (450). The Ultimate Treatment proposed for the Missile Ready Area is to clean, stabilize and update the safety of the buildings. The Park will continue to use the Missile Assembly and Test Building and the Warhead Building. If funding permits, the buildings are to be made resilient with a flow-through plan to protect from water damage and deterioration. One alternative for the Missile Ready Area is to restore and interpret all of the buildings. A second alternative is to leave the site in existing condition and perform no work.

Ultimate Treatment: Clean, stabilize and make the buildings resilient and flow through.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- This option allows for the Park to continue to use the buildings.
- By cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.
- This option would include the removal of the deteriorated remnants of the HVAC, plumbing and electrical systems.

Alternative Treatment No. 1: Restore and interpret buildings.

Advantages:

- This option realizes the full potential to interpret the buildings for their significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the buildings.
- Permits public use and education.

Disadvantages:

- The buildings may need to be cleaned and remediation of hazardous materials may be required.
- Various building code and accessibility deficiencies may need to be addressed.
- This option may require structural improvements, including roof replacement and crack repair.
- This option will require the electrical service to be re-established. New lighting fixtures, convenience power, plumbing and HVAC systems will be required as needed for the interpretative program.

No. 447: Flammable Materials Storehouse

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Door

- Restore door.
- Replace hardware in kind.
- Strip and paint threshold.
- Scrape paint from frame and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frame to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new door following acceptable standard practice.

Roofing

- Replace deteriorating roof.
- Replace mesh under roof overhang.
- Replace metal and wood bed moulding board.

Building Systems

- Restore electrical power to the building.

Structural

- Replace roof 25%, including sill plate, joists, sheathing, and rim board.

No. 448: Slab

- Install a sign or marker with photographs to show what was previously located here.

No. 449: Missile Assembly and Test Building

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair displacement in the CMU on the west elevation.
- Repair stepped cracks.
- Remove abandoned anchors.
- Replace missing mortar.
- Fill in holes throughout structure.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace roller doors on the east and west elevations.
- Replace man door to the missile bay on the west elevation and restore frame.
- Replace door to air handler bay and restore or replace jamb.
- Replace man door on east elevation and repair badly rotted and damaged frame.
- Replace man door on the south elevation and badly rotted and UV damaged frame.
- Repair or replace interior doors.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Restore all windows including sashes, trim, screens, glass, stops, joints and muntins.
- Prime and paint all windows.
- Mechanically remove rust from metal window frames.
- Install new sashes following acceptable standard practice.
- Replace screens throughout.

Roofing

- Replace or repair roof where necessary.
- Restore or replace eaves and soffits.

Flashing and Sheet Metal

- Restore or replace gutters and downspouts.

Building Systems

- Restore electrical power to the building.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Evaluate roof joists extensions and repair or replace as necessary.
- At vertical crack, replace all cracked CMU and repoint surrounding area.

Scope for Interior:

Walls

- Repair interior CMU cracks and damaged concrete exhibiting rust, staining, cracking and spalling at penetrations.
- Replace damaged plywood partitions.
- Replace plasterboard walls exhibiting damage under south window, open joints and failing paint.
- Strip and paint or replace rusted bathroom partitions.
- Clean, patch and paint CMU walls.

Ceiling

- Replace plasterboard ceiling.
- Strip and paint exposed roof trusses as they are exhibiting surface rust throughout.

Flooring

- Remove debris, clean and paint concrete floor.

- Replace vinyl asbestos tile with new tile, laminate or concrete flooring.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 449 A: Storage

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair large stepped vertical crack and penetrations in CMU on north elevation.
- Strip and paint CMU.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace missing door and restore trim and hardware on north elevation.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.
- Replace roof 25%, including sill plate, joists, sheathing, and rim board.

Building Systems

- Restore electrical power to the building.

Scope for Interior:

Walls

- Repair minor CMU crack on north elevation.
- Clean, patch and paint CMU walls.

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 449 B: Storage

Overall

- Remove vegetation and biological growth.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls

- Replace all four deteriorating plywood walls and paint.
- Repair splitting wood frame in southwest corner.

Doors

- Replace missing door.
- Replace door frame and hardware.
- Install new door following acceptable standard practice.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement.

Structural

- Rebuild structure 100%.

Scope for Interior:

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 450: Warhead Building

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair spalling CMU and penetrations, particularly on the east elevation.
- Repair cracks in CMU on each elevation, some severe, especially around fenestrations.
- Strip and repaint CMU on all elevations.
- Repair interior cracks under windows on north and south elevations.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.

Doors

- Replace rolling doors, frames and mechanisms on the east and west elevations.
- Replace door on east elevation.

- Replace door and frame on west elevation.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Replace windows (all are missing).
- Restore concrete sills where necessary and replace frames as most are partially if not completely missing or deteriorating.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement.

Flashing and Sheet Metal

- Replace all gutters and downspouts.

Building Systems

- Restore electrical power to the building.

Structural

- Repoint all open joints, including step crack locations.
- Replace all cracked CMU. Assume 50% repointing and 5% CMU replacement.
- Repair door lintel by reinstating spalled CMU with concrete repair material.
- Clean all steel of corrosion and coat with a rust-inhibitive coating.

Scope for Interior:

Walls

- Clean, patch and paint CMU walls.

Flooring

- Remove sand accumulating under windows on north elevation.

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide heat to the building through the use of electric resistance heaters.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

Other:

- Replace all interior and exterior light fixtures.

Alternative Treatment No. 2: Leave the site in existing condition and perform no work.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The site will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option does not allow for full interpretation of the structures.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

2.1.2.3 Administrative Area

The Administrative Area includes four Barracks (430, 431, 432 and 433), the Latrine (434), the Central Heating Plant (435), the Ready Building (437), a Sentry Box (439) and a concrete slab (456). The Ultimate Treatment proposed for the Administrative Area is to clean, stabilize and improve the safety of the buildings so they can be interpreted as part of the larger story. Barrack 433 will be used for interpretation and one of the other barracks will be used to store displaced life guard storage. One alternative for the Housing Area is to restore and interpret all of the buildings. This may include the reintroduction of Launch Control Vans and reconstruction of Guard Shelter 456. A second alternative is to leave the site in existing condition and perform no work. A final alternative is to remove the extremely deteriorated Central Heating Plant structure. No work is recommended for the concrete slab 456.

Ultimate Treatment: Clean and stabilize the site; mothball and improve the safety of the buildings. Building 433 will be restored for interpretation and one of the other Building 431 will be used for storage.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- This option allows for the Park to use the buildings (they will be removing equipment that is currently being stored in the barracks upon completion of a new maintenance facility).
- By cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.

Alternative Treatment No. 1: Restore and interpret buildings.

Advantages:

- This option realizes the full potential to interpret the buildings for their significance within a NIKE Defense Site during the Cold War, including the unique use of metal Butler-type buildings for NIKE barracks.
- This option improves the stability and safety of the buildings.
- Permits public use and education.

Disadvantages:

- The buildings may need to be cleaned and remediation of hazardous materials may be required.
- Building code and accessibility deficiencies may need to be addressed.
- This option may require structural improvements, including roof replacement and crack repair.

- This option requires the restoration of the electrical service to each building. New electrical panels, lighting fixtures, convenience power, plumbing and HVAC systems would be required to meet the intent of the interpretative program.

Nos. 430 and 432: Barracks

Overall

- Remove vegetation on exterior corrugated metal siding.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Repair or patch penetrations and surface rust on exterior corrugated metal siding, particularly around foundation, roofline and fenestrations.
- Strip and paint corrugated metal siding.
- Provide corrugated metal siding with one door and two windows on the south elevation of Building 430 to match the north elevation.

Doors

- Restore north door on Building 430.
- Restore rusting, rotting or splitting door frames and repair fastener damage on Building 432.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Strip and paint all windows.
- Replace missing or deteriorating flashing.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.

- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Install new sashes following acceptable standard practice.

Roofing

- Repair gap at ridge beam on south elevation on Building 430.
- Strip and paint metal trusses on Building 430.
- Replace rusted and warping bed moulding board on both buildings.

Building Systems

- Restore electrical power to the buildings.

Structural

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding of both buildings.
- At open end of Building 430, clean truss of all corrosion and coat with zinc-rich, rust-inhibitive primer and paint.

Scope for Interior:

Walls

- Replace interior particle board walls and insulation.

Ceiling

- Replace particle board ceiling and strip and paint metal trusses.

Flooring

- Remove debris, sand and dirt.
- Clean and paint concrete floor in Building 430.
- Remove dirt, sand and debris and replace vinyl asbestos tile floor with new tile, laminate or concrete flooring in Building 432.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 431: Barracks

Overall

- Remove vegetation on exterior corrugated metal siding.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Repair or patch nail pops, penetrations and surface rust on exterior corrugated metal siding, particularly around foundation, roofline and fenestrations.
- Strip and paint corrugated metal siding.
- Stabilize metal siding in southeast corner.

Doors

- Replace door on north elevation.
- Scrape paint from frame and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frame to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace hardware in kind.

Windows

- Strip and paint all windows.
- Replace missing or deteriorating flashing.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.

Roofing

- Repair gap at ridge beam on south elevation.
- Reattach roof where it is pulling away from north elevation.
- Strip and paint metal trusses.

- Replace rusted and warping bed moulding board.

Building Systems

- Restore electrical power to the building.

Structural

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding.
- Close opening in roof.

Scope for Interior:

Walls

- Replace interior particle board walls and insulation.

Ceiling

- Replace particle board ceiling and strip and paint metal trusses.

Flooring

- Remove dirt, sand and debris and clean concrete floor.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 433: Barracks

Overall

- Remove vegetation on exterior corrugated metal siding.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Corrugated Metal Siding

- Repair or patch penetrations and surface rust on exterior corrugated metal siding, particularly around foundation, roofline and fenestrations.

- Strip and paint corrugated metal siding.

Doors

- Restore south door as it is weathered with fastener holes, hinge scarring, splitting plywood panels and open joints.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Replace hardware in kind.

Windows

- Restore windows, strip and repaint.
- Replace missing plexiglass in one window.
- Repair UV damage and physical damage at penetrations.
- Restore splitting or rotting sills
- Replace rusted flashing.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.

Roofing

- Strip and paint corrugated metal roof.
- Replace rusted and warping bed moulding board.
- Repair or replace fasteners that are popping.

Building Systems

- Restore electrical power to the building.

Structural

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding.

Other

- Replace rusted conduit and remove cap over vent louver.

Scope for Interior:

Walls

- Replace interior particle board walls and insulation.
- Strip and paint rusted rigid metal framing.

Ceiling

- Replace moldy and deteriorated particle board ceiling.
- Strip and paint rigid metal framing as it is exhibiting major rust at the eave joints.

Flooring

- Remove dirt, sand and debris and replace vinyl asbestos tile floor with new tile, laminate flooring or concrete.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 434: Latrine

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Masonry

- Repair stepped cracks on the east elevation and in the southwest corner.
- Repair cracks within CMU on north elevation.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Repair delaminating and rotting main door and replace its missing stop.
- Repair damaged jamb, replace missing screen door and repair or replace rusted hardware.
- Remove plywood and repair delaminating doors on south elevation.
- Fill in holes at the bottom of the south doors and repair UV damage on the frames.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Replace hardware in kind.

Windows

- Restore windows including rusted sashes, rusted frames and broken glass.
- Repair broken jamb at southeast window and broken sill at northwest window.
- Replace torn screens and broken and rotting frames on east elevation.
- Mechanically remove rust from metal window frames.

Roofing

- Replace missing ballast in corners and deteriorating flashing at penetrations.
- Repair rusted roof vents.
- Restore or replace eaves and soffits.
- Repair minor rusting on flashing.

Building Systems

- Restore electrical power to the building.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.

Scope for Interior:

Walls

- Repair cracking on interior CMU walls, particularly at the south wall of the changing room and toilet room.
- Replace plasterboard partition as there are holes and cracks at the joints.

- Clean and regrout tile walls in showers.
- Restore or replace toilet partitions (hinges are rusted).
- Clean, patch and paint CMU walls.

Ceilings

- Replace plasterboard ceilings and fasteners.

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

Other

- Restore minor splits, open joints and sagging shelves on millwork.

No. 435: Central Heating Plant

Overall

- Remove vegetation and debris.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Replace corrugated metal siding on all four elevations.
- Paint replacement corrugated metal siding.

Doors

- Replace door, including frame and hardware, on south elevation.
- Replace peeling and rusting metal thresholds.

Windows

- Replace window on the west elevation.

- Install new window following acceptable standard practice.

Roofing

- Replace deteriorated corrugated metal roof.
- Replace eave overhangs in conjunction with roof replacement.
- Replace all other elements associated with roof replacement.

Building Systems

- Restore electrical power to the building.

Structural

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding.
- Replace west side corrugated cladding 100%.
- Repair steel frame. Assume 75% replacement of existing framing requires replacement.

Other

- Remove debris and replace vent stack and armature.

Scope for Interior:

Flooring

- Remove debris and clean concrete slab.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 437: Ready Building

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair cracks on north elevation, especially around fenestrations.
- Repair vertical and stepped cracks in CMU on east elevation.
- Repair vertical and stepped cracks on east elevation and minor cracks on west elevation.
- Repair severe crack in brick chimney stack on north elevation.
- Repair top of CMU stack on east elevation.
- Strip and repaint CMU on all elevations.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.

Doors

- Restore all doors.
- Replace missing door to the vestibule on the east elevation.
- Restore or replace wood door on the north elevation.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace hardware in kind.

Windows

- Restore all windows (14 total).
- Mechanically remove rust from metal window frames, particularly on the louvered windows.

Roofing

- Remove biological growth from roof.
- Replace sections of missing mesh overhang on the north, south and east elevations.
- Repair rusting metal roof on south elevation.
- Replace bed moulding board.

Building Systems

- Restore electrical power to the building.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.
- Reinstate boiler room ceiling to appropriate fire rating.
- Repair brick chimney. Reconstruct upper four feet of brick chimney and repair all vertical cracks.
    - Alternative: If chimney is no longer in active use, demolish chimney.
- Repair CMU chimney. Replace upper six CMU. Evaluate internal terra cotta flue and repair or line as necessary.

Scope for Interior:

Walls

- Replace all interior drywall partitions.
- Repair interior CMU cracks around fenestrations, particularly in Room 106.
- Repair spalling concrete in Room 107.
- Strip and paint drywall, CMU and metal partitions throughout interior (replace interior partitions if necessary).
- Clean, patch and paint CMU walls.

Ceiling

- Replace all particle board ceilings and paint.

Flooring

- Remove debris, clean and paint concrete floors (Rooms 106 and 107).
- Replace deteriorating asbestos tile floors with new tile, laminate or concrete flooring.

Doors

- Replace missing door in Room 102.
- Strip and paint all interior doors.

Windows

- Remove plywood from windows in Room 107.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 439: Sentry Box

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair cracks in CMU on east elevation and in northeast and southeast corners.
- Repair cracks and broken corners in concrete apron.
- Remove abandoned clips and anchors and repair fastener damage.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace missing door on south elevation.
- Replace or restore rotting trim on south door.
- Scrape paint from frame and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new door following acceptable standard practice.
- Replace hardware in kind.

Windows

- Restore rusted window sills, sashes and hardware.
- Replace failing putty.
- Replace broken window panes on the east elevation.
- Mechanically remove rust from metal window frames.

Roofing

- Restore or replace soffits and eaves.
- Replace rusted edge flashing and repair UV damage throughout.

Building Systems

- Restore electrical power to the building.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.
- The turn down slab settlement is likely due to changes to grade and slope around the guard house. Underpinning such a small structure is not practical.
    - Level 1: Repair cracks and address level changes to create a smooth walking surface.
    - Level 2: Rebuild turndown slab to accommodate existing grade.
    - Level 3: Regrade area to historic levels (grade was likely near to or level with top of turndown slab) and rebuild slab.

Scope for Interior:

Walls

- Replace or repair sections of plasterboard walls.
- Repair soffit as it is exhibiting minor splitting and open joints.
- Replace rotting wood baseboards and repair millwork where necessary.

Ceiling

- Replace deteriorating plasterboard ceiling and paint.

Flooring

- Remove debris, clean and paint concrete floor.

Windows

- Restore heavily weathered or damaged stools on interior windows.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 456: Slab

Scope: No work is recommended.

Alternative Treatment No. 2: Leave the site in existing condition and perform no work

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The buildings will continue to deteriorate and may become a safety hazard. Ultimately, the buildings may deteriorate to the point of being unsalvageable prohibiting any possibility for future restoration.
- This option could possibly prohibit the Park from continuing its use.
- This option does not allow for full interpretation of the buildings.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

Alternative No. 3: Remove Central Heating Plant structure.

Advantages:

- The structure will no longer be a safety hazard.

Disadvantages:

- This option does not allow for full interpretation of the building.

Scope of Work:

Overall

- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Remove entire structure, with the exception of the concrete slab.

2.1.2.4 Dog Kennel

The Kennel Site consists of the Canine Kennel (458) and the Canine Kennel Support Building (458 A). Given the location of the Kennel and the propensity to flooding, even before Hurricane Sandy, the Ultimate Treatment proposed for the Kennel is to leave the site in existing condition and not perform any work. One alternative for the Kennel is to clean and stabilize the site. A second alternative is to restore and interpret the site.

Ultimate Treatment: Leave site in existing condition.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The site will continue to deteriorate and may become a safety hazard.
- This option does not allow for full interpretation of the site.
- This option could prolong the restoration process should the park decide to restore and interpret the site at a later date.

Alternative Treatment No. 1: Clean, stabilize and improve the safety of the building.

Advantages:

- This option preserves the site for future restoration.
- This option improves the stability and safety of the site.
- By cleaning and stabilizing the site, it can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the site.
- This option does not address any observed building code or accessibility deficiencies.

458: Kennel

Overall

- Remove vegetation and debris and clean site.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Replace or remove dilapidated or partially missing corrugated metal walls.
- Replace or remove chain-link fence around entire site, including wood framing and deteriorating mesh.

Scope for Exterior:

Roofing

- Repair or replace corrugated metal roof where necessary.

Structural

- Reinstall roofing.

No. 458 A: Kennel Support Building

Overall

- Remove vegetation and biological growth throughout the structures.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair cracks on the north and east elevations.
- Repair cracks near the lintels on the south and west elevations.
- Repair deteriorated CMU near foundation on south elevation.
- Dutchman section of missing foundation on north elevation.
- Rebuild partially disassembled retaining wall and replace deteriorating CMU. Strip and repaint wall.

Doors

- Replace and paint door, frame and hardware.

Windows

- Replace windows.
- Repair cement window sill on west elevation.
- Install vents to allow for air circulation.

Roofing

- Replace roof to preserve the building for several decades.
- Replace bed moulding board and particle board at roof overhang.

Scope for Interior:

Ceiling

- Replace ceiling in conjunction with roof replacement.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Alternative Treatment No. 2: Restore and interpret the site.

Advantages:

- This option realizes the full potential to interpret the site for its significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the site.
- Permits public use and education.

Disadvantages:

- The site may need to be cleaned and remediation of hazardous materials may be required.
- Building code and accessibility deficiencies may need to be addressed.
- This option may require structural improvements, including roof replacement and crack repair.
- This option would require the re-establishment of electrical service as needed to support lighting, heating and convenience power for the interpretation program.

458: Kennel

Scope for Exterior:

Overall

- Remove vegetation and debris, and clean site.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Replace chain-link fence around entire site, including wood framing and deteriorating mesh.

Structural

- Replace deteriorated corrugated metal roof.

Scope for Interior:

Overall:

- Restore or rebuild dilapidated wooden dog houses.

No. 458 A: Kennel Support Building

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Rebuild partially disassembled retaining wall and replace deteriorating CMU.
- Strip and repaint wall.
- Repair minor cracks on the north and east elevations.
- Repair cracks near the lintels on the south and west elevations.
- Repair deteriorated CMU near foundation on south elevation.
- Dutchman section of missing foundation on north elevation.
- Fill penetrations, replace fasteners and remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace deteriorated door, rusted metal frame and rusted hardware.
- Install new doors following acceptable standard practice.

Windows

- Replace windows and frames.
- Restore cement window sill on west elevation.
- Install new sashes following acceptable standard practice.

Roofing

- Replace deteriorating roof.
- Replace all elements associated with roof replacement.
- Replace bed moulding board and particle board at roof overhang.

Building Systems

- Restore electrical power to the building.

Structural

- Repoint open joints. Assume 25% repointing required.
- Replace roof 50%, including sill plate, joists, sheathing, and rim board.
- Reconstitute grade at rear of building.
- Retaining wall:
    - Level 1: No recommendations. The wall is no longer required to retain soil.
    - Level 2: Reconstruct missing elements of retaining wall.

Other

- Replace broken light fixture.

Scope for Interior:

Walls

- Repair interior CMU cracks on north elevation and around the lintel on the south elevation.
- Strip and paint interior CMU.
- Clean, patch and paint CMU walls.

Ceiling

- Replace ceiling in conjunction with roof replacement.

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

Other

- Rebuild shelves on east elevation.
- Replace delaminating wood counter.

2.2 ULTIMATE TREATMENT

The ultimate treatment section of this HSR took into consideration the management zones and the prioritization of the resources and banding effort as outlined in Gateway National Recreation Areas, 2014 General Management Plan (GMP). The Nike resources at GATE were placed in both the historic and development management zones. Given the condition of some of these resources, the fact that many are currently vacant and that many were or will be impacted by climate change, many of these resources were placed in the ruin and/or stabilized band in the GMP. The ultimate treatment section presents recommendations for use and treatment that are in keeping with GATE's GMP.

2.2.1 Radar Tracking Site

Methods for Work at the Radar Tracking Site:

- All work, including demolition, new construction and grounds disturbance, will be thoroughly documented on working "as-built" drawings with descriptions and photographs.
- Use protective measures to prevent damage to the adjacent materials from the demolition operations.
- Protect buildings against movement, settlement or collapse of construction surrounding the demolition areas including roofs, walls, framing designated to remain and be liable for any movement, settlement, or collapse. Where necessary, install temporary shores, struts or bracing. All temporary construction must be completed prior to the start of demolition.
- Perform necessary probes to determine any required protective measures before proceeding with demolition and removal work, paying close attention to shoring and bracing requirements to prevent damage to existing construction that is to remain.
- Protect all existing historic material during demolition.
- Where applicable, provide temporary coverings to protect interior finishes from weather or impact damage; the buildings shall be maintained in a weathertight condition at all times.
- Where applicable, provide protection for wall and floor finishes for the duration of the work.
- Execute the work in a careful, orderly and safe manner, with the least possible disturbance to the public.
- Remove materials by removing or cutting anchors. Do not pry material loose. Make clean cuts at adjoining materials to remain. Do not use any open flame or heat producing devices or tools.
- Any elements considered potentially historic and/or of interpretive value are to be salvaged, catalogued and stored.

Overall Site Recommendations

Scope:

- Trim vegetation throughout Radar Tracking Site.
- Repave sidewalk between Control Area #1 and the Administrative Area.
- Restore or replace lighting fixtures along sidewalk.
- Remove debris (specifically bricks) and trim overgrown vegetation from former parking lot near Administrative Area.
- Remove storage, debris and vegetation from basketball court and repair as necessary.
- Remove vegetation from roadways and repair as necessary.

2.2.1.1 Control Area #1

Ultimate Treatment for Control Area #1 is to clean, restore and interpret the site.

Advantages:

- This option realizes the full potential to interpret the buildings and stands for their significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the buildings and stands.
- This option allows for accessible buildings for visitors.
- Permits public use and education.

Disadvantages:

- This option will require extensive rehabilitation including new or restored windows, doors, ceilings and walls.
- The site will need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements including roof replacement and crack repair.
- This option will require accessibility improvements and remediation of some building code deficiencies to permit public use.
- This option will require the restoration of electrical power to the buildings and stands, along with providing new lighting fixtures and convenience power receptacles as needed for the program.
- At a minimum, heating will need to be provided for the buildings. The historic components of the air conditioning systems will remain in place for interpretation, however they will be non-functioning as a full upgrade will not be required since the radar equipment will also be non-functioning/in place for interpretation.
- This option will also require modifications to existing plumbing systems as needed to meet the interpretive program.

No. 409: Inter-Connecting Corridor and Control Vans

Overall

- Remove vegetation and biological growth, and clean soiled concrete masonry units.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair stepped crack in CMU at southeast corner.
- Replace broken units in northeast corner.
- Reset CMU at rusting lintel on the north end.
- Repair large cracks and replace missing mortar on the west side of the north elevation.

- Fill penetrations, replace fasteners, remove abandoned anchors and patch to match adjacent finishes.
- Replace failing patches and areas that have been infilled with material to match original material.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Restore east doors including missing threshold and replacement trim. The doors have replacement leaves and are exhibiting minor rot, open joints and fastener damage.
- Repair rusted lintel, rotting door head, mild surface rust and bent louvers at north door.
- Replace rusted frame, weathered sub-frame and weathered replacement head at west door.
- Repair welding and fasteners of modules that are also exhibiting surface rust.
- Scrape paint from frames, trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Replace window on the east elevation. The frame is rotting, the sill is missing, the bottom sash has been replaced, the top sash is deteriorating and the putty is failing.
- Repair the rusted louvered window on the east elevation.
- Replace the window on the west elevation as it is splitting and badly weathered, the sills and muntins are rotting and there is fastener damage, putty failure and several open joints.
- Scrape paint from wood frames, trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Mechanically remove rust from metal window frames, particularly on the louvered windows.
- Install new sashes following acceptable standard practice.
- Replace metal screens throughout.

Roofing

- Replace deteriorating roof.

- Replace all elements associated with roof replacement including flashing; they are badly rusted and have several sections missing.
- Replace wood fascia as it is badly weathered and rotting on north elevation.

Flashing and Sheet Metal

- Restore or replace gutters and downspouts.

Structural

- Differential settlement:
  - Level 1: Repoint cracks in walls; remove existing vinyl tile flooring to apply a leveling compound to settled slab area to create level floor surface.
  - Level 2: Underpin existing foundation to prevent further settlement; repair as described in Level 1.
- Replace soffit where required.

Building Systems

- Restore electrical power to the building and replace the lighting fixtures, etc.

Other

- Remove plywood on west elevation and replace exhaust with modern one.

Scope for Interior:

Walls

- Repair interior cracks in CMU, especially in Room 101 where cracks are severe.
- Repair damaged CMU near windows at east wall in Room 103.
- Repair or replace damaged or missing plasterboard walls, particularly in Room 105.
- Clean, patch and paint CMU walls.
- Restore or replace wood base where necessary. Reattach wood base where it is pulling away from the wall, particularly in Room 103.

Ceiling

- Replace plasterboard and acoustical ceilings. The ceiling in Room 103 is badly sagging, several tiles have fallen and the plasterboard has detached from the ceiling. Replace missing plasterboard ceilings in Room 105.
- Repair rusted black iron section of ceiling.
- Reattach and/or secure acoustical ceiling tiles that are loose or displaced in Room 101.
- Provide new ceiling in Room 102 as the roof structure is exposed and rusting.

Flooring

- Remove debris, clean and paint concrete floor.
- Replace vinyl asbestos tile floors with new tile, laminate flooring or concrete. There are several layers of tile, some of which are broken or missing and there are open joints throughout.

Doors

- Restore or replace interior doors.

Windows

- Restore the lintel and concrete sill at the van in Room 104. The lintel is badly rusted and the sill is deteriorated.
- Repair gouges and rusting dowels where necessary. The windows are in fair condition and it appears as though some type of window treatment has been applied.
- Replace window trim in Room 103 as it is completely missing.

Building Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system, including air conditioning.
- Provide new lighting fixtures and convenience receptacles, as needed for the interpretation program.

No. 410: Generator House

Overall

- Remove vegetation on exterior concrete masonry unit.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Masonry)

- Remove abandoned anchors and patch to match adjacent finishes.
- Check for soundness of infilled penetrations near foundation and repair if necessary.
- Repair vertical cracks, horizontal cracks, broken units and areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Install weatherstripping.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Replace frames and sashes on the north and east elevations as they are exhibiting rust and peeling paint.
- Restore or replace louvered windows with metal screens on west elevation as they are very rusted.
- Replace louvered window on south elevation. The bottom of the frame is missing, the wood is rotting and the paint is peeling.
- Scrape paint from wood frames, trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Mechanically remove rust from metal window frames, particularly on the louvered windows.
- Install new sashes following acceptable standard practice.
- Replace metal screens throughout.
- Paint all windows.
- Replace hardware in kind.

Roofing

- Replace deteriorating and leaking roof.
- Replace three missing vent covers to match original; they have been replaced with sheets of plywood and roofing paper.
- Replace all associated elements including rotting bed moulding board.

Flashing and Sheet Metal

- Restore downspouts and replace those that cannot be restored.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- At vertical transition and crack, rout crack and install sealant joint with backer rod.
- At rear dividing walls, replace heavily deteriorated blocks and repoint open joints. Assume 20% replacement and 50% repointing.

Building Systems

- Restore electrical power to the building and replace the lighting fixtures, etc.

Scope for Interior:

Walls

- Replace all of the missing or deteriorating interior particle board walls.
- Strip and paint all of the interior CMU walls.
- Restore wood baseboards and shoe molding where necessary.

Ceiling

- Replace deteriorated particle board ceiling and vapor barrier, and restore rusted metal ceiling.

Flooring

- Remove debris, clean and paint concrete floor.
- Restore rusted floor trenches throughout.

Doors

- Strip and paint original metal doors that are exhibiting minor rust and paint failure.
- Restore original hardware where necessary.

Buildings Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system including air conditioning.
- Provide new convenience receptacles, as needed for the interpretation program.

Other

- Replace broken exterior light fixture.
- Replace interior light fixtures that are in poor condition and rusting.

Nos. 420, 421, 422, 467, 469 (Foundation), 472: Radar Stands

Scope of Work:

Overall

- Remove biological growth and vegetation surrounding Radar Stands.
- Strip and repaint Stands 420, 422, 467 and 472.
- Replace railing on Stand 420 and the eastern section of the railing on Stand 467.
- Replace missing ladders on Stands 420, 421, 422, 467 and 472.
- Paint railing on Stand 472.
- Install a sign or marker with photographs to show what was previously located at Foundation 469.

Note: During the summer of 2015, volunteers painted several of the Radar Stands in Control Area #1 as part of the partial restoration of this area. No work was performed at Control Area #2.

Structural

- At underside of platforms, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating.
- At cracked concrete columns, remove spalls, clean corroded reinforcing steel. Assume 10% spliced reinforcing of steel required. Coat all exposed steel with zinc-rich rust inhibitive coating. Repair spalls with concrete repair mortar.
- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- For Stands 467 and 472, clean all corroded steel and coat all steel with a zinc-rich rust inhibitive coating. Assume 100% clean and coat, exclusive of corrugated wind screen.
- Upper Platform of Target Ranging Radar 467 and HIPAR Target Tracking Radar 472:
    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- Regrade area around HIPAR Target Tracking Radar 472 to reinstate sufficient bearing for foundations.

Building Systems

- Remove remnants of existing electrical wiring. Existing disconnect switches may be removed or cleaned and painted to remain as part of the interpretation.

No. 423: Sentry Box

Overall

- Remove biological growth on exterior concrete masonry unit.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair cracks and minor spalling in CMU.
- Stabilize concrete slab where it is pulling away from building.
- Touch up paint as necessary on CMU.

Door

- Restore wood door where it is splitting and warping near the bottom rail.

Windows

- Replace broken glass in bottom pane of top sash on east window.

Structural

- The turn down slab settlement is likely due to changes to grade and slope around the guard house. Underpinning such a small structure is not practical.

    - Level 1: Repair cracks and address level changes to create a smooth walking surface.
    - Level 2: Rebuild turndown slab to accommodate existing grade.
    - Level 3: Regrade area to historic levels (grade was likely near to or level with top of turndown slab) and rebuild slab.

Building Systems

- Restore electrical power to the building and replace the lighting fixtures, etc.

Scope for Interior:

Walls

- Clean biological staining on CMU walls.
- Repair minor holes and penetrations on walls.

Flooring

- Clean biological staining on concrete floor

Buildings Systems

- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system including air conditioning.
- Provide new convenience receptacles, as needed for the interpretation program.

No. 452: Equipment and Operations Building

Scope of Work:

- Install a sign or marker with photographs to show what was previously located here.

  -or-

- Reconstruct Equipment and Operations Building based on remains of Equipment and Operations Building 454 at Control Area #2

Number 455: Tool Shed *(Missing)*

Scope of Work:

- Install a sign or marker with photographs to show what was previously located here.

No. 468: HIPAR Building

Overall

- Remove vegetation and biological growth on exterior concrete masonry unit.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Masonry)

- Remove abandoned anchors and patch to match adjacent finishes.
- Repair stepped cracks and unit cracks at corners and openings of CMU.
- Check for soundness of infilled penetrations and repair if necessary.
- Fill abandoned penetrations.
- Repair broken or missing units at the loading dock.
- Stabilize significant displacement in corners and restore deteriorated mortar throughout.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace doors and trim on north, south and west elevations, and replace frame and casing on east elevation.

- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Install weatherstripping.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Restore rusted louvered windows and replace damaged screen on north elevation.
- Restore openings on south elevation.
- Replace missing windows to match existing windows.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Mechanically remove rust from metal window frames, particularly on the louvered windows.
- Install new sash following acceptable standard practice.
- Replace metal screens throughout.

Roofing

- Replace missing joist extension and missing roof. Evaluate existing joists for corrosion and repair as required.
- Replace deteriorating and leaking roof and all associated elements.
- Replace flashing and soffits as they are badly rusted or almost entirely missing.

Flashing and Sheet Metal

- Restore downspouts and replace those that cannot be restored.

Structural

- Repoint entire structure.
- Replace missing joist extension and missing roof. Evaluate existing joists for corrosion and repair as required.
- Repoint step cracking and replace CMU where crack extends through unit.
- Replace any damaged CMU at front entrance.

Building Systems

- Restore electrical power to the building and replace the lighting fixtures, etc.

Other

- Remove plywood on north elevation and replace exhaust with modern one.

Scope for Interior:

Walls

- Replace missing or deteriorating interior particle board walls.
- Clean, patch and paint CMU walls.
- Replace wood baseboards that are pulling away from wall, rotting or missing.

Ceiling

- Restore rusted metal ceiling by mechanically removing rust and repainting.

Flooring

- Remove debris, clean and paint concrete floor.
- Replace missing trench covers.
- Replace vinyl asbestos tile with new tile, laminate flooring or concrete.

Doors

- Restore or replace interior doors.

Building Systems

- Replace existing plumbing fixtures that are in poor condition.
- Replace existing electrical panels and receptacles that are in poor condition.
- Replace existing heating equipment that is in poor condition.
- Provide heat to the building through the use of electric resistance heaters. Alternatively, provide a full HVAC system including air conditioning.
- Provide new convenience receptacles, as needed for the interpretation program.

Other

- Replace interior light fixtures that are in poor condition and rusting.

Transformers Pen

Scope of Work:

- Add interpretative signage and photos of what was there previously.

2.2.1.2 Control Area #2

Ultimate Treatment for Control Area #2 is to stabilize the buildings, making them flow through (repair masonry and roofs, remove doors and windows, and leave shells as "ruins" for interpretation or camping shelters). Building 414 will be stabilized in place as it has many of the original bi-fold paneled doors and windows that are reparable, salvageable or reproducible. It is in the best condition of all of the buildings in Control Area #2 and reflects the configuration of a pre-Improved Hercules generator building no longer extant at 410.

Advantages (Stabilize/Flow Through):

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- This option allows for water to flow through during storms to minimize water damage to the structure.
- By retaining, stabilizing the buildings, and making them flow through, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.
- Permits public use and education.
- No significant construction costs would be incurred.

Advantages (Stabilize Building 414):

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- By retaining, cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages (Stabilize/Flow Through):

- This option does not allow for full interpretation of the buildings.
- Does not address any observed building code or accessibility deficiencies.
- The site may need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements including roof replacement and crack repair.
- This option would ultimately expand the scope and expense of the restoration process should the park decide to restore and interpret the buildings at a later date.

Disadvantages (Stabilize Building 414):

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.

No. 411: Interconnecting Corridor

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Remove abandoned anchors and repair associated spalls, stepped cracks and holes in CMU.
- Repair mechanical, electrical and plumbing penetrations throughout CMU.

Doors

- Remove doors. If possible, salvage and reuse at another location.
- Install metal chain-link fence for security.

Windows

- Remove all windows.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.

Scope for Interior:

Flooring

- Remove vinyl asbestos tile and clean floor.

Walls

- Cut back wall finishes up to three feet or remove wall finishes entirely to avoid water damage and deterioration.

Doors

- Remove interior doors including metal roll-up doors.

Building Systems

- Remove the deteriorated remnants of the HVAC, electrical and plumbing systems.

No. 413: Sentry Box

Overall

- Remove vegetation and biological growth throughout entire structure, particularly around soffits, flashing and fenestrations.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair horizontal and stepped cracks in CMU (north elevation).
- Repair CMU that is deteriorating due to the installation of plywood (south and west elevations).

Door

- Replace and paint door.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.
- Replace roof 100%, including sill plate, joists, sheathing, and rim board.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Walls

- Remove plasterboard walls with exposed CMU walls to remain.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 414: Generator House

Overall

- Remove vegetation and biological growth throughout entire structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair minor cracks on north elevation.
- Repair horizontal cracks, stepped cracks, minor spalling and deterioration on east elevation.

Doors

- Stabilize and paint door.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Ceiling

- Remove deteriorated ceiling in conjunction with roof replacement.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

Nos. 417, 418, 419, 473: Radar Stands

Overall

- Remove vegetation and debris around entire structure.
- Stabilize or replace railings.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- Remove concrete encasement around steel column bases. Assume 10% reinforcement of steel columns. Clean all corroded steel and coat all steel with zinc-rich rust inhibitive coating. Replace concrete encasement.
- At cracked concrete columns, remove spalls, clean corroded reinforcing steel, and coat with zinc-rich rust inhibitive coating. Repair spalls with concrete repair mortar.
- At underside of platforms, clean all corroded reinforcing steel and coat with zinc-rich rust inhibitive coating.
- For Stand 473, clean all corroded steel and coat all steel with a zinc-rich rust inhibitive coating. Assume 100% clean and coat, exclusive of corrugated wind screen.
- Upper Platform of HIPAR Target Tracking Radar 473:
    - Level 1: Stabilize by cleaning all exposed steel elements of corrosion and coat with a zinc-rich rust inhibitive coating.
    - Level 2: Repair missing portions of deck. Replace corrugated decking in kind and recast concrete platform reinforced with welded wire fabric. Assume 25% replacement of deck system.
- Regrade area around HIPAR Target Tracking Radar Stand 473 to reinstate sufficient bearing for foundations.

Building Systems

- Remove remnants of electrical distribution equipment.

No. 453: Pedestal Radar Tower

Overall

- Remove vegetation and debris around pedestal.

No. 454: Equipment and Operations Building

Overall

- Remove vegetation and debris around structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Remove later addition on west side of structure as it is severely dilapidated and not associated with the period of significance.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair large vertical crack in CMU on south elevation, vertical crack at north door and stepped cracks at the window heads.
- Fill holes throughout the exterior of the building.

Doors

- Remove all doors. If possible, salvage and reuse at another location.
- Install metal chain-link fence for security.

Windows

- Remove all windows.

Roofing

- Replace roof and all associated roof elements to preserve the building for several decades.

Scope for Interior:

Flooring

- Remove vinyl asbestos flooring and clean.

Walls

- Repair large interior vertical crack in CMU on south side.
- Repair large vertical crack at the north door.
- Repair holes and stepped cracks at window heads throughout

Building Systems

- Remove the deteriorated remnants of the HVAC, electrical and plumbing systems.

2.2.1.3 Administrative Area

Ultimate treatment for the Administrative Area is to restore and adaptively reuse the resources for camping.

Advantages:

- Permits public and recreational use.
- Allows visitors to interpret the buildings for their significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the buildings.

Disadvantages:

- The buildings will need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements.
- This option will require accessibility improvements and remediation of some building code deficiencies to permit public use.
- This option will require the restoration of electrical power to the buildings, along with providing new lighting fixtures and convenience power receptacles as needed for the program.
- At a minimum, heating will need to be provided for each building, although a full HVAC system may be desired.
- Water and sanitary sewer service will need to be re-established to the building. New plumbing fixtures will be required to meet the program needs.
- A similar approach can be taken to distribute heat from the hot water boiler in the Central Heating Plant, or independent electric heating can be provided at each building and the Central Heating Plant can be interpreted with a mock installation.

No. 402: Barrack

Overall

- Remove vegetation on exterior corrugated metal siding.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding.

Doors

- Replace metal door frame on north elevation and paint.

- Strip and repaint wood studs on either side of north door.
- Replace door on south elevation to match original and restore trim.
- Replace and paint wood studs on either side of south door.
- Install weatherstripping.
- Replace hardware in kind.

Windows

- Remove vegetation from window on east elevation.
- Replace missing sashes, including plexiglass: one on the east elevation and one on the west elevation.
- Replace metal screen on west elevation.
- Restore all frames and sills as they are exhibiting rot and peeling paint.
- Strip and paint windows, including frames and flashing where necessary.
- Remove existing metal screens and install new metal screens in each window.
- Install new sash following acceptable standard practice.
- Replace metal screens throughout.

Roofing

- Restore corrugated metal roof.
- Replace bed moulding board and roof flashing, particularly on west elevation, to match existing.

Flashing and Sheet Metal

- Restore downspouts and replace those that cannot be restored.

Structural

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding.
- Clean truss of all corrosion and coat with zinc-rich, rust-inhibitive primer and paint.

Building Systems

- Re-establish electrical service to the building.

Other

- Replace light fixture on the north elevation to match existing.
- Remove plywood over vent on north elevation and replace vent.

Scope for Interior:

Walls

- Remove all particle board and insulation on interior walls.
- Remove metal siding that is rusting and patch, similar to existing exterior patches.

- Replace insulation and particle board on all four interior walls.

Ceiling

- Replace all particle board and insulation on ceiling.

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide new lighting fixtures and convenience receptacles, as needed for the program.
- At a minimum, provide heating to the building although a full HVAC system may be desired based on the program needs.

No. 403: Barrack

Overall

- Remove vegetation on exterior corrugated metal siding.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding on south, east and west elevations (north has been replaced and is in good condition).

Doors

- Restore door and frame on south elevation.
- Install weatherstripping.
- Replace hardware in kind.

Windows

- Strip, restore and paint windows, including frames and flashing where necessary (one frame on east elevation appears to have been replaced).
- Remove existing metal screens and install new metal screens in each window.

Roofing

- Restore corrugated metal roof.
- Close roof openings.
- Restore or replace eaves and roof edges on all elevations.

Flashing and Sheet Metal

- Restore downspouts and replace those that cannot be restored.

Structural

- Repair or patch dents, holes, gouges, and surface rust on exterior corrugated metal siding.
- Clean truss of all corrosion and coat with zinc-rich, rust-inhibitive primer and paint.

Building Systems

- Re-establish electrical service to the building.

Scope for Interior:

Walls

- Replace all particle board and insulation on interior walls.
- Replace plywood on interior partitions that have open joints, splitting veneer and failing paint.

Ceiling

- Replace all particle board and insulation on ceiling.

Flooring

- Remove asbestos floor tiles and replace with new tile, laminate flooring or concrete.

Building Systems

- Provide new lighting fixtures and convenience receptacles, as needed for the program.
- At a minimum, provide heating to the building although a full HVAC system may be desired based on the program needs.

Note: Barracks 404 and 405 are slabs

No. 406: Latrine

Overall

- Remove vegetation and biological growth on exterior concrete masonry unit.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair horizontal cracks around the heads and sills of the windows and doors on the north elevation.
- Repair unit cracks above the window head on the east elevation.
- Replace broken masonry unit near window jamb on the south elevation, as well as several units in the southeast corner.
- Remove abandoned anchors and patch to match adjacent finishes.
- Check for soundness of infilled penetrations where applicable and repair if necessary.
- Fill abandoned penetrations.
- Repair areas of spalling and deterioration.
- Repair deteriorating mortar in CMU.
- Strip and repaint CMU on all elevations.

Doors

- Replace door and frame on north elevation (and interior frame).
- Replace missing screen door on north elevation.
- Replace door on south elevation and restore or replace door frame.
- Replace door on west elevation.
- Scrape paint from frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all doors.
- Install new doors following acceptable standard practice.
- Install weatherstripping.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Restore windows on north elevation.
- Restore west window as it is exhibiting moderate surface rust on the sash and frame.

- Restore south window as it is rusting and has broken glass.
- Replace two window sashes, one on the east elevation and one on the north.
- Mechanically remove rust from metal window frames.
- Install new sash following acceptable standard practice.

Roofing

- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.
- Replace eaves on south elevation.
- Replace fascia throughout structure where necessary.
- Replace soffit on south elevation and in northeast corner.
- Replace rusted flashing throughout the structure where necessary.

Flashing and Sheet Metal

- Restore downspouts and replace those that cannot be restored.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.

Building Systems

- Re-establish electrical, water and sanitary sewer service to the building.

Scope for Interior:

Walls

- Repair cracks, fill penetrations and replace abandoned anchors on interior CMU walls.
- Replace interior plasterboard partition.
- Replace tile walls in the shower area.
- Restore or replace toilet partitions.

Ceiling

- Replace entire plasterboard ceiling with new plasterboard and paint.

Flooring

- Remove debris, clean and paint concrete floor.

Building Systems

- Provide convenience receptacles, as needed for the program.
- At a minimum, provide heating to the building although a full HVAC system may be desired based on the program needs.
- Provide new plumbing fixtures, including showers, as needed for the program.

Other

- Replace interior light fixtures that are in poor condition and rusting.

No. 407: Central Heating Plant

Overall

- Remove vegetation on exterior corrugated metal siding.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Cut and patch areas of rust around the foundation, rooflines and fenestrations on each elevation (especially bad on north elevation).

Door

- Replace door on south elevation

Window

- Restore window.
- Mechanically remove rust from metal window sash and frame.
- Replace glass in each of the four panes.

Structural

- Clean all corroded steel and coat with zinc-rich rust inhibitive coating.
- Corrosion of cladding is minor but may require replacement. Cut and patch areas of rust, particularly around the foundation, rooflines and fenestrations. Assume 10% replacement required.
- Inspect interior steel framing for condition. Assume 25% of interior elements will need to be cleaned of corrosion and coated with a rust-inhibitive coating.

Building Systems

- This option will require the restoration of electrical power to the building, along with providing new lighting fixtures and convenience power receptacles as needed for the program.
- This building served as the central heating plant for the surrounding barracks and latrine with a hot water boiler that distributed heat to the other buildings. A similar approach can be taken for the restored site, or independent electric heating can be provided at each building and this building can be interpreted with a mock installation.

Scope for Interior:

Flooring:

- Remove debris and clean concrete floor.

Other:

- Repair rust on ceiling fixture.

Telephone Booth

Scope for Exterior:

- Remove vegetation.
- Restore rusting red metal panels.
- Replace glass throughout.
- Replace metal door as it is no longer operable.
- Replace rubber weather stripping throughout the structure.

Scope for Interior:

- Remove debris and vegetation, and clean concrete floor.
- Replace ceiling light fixture.
- Replace telephone.

2.2.2 Missile Launch Site

Methods for Work at the Missile Launch Site:

- All work, including demolition, new construction and grounds disturbance, will be thoroughly documented on working "as-built" drawings with descriptions and photographs.
- Use protective measures to prevent damage to the adjacent materials from the demolition operations.
- Protect building against movement, settlement or collapse of construction surrounding the demolition areas including roofs, walls and framing designated to remain and be liable for any movement, settlement, or collapse. Where necessary, install temporary shores, struts or bracing. All temporary construction must be completed prior to the start of demolition.
- Perform necessary probes to determine any required protective measures before proceeding with demolition and removal work, paying close attention to shoring and bracing requirements to prevent damage to existing construction that is to remain.
- Protect all existing historic material during demolition.
- Where applicable, provide temporary coverings to protect interior finishes from weather or impact damage; the buildings shall be maintained in a weathertight condition at all times.
- Where applicable, provide protection for wall and floor finishes for the duration of the work.
- Execute the work in a careful, orderly and safe manner, with the least possible disturbance to the public.
- Remove materials by removing or cutting anchors. Do not pry material loose. Make clean cuts at adjoining materials to remain. Do not use any open flame or heat producing devices or tools.
- Any elements considered potentially historic and/or of interpretive value are to be salvaged, catalogued and stored.

Overall Site Recommendations

Scope:

- Remove debris and trim vegetation throughout Missile Launch Site.
- Restore or replace lighting fixtures throughout site.
- Remove vegetation from roadways and repair as necessary.

2.2.2.1 Missile Launch

Ultimate Treatment for Missile Launch Area is to clean, restore and interpret the site. Treatment will include stabilizing the Launch Site, particularly the east end, from further deterioration by rebuilding the dune or implementing sheet piles. The interior of Generator Building 429 will not be restored as it is subject to flooding.

Advantages:

- This option realizes the full potential to interpret the site for its significance within a NIKE Defense Site during the Cold War.
- This option improves the stability and safety of the site.
- Permits public use and education.

Disadvantages:

- The site may need to be cleaned and remediation of hazardous materials may be required.
- This option may require structural improvements, including the construction of an additional stair for access to Underground Storage 428.
- Re-establish electrical service to Underground Storage 428.
- Provide new interior lighting fixtures and convenience power as needed for the interpretative program.
- Provide HVAC systems as needed for the interpretative program. At a minimum, heating and ventilation are anticipated for Underground Storage 428, although a full system including air conditioning may be desired.
- Re-establish active sump pumps.

Nos. 425-427: Underground Missile Storage

Overall Scope:

- Remove water from all Underground Missile Storage Areas.
- Document each of the Underground Missile Storage Areas thoroughly and salvage historic features that are in good condition and can be used in the restoration of Underground Missile Storage No. 428.
- Fill in Underground Missile Storage Nos. 425-427 with sand.

No. 428: Underground Missile Storage

Overall:

- Remove water from Underground Missile Storage Area.
- Document and salvage historic features that are in good condition and can be reused in the restoration of this area.

Scope for Interior:

Walls

- Replace perforated acoustic wall panels.

Ceiling

- Remove birds' nests from ceiling.
- Replace perforated acoustic ceiling panels and repair rusted metal framing.

Flooring

- Remove debris and drain elevator pit.
- Remove debris, clean and paint concrete floor.

Doors

- Replace all doors, frames and hardware.
- Replace lift doors and man doors as they are both disintegrating and not operable.

Structural

- Clean all exposed corroded steel reinforcement and coat with zinc-rich, rust-inhibitive coating.
- Replace corroded steel elements where required for interpretation.

Building Systems

- Re-establish electrical service to Underground Storage 428.
- Provide new interior lighting fixtures and convenience power as needed for the interpretative program.
- Provide HVAC systems as needed for the interpretative program. At a minimum, heating and ventilation are anticipated for Underground Storage 428, although a full system including air conditioning may be desired.
- Re-establish active sump pumps.

Other

- Remove debris from lift and restore angles on rusted pit edges.

No. 429: Generator Building

Overall

- Remove vegetation and biological growth on exterior concrete masonry unit.
- Repair chain link enclosure.

- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Repair or patch dents, holes, gouges and surface rust on exterior corrugated metal siding, including severe gouge on west elevation and areas that have been infilled with plywood.
- Mechanically remove rust where possible or cut out areas that are rusted and replace with corrugated metal to match existing.
- Remove abandoned anchors and repair penetrations are needed.

Doors

- Replace exterior doors and frames. The wood doors on the east and south elevations are partially missing or deteriorating, the frames are weathered and rotting, and there are open joints and splitting or broken pieces.
- Install new doors following acceptable standard practice.
- Prime and paint all doors.
- Install weatherstripping.
- Replace peeling and rusting metal thresholds.
- Replace hardware in kind.

Windows

- Replace windows on east elevation.
- Restore or replace windows on south elevation.
- Restore wood louvers and screens on west elevation that are exhibiting UV damage.
- Replace and reattach missing or detached shutters, and restore existing shutters throughout.
- Restore window trim throughout.
- Scrape paint from wood frames and trim and sand to form a smooth surface free of sharp edges, cracks and alligatoring. DO NOT use chemicals or heat.
- Treat all wood surfaces with a wood preservative.
- Close all open joints in wood frames and secure with wood glue and wood screws. Fill all holes with non-shrinking wood filler.
- If necessary, dismantle frames to replace damaged or deteriorated wood.
- Sand wood to a smooth surface, prime and paint all windows.
- Mechanically remove rust from metal window frames, particularly on the louvered windows.
- Install new sash following acceptable standard practice.

Roofing

- Repair or patch corrugated metal roof at areas that are damaged or exhibiting surface rust.
- Repair or replace all deteriorated elements that are associated with roof replacement.

Flashing and Sheet Metal

- Restore downspouts and replace those that cannot be restored.

Structural

- Evaluate wood framing at grade for deterioration.

Building Systems

- Re-establish electrical service.

Scope for Interior:

It is recommended that the interior of Generator Building 429 not be restored, but made resilient as the building sits in a very low area that is subject to flooding, even during some northeasters. The damaged/wet materials should be removed, leaving only water proof materials.

Walls

- Remove interior plasterboard walls.

Ceiling

- Remove acoustical ceilings.

Flooring

- Remove dirt, debris and sand, and clean concrete floor.
- Replace missing or displaced trench covers.

Doors

- Remove interior doors.

Windows

- Remove window trim and glazing in Room 102.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 429 A: Enclosure

Overall

- Remove entire structure and adjacent slab.
- Restore gravel roadway where slab was located to match existing adjacent roadway.

2.2.2.2 Missile Ready

The Ultimate Treatment proposed for the Missile Ready Area is to clean, stabilize and make the buildings resilient and flow through.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- This option allows for the Park to continue to use the buildings.
- By cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.
- This option would include the removal of the deteriorated remnants of the HVAC, plumbing and electrical systems.

No. 447: Flammable Materials Storehouse

Overall

- Remove vegetation and debris around structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Door

- Remove door.

Roofing

- Replace roof 25%, including sill plate, joists, sheathing, and rim board. This assumes a portion of the roof is damaged that was not observed from the exterior.

Interior: *Inaccessible*

No. 448: Slab

Scope: No work is recommended.

No. 449: Missile Assembly and Test Building

Overall

- Remove vegetation and biological growth throughout the structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair displacement in the CMU on the west elevation.
- Repair stepped cracks, remove abandoned anchors, replace missing mortar and fill in holes throughout structure.

Doors

- Remove and store man doors. Metal roll-up doors are to remain and should be rolled up during storms to allow for water flow through. Metal chain-link fences are to be installed for security.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Evaluate roof joists extensions and repair or replace as necessary.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Evaluate roof joists extensions and repair or replace as necessary.
- At vertical crack, replace all cracked CMU and repoint surrounding area.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Flooring

- Remove debris and clean concrete floor.

Walls

- Cut back wall finishes up to three feet or remove wall finishes entirely to avoid water damage and deterioration.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 449 A: Storage

Overall

- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Remove entire structure, with the exception of the concrete slab.

No. 449 B: Storage

Overall

- Remove entire structure, with the exception of the concrete slab.

No. 450: Warhead Building

Overall

- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair spalling CMU and penetrations, particularly on the east elevation.
- Repair cracks in CMU, some severe, on each elevation, especially around fenestrations.

Doors

- Remove and store man doors.
- Metal roll-up doors are to remain and should be rolled up during storms to allow for water flow through.
- Metal chain-link fences are to be installed for security.

Windows

- Install chain-link screens over window openings.

Roofing

- Replace roof and associated elements to preserve the building for several decades.

Flashing and Sheet Metal

- Replace all gutters and downspouts to protect building from water damage.

Structural

- Repoint all open joints, including step crack locations. Replace all cracked CMU. Assume 50% repointing and 5% CMU replacement.
- Repair door lintel by reinstating spalled CMU with concrete repair material.
- Clean all steel of corrosion and coat with a rust-inhibitive coating.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Flooring

- Remove debris.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

2.2.2.3 Administrative Area

The Ultimate Treatment proposed for the Housing Area is to clean, stabilize and improve the safety of the buildings so they can be interpreted as part of the larger story. Building 433 will be used for interpretation and Building 431 will be used to store displaced life guard storage. Given the level of deterioration, the proposed Ultimate Treatment for the Central Heating Plant (435) is demolition.

Advantages:

- This option preserves the buildings for future restoration.
- This option improves the stability and safety of the buildings.
- This option allows for the Park to use the buildings (they will be removing equipment that is currently being stored in the barracks upon completion of a new maintenance facility).
- By cleaning and stabilizing the buildings, they can be interpreted as part of the larger story of the significance of the NIKE Defense Site during the Cold War.

Disadvantages:

- This option does not allow for full interpretation of the buildings.
- This option does not address any observed building code or accessibility deficiencies.

Nos. 430 and 432: Barracks

Overall

- Remove vegetation and biological growth throughout the structures.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Stabilize corrugated metal siding in places where it is bowing.

Doors

- Stabilize and paint all doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Repair gap at ridge beam on south elevation of Building 430.

- Repair and stabilize roof where necessary to preserve the buildings for several decades.

Structural

- At open end of Building 430, clean truss of all corrosion and coat with zinc-rich, rust-inhibitive primer and paint.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Walls

- Remove interior particle board walls and insulation.

Ceiling

- Remove particle board ceilings.

Flooring

- Remove debris and clean concrete floor in No. 430.
- Remove debris deteriorating vinyl asbestos tile in No. 432.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 431: Barracks

Overall

- Remove vegetation and biological growth throughout the structure.
- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.

Scope for Exterior:

Doors

- Repair doors so that the structure can continue to be used for lifeguard storage.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Repair gap at ridge beam on south elevation.
- Reattach roof where it is pulling away from north elevation.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Walls

- Remove interior particle board walls and insulation.

Ceiling

- Remove particle board ceiling.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 433: Barracks

Overall

- Remove vegetation and biological growth throughout the structure.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.
- Replace rusted conduit and remove cap over vent louver.

Scope for Exterior:

Exterior Walls (Corrugated Metal Siding)

- Repair or patch nail pops, penetrations and surface rust, particularly around foundation, roofline and fenestrations, on exterior corrugated metal siding.
- Cut out areas of rust, particularly near foundation, and replace with corrugated metal to match existing. Use corrugated metal siding from other barracks that are not being restored if the original metal cannot be matched.
- Reconfigure south elevation to match north elevation with two windows and a door between.
- Strip and paint corrugated metal siding.

Doors

- Replace north door and frame (door is not original). Remove plywood from north door on Barrack No. 430. If door is original, salvage and reuse here. Salvage and reuse hardware from Building 430.
- Remove south doors and replace with door to match original. Remove plywood from north door on Building 431. If door is original, salvage and reuse here. Salvage and reuse hardware from another building if possible.
- Install weatherstripping and thresholds.

Windows

- Restore windows, strip and repaint, including flashing where necessary. Most of the windows are exhibiting UV damage, physical damage at penetrations, splitting or rotting sills and rusted flashing.
- Remove existing metal screens and install new metal screens in each window.

Roofing

- Strip and paint corrugated metal roof.
- Replace rusted and warping bed moulding board.

Building Systems

- Re-establish electrical service to the building.

Scope for Interior:

Walls

- Replace insulation and particle board on all four interior walls.

Ceiling

- Replace insulation and particle board on entire ceiling.
- Strip and paint metal trusses.

Flooring

- Remove asbestos floor tiles and replace with new tile, laminate flooring or concrete.

Building Systems

- Provide new lighting fixtures and convenience receptacles, as needed for the program.
- At a minimum, provide heating to the building although a full HVAC system may be desired based on the program needs.

Other

- Salvage original heating pipes from one of the other Barracks or the Latrine and install to allow for full interpretation of the interior.

No. 434: Latrine

Overall

- Remove vegetation and biological growth on exterior concrete masonry unit.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair stepped cracks on the east elevation and in the southwest corner and repair cracks within CMU on north elevation.

Doors

- Stabilize and paint all doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.

- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.

Building Systems

- Remove remnants of original electrical and HVAC systems.

Scope for Interior:

Ceiling

- Replace plasterboard ceiling in conjunction with roof replacement to protect interior of building from water damage.

Flooring

- Remove debris and clean concrete floor.

Building Systems

- Remove deteriorated electrical distribution panels, transformers, lighting fixtures and related equipment.
- Remove deteriorated HVAC equipment and ductwork.

No. 435: Central Heating Plant

Overall

- Any elements considered historic and/or of interpretive value are to be salvaged, catalogued and stored.
- Remove entire structure, with the exception of the concrete slab.
- Document mechanical equipment and remove.

No. 437: Ready Building

Overall

- Remove vegetation and biological growth on exterior concrete masonry unit.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.

- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair cracks on north elevation, especially around fenestrations.
- Repair vertical and stepped cracks in CMU on east elevation.
- Repair vertical and stepped cracks on east elevation and minor cracks on west elevation.
- Repair severe crack in brick chimney stack on north elevation.
- Repair top of CMU stack on east elevation.

Doors

- Stabilize and repaint all doors.

Windows

- Repair windows and install vents to allow for air circulation.

Roofing

- Remove biological growth from roof.
- Replace sections of missing mesh overhang on the north, south and east elevations.
- Repair rusting metal roof on south elevation.

Flashing and Sheet Metal

- Stabilize or replace downspouts to protect building from water damage.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 25% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.
- Reinstate boiler room ceiling to appropriate fire rating.
- Repair brick chimney. Reconstruct upper four feet of brick chimney and repair all vertical cracks.
    - Alternative: If chimney is no longer in active use, demolish chimney.
- Repair CMU chimney. Replace upper six CMU. Evaluate internal terra cotta flue and repair or line as necessary.

Scope for Interior:

Walls

- Repair drywall partitions where necessary.

- Repair interior CMU cracks around fenestrations, particularly in Room 106.

Ceiling

- Remove particle board ceilings.

Flooring

- Remove debris and clean concrete floor.
- Replace deteriorating asbestos tile floors with new tile, laminate or concrete flooring.

No. 439: Sentry Box

Overall

- Remove vegetation and biological growth on exterior concrete masonry unit.
- Any elements considered historic and/or of interpretive value are to be reused or salvaged, catalogued and stored.
- Relocate building systems and other elements attached to exterior walls.

Scope for Exterior:

Exterior Walls (Masonry)

- Repair cracks in CMU on east elevation and in northeast and southeast corners.
- Repair cracks and broken corners in concrete apron.
- Remove abandoned clips and anchors and repair fastener damage.

Doors

- Stabilize and paint all doors.

Windows

- Repair windows and install a vent to allow for air circulation.

Structural

- Repoint all open joints. Where possible, remove corroded horizontal joint reinforcement. Assume 10% repointing required.
- Repair roof elements effected by roof flashing laps. Consider redesign of roof flashing to prevent future localized deterioration.
- The turn down slab settlement is likely due to changes to grade and slope around the guard house. Underpinning such a small structure is not practical.
    - Level 1: Repair cracks and address level changes to create a smooth walking surface.
    - Level 2: Rebuild turndown slab to accommodate existing grade.

- Level 3: Regrade area to historic levels (grade was likely near to or level with top of turndown slab) and rebuild slab.

Scope for Interior:

Walls

- Remove plasterboard walls.

Ceiling

- Remove deteriorating plasterboard ceiling and paint.

Flooring

- Remove debris and clean concrete floor.

No. 456: Slab

Scope: No work is recommended.

2.2.2.4 Dog Kennel

Ultimate Treatment proposed for the Kennel is to leave the site in existing condition.

Advantages:

- No significant construction costs would be incurred.

Disadvantages:

- The site will continue to deteriorate and may become a safety hazard.
- This option does not allow for full interpretation of the site.
- This option could prolong the restoration process should the park decide to restore and interpret the site at a later date.

458: Kennel

Scope of Work: *No work is recommended.*

No. 458 A: Kennel Support Building

Scope of Work: *No work is recommended.*

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Rasa, Mary, “Oral History Interview with Carl Cochran”, Sandy Hook, NJ: Sandy Hook Unit, Gateway National Recreation Area, June 26, 2004.

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Roeder, Bradley, “Oral History Interview with Bill Jackson,” January 28, 2016.

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http://ed-thelen.org/t_m_launchGuardShack-.jpg, accessed January 26, 2016.

Note: The website ed-thelen.org is a repository of NIKE Missile manulas, diagrams, photographs, oral histories and other documents that is tremendously useful to anyone researching the NIKE Missile era. Above are highlighted the individual pages directly referenced in the Historic Structures Report, but the entire website is useful.

https://www.google.com/maps/@40.4200555,-73.980437,5412m/data=!3m1!1e3
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Maps, Plans & Photographs

Architectural Drawings, 1954-1967, NPS/Gateway National Recreation Area Museum Collection.

Historic Photographs, NPS/Gateway National Recreation Area Museum Collection.

GLOSSARY

accessibility	Capable of being reached; providing access. Typically referring to ease of entry and use by disabled persons
barracks	A building or set of buildings used especially for lodging soldiers in garrison
battery	A grouping of artillery pieces for tactical purposes; an artillery unit in the army equivalent to a company
bay	A basic unit or module of a building defined by regularly repeated elements.
beam	A rigid structural member designed to carry and transfer transverse loads across space to supporting elements.
bulkhead	A horizontal or inclined door over a stairway giving access to a cellar.
casing	The finished, often decorative framework around a door or window opening.
cladding	A protective covering that protects the exterior structure of a building (see siding).
collimation	To make (as light rays) parallel
deflection	The displacement of a structural element under load
double hung window	A window having two vertically sliding sashes, each in separate grooves or tracks and closing a different part of the window.
eave	The overhanging lower edge of a roof.
fenestration	A general term used to denote the pattern or arrangement of windows on an exterior wall.
frequency exchanger	An electronic or electromechanical device that converts alternating current (AC) of one frequency to alternating current of another frequency. The device may also change the voltage, but if it does, that is incidental to its principal purpose.
generator	A machine by which mechanical energy is changed into electrical energy
grade	The vertical elevation where the ground meets the foundation of a building. Also called *grade line*.
interpretation	A teaching technique that combines factual with stimulating explanatory information

joist	A timber that spans the width of a building and supports the floors and, at the attic level, the base of the roof framing.
kennel	A shelter for a dog or cat
latrine	A toilet or outhouse, especially a communal one in a camp or barracks.
launcher	A device for launching a missile.
light / lite	A term for each pane of glass in a window.
load	Any of the forces to which a structure is subjected.
magazine	A supply chamber as a holder in or on a gun for cartridges to be fed into the gun chamber
missile	An object that is thrown, shot, or launched as a weapon; *especially* : a rocket that explodes when it hits a distant target.
mortar	Masonry bonding cement usually composed of lime and sand; in the late nineteenth and twentieth centuries, of Portland cement.
moulding	A decorative recessed or relieved surface used for finishing or purely as ornamentation.
muntin	In windows, the thin bar used to hold glass panes in place; in paneled doors, the vertical central members used to hold the panels in place.
pointing	The finish treatment for mortared joints.
proving ground	A place for scientific experimentation or testing (as of vehicles or weapons).
radar	Acronym for RAdio Detection And Ranging; A device or system consisting usually of a synchronized radio transmitter and receiver that emits radio waves and processes their reflections for display and is used especially for detecting and locating objects (as aircraft) or surface features (as of a planet)
rafter	The sloping framing element that is seated on a plate or a false plate and supports the roof covering.
rake	A board or molding placed along the sloping sides of a gable to cover the ends of the siding; the inclined, usually projecting edge of a sloping roof.

rehabilitation	The process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values; as defined by the Secretary of the Interior.
ridge	The line of intersection of the opposite slopes of a roof.
sash	A frame in which glass window panes are set; often subdivided by muntins.
sentry	A soldier standing guard at a point of passage (as a gate)
siding	A weatherproof material, as shingles, board or units of sheet metal, used for surfacing the exterior walls of a frame building.
single hung window	A window having two sashes, of which only one is moveable.
soffit	The exposed flat surface of any overhead building component, whether of an arch, eave, balcony, beam, cornice or lintel.
stile and rail	A term to describe a type of paneled door constructed of stiles (upright members framing panels) and rails (horizontal member framing panels). Panels are distinct sections or divisions recessed below or raised above the general level or enclosed by a frame.
transformer	A device that changes the voltage of an electric current

Appendix A – Historic Drawings

All drawings were received from Gateway National Recreation Area as potentially relevant to the Historic Structures Report.

GATE 8777. "Nike" Project Vicinity Map and General Plan. March 22, 1954. Revised November 5, 1954.

GATE 8778. "Nike" Project General Plan Launching and Control Area. March 22, 1954. Revised November 15, 1954.

GATE 8780. "Nike" Project Topographical Plan between Control and Launching Areas. March 22, 1954. Revised September 30, 1954

GATE 8781. "Nike" Project Topographical Plan between Control and Launching Areas. March 22, 1954. Revised September 30, 1954.

GATE 8782. "Nike" Project Profile between Control and Launching Area. March 22, 1954. Revised November 15, 1954.

GATE 8783. "Nike" Project Control Area Control Area Site Plan. March 22, 1954. Revised November 15, 1954.

GATE 8784. Launching Area Type "D" Road & Paving Details. January 22, 1954. Revised September 30, 1954.
GATE 8785. Nike-1 Latrine (Type "C") Launching and Control Areas Plans, Elevations & Section. June 2, 1953. Revised July 30, 1954.

GATE 8788. "Nike" Project Launching Area, Launching Area Site Plan. March 22, 1954. Revised November 15, 1954.

GATE 8790. "Nike" Project Launching Area Access Road to Launching Area. March 22, 1954. Revised November 15, 1954.

GATE 8791. Nike-1 Underground Missile Storage Structure-Type-"B" Plumbing & Heating. December 23, 1953. Revised August 1, 1955.

GATE 8877. Modified Emergency Construction Towers & Ground Mounts with Radomes Tracking Radar. July 15, 1960. Revised February 7, 1962.

GATE 8878. Modified Emergency Construction Towers & Ground Mounts with Radomes Tracking Radar. July 15, 1960. Revised June 15, 1962.

GATE 8879. Modified Emergency Construction Towers & Ground Mounts with Radomes Tracking Radar. July 15, 1960. Revised January 4, 1962.

GATE 8880. Modified Emergency Construction Towers & Ground Mounts with Radomes Tracking Radar. July 15, 1960. Revised January 4, 1962.

GATE 8881. Special AAA Facilities Improved Nike-Hercules Control Systems, Modification of Existing Platforms, Acquisition and Tracking Radar. September 11, 1961. Revised April 27, 1962.

GATE 8882. Nike Site Control Area No. 2 Topography. August 6, 1960.

GATE 8883. Improved Nike-Hercules Control Systems, ½ N.Y. 56 Fort Hancock, N.J. September 11, 1961.

GATE 8884. New York Defense Area, Special AAA Facilities, Interconnecting Corridor between Radar Control Vans; Engine Generator and Frequency Changer Building (For Control Area). October 27, 1955. Revised December 20, 1955.

GATE 8885. Special AAA Facilities, Improved Nike-Hercules Control Systems, Site Details. September 11, 1961. Revised January 4, 1962.

Gate 8886. Special AAA Facilities, Improved Nike-Hercules Control Systems, Site Details. September 11, 1961. Revised April 9, 1962.

GATE 8887. Fence & Details, Type FE-5, FE-6, FE-7. July 2, 1953. Revised January 4, 1962.
GATE 8890. Improved Nike-Hercules System Generator Building Modification Type “A” & “B” Plans & Elevations. June 10, 1960. Revised June 15, 1962.

Gate 8891. Floor Plans & Details for Modification to Existing Generator Bldg. Type- “A”, Roof Plan for Type “A” & “B”. September 11, 1961. Revised February 7, 1962.

GATE 8892. Part Floor Plan and Details for Modification to Existing Generator Building Type “A” & “B”. September 11, 1961.

GATE 8893. Generator Building Modification Type “A” & “B” Wall Sections and Details. June 10, 1960. Revised June 15, 1962.

GATE 8900. HIPAR Building – Non Consolidated Plans & Elevations. December 14, 1960. Revised April 9, 1962.

GATE 8901. HIPAR Building – Non Consolidated Trench Layout & Details. December 14, 1960. Revised April 9, 1962.

GATE 8902. HIPAR Building – Non Consolidated Roof Framing Plan, Longitudinal Section & Details. June 10, 1960. Revised June 15, 1962.

GATE 8903. Improved Nike-Hercules System HIPAR Bldg Non Consolidated Wall Sections. June 10, 1960. Revised February 7, 1962.

GATE 8904. Improved Nike-Hercules System HIPAR Bldg Non Consolidated Penthouse & Trench Det. June 10, 1960. Revised June 15, 1962.

GATE 8914. Improved Nike-Hercules System High Power Acquisition Radar Tower HIPAR Conus Platform – Plan and Details. July 27, 1960. Revised February 7, 1962.

GATE 8916. Improved Nike-Hercules System High Power Acquisition Radar Tower HIPAR Extension – Plan and Details. July 27, 1960.

GATE 8917. Improved Nike-Hercules System High Power Acquisition Radar Tower HIPAR Extension Details. July 27, 1960.

GATE 8919. Improved Nike-Hercules System High Power Acquisition Radar Tower HIPAR Conus Platform – Electrical Circuits. July 27, 1960. Revised March 29, 1962.

GATE 8920. Improved Nike-Hercules System High Power Acquisition Radar Tower HIPAR Radome Erection Diagrams – Part 1. July 27, 1960.

GATE 8921. Improved Nike-Hercules System High Power Acquisition Radar Tower HIPAR Radome Erection Diagrams – Part 2. July 27, 1960.

GATE 8922. Support, Radome Improved Nike – Hercules. July 6, 1959.

GATE 8923. Support, Radome Improved Nike – Hercules. July 16, 1959.

GATE 8937. Extension, Radome, Support Imp Nike – Hercules. July 16, 1959.

GATE 8938. Extension, Radome, Support Imp Nike – Hercules. July 16, 1959.

GATE 8945. Improved Nike-Hercules Control Systems Site Plan & Vicinity Map ½ N.Y. 56 C-1 Fort Hancock, N.J. September 11, 1961. Revised April 27, 1962.

Gate 11028. “Nike” Project Launching Area General Site Plan. March 15, 1954. Revised September 15, 1954.

GATE 11029. “Nike” Project Launching Area Access Road. March 25, 1954. Revised September 30, 1954.

GATE 11030. “Nike” Project Control Area Site Plan. March 25, 1954. Revised September 30, 1954.

GATE 11031. Nike-1 Generator Building Battery Launching Area Plans, Elevations & Section. October 5, 1955. Revised June 8, 1954.

GATE 11044. Office of the Post Engineer. Date NA.

GATE 11287. “Nike” Project Rehabilitated Buildings Diagrammatic Plans. March 22, 1954. Revised March 29, 1954.

GATE 11298. Nike-1 Underground Missile Storage Structure – Type “B” Plans. December 23, 1953. March 8, 1954.

GATE 11299. Nike-1 Underground Missile Storage Structure – Type “D” Sections. December 23, 1953. Revised March 29, 1954.

GATE 11301. Nike-1 Underground Missile Storage Structure – Type “B” Sections. December 23, 1953. Revised March 23, 1954.

GATE 11302. Nike-1 Underground Missile Storage Structure – Type “B” Sections. December 23, 1953. Revised March 23, 1954.

GATE 11306. Nike-1 Underground Missile Storage Structure – Type “B” Top Frame Assembly & Details. December 23, 1953.

GATE 11307. Nike-1 Underground Missile Storage Structure – Type “B” Door Assembly & Details. December 23, 1953.

GATE 11309. Nike-1 Underground Missile Storage Structure – Type “B” Platform. December 23, 1953.

GATE 11317. Nike-1 Acid Storage Shed Plans, Elevations & Details. January 23, 1954. Revised March 29, 1954.

GATE 11318. Nike Latrine (Type “C”) Launching and Control Areas Plans, Elevations and Section. June 2, 1953. Revised March 29, 1954.

GATE 11822. Nike-1 Missile Assembly & Test Bldg. Plans, Elevations & Section. January 22, 1954. Revised May 20, 1954.

GATE 11823. Nike-1 Underground Missile Storage Structure – Type-“B” Details. December 23, 1953. Revised November 12, 1954.

GATE 11824. Nike-1 Underground Missile Storage Structure – Type-"B" Plans. December 23, 1953. Revised November 12, 1954.

Electrical Distribution Launching Area Fort Hancock, December 12, 1962.

"NIKE" Project Control Area Electrical Distribution Plan. March 22, 1954. Revised September 30, 1954.

New York Defense Area Special AAA Facilities Interconnecting Corridor Between Radar Control Vans; Engine Generator and Frequency Changer Building (For Control Area) Site Plan & Water Line. October 27, 1955. Revised December 20, 1955.

Special AAA Facilities Conversion of Tactical Facilities and Elevator Improvements. FY-1958 Launching Area Plan Electrical. Original Date NA. Revised January 27, 1960.

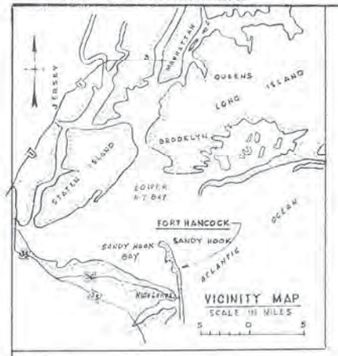
Site Plan Control Area Fort Hancock. September 4, 1962.

Modified Emergency Construction Special AAA Ready Building Plans and Schedules. June 18, 1956. Revised January 20, 1964.

Missile Assembly & Test Building. August 14, 1958. Revised October 14, 1958.

CORPS OF ENGINEERS

U. S. ARMY



N 166,000 N 162,000 N 158,000 N 154,000 N 150,000 N 146,000

E 306,000 E 302,000 E 298,000 E 302,000

ATLANTIC OCEAN

SANDY HOOK BAY

SPERMACETI COVE

U.S. HWY. 9

SHREWSBURY RIVER

PLUM ISLAND

HIGHLANDS

ENTRANCE TO FORT HANCOCK
LIMIT OF GOVERNMENT PROPERTY

Gate House

SITE

CONTROL AREA

ENGINEERS

DISPOSAL AREA FOR HYDRAULIC FILL. LOCATION TO BE DETERMINED IN FIELD BY CONTRACTING OFFICER

REHABILITATION

LOCATION TO BE DETERMINED IN FIELD BY CONTRACTING OFFICER

DREDGING AREA

800 0 800 1600 2400 3200 4000

Scale: 1"-800'

Notes:

COORDINATES ARE EXPRESSED IN FEET AND REFER TO THE SPECIAL LAMBERT SYSTEM DEVELOPED BY THE U.S.C.&G.S. SURVEY FOR SANDY HOOK, NEW JERSEY. TRUE NORTH CONFORMS TO THE SPECIAL LAMBERT SYSTEM.

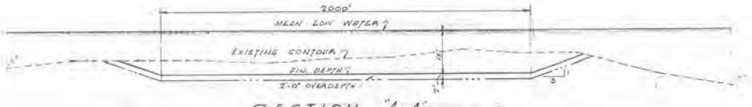
THE PLANE OF REFERENCE OF MEAN LOW WATER IN SANDY HOOK BAY AS USED HERE IN, IS THAT DETERMINED BY THE FOLLOWING BENCH MARKS:

BENCH MARK "J" (1928) SANDY HOOK, IS A CONST. AND GEODETIC SURVEY STANDARD DISK, STAMPED "J 1928, SET FLUSH WITH A BLOCK OF GRANITE AT THE SOUTHEAST CORNER OF THE GRANITE FOUNDATION ON WHICH SITS A LARGE CYLINDRICAL WATER TANK. THE MARK IS ABOUT 8.0' ABOVE THE GROUND IN THE FOURTH TIER OF BLOCKS AND IS 8.5 METERS NORTH OF A ONE STORY RED BRICK BUILDING.
ELEVATION ABOVE M.L.W. (5.06 FEET)
ELEVATION ABOVE MEAN SEA LEVEL 1929 DATUM (5.06+2.81) = 7.87 FEET

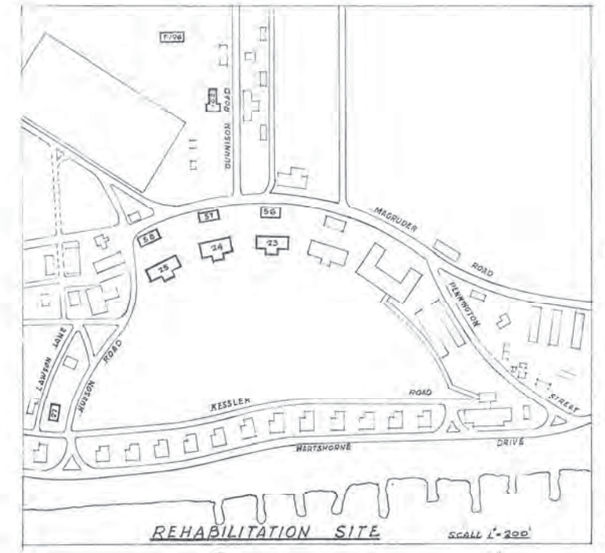
BENCH MARK 3 (1938) SANDY HOOK IS A CONST. AND GEODETIC SURVEY STANDARD DISK STAMPED "3 1938" SET IN CEMENT IN THE FOURTH STEP FROM THE BOTTOM IN FRONT OF THE HOUSE OF THE U.S. WEATHER BUREAU.
ELEVATION ABOVE M.L.W. 17.15 FEET
ELEVATION ABOVE MEAN SEA LEVEL (6.01 FEET)



SECTION "B-B"
HORIZONTAL SCALE: 1"= 800'
VERTICAL SCALE: 1"= 20'



SECTION "A-A"
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=20'



REHABILITATION SITE SCALE 1"-200'

RECORD DRAWING
OF WORK - AS - BUILT
Ellen N. Arendell Jr.
Contracting Officer
23 September 1955

FOR REFERENCE ONLY
The government assumes no responsibility for the accuracy of the information shown hereon.

CLEARING FOR LINE OF SIGHT & MASKING

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
2	29 JAN 54	CHANGE ROAD TO POINT	
1	15 NOV 54		

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK, N. Y.

DRAWN BY: J.D.V.J.
DESIGNED BY: A.F.S.
SUBMITTED: [illegible] ASSOCIATE TRUSTEES
REVIEWED: W.N. Fiddler CHIEF, DESIGN BRANCH

NEW YORK DEFENSE AREA
"NIKE" PROJECT
VICINITY MAP
AND
GENERAL PLAN
FORT HANCOCK NEW JERSEY

REVIEWED: [signature] ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: [signature] CHIEF, ENGINEERING DIVISION

APPROVED: W.H. Davidson Jr. COLONEL, C.E., DISTRICT ENGINEER
DATE 22 MARCH 1954

SCALE AS SHOWN
DRAWING NUMBER 60.08-02
SHEET OF

FILE Nº 6171-2241.1

CORPS OF ENGINEERS

U. S. ARMY



NOTE

Elevations shown are in feet and refer to Plane of low water which is 2.4 feet below Mean Sea Level at Sandy Hook New Jersey.

Co-ordinates shown are in feet and refer to the Special Lambert System developed by U.S.C.&G.Survey for Sandy Hook.

FOR REFERENCE ONLY

The government assumes no responsibility for the accuracy of the information shown hereon.

RECORD DRAWING
OF WORK AS BUILT
Ellwin N. Randall Jr.
Contracting Officer
23 September 1955

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
1	19 NOV 54	CLEARING FOR LINE OF SIGHT & MASKING	
2	30 SEPT 54	HAVE REVISED TO ALERT BARRACKS FURNISHED BY GOVT & INSTALLED BY CONTRACTOR	A.V.D.
3	22 JULY 54	CONCRETE SLABS FOR ALERT BARRACKS ADDED IN CONTROL & LAUNCHING AREAS	A.V.D.
4	22 JULY 54	CENTRAL HEATING PLANTS ADDED IN CONTROL & LAUNCHING AREAS	A.V.D.
5	7 MARCH 52	GENERAL REVISION	A.V.D.

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEERS
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

DRAWN BY: C.D.
DESIGNED BY: A.V.D.
SUBMITTED: [illegible]
RECOMMENDED: [illegible]
REVIEWED: [illegible]
APPROVED: [illegible]
DATE: 22 MARCH 1954

NEW YORK DEFENSE AREA
"NIKE" PROJECT
GENERAL PLAN
LAUNCHING AND CONTROL AREA
FORT HANCOCK NEW JERSEY

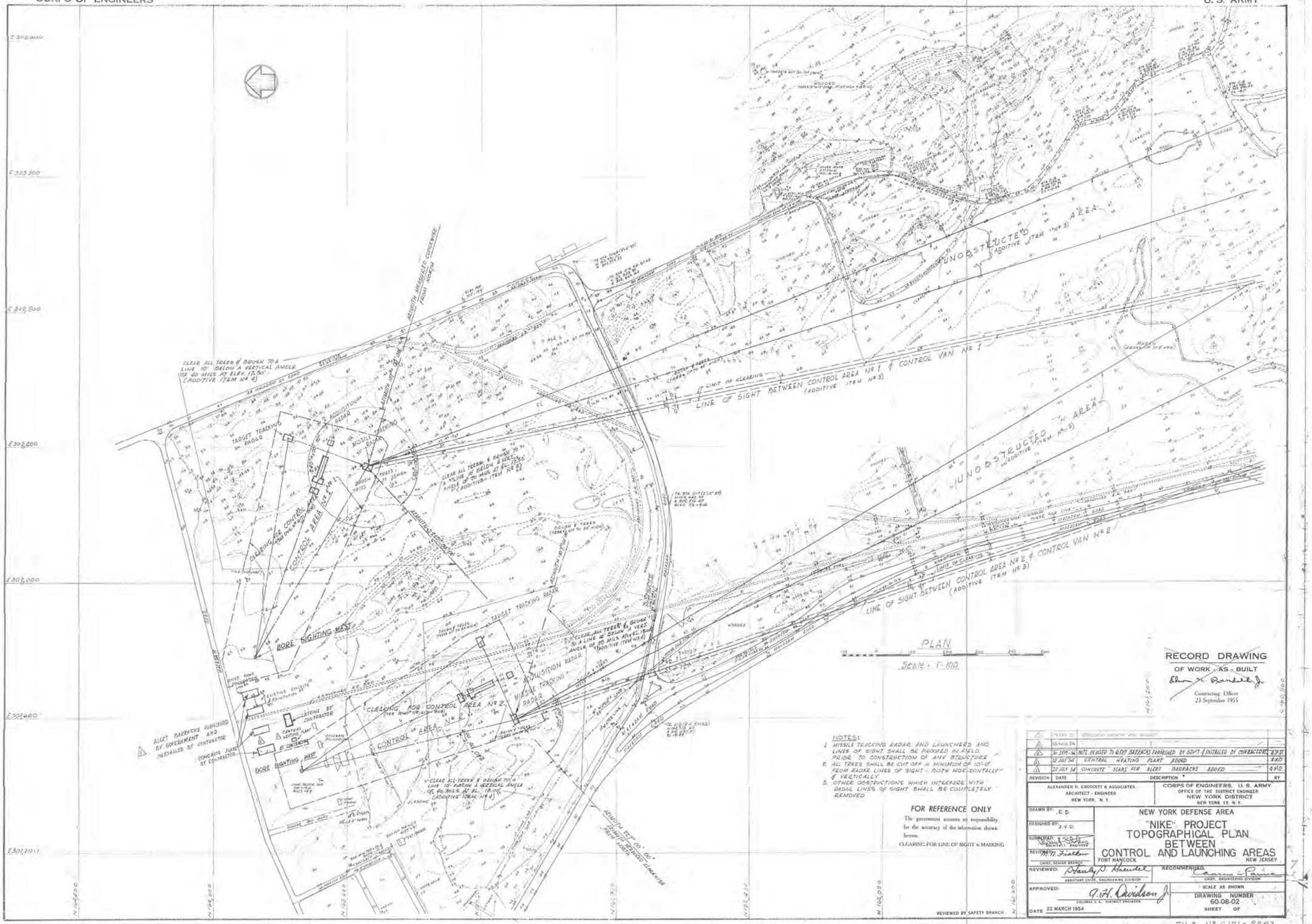
SCALE AS SHOWN
DRAWING NUMBER 60-08-02
SHEET OF

FILE Nº 6171-2242

21

CORPS OF ENGINEERS

U. S. ARMY



RECORD DRAWING
OF WORK - AS - BUILT
Edwin F. Randall Jr.
Contracting Officer
23 September 1955

NOTES:
1. MISSILE TRACKING RADAR AND LAUNCHERS AND LINES OF SIGHT SHALL BE PROVED IN FIELD PRIOR TO CONSTRUCTION OF ANY STRUCTURE
2. ALL TREES SHALL BE CUT OFF A MINIMUM OF 10'-0" FROM RADAR LINES OF SIGHT - BOTH HORIZONTALLY & VERTICALLY
3. OTHER OBSTRUCTIONS WHICH INTERFERE WITH RADAR LINES OF SIGHT SHALL BE COMPLETELY REMOVED

FOR REFERENCE ONLY
The government assumes no responsibility for the accuracy of the information shown hereon.
CLEARING FOR LINE OF SIGHT & MASKING

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
	18 AUG 54		
1	30 SEPT 54	NOTE REVISED TO ALERT BARRACKS FURNISHED BY GOVT & INSTALLED BY CONTRACTOR	R.V.D.
2	12 JULY 54	CENTRAL HEATING PLANT ADDED	R.V.D.
3	22 JULY 54	CONCRETE SLABS FOR ALERT BARRACKS ADDED	R.V.D.

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

DRAWN BY: C. D.
DESIGNED BY: J. V. D.
SUBMITTED: [illegible] CHIEF, DESIGN BRANCH
REVIEWED: M. M. Fiedler
REVIEWED: Stanley P. Schneider ASSISTANT CHIEF, ENGINEERING DIVISION
APPROVED: 9. H. Davidson Jr. COLONEL, C. E., DISTRICT ENGINEER
DATE 22 MARCH 1954

NEW YORK DEFENSE AREA
"NIKE" PROJECT
TOPOGRAPHICAL PLAN
BETWEEN
CONTROL AND LAUNCHING AREAS
FORT HANCOCK NEW JERSEY

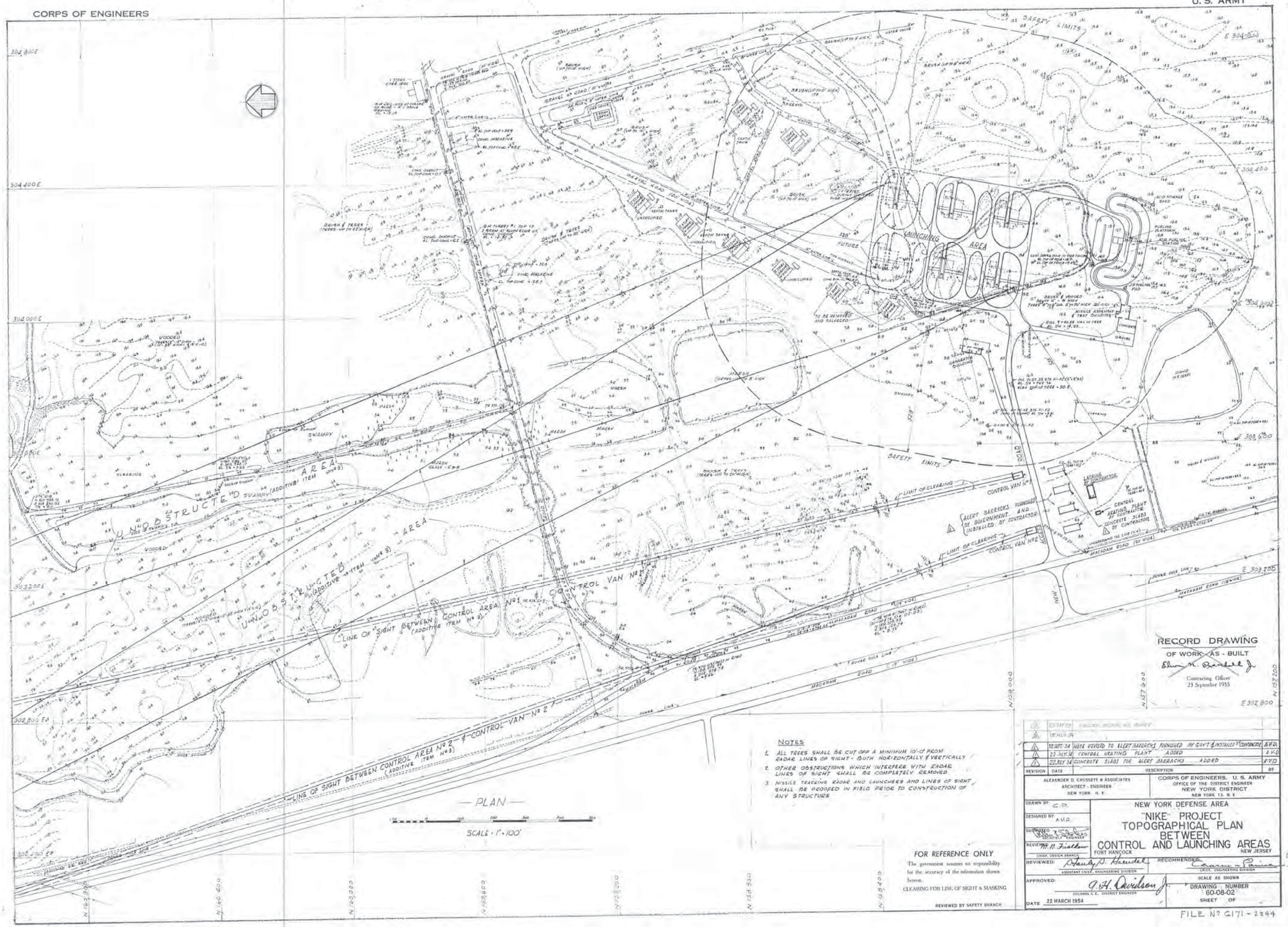
RECOMMENDED: [illegible] CHIEF, ENGINEERING DIVISION

SCALE AS SHOWN
DRAWING NUMBER
60-08-02
SHEET OF

FILE Nº G171 - 2243

CORPS OF ENGINEERS

U. S. ARMY



— PLAN —

SCALE · 1" · 100'

RECORD DRAWING
OF WORK AS - BUILT
Edward M. Randall Jr.
Contracting Officer
23 September 1955

NOTES

1. ALL TREES SHALL BE CUT OFF A MINIMUM 10'-0" FROM RADAR LINES OF SIGHT - BOTH HORIZONTALLY & VERTICALLY
2. OTHER OBSTRUCTIONS WHICH INTERFERE WITH RADAR LINES OF SIGHT SHALL BE COMPLETELY REMOVED
3. MISSILE TRACKING RADAR AND LAUNCHERS AND LINES OF SIGHT SHALL BE PROOFED IN FIELD PRIOR TO CONSTRUCTION OF ANY STRUCTURE

FOR REFERENCE ONLY

The government assumes no responsibility for the accuracy of the information shown hereon.

CLEARING FOR LINE OF SIGHT & MASKING

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
1	15 AUG 54		
2	30 SEPT 54	NOTE REVISED TO ALERT BARRACKS FURNISHED BY GOVT & INSTALLED BY CONTRACTOR	A.V.D.
3	22 NOV 54	CENTRAL HEATING PLANT ADDED	A.V.D.
4	22 JULY 54	CONCRETE SLABS FOR ALERT BARRACKS ADDED	A.V.D.

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

DRAWN BY: C.D.
DESIGNED BY: A.V.D.
SUBMITTED: Chief, Design Branch
REVIEWED: W. N. Fiddler
CHIEF, DESIGN BRANCH
REVIEWED: Charles P. Saunders
ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: [illegible]
CHIEF, ENGINEERING DIVISION
APPROVED: O. H. Cavelson Jr.
COLONEL, C.E., DISTRICT ENGINEER
DATE: 22 MARCH 1954

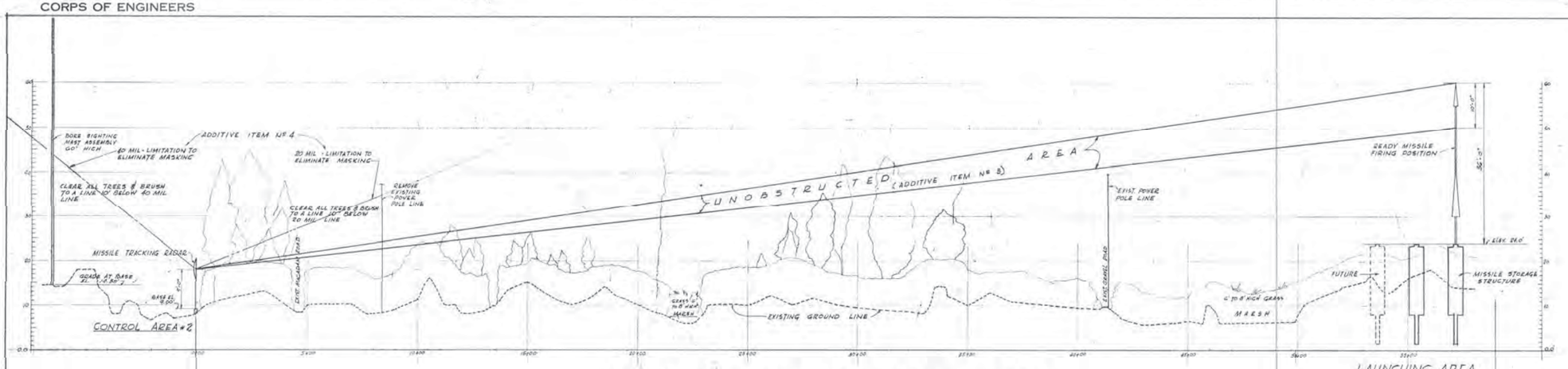
NEW YORK DEFENSE AREA
"NIKE" PROJECT
TOPOGRAPHICAL PLAN
BETWEEN
CONTROL AND LAUNCHING AREAS
FORT HANCOCK NEW JERSEY

SCALE AS SHOWN
DRAWING NUMBER
60-08-02
SHEET OF

FILE Nº G171 - 2944

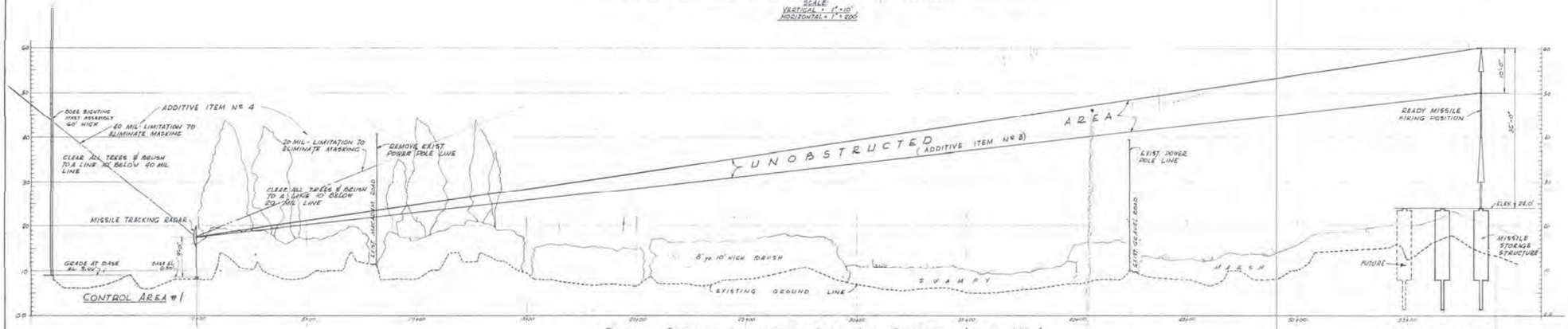
CORPS OF ENGINEERS

U. S. ARMY



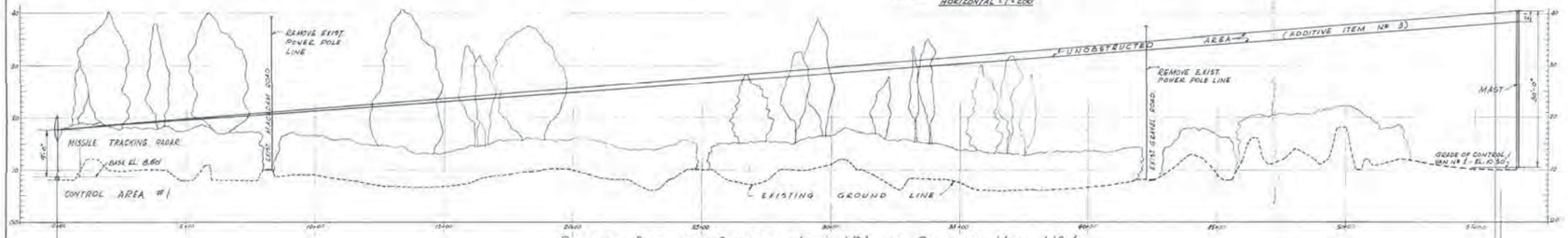
PROFILE BETWEEN LAUNCHING AREA AND CONTROL AREA Nº 2

SCALE: VERTICAL = 1"=10' HORIZONTAL = 1"=200



PROFILE BETWEEN LAUNCHING AREA AND CONTROL AREA Nº 1

SCALE: VERTICAL = 1"=10' HORIZONTAL = 1"=200



PROFILE BETWEEN CONTROL AREA Nº 1 AND CONTROL VAN Nº 1

SCALE: VERTICAL = 1"=10' HORIZONTAL = 1"=200'



PROFILE BETWEEN CONTROL AREA Nº 2 AND CONTROL VAN Nº 2

SCALE: VERTICAL = 1"=10' HORIZONTAL = 1"=200'

REVIEWED BY SAFETY BRANCH

NOTES

1. ALL TREES SHALL BE CUT OFF A MINIMUM 10'-0" FROM RADAR LINES OF SIGHT - BOTH HORIZONTALLY & VERTICALLY
2. OTHER OBSTRUCTIONS WHICH INTERFERE WITH RADAR LINES OF SIGHT SHALL BE COMPLETELY REMOVED
3. MISSILE TRACKING RADAR AND LAUNCHERS AND LINES OF SIGHT SHALL BE PROOFED IN FIELD PRIOR TO CONSTRUCTION OF ANY STRUCTURE

RECORD DRAWING OF WORK - AS - BUILT

Elliott M. Randall Jr.
Contracting Officer
23 September 1955

FOR REFERENCE ONLY

The government assumes no responsibility for the accuracy of the information shown hereon.

CLEARING FOR LINE OF SIGHT & MASKING

REVISION	DATE	DESCRIPTION	BY
2	8/MAR/55	RECORD WORK AS BUILT	
1	5/MAY/54		

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEERS
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N.Y.

DRAWN BY: C D
DESIGNED BY: A.V.D
CHECKED BY: [illegible] ARCHITECT - ENGINEER
REVIEWED: W.P. Fiedler CHIEF, DESIGN BRANCH

NEW YORK DEFENSE AREA
"NIKE" PROJECT
PROFILE BETWEEN CONTROL AND LAUNCHING AREA
FORT HANCOCK, NEW JERSEY

REVIEWED: Frank D. Haendel ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: Charles W. Bates CHIEF, ENGINEERING DIVISION

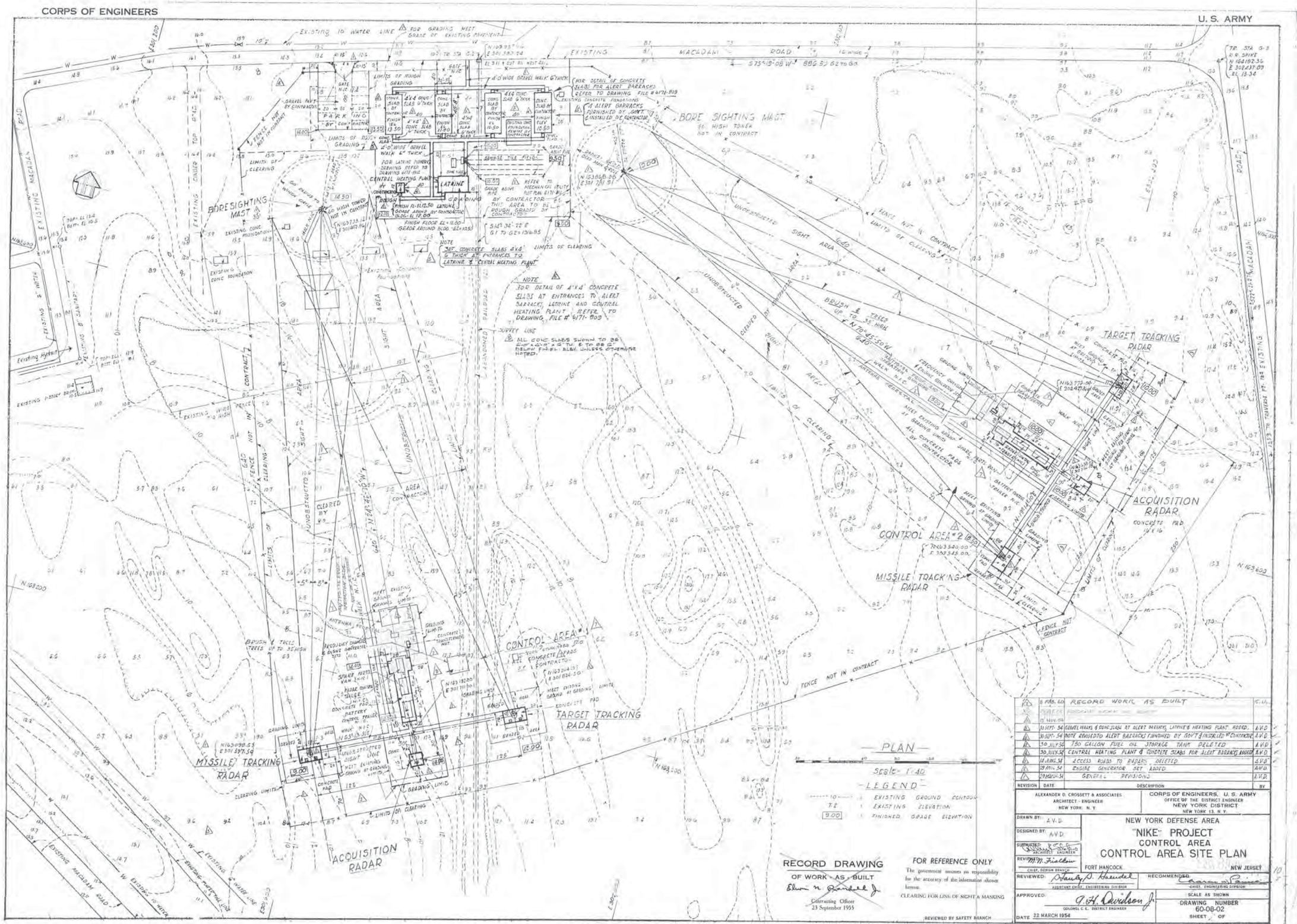
APPROVED: O. H. Davidson Jr. COLONEL C.E. DISTRICT ENGINEER
DATE 22 MARCH 1954

SCALE AS SHOWN
DRAWING NUMBER 60-08-02
SHEET OF

FILE Nº GITI-2245

CORPS OF ENGINEERS

U.S. ARMY



REVISION	DATE	DESCRIPTION	BY
6	FEB. 55	RECORD WORK AS BUILT	E.W.D.
5	16 NOV. 54	[illegible]	[illegible]
4	26 SEPT. 54	GRAVEL WALKS & CONC. SLABS AT ALERT BARRACKS, LATRINE & HEATING PLANT ADDED.	A.V.D.
3	26 SEPT. 54	NOTE ADDED TO ALERT BARRACKS FURNISHED BY GOVT & INSTALLED BY CONTRACTOR	A.V.D.
2	30 JULY 54	750 GALLON FUEL OIL STORAGE TANK DELETED	A.V.D.
1	30 JULY 54	CENTRAL HEATING PLANT & CONCRETE SLABS FOR ALERT BARRACKS ADDED	A.V.D.
0	14 APRIL 54	ACCESS ROAD TO BUILDING DELETED	A.V.D.
0	19 MAR. 54	ENGINE GENERATOR SET ADDED	A.V.D.
0	19 MARCH 54	GENERAL REVISIONS	A.V.D.

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N.Y.

CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N.Y.

DRAWN BY: A.V.D.
DESIGNED BY: A.V.D.
SUBMITTED: [illegible] ARCHITECT ENGINEER
REVIEWED: [illegible] CHIEF, DESIGN BRANCH

NEW YORK DEFENSE AREA
"NIKE" PROJECT
CONTROL AREA
CONTROL AREA SITE PLAN
FORT HANCOCK, NEW JERSEY

REVIEWED: David J. Haendel — ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: [illegible] — CHIEF, ENGINEERING DIVISION
APPROVED: O. H. Davidson Jr. — COLONEL C.E., DISTRICT ENGINEER
DATE: 22 MARCH 1954
SCALE AS SHOWN
DRAWING NUMBER 60-08-02
SHEET _ OF

RECORD DRAWING
OF WORK AS BUILT
Edwin N. Gaudell Jr.
Contracting Officer
23 September 1955

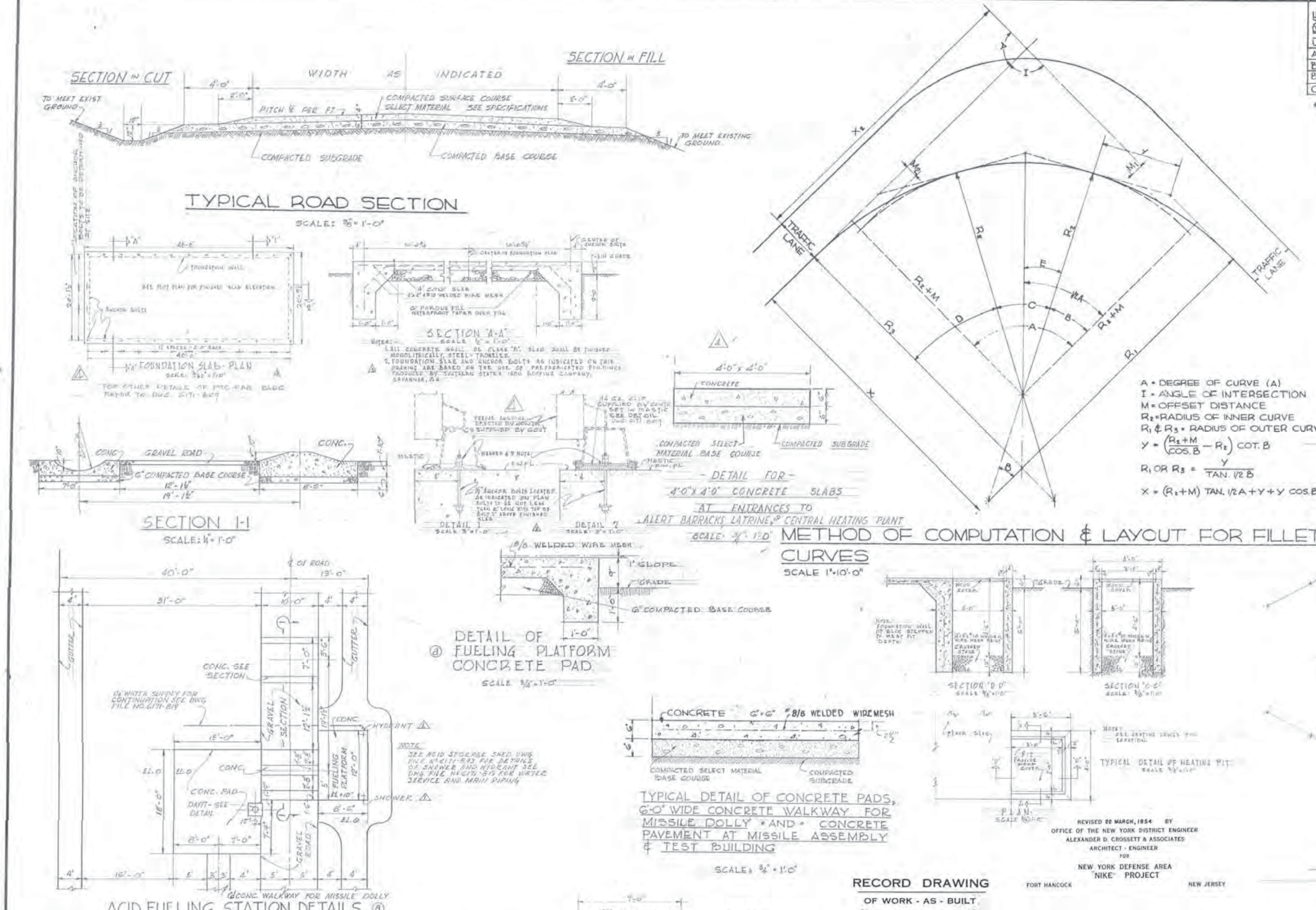
FOR REFERENCE ONLY
The government assumes no responsibility for the accuracy of the information shown hereon.
CLEARING FOR LINE OF SIGHT & MASKING

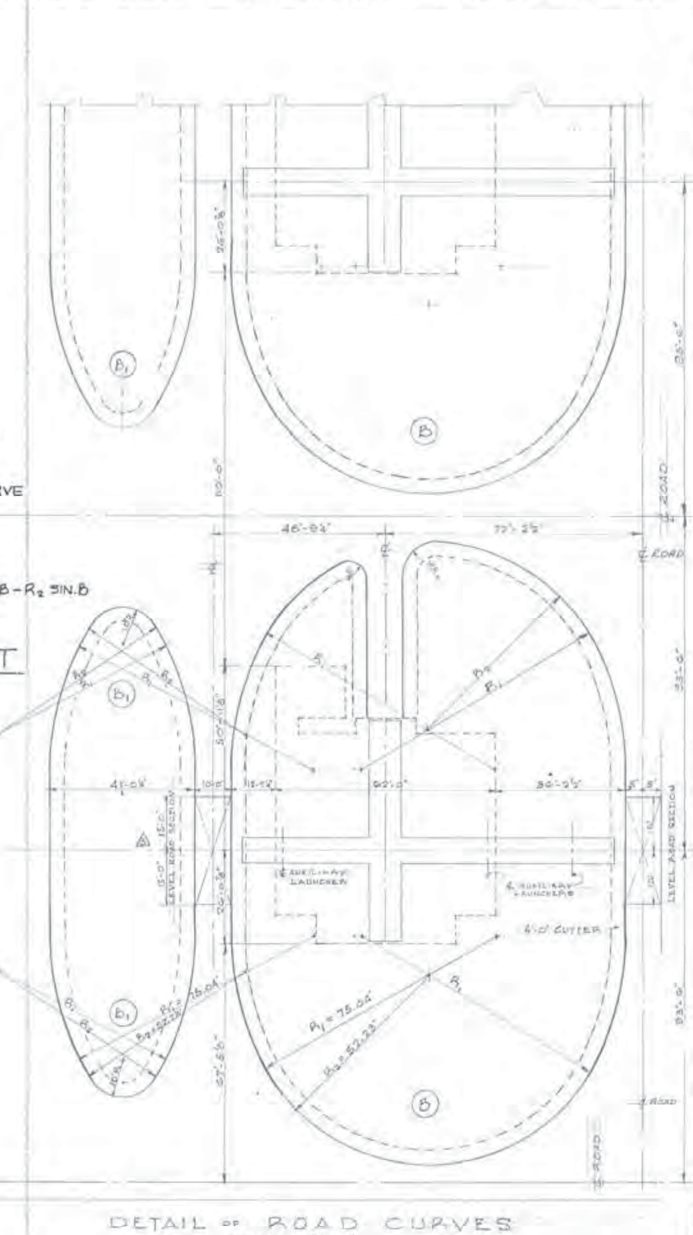
REVIEWED BY SAFETY BRANCH

FILE No 6171-2246

CORPS OF ENGINEERS

U. S. ARMY





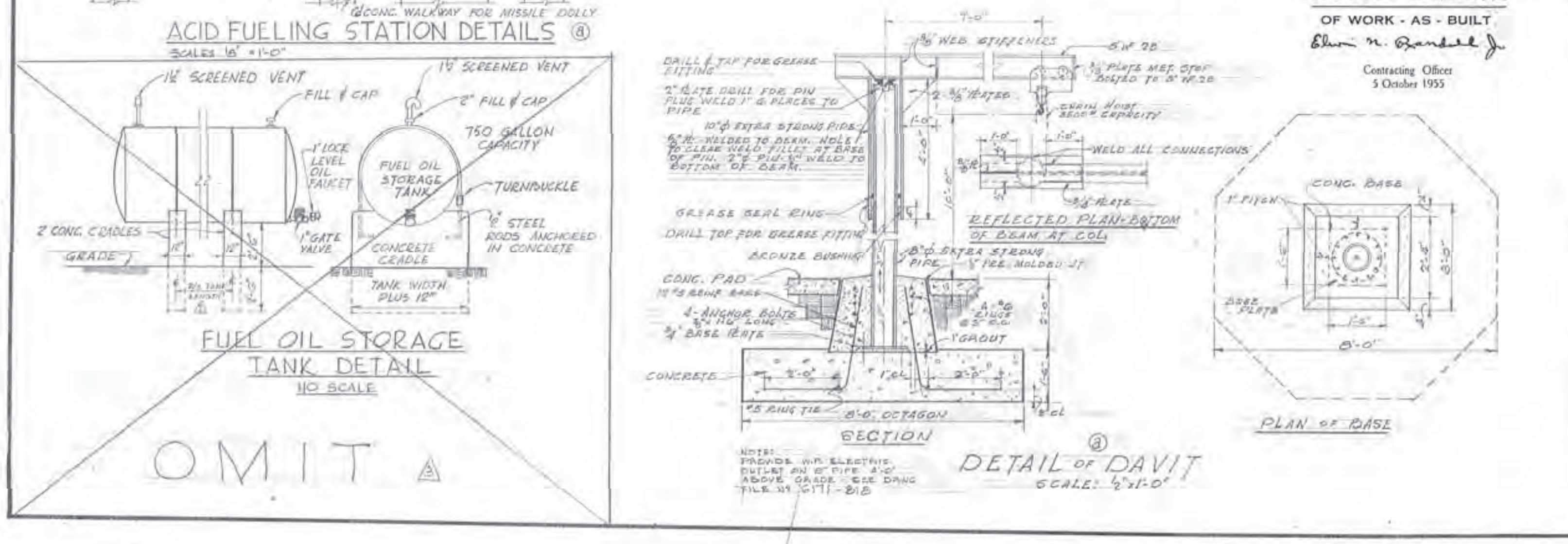
REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

RECORD DRAWING
OF WORK - AS - BUILT
Elwin N. Randall Jr.
Contracting Officer
5 October 1955

CURVE DATA

CURVE	A	B	C	D	E	I	R_1	R_2	R_3	M_1	M_2	Y'	X_1	X_2
	ANGLES													
A	90°	27°48'	34°24'	—	—	90°	75.04'	51.08'	75.04'	2.77'	2.77'	18.572'	65.0'	65.0'
B	180°	27°48'	124°24'	27°48'	—	—	75.04'	52.23'	75.04'	2.13'	2.13'	18.572'	65.0'	65.0'
B1	180°	27°48'	124°24'	27°48'	—	—	75.04'	52.23'	75.04'	2.13'	2.13'	18.572'	65.0'	65.0'
C	180°	27°48'	—	—	62°12'	—	75.04'	52.23'	75.04'	2.13'	2.13'	18.572'	65.0'	65.0'

* SWING RADIUS UNTIL ARCS MEET 10' R. CURVE AT CENTER LINE OF ISLAND



~~4 - HEADWALLS SHALL ONLY BE PROVIDED WHERE REQUIRED BY LOCAL SOIL AND DRAINAGE CONDITIONS TO CONTROL EROSION AND REDUCE FUTURE MAINTENANCE COSTS~~

~~3 - AGGREGATE WEARING SURFACE SHALL BE FEATHERED OUT TO ZERO DEPTH AT MIDPOINT OF SHOULDER WIDTH EXCEPT IN CASES WHERE WATERBOUND MACADAM WEARING COURSES ARE PROVIDED. IN LATTER CASE, SHOULDERS WILL BE BUILT UP AND FRENCH OR STONE DRAINS PROVIDED THRU BUILT-UP SHOULDERS~~

~~2 - A 6" COMPACTED SUBGRADE OR BASE COURSE. BASE COURSE SHALL BE PROVIDED, WHERE SOIL AND DRAINAGE CONDITIONS REQUIRE SUCH TO COMPLY WITH DESIGN WHEEL LOADING SPECIFIED IN SPECIAL INSTRUCTION AND BASIC PLANNING DATA ISSUED BY OCE FOR PLANNING AND CONSTRUCTION OF SURFACE-TO-AIR INSTALLATIONS~~

~~1 - A 4-INCH (COMPACTED THICKNESS) STABILIZED AGGREGATE (GRAVEL, CRUSHED STONE, CINDERS, SHELL, SAND CLAY, ETC) WEARING SURFACE COURSE HAVING A CBR 50 OR GREATER~~

NOTES

SYMBOL	DESCRIPTION	DATE	APPROVAL
5	RECORD WORK AS BUILT	5 Oct 55	
4	[illegible]	30 SEPT 54	A.V.D.
3	FOUNDATION DETAILS FOR [illegible] PREFABRICATED BLDGS ADDED. DETAIL OF HEATING PIT ADDED. FUEL OIL TANK DELETED.	[illegible]	J.S.R.
2	DISTANCE BETWEEN TANK CRADLES ADDED. [illegible] ROAD SECTION ADDED IN DETAIL OF ROAD CURVES	20 MAY 54	A.S.
1	[illegible]	29 MAR 54	V.B.
a	GENERAL REVISIONS	26 FEB 54	

REVISIONS

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1632 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: D.G
TRACED BY: D.G
CHECKED BY: S.L.S
SUBMITTED: [signature]
APPROVED: CHIEF AIRFIELDS BRANCH
APPROVED: CHIEF ENGINEERING DIVISION, MIL. CONSTR., O.C.E.

NIKE-I
BATTERY
LAUNCHING AREA TYPE "D"
ROAD & PAVING DETAILS

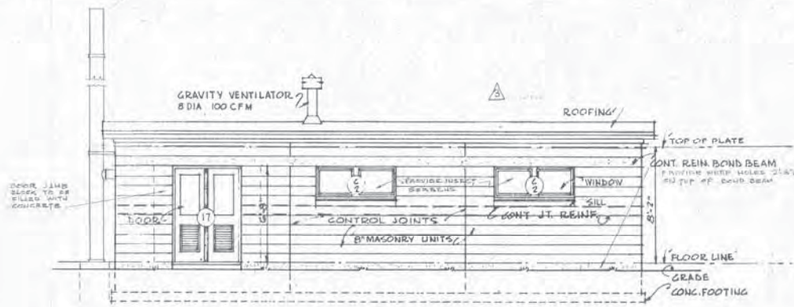
DATE: 22 JAN. 1954
APPROVED FOR
DATE:
SCALE AS NOTED
SPEC NO. ME 16-06-196 SXE
DRAWING NUMBER
SHEET 3 ME 16-06-196

FILE: No 6171-[illegible]

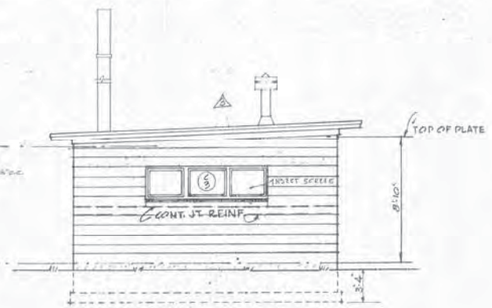
16

CORPS OF ENGINEERS

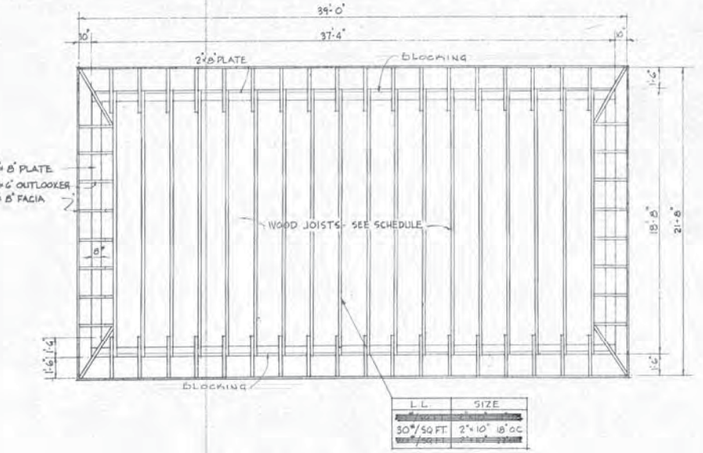
U. S. ARMY



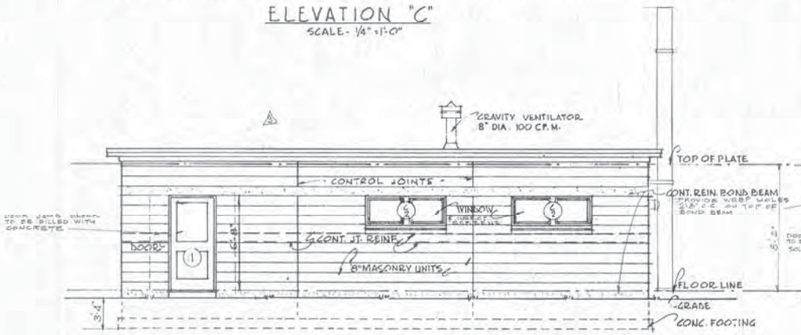
ELEVATION "C"
SCALE - 1/4" = 1'-0"



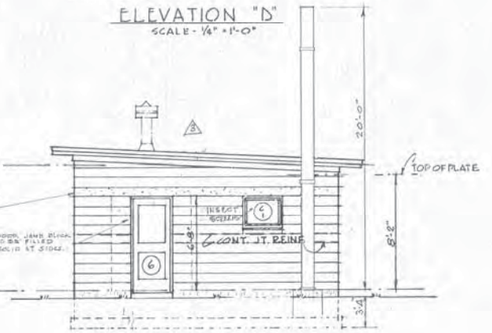
ELEVATION "D"
SCALE - 1/4" = 1'-0"



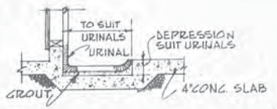
ROOF FRAMING PLAN
SCALE 1/4" = 1'-0"



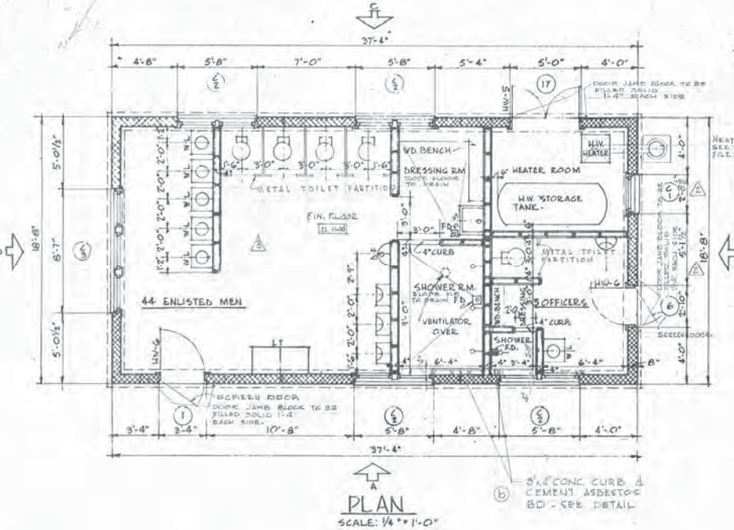
ELEVATION "A"
SCALE - 1/4" = 1'-0"



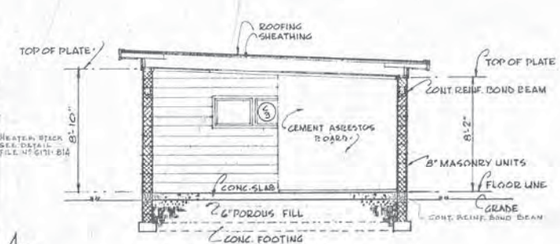
ELEVATION "B"
SCALE - 1/4" = 1'-0"



DEPRESSED SLAB AT URINALS
SCALE: 3/4" = 1'-0"



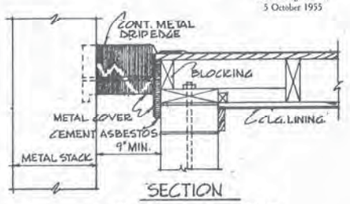
PLAN
SCALE: 1/4" = 1'-0"



CROSS SECTION
SCALE - 1/4" = 1'-0"

REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

RECORD DRAWING
OF WORK - AS - BUILT
Elmer M. Randall Jr.
Contracting Officer
5 October 1955



SECTION
ALTERNATE RAKE DETAIL AT STACK
SCALE - 1 1/2" = 1'-0"

AREA		CUBE	
GROSS AREA	697 SQ FT	GROSS BUILDING CUBE	6738 CU FT

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
A	RECORD WORK AS BUILT	5 OCT 55	
B	CONC. CURB & SHOWER TYPE FOR SPACE HEATER DELETED	29 JULY 54	A.D.C.
C	WINDOW DIMENSIONS FOR C-J REVISED, FINISHES NOTE DELETED	CHANGED	C.H.W.
D	GENERAL REVISIONS	CHECKED	V.B.
E	CONC. CURB ADDED TO SHOWER RM. EXT. WALLS	TRACED	W.M.L.
F	GENERAL REVISIONS	15 JULY 53	W.M.L.

NOTES

1. ALL EXPOSED SURFACES OF INTERIOR WALLS, CEILINGS, TOILET PARTITIONS, ETC. SHALL BE PRIMED AND PAINTED PER SPECS.
2. ALL GLAZING SHOULD BE GLASS SUBSTITUTE REINFORCED.
3. CEILING LININGS TO BE NAILED AT ALL BEARINGS. NOT LESS THAN 3/8" FROM EDGE OF SHEETS & 6" O.C. USE FLATHEAD CEMENT COATED NAILS APPROX. 1 5/8" LONG.

SCHEDULE OF DRAWINGS

DRAWING NO.	SHEET	TITLE
ME-38-03-18	1	PLANS, ELEVATIONS & SECTION
ME-38-03-18	2	DETAILS
ME-38-03-18	3	PLUMBING & ELECTRICAL

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: LH
TRACED BY: LH
CHECKED BY: SLS
SUBMITTED BY: [signature] Chief Engineering Division
APPROVED: [signature] Chief Structures Branch
APPROVED FOR: [signature] Chief Engineering Division, Mil. Constr., O.C.E.
DATE: 2 JUNE 1953

NIKE-I LATRINE (TYPE 'O') LAUNCHING AND CONTROL AREAS
PLANS, ELEVATIONS & SECTION

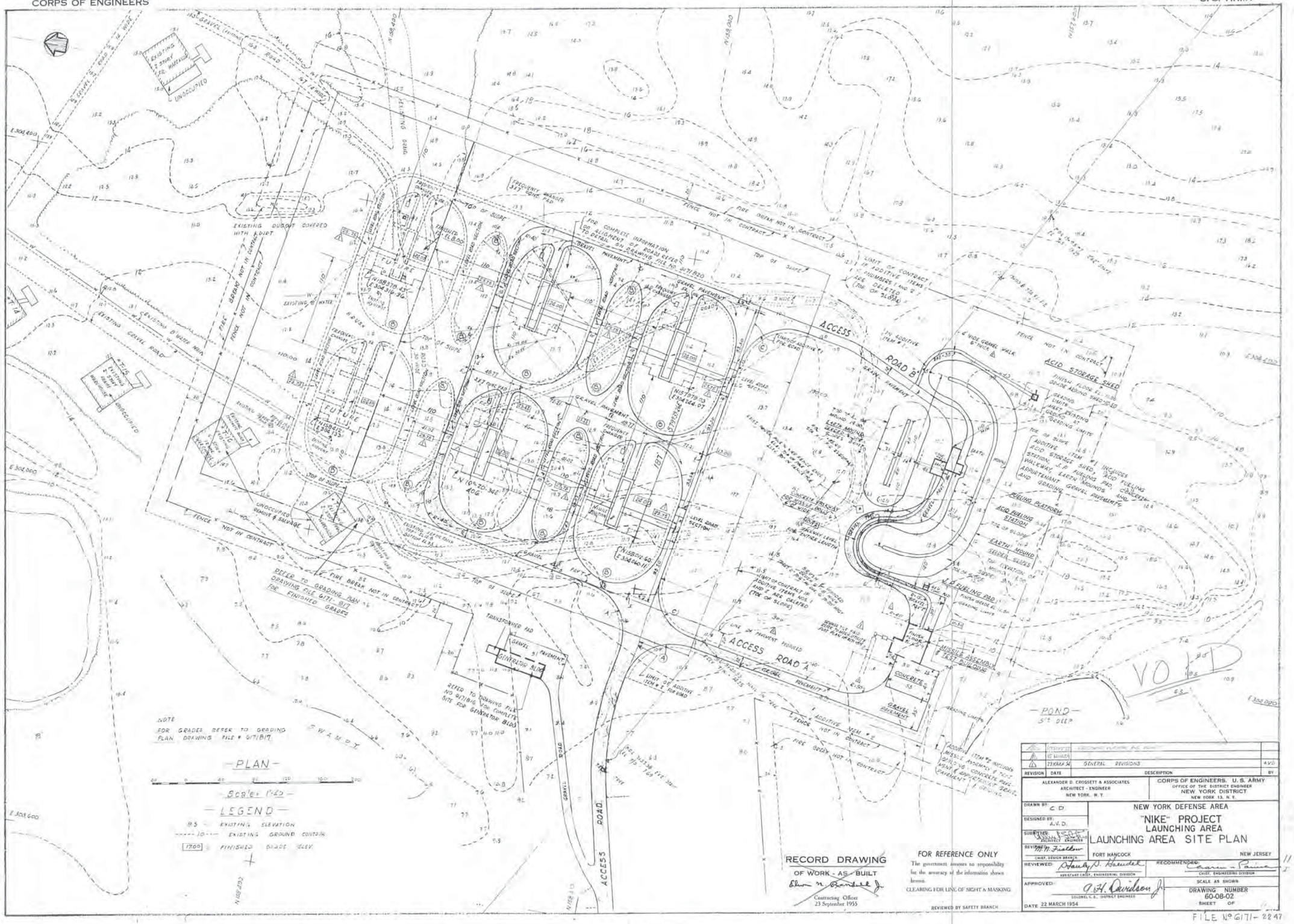
SCALE 1/4" = 1'-0" SPEC. NO. NIKE-I-08-171-53GE
DRAWING NUMBER
ME 38-03-18
SHEET 1

8

FILE NO. 6171-812

CORPS OF ENGINEERS

U. S. ARMY



REVISION	DATE	DESCRIPTION	BY
3	9 FEB 55	CHANGING ACCESS RD.	AVD
2	10 MAR 54		
1	23 MAR 54	GENERAL REVISIONS	AVD

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

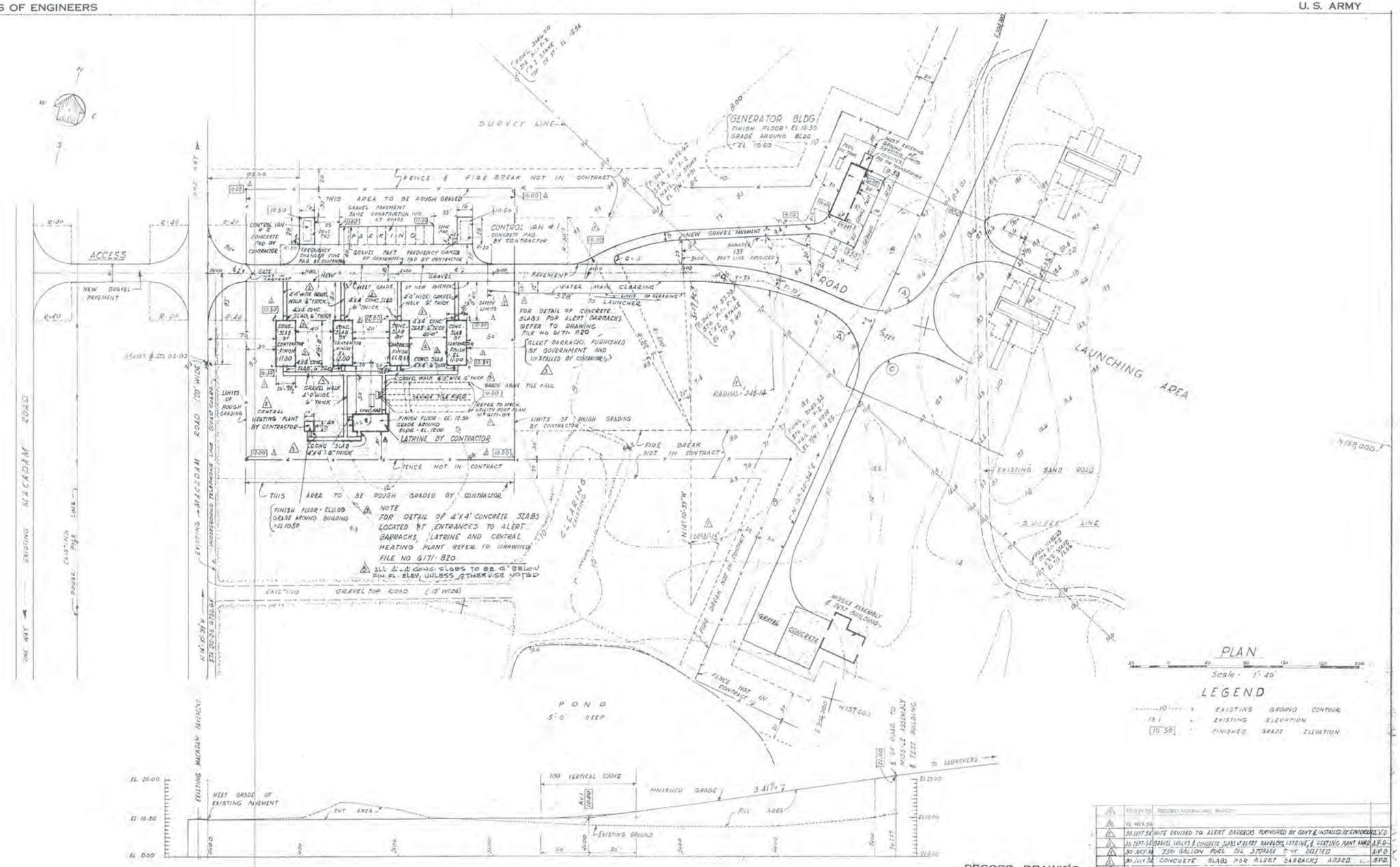
DRAWN BY: C.D.
DESIGNED BY: A.V.D.
SUBMITTED: ALEXANDER D. CROSSETT & ASSOCIATES ARCHITECT ENGINEERS
REVIEWED: Wm. M. Fiedler, CHIEF, DESIGN BRANCH
REVIEWED: Hans P. Haeuser, ASSISTANT CHIEF, ENGINEERING DIVISION
APPROVED: O. H. Davidson Jr., COLONEL, C.E., DISTRICT ENGINEER
DATE 22 MARCH 1954

NEW YORK DEFENSE AREA
"NIKE" PROJECT
LAUNCHING AREA
LAUNCHING AREA SITE PLAN
FORT HANCOCK NEW JERSEY
RECOMMENDED: Warren N. Quinn, CHIEF, ENGINEERING DIVISION
SCALE AS SHOWN
DRAWING NUMBER 60-08-02
SHEET OF

FILE Nº G171-2247

CORPS OF ENGINEERS

U. S. ARMY



PROFILE ALONG ℄ OF ACCESS ROAD

Scale - Horizontal 1" 40'
Vertical 1" 10'

For details of pavement refer to Drawing File # 6171-820

RECORD DRAWING
OF WORK AS BUILT
Elbert N. Randell Jr.
Contracting Officer
23 September 1955

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The government assumes no responsibility for the accuracy of the information shown hereon.

CLEARING FOR LINE OF SIGHT & MASKING

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
1	15 NOV 54	RECORD MODIFICATIONS MADE	
2	30 SEPT 54	WATER REVISED TO ALERT BARRACKS FURNISHED BY GOVT & INSTALLED BY CONTRACTOR	A.V.D.
3	30 SEPT 54	GRAVEL VALVES & CONCRETE SLABS @ ALERT BARRACKS, LATRINE & HEATING PLANT ADDED	A.V.D.
4	30 JULY 54	750 GALLON FUEL OIL STORAGE TANK DELETED	A.V.D.
5	30 JULY 54	CONCRETE SLABS FOR ALERT BARRACKS ADDED	A.V.D.
6	30 JUNE 54	CENTRAL HEATING PLANT ADDED	A.V.D.
7	01 MAR 54	GENERAL REVISIONS	A.V.D.

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N.Y.

CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK, N.Y.

DRAWN BY: A.V.D.
DESIGNED BY: A.V.D.
SUBMITTED: ARCHITECT - ENGINEER
REVIEWED: W. M. Fielder, CHIEF, DESIGN BRANCH

NEW YORK DEFENSE AREA
"NIKE" PROJECT
LAUNCHING AREA
ACCESS ROAD TO LAUNCHING AREA
FORT HANCOCK NEW JERSEY

REVIEWED: Paul D. Randell, ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: Carmine Paino, CHIEF, ENGINEERING DIVISION

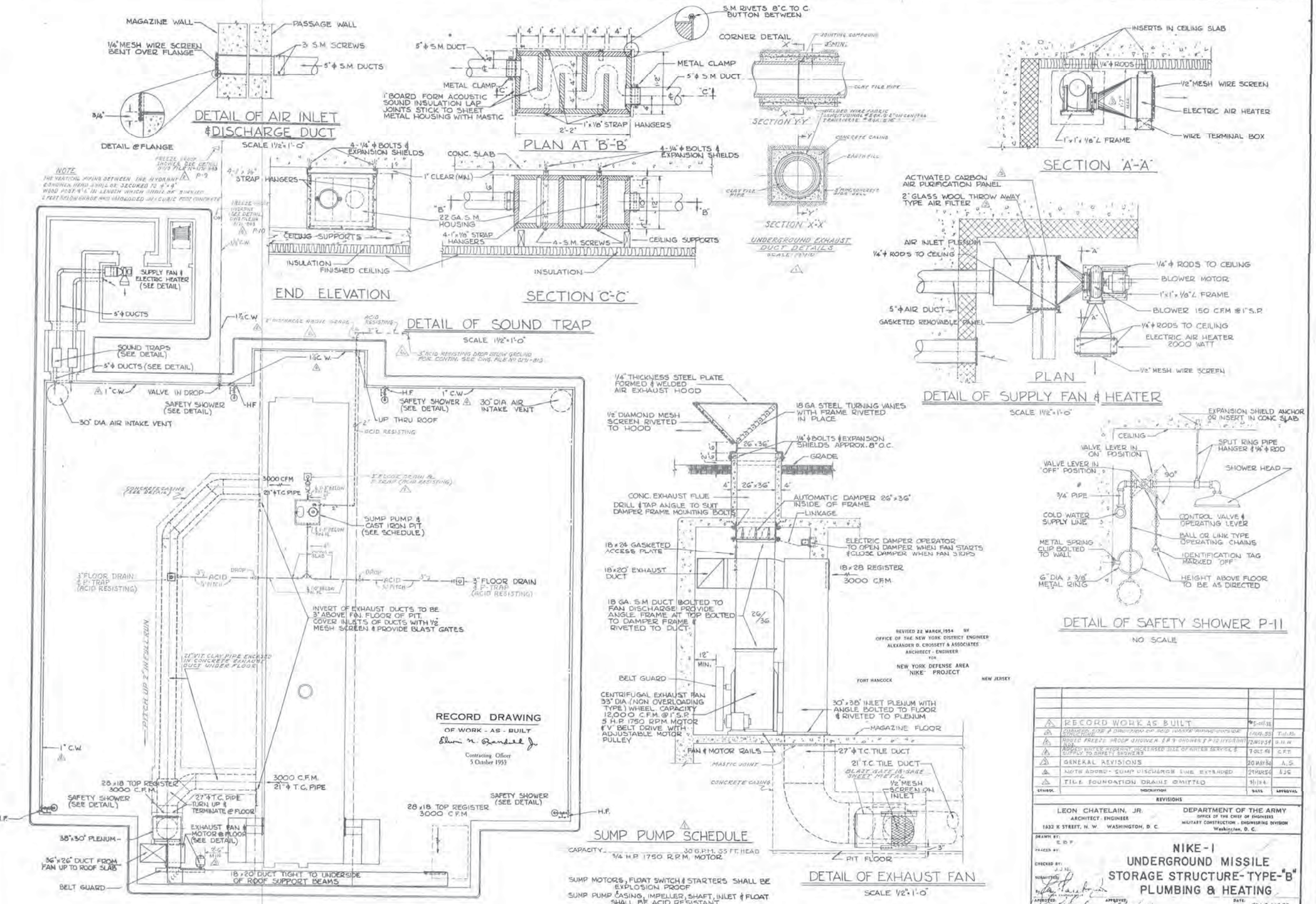
APPROVED: O. H. Davidson Jr., COLONEL, C.E., DISTRICT ENGINEER
DATE 22 MARCH 1954

SCALE AS SHOWN
DRAWING NUMBER 60-08-02
SHEET OF

FILE Nº 6171-8248

CORPS OF ENGINEERS

U. S. ARMY



REVISED 22 MARCH, 1954 BY OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

7	RECORD WORK AS BUILT	15 OCT 53	
6	CORRECTED SIZE & DIRECTION OF SOIL WASTE PIPING OUTSIDE BUILDING	1 NOV 53	T.H.M.
5	ROUTE FREEZE PROOF JUMPER & P-9 SHOWER & P-11 HYDRANT	12 NOV 53	G.H.W.
4	ADDED WATER ATTORNEY UNDERGRADE SIZE OF WATER SERVICE & SUPPLY TO SAFETY SHOWERS	7 OCT 53	C.F.T.
3	GENERAL REVISIONS	20 MAY 53	A.S.
2	NOTE ADDED - SUMP DISCHARGE LINE EXTENDED	29 MAR 53	A.S.
1	TILE FOUNDATION DRAINS OMITTED	31 JAN 53	
STUDIO	DESCRIPTION	DATE	APPROVAL

REVISIONS

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: E.D.F.
TRACED BY:
CHECKED BY: J.J.N.
SUBMITTED:
APPROVED: DATE: 23 DEC 1953
APPROVED FOR CHIEF, ENGINEERING DIVISION, MIL. CONSTR., O.C.E.

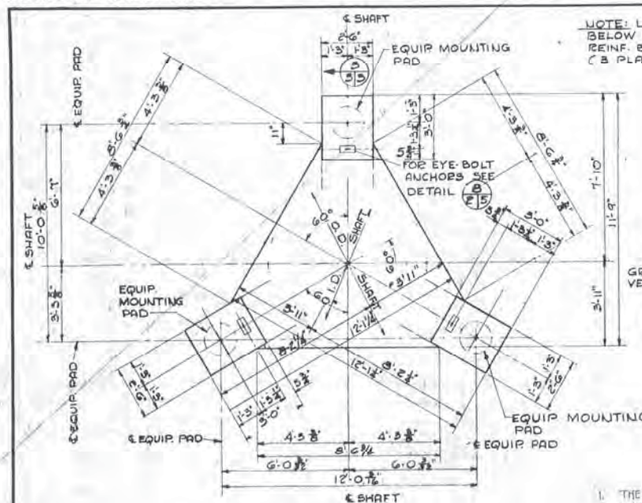
NIKE-I UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE-"B" PLUMBING & HEATING

SCALE AS NOTED | SPEC. NO. W 44-80-1953-52-13
SHEET 7 | DRAWING NUMBER ME 33-15-20

FILE No 6171-830

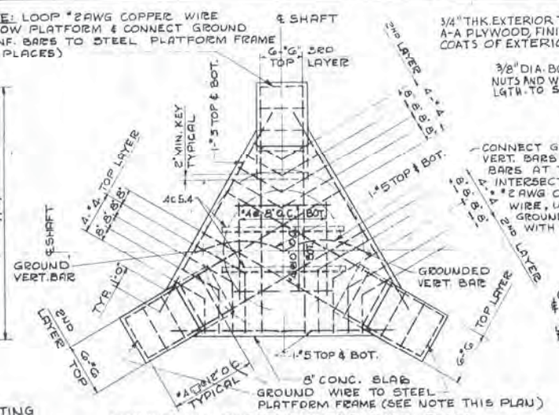
CORPS OF ENGINEERS

U. S. ARMY



MOUNTING PLATFORM PLAN

SCALE: ⅜"=1'-0"

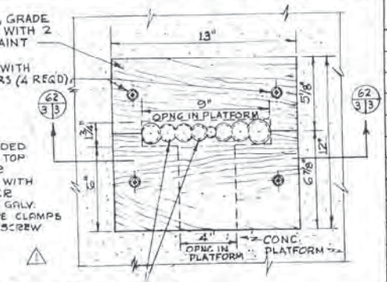


MOUNTING PLATFORM FRAMING PLAN

SCALE: 3/8"=1'-0"

ADDITIONAL NOTES TO MOUNTING PLATFORM PLAN SHEET 4

1. THE SIDE OF THE PLATFORM APPROXIMATELY PERPENDICULAR TO THE LINE OF SIGHT TO THE BORE SIGHT MAST, AND CLOSEST TO IT, WHERE REQUIRED, Δ SHALL BE CONSTRUCTED AS SHOWN IN DETAIL (5/3). LADDER SHALL BE LOCATED ON SIDE OPPOSITE, Δ
2. ORIENT EQUIPMENT MOUNTING PADS ON MOUNTING PLATFORM PLAN SO SIDES OF TRIANGLE FORMED BY THESE PADS ARE PARALLEL TO CORRESPONDING SIDES OF OTHER TRACKING & RANGE RADAR ANTENNAE WITHIN 3° APEX OF ALL TRIANGLES TO POINT IN THE SAME DIRECTION.

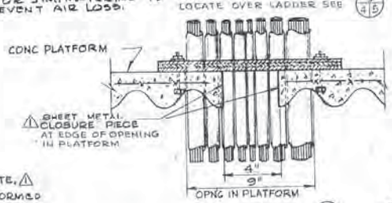


DETAIL

SCALE: 3"=1'-0"

CUT SCALLOPS TO SUIT NUMBER & ARRGT. OF CABLES FOR TIGHT FIT. CAULK WITH OAKUM OR SIM. MATERIAL TO PREVENT AIR LOSS.

LOCATE OVER LADDER SEE Δ 9/4.5



SECTION

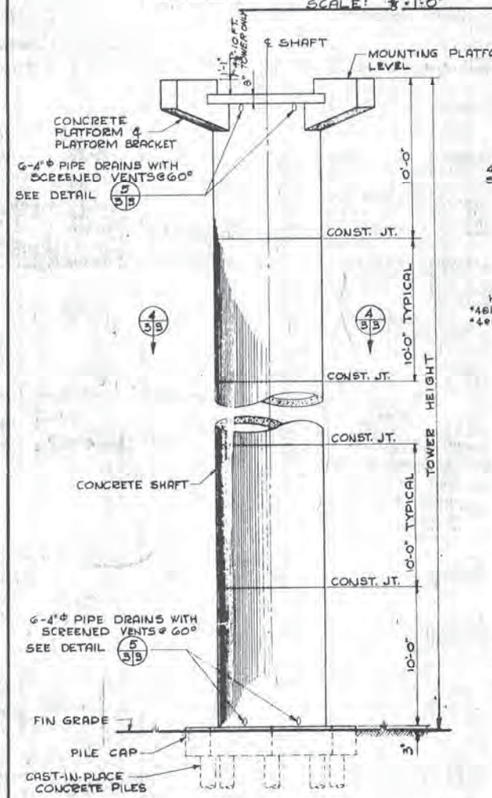
SCALE: 3"=1'-0"

TRACKING RADAR TOWER SCHEDULE

SIZE AND REINFORCEMENT

ITEM \ HEIGHT	10 FEET	20 FEET	30 FEET	40 FEET	50 FEET	60 FEET	70 FEET	80 FEET
PLATFORM & BRACKETS	2x	SAME	SAME	SAME	SAME	SAME	SAME	SAME
CONCRETE SHAFT								
OUTSIDE DIAMETER-D_1	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-8"	7'-2"	7'-6"
INSIDE DIAMETER-D_2	4'-8"	4'-8"	4'-8"	4'-8"	4'-0"	4'-6"	5'-2"	5'-6"
WALL THICKNESS - T_1	5"	8"	8"	8"	1'-0"	1'-0"	1'-0"	1'-0"
REINFORCEMENT								
VERTICAL	18-#6	8-#6	18-#6	18-#6	26-#6	28-#6	32-#6	35-#6
FOUNDATION								
NUMBER OF PILES	8	8	8	8	8	8	8	8
CAPACITY OF PILES	15 TONS	15 TONS	15 TONS	15 TONS	20 TONS	20 TONS	30 TONS	30 TONS
			OMIT					
PILE CAP REINFORCEMENT								
BOTTOM: 1ST LAYER			DISTRIBUTING		BARS -	SEE	PLAN	
BOTTOM - 2ND & 3RD LAYER	9-#5	7-#5	7-#5	8-#5	10-#5	11-#5	11-#5	14-#5
BOTTOM - 4TH LAYER 4 PLACES	5-#4	5-#4	5-#4	5-#4	5-#4	5-#4	5-#4	5-#4
			OMIT				OMIT	

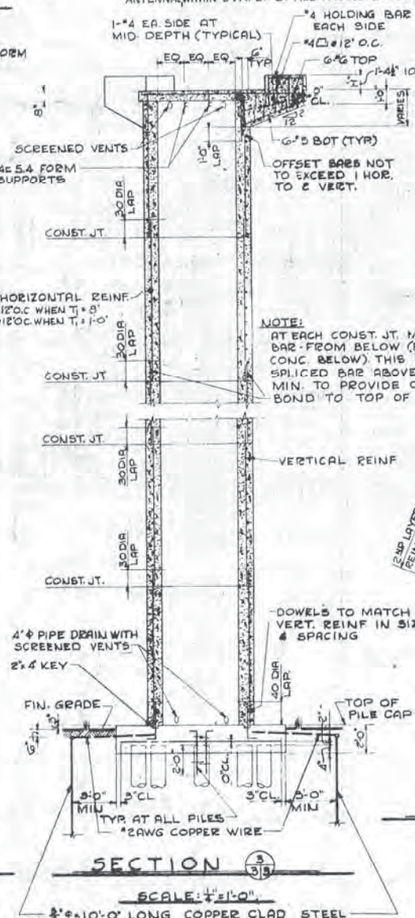
1 # SEE PLAN FOR VARIATION AT ROCK ALTERNATE (THIS LAYER ONLY) OR SEE PLAN FOR VARIATION AT 10 FT TOWER



NOTE: WIND SCREEN & SUN SHIELD NOT SHOWN

SHAFT ELEVATION

SCALE: ¼"=1'-0"

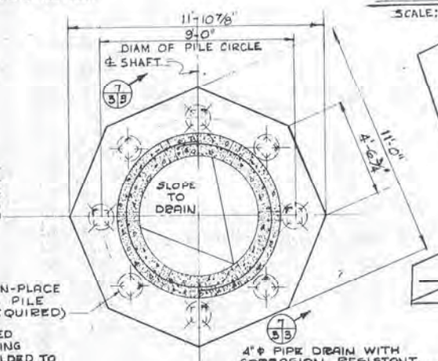


SECTION

SCALE: ¼"=1'-0"

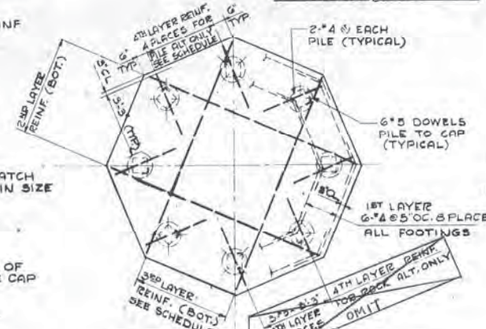
¾"ϕ x 10'-0" LONG COPPER CLAD STEEL GROUND ROD (FOR GROUNDING SEE SPECIFICATIONS.)

NOTE: AT EACH CONST. JT. MARK GROUNDED BAR - FROM BELOW (PRIOR TO PLACING CONC. BELOW). THIS BAR TO BE WELDED TO SPLICED BAR ABOVE WITH 2-1" x ½" WELDS MIN. TO PROVIDE CONTINUOUS ELECTRICAL BOND TO TOP OF PLATFORM FRAMING



FOUNDATION PLAN

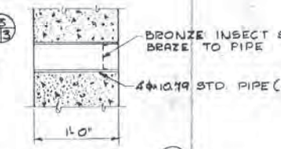
SCALE: ⅜"=1'-0"



NOTE: DOWELS TO SHAFT NOT SHOWN

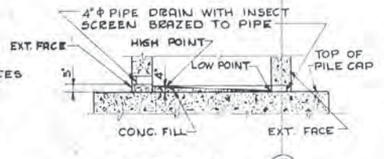
PILE CAP REINFORCEMENT PLAN

SCALE: ⅜"=1'-0"



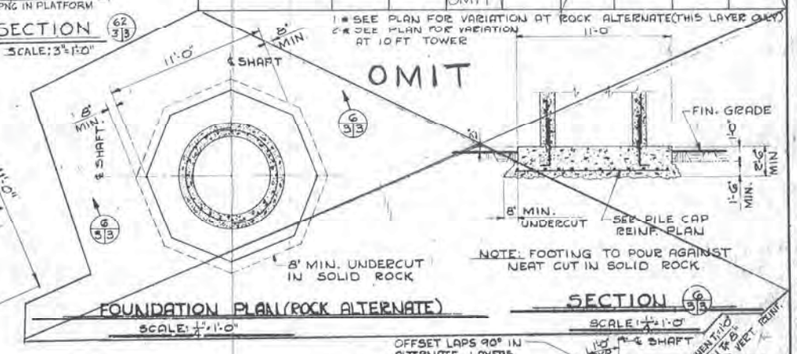
DETAIL

NO SCALE



SECTION

SCALE: ¾"=1'-0"



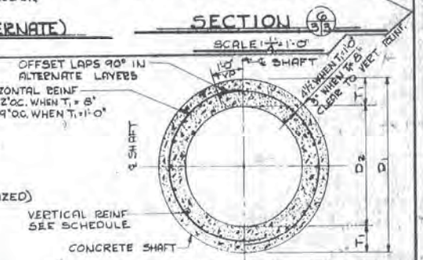
NOTE: FOOTING TO POUR AGAINST NEAT CUT IN SOLID ROCK

FOUNDATION PLAN (ROCK ALTERNATE)

SCALE: ⅜"=1'-0"

SECTION

SCALE: ¾"=1'-0"



NOTE: VERTICAL REINF. TO BE UNIFORMLY SPACED

SECTION

SCALE: ¾"=1'-0"

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	RECORD WORK AS-BUILT	JUL 3 1963	
6	NOTES TO CONTRACTING OFFICER CLARIFIED	7 FEB 62	A/E
4	ORIENTATION NOTE & SECTION 60 CLARIFIED, TOWER SCHEDULE & ADDED NOTES	4 JAN. 62	A/E

REVISED 11 SEPT. 1961 BY U.S. ARMY ENGINEER DISTRICT, NEW YORK, JOHN J. KASSNER & CO. ARCHITECT-ENGINEER FOR SPECIAL AAA FACILITIES IMPROVED NIKE-HERCULES CONTROL SYSTEMS VARIOUS SITES NEW YORK & NEW JERSEY

RECORD DRAWING OF WORK - AS - BUILT

Colonel C. E. Dittler Engineer

JUL 3 1963

⅛"=1'-0" ¼"=1'-0" ⅜"=1'-0" ½"=1'-0" ¾"=1'-0" 1"=1'-0" 1½"=1'-0"

DEALL & LEMAY STRUCTURAL ENGINEERS 1726 "M" STREET, N.W., WASHINGTON, D.C.

DEPARTMENT OF THE ARMY OFFICE OF THE CHIEF OF ENGINEERS MILITARY CONSTRUCTION — ENGINEERING DIVISION Washington, D.C.

DRAWN BY: J.J.
TRACED BY:
CHECKED BY: J.A.H.
SUBMITTED BY: DEALL & LEMAY
APPROVED BY: CHIEF MISSILES BRANCH
APPROVED BY: CHIEF ENGINEERING DIVISION, MIL. CONSTR., O.C.E.
APPROVED FOR
DATE:

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
TOWERS ~~& GROUND MOUNTS~~
WITH RADOMES
TRACKING RADAR
10' TO 80' HEIGHTS
SHAFT AND SHAFT DETAILS

DATE: 15 JULY 1960

SCALE NOTED

SPEC. NO. 35-03-52-60-CE

DRAWING NUMBER 35-03-52

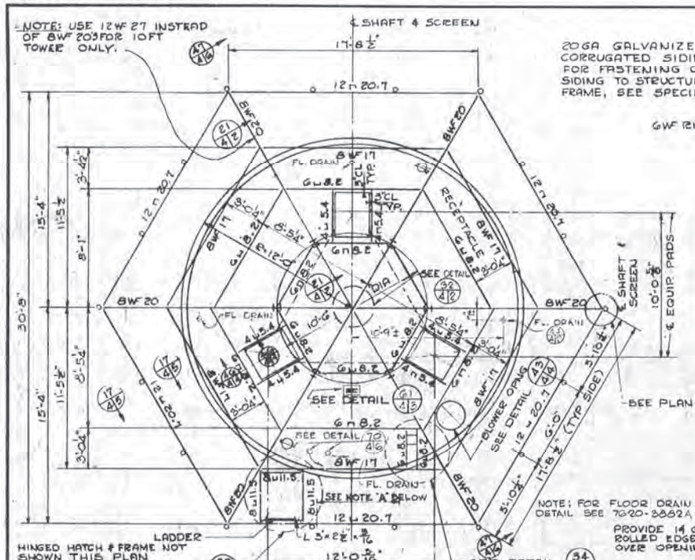
SHEET 3

FILE NO. 7620-3883 A

CORPS OF ENGINEERS

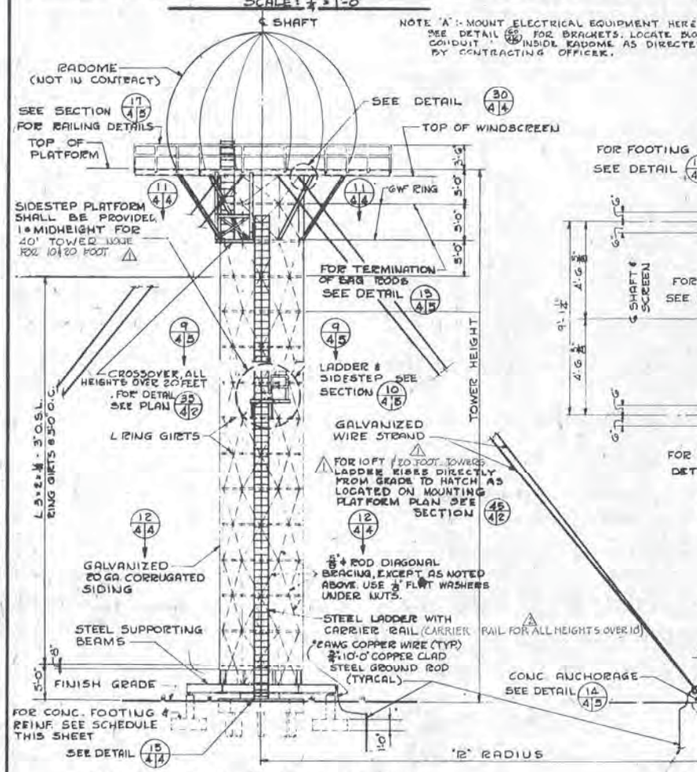
U. S. A

NOTE: USE 12WF 27 INSTEAD OF 8WF 203 FOR 10FT TOWER ONLY.



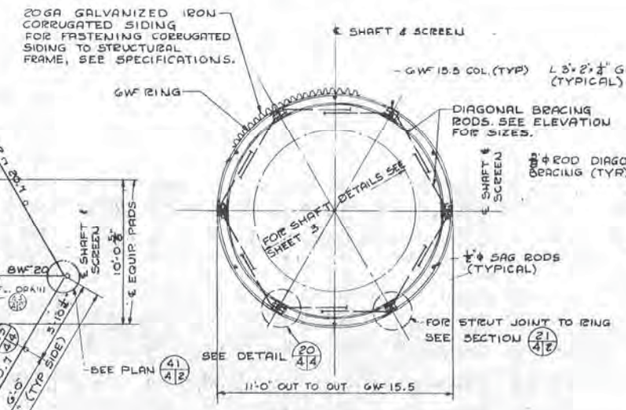
MOUNTING PLATFORM PLAN

SCALE: 1/4" = 1'-0"



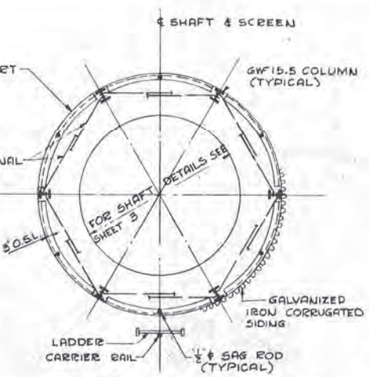
WIND SCREEN & SUN SHIELD ELEVATION

SCALE: 1/8" = 1'-0"



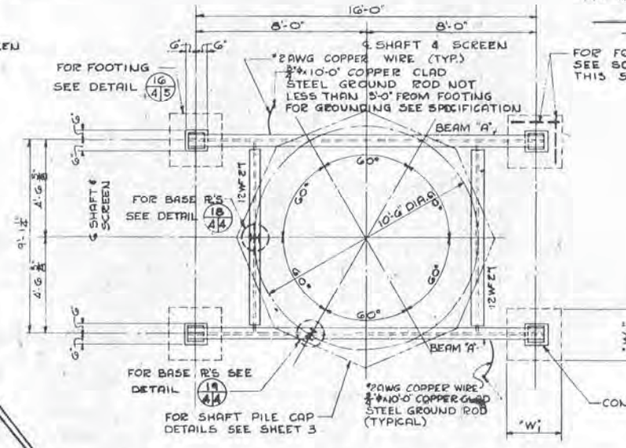
SECTION

SCALE: 1/8" = 1'-0"



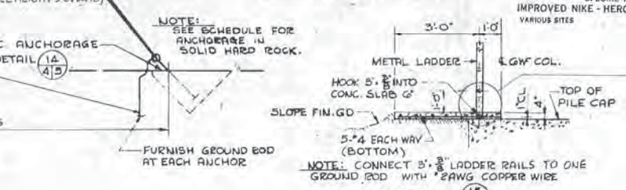
SECTION

SCALE: 1/8" = 1'-0"



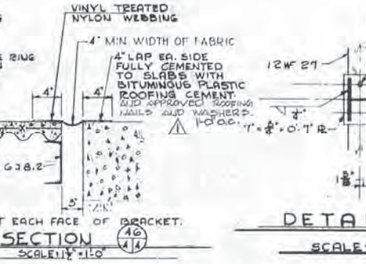
FOUNDATION PLAN

SCALE: 1/8" = 1'-0"



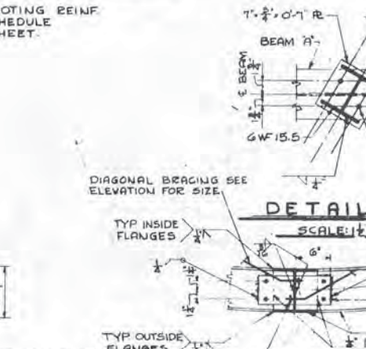
DETAIL

SCALE: 1/8" = 1'-0"



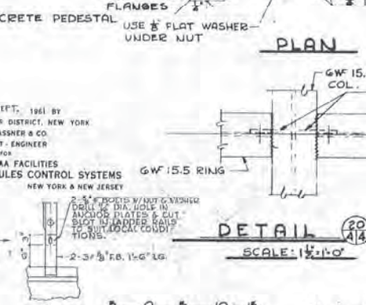
DETAIL

SCALE: 1/4" = 1'-0"



DETAIL

SCALE: 1/4" = 1'-0"

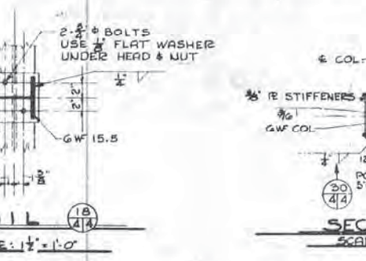


DETAIL

SCALE: 1/4" = 1'-0"

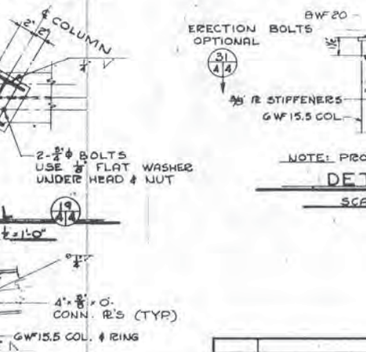
DETAIL

SCALE: 1/4" = 1'-0"



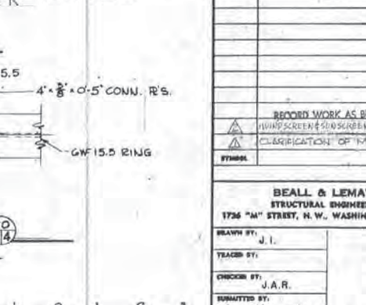
DETAIL

SCALE: 1/4" = 1'-0"



DETAIL

SCALE: 1/4" = 1'-0"

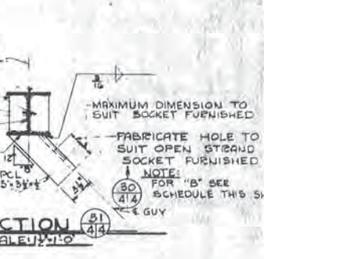


DETAIL

SCALE: 1/4" = 1'-0"

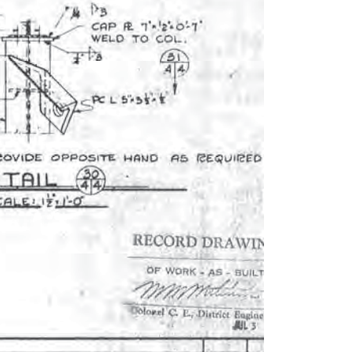
SECTION

SCALE: 1/4" = 1'-0"



DETAIL

SCALE: 1/4" = 1'-0"



WIND SCREEN AND SUN SHIELD SCHEDULE

SIZE AND REINFORCEMENT

ITEM \ HEIGHT	20 FEET	30 FEET	40 FEET	50 FEET	60 FEET	70 FEET	80
SCREEN PLATFORM	SAME	SAME	SAME	SAME	SAME	SAME	SA
STRAND SIZE	7/16 ϕ	7/16 ϕ	1/2 ϕ	1/2 ϕ	5/8 ϕ	5/8 ϕ	
INITIAL TENSION EACH STRAND	3600 LBS	3400 LBS	6100 LBS	7000 LBS	9000 LBS	9700 LBS	10,0
ANCHORAGE RADIUS - R FT.	23.651	33.651	43.651	53.651	63.651	73.651	83.
"B"	8 5/32	9 3/16	7 13/16	8 7/16	8 5/8	8 5/16	9
FOUNDATION				OMIT			
SCREEN FOOTING SIZE - W1	2'-6"	2'-6"	2'-6"	3'-0"	3'-0"	3'-0"	3'
SCREEN FOOTING REINF. EA. WAY	#4@12" O.C.	#4@12" O.C.	#4@12" O.C.	#4@12" O.C.	#4@9" O.C.	#4@9" O.C.	#4@
ANCHORAGE WIDTH - W2	4'-0"	4'-0"	5'-0"	5'-9"	6'-0"	6'-0"	6'
ANCHORAGE DEPTH - H	6'-0"	6'-0"	7'-0"	7'-3"	7'-4"	7'-8"	7'
BEAM "A"	IGWF 40	IGWF 40	IGWF 40	IGWF 45	IGWF 45	IGWF 45	IGW
ANCHOR ROD DIAM.	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
MIN. BREAKING STRENGTH OF EACH STRAND, POUNDS	14,500	18,000	22,000	26,000	31,000	33,000	38
EXPANDING ROCK ANCHOR SIZE	1 3/4"	1 3/4"	1 3/4"	2 1/4"	2 1/4"	2 1/4"	2
			OMIT				

NOTES:
1- STRANDS SHALL BE 1×7 CONSTRUCTION, GALVANIZED, PRESTRETCHED MIN. E = 24,000,000 P.S.I.
2- 10 FOOT TOWER SHALL HAVE SAME PLATFORM AS OTHER HEIGHTS. SEE PLANS FOR OTHER DATA.
3- IN SOLID HARD ROCK, USE EXPANDING ROCK ANCHORS IN 12" DEEP HOLES OMIT INSTEAD OF CONCRETE DEAD MEN.

RECORD DRAWIN

OF WORK - AS - BUILT

Colored C. E. District Engine

JUL 3

SYMBOL	DESCRIPTION	DATE	APP
	REVISIONS		
	RECORD WORK AS BUILT	JUL 3	
2	HAND SCREEN DESIGN & DRW. - CARRIER RAIL NOTE CLARIFIED	15 JAN 63	W
1	CLARIFICATION OF MISC. DETAILS & SCHEDULE NOTES	8 JAN 62	

BEALL & LEMAY
STRUCTURAL ENGINEERS
1736 "M" STREET, N. W., WASHINGTON, D. C.

DEPARTMENT OF THE ARM
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION — ENGINEERING DIVISI
Washington, D. C.

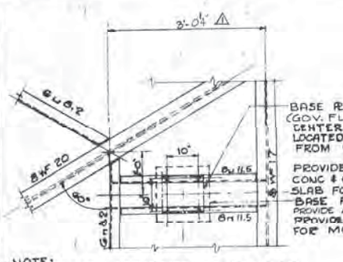
DRAWN BY: J. I.
TRACED BY:
CHECKED BY: J.A.R.
SUBMITTED BY:
BEALL & LEMAY
APPROVED:
CHIEF, MISSILES BRANCH
APPROVED FOR
DATE:

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
TOWERS & GROUND MOUNTS WITH RADOMES
TRACKING RADAR
10' TO 80' HEIGHTS
SCREEN AND SCREEN DETAILS
DATE: 5 JULY

APPROVED:
CHIEF, ENGINEERING DIVISION, NIK. CONSTR., D. C. E.

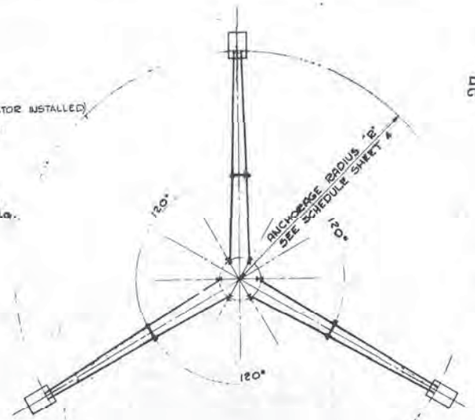
SCALE: NOTED
SPEC. NO. 8DAD5102-62
DRAWING NUMBER
35-03-52
SHEET 4

FILE NO. 7620-388

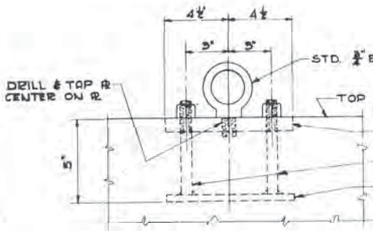


NOTE:
1- FABRICATE STRUCTURAL MEMBERS TO SUIT EQUIPMENT FURNISHED.
2- SLAB OVER STRUCTURAL FRAME NOT SHOWN ON THIS DETAIL.
3- THE DAVIT SHALL BE LOCATED AS SHOWN ON APPLICABLE SITE PLAN.

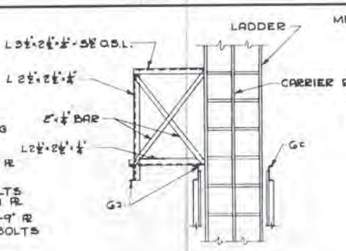
DETAIL 24/4|5
SCALE: ¾"=1'-0"



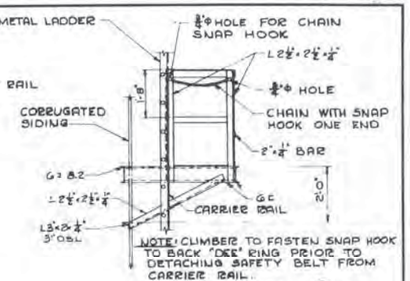
GUY AND ANCHORAGE PLAN
NOT TO SCALE



EYE BOLT ANCHOR DETAIL 8/5|5
NOT TO SCALE

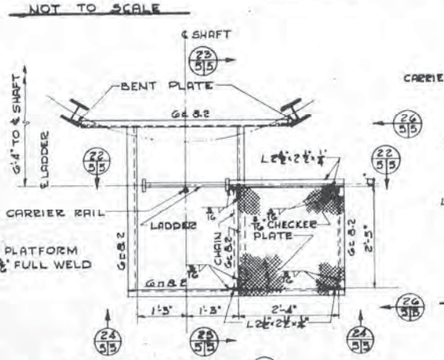


SECTION 22/5|5
SCALE: ¾"=1'-0"



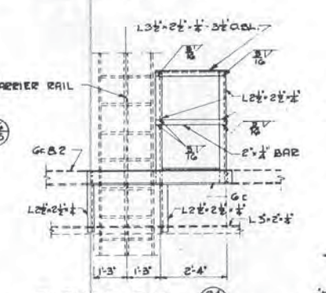
NOTE: CLIMBER TO FASTEN SNAP HOOK TO BACK "DEE" RING PRIOR TO DETACHING SAFETY BELT FROM CARRIER RAIL.

SECTION 25/5|5
SCALE: ¾"=1'-0"

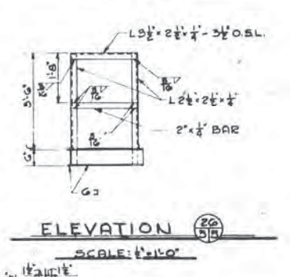


SECTION 10/4|5
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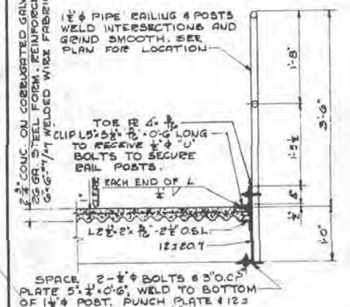
NOTE: ALL PLATFORM CONNS. - ⅜" FULL WELD



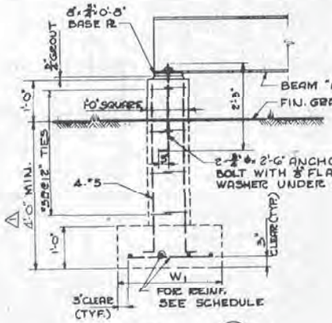
ELEVATION 24/5|5
SCALE: ¾"=1'-0"



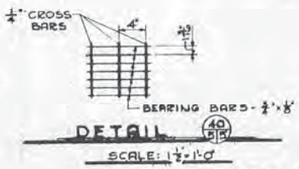
ELEVATION 26/5|5
SCALE: ¾"=1'-0"



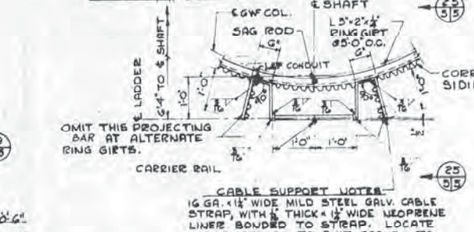
SECTION 17/4|5
SCALE: 1½"=1'-0"



DETAIL 16/4|5
SCALE: ¾"=1'-0"

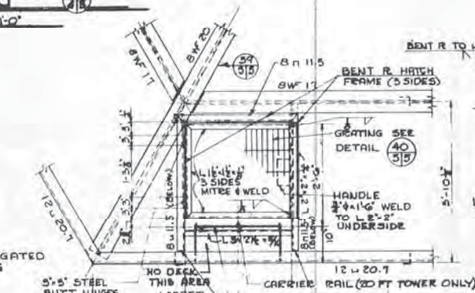


DETAIL 40/5|5
SCALE: 1½"=1'-0"



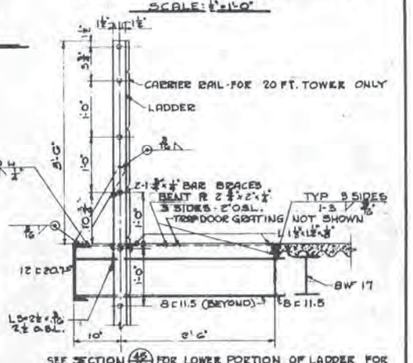
CABLE SUPPORT NOTES:
16 GA. 1½" WIDE MILD STEEL GALV. CABLE STRAP, WITH ⅛" THICK x 1½" WIDE NEOPRENE LINER BONDED TO STRAP. LOCATE SIDE STRAPS TO SUIT CABLE TO BE INSTALLED. FASTEN STRAPS WITH ⅜" ϕ GALV. BOLTS WITH GALV. FLAT WASHER UNDER HEAD & NUT. INSTALL THIS LIGHT AND POWER CONDUIT WELL TO ONE SIDE OF SUPPORT TO PERMIT EASIEST INSTALLATION OF RADAR CABLES BY OTHERS

SECTION 9/4|5
SCALE: ¾"=1'-0"



NOTE:
1- CONC. & CORRUGATED METAL DECK NOT SHOWN THIS PLAN
2- 8-8 n 11.5 TOP FLANGE AT MOUNTING PLATFORM LEVEL

PLAN 28/4|5
SCALE: ¾"=1'-0"

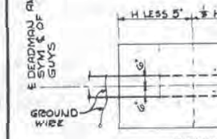


SEE SECTION 25/5|5 FOR LOWER PORTION OF LADDER FOR 10 FT & 20 FT. TOWERS ONLY.

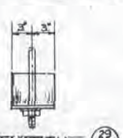
SECTION 28/5|5
SCALE: 1"=1'-0"

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JAN 3 1963

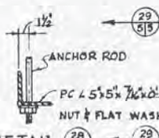
REVISED 11 SEPT., 1961 BY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
JOHN J. KASHER & CO.
ARCHITECT - ENGINEER
FOR
SPECIAL AAA FACILITIES
IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES — NEW YORK & NEW JERSEY



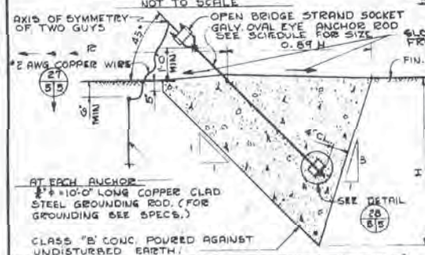
PLAN 27/5|5
NOT TO SCALE



ELEVATION 23/5|5
SCALE: 1½"=1'-0"



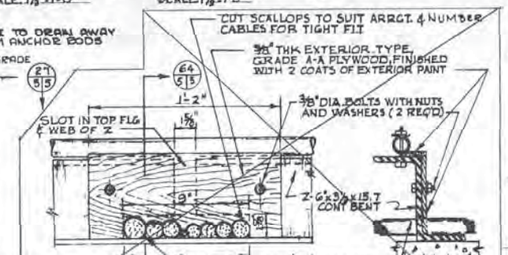
DETAIL 28/5|5
SCALE: 1½"=1'-0"

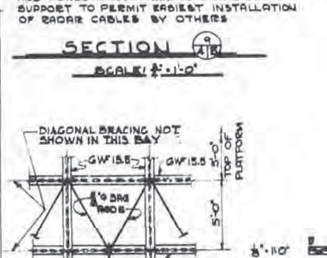


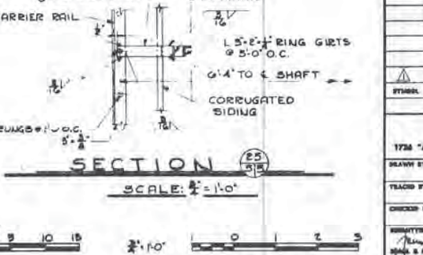
NOTE: EXPANDING ROCK ANCHORS TO BE USED IN LIEU OF SOLID, HARD ROCK. SEE SCHEDULE SH4

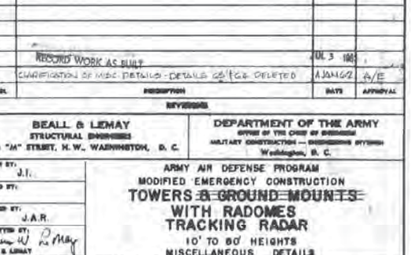
DETAIL 14/4|5
NOT TO SCALE
DESIGN NOT SUITABLE FOR SWAMPY AREAS

OMIT ⚠









SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	DEC 3 1962	
⚠	CLARIFICATION OF MISC. DETAILS - DETAILS 68/5|5 DELETED	4JAN62	A/E

REVISIONS

BEALL & LEMAY
STRUCTURAL ENGINEERS
1736 "H" STREET, N.W., WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION — ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: J.T.
TRACED BY:
CHECKED BY: J.A.R.
SUBMITTED BY: BEALL & LEMAY
APPROVED: CHIEF, MILITARY BRANCH
APPROVED FOR: CHIEF, ENGINEERING DIVISION, NO. ATLANTIC DIV.
DATE:

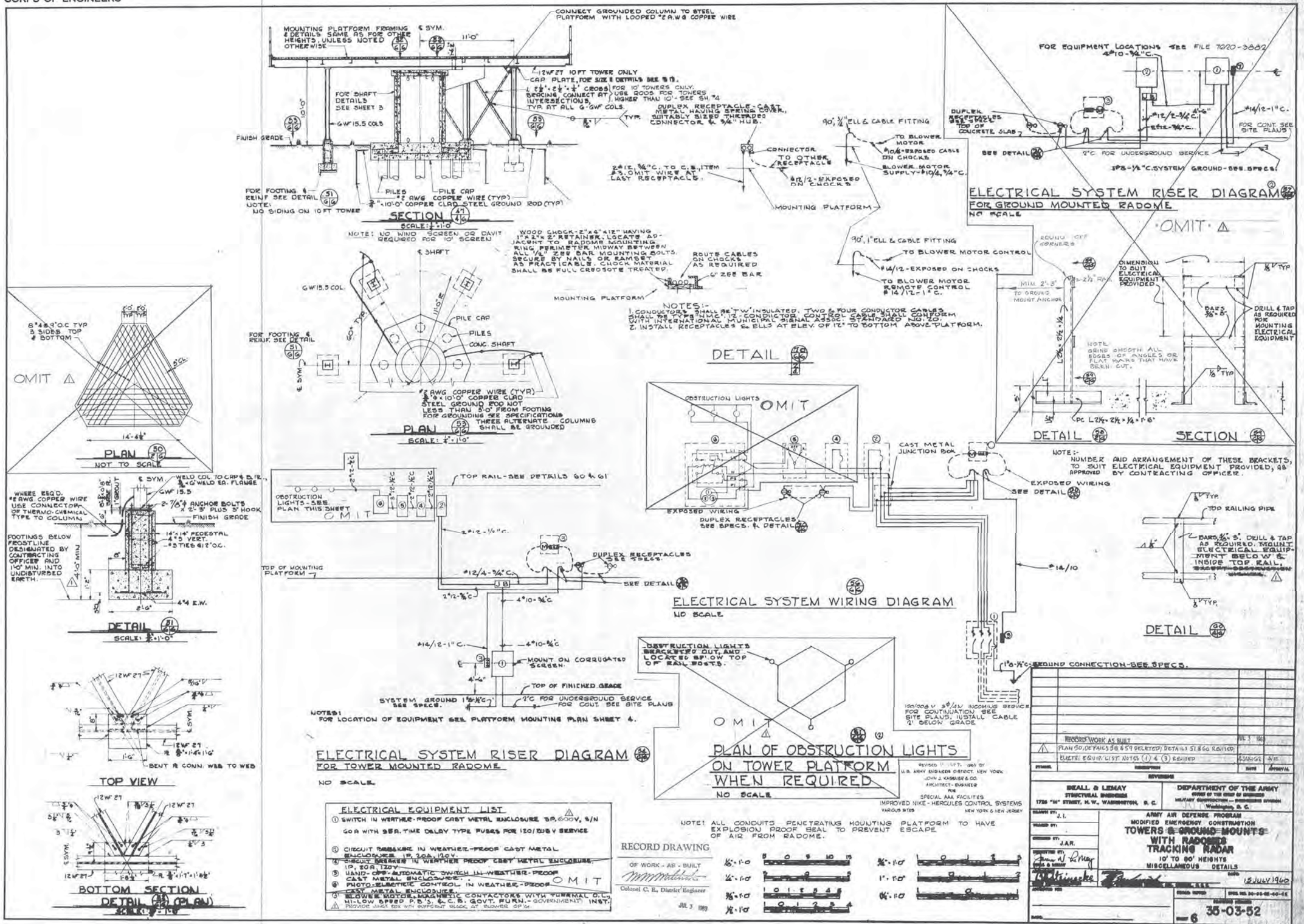
ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
TOWERS ~~& GROUND MOUNTS~~
WITH RADOMES
TRACKING RADAR
10' TO 80' HEIGHTS
MISCELLANEOUS DETAILS

DATE: 15 JULY 1960
SCALE NOTED
DWG. NO. 35-03-52-80-C2
DRAWING NUMBER
SHEET 5
35-03-52

FILE NO. 7620-3885/1

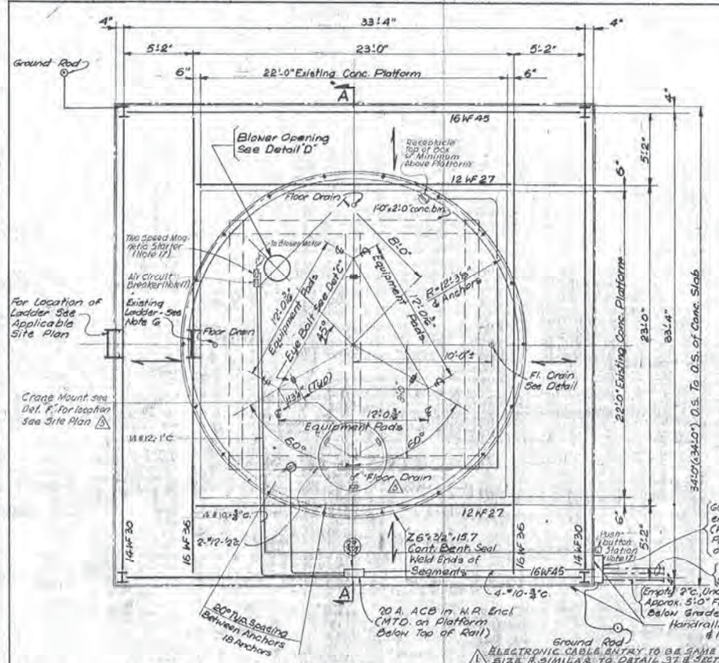
CORPS OF ENGINEERS

U. S. ARMY



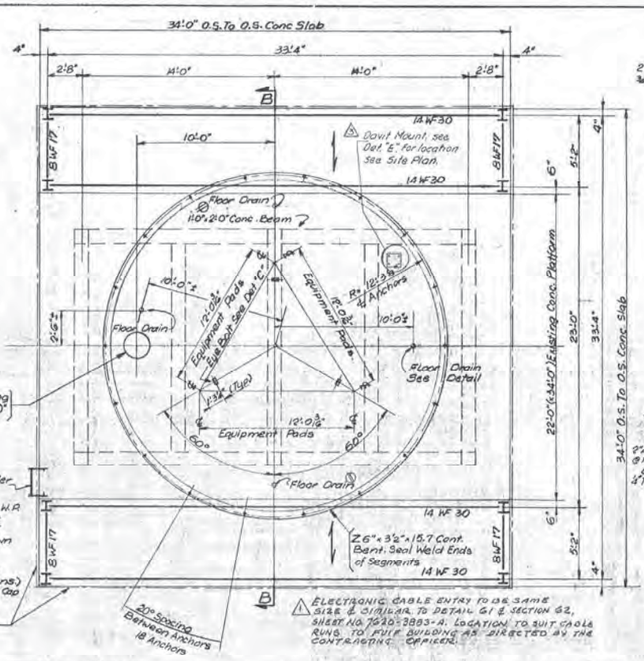
CORPS OF ENGINEERS

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PLAN-ACQUISITION RADAR PLATFORM MODIFICATION

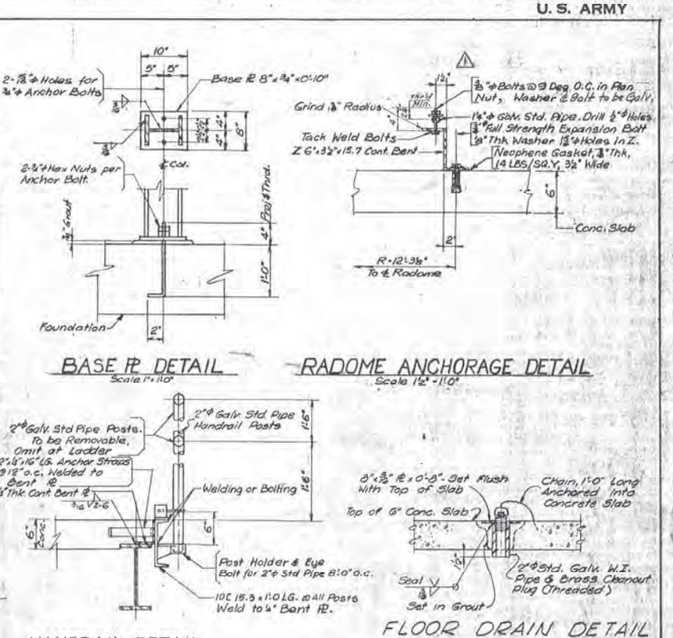
Scale: ¼"=1'-0"



PLAN-TRACKING RADAR PLATFORM MODIFICATION

Note: Electrical Wiring Not Shown, Same as Acquisition Radar Platform

Scale: ¼"=1'-0"



BASE PL DETAIL

Scale: 1"=1'-0"

RADOME ANCHORAGE DETAIL

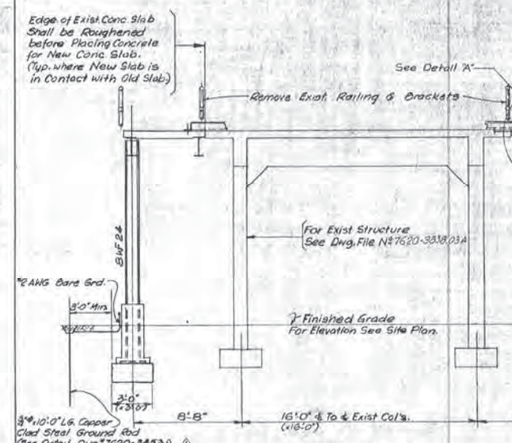
Scale: 1½"=1'-0"

HANDRAIL DETAIL.

Scale: 1"=1'-0"

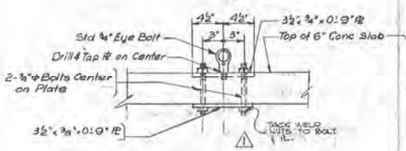
FLOOR DRAIN DETAIL

Scale: 1"=1'-0"



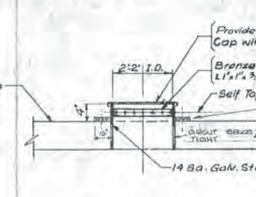
SECTION A-A

Scale ¼"=1'-0"



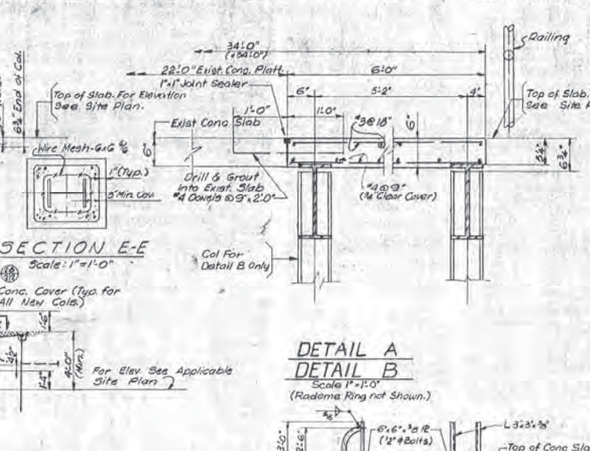
DETAIL "C" EYE BOLT

Scale 1½"=1'0"



DETAIL "D" BLOWER OPENING

Scale ½"=1'0"



SECTION E-E

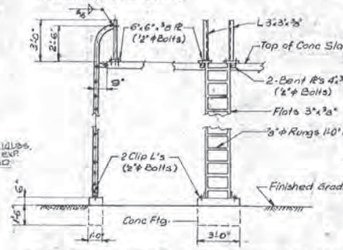
Scale: 1"=1'-0"

DETAIL A

DETAIL B

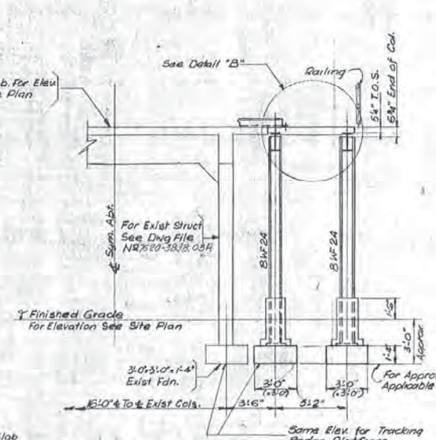
Scale 1"=1'0"

(Radome Ring not Shown.)



DETAIL OF IRON LADDER

Scale ¼"=1'0"



HALF SECTION B-B

Scale ¼"=1'0"



DETAIL "E"

Scale: 1½"=1'-0"

Refer to Corps of Engineers Dwgs. D 11584-1, D 11436-1 & 2 for Mounting Details.

DETAIL "F"

Scale: 1½"=1'0"

NOTES

1. Concrete to be Class "A" Ultimate Strength 3000 PSI at 28 Days.
2. For Reinforcing Bars & For Structural Steel See Specifications.
3. — Indicates Span of Reinforcing.
4. For Elevation of Footing & Top of Structure See Applicable Site Plan.
5. Exist. Railing Shall be Relocated Provided Its Condition Meets With The Approval of The Contracting Officer. Railing Required Over And Above Available Approved Railing Shall be Furnished by The Contractor.
6. Existing Ladder Shall be Relocated Provided Its Condition Meets With The Approval of The Contracting Officer. If Existing Ladder is Not Approved For Use The Contractor Shall Furnish Ladder.
7. Location of Blower Opening May be Altered to Suit Blower & Other Equipment. Opening Shall Not Occur in The Exist. Slab Cantilever Area.
8. All Structural Steel Field Connections Shall be High Strength Bolted.
9. Shop Connections Shall be Welded or Riveted.
10. ¾"ϕ Rivets
⅞"ϕ H.S. Bolts } Unless Otherwise Noted.
1⅛"ϕ Holes
11. All Welding Shall be in Accordance With American Welding Association Code.
12. Concrete Cover of Reinforcing Steel Shall be ¾" in Slab.
13. All Exposed Edges of Concrete to be Beveled 1"x45°
14. See Drawing No. 7620-3868 For Electrical Wiring Diagram.
15. All Electrical Conduit Runs to Equipment Inside Radomes Shall be Installed With an Explosion-Proof Seal at Each Device to Prevent The Loss of Air From The Radome.
16. For Riser Diagram, Wiring Diagram and Mounting Details, See Details 34, 36, and 70, Drawing No. 7620-3868.
17. Two Speed Magnetic Motor Starter, Air Circuit Breaker, and Pushbutton Shall be Government Furnished & Government Installed. Provide Junction Box with Cover and Cable with Receptacle, Cap, at Blower Compt. ℄.
18. One Government Furnished Davit shall be assembled, erected, installed and tested at each Modified Existing Tracking Radar Platform.
One Government Furnished Crane shall be assembled, erected, installed and tested at each Modified Existing Acquisition Radar Platform.

REVISION	DATE	DESCRIPTION	BY
NO. 3	1966	RECORD WORK AS BUILT	
2	21 APR 64	DAVIT & CRANE MOUNT DETAILS, RADOME ANCHORAGE NOTE ADDED	P.B.
1	4 JAN 64	NOTE 16 - SHEET 'A' ADDED, TO DWG NO.	N.R.
		PLATFORM, PLUMBING, CABLE, ENTRY NOTES REVISED, FLOOR LOCATIONS, NOTE, MODIFY DETAIL (C) TO (E), NOTE 17 ADD	P.B.

JOHN J. KASSNER AND COMPANY, ARCHITECT-ENGINEER, NEW YORK, NEW YORK

U.S. ARMY ENGINEER DISTRICT, NEW YORK, CORPS OF ENGINEERS, NEW YORK

DRAWN BY: H.D.

DESIGNED BY: J.L.L.

SUBMITTED: [signature]

REVIEWED: [signature]

APPROVED: [signature] COLONEL C.E., DISTRICT ENGINEER

DATE: 11 SEPTEMBER 1961

SPECIAL AAA FACILITIES

IMPROVED NIKE-HERCULES CONTROL SYSTEMS

MODIFICATION OF EXISTING PLATFORMS ACQUISITION AND TRACKING RADAR

VARIOUS SITES — NEW YORK & NEW JERSEY

REVIEWED: [signature] ASSISTANT CHIEF ENGINEERING DIVISION

RECOMMENDED: [signature] CHIEF, ENGINEERING DIVISION

SCALE AS SHOWN

DRAWING NUMBER

SHEET OF

INV. NO. ENG-30-075-62.75

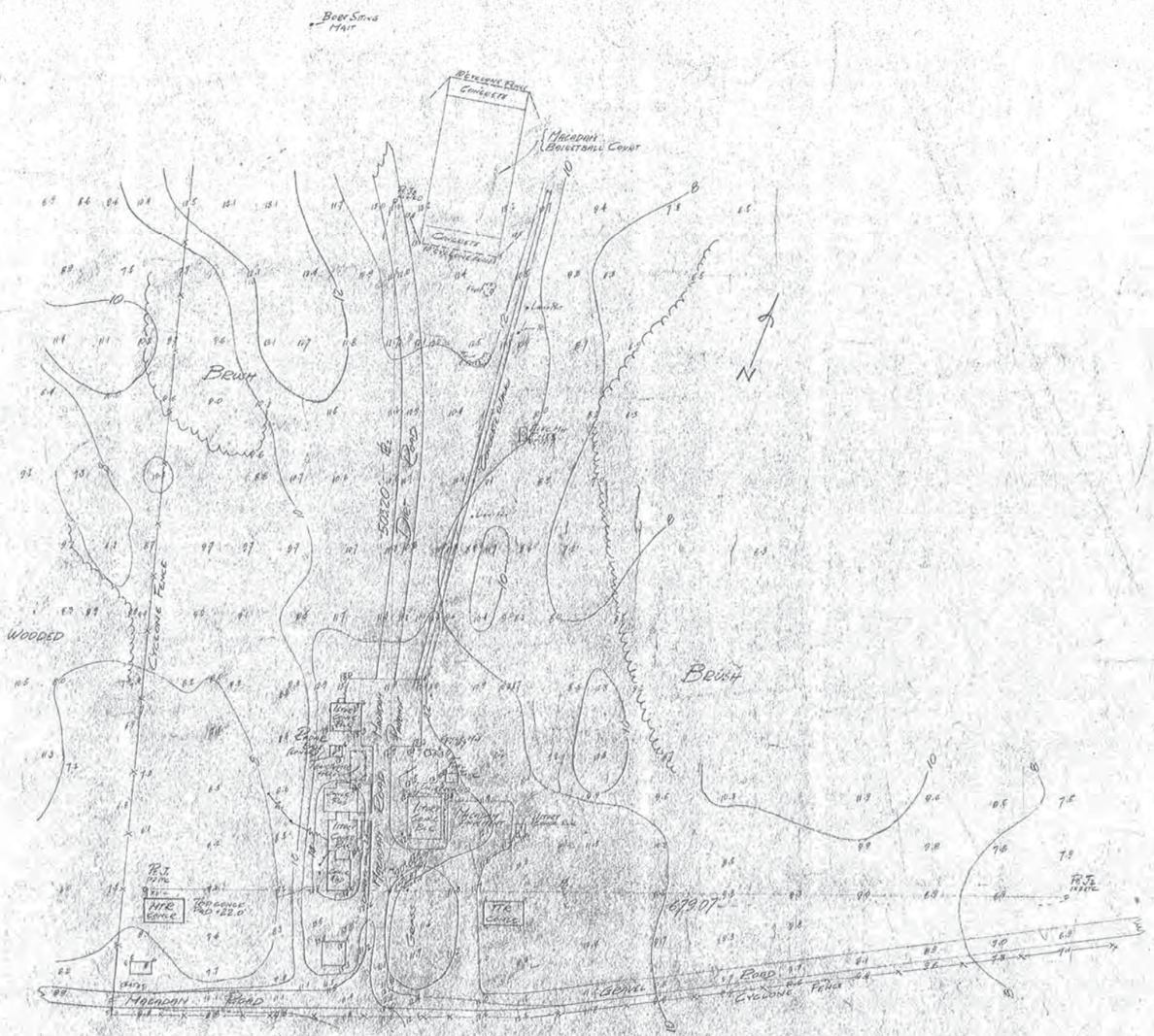
FILE NO. 7620-3901A

RECORD DRAWING OF WORK - AS - BUILT [signature] Colonel C. E., District Engineer JUL 3 1963

REVIEWED BY SAFETY BRANCH [signature]

CORPS OF ENGINEERS

U. S. ARMY



FOR REFERENCE ONLY

The government assumes no responsibility for the accuracy of the information shown hereon.

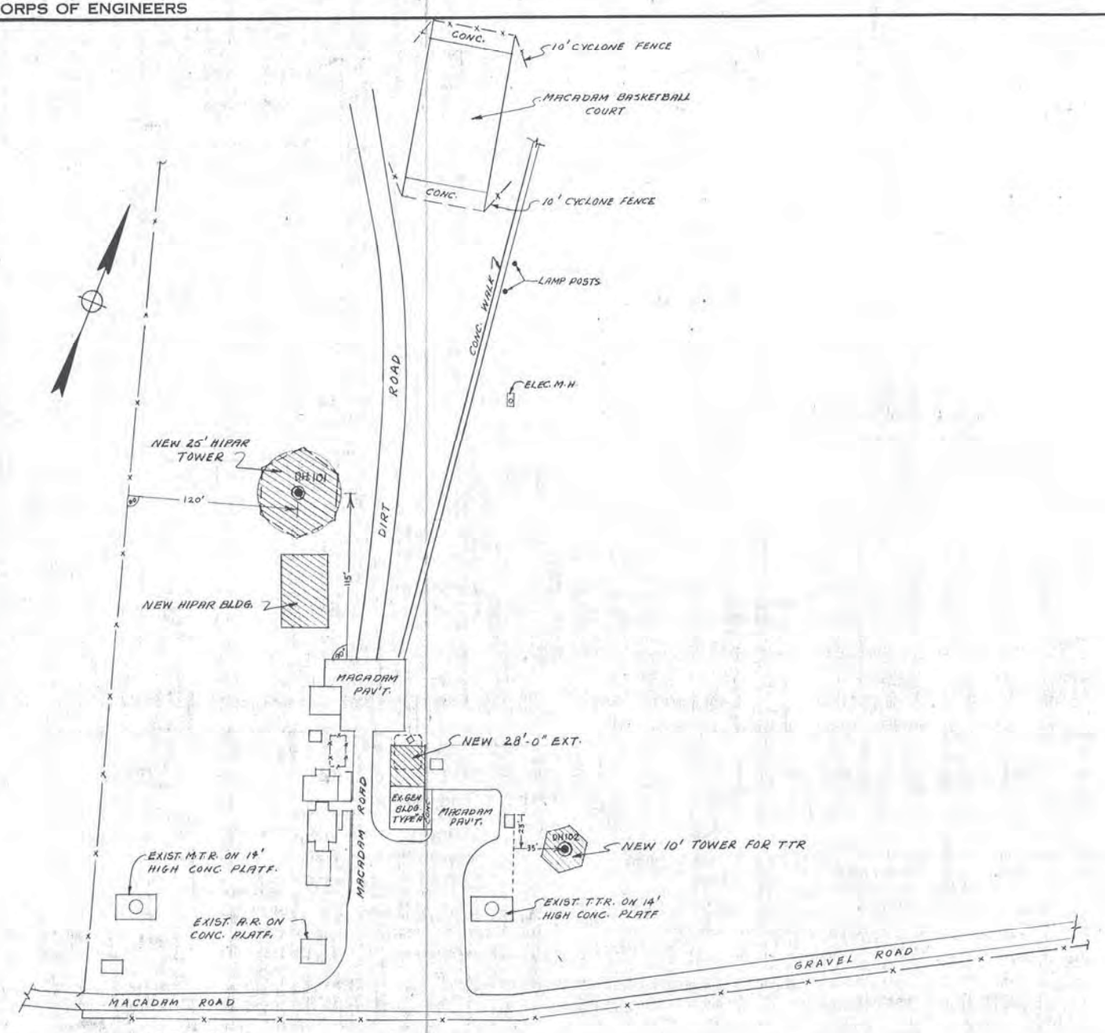
CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK, N.Y.

FORT HANCOCK, N.J.
NIKE SITE CONTROL AREA No. 2
TOPOGRAPHY C-1
SCALE 1" = 40'
DATES OF SURVEY: 4, 5 & 6 AUG. 1960
BOOK No.: 12044, 12068

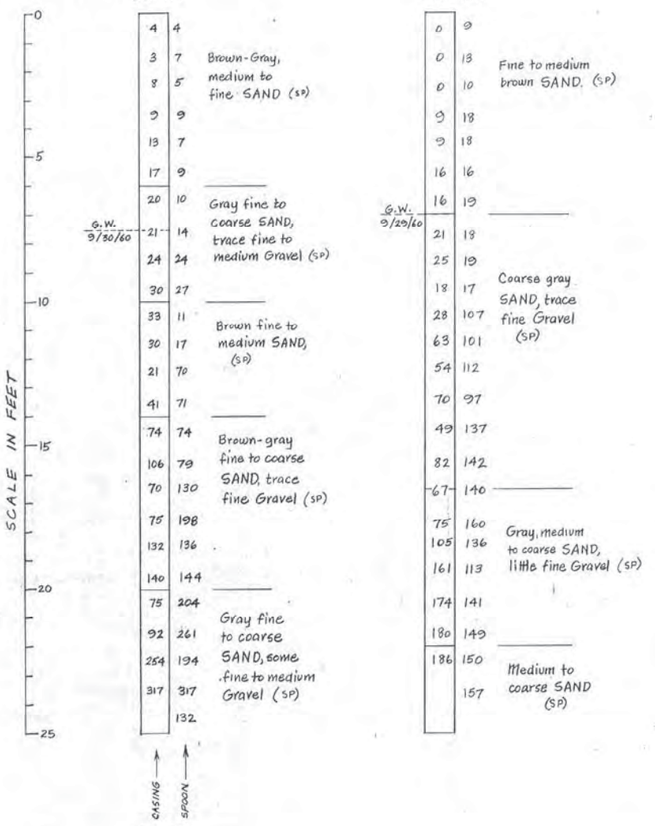
FILE NO. 7620-36880-A

CORPS OF ENGINEERS

U.S. ARMY



SCALE: 1"=40'



GENERAL NOTES

1. The soil logs and notes shown are the result of interpretations made by representatives of the Corps of Engineers from personal observations made during the exploration period of

a. samples of subsurface materials recovered during exploration.

b. records of exploration as prepared by the drill operator and the Government Inspector, and

c. other records pertinent to surface and subsurface conditions. These samples and records are available for inspection upon request to Chief, Foundations and Materials Branch, New York District so that bidders may draw their own interpretations.

2. Explanation of Classification of samples

a. Trace, less than 10 percent of soil sample; little, 10 to 20 percent of soil sample; some, 20 to 40 percent of soil sample; and, 40 to 50 percent of soil sample. These terms describing the various soil fractions were arrived at by visual estimates of the recovered soil samples. Other terms are included when the recovered samples are not truly representative of the natural materials, ex. soils containing cobbles and boulders, thinly stratified soils.

b. The following soil sizes form the basis of reference: Boulders - larger than 8 inches, small stones and cobbles - 8 inches to 2¼ inches, Gravel - 2¼ inches to 20mm, Sand - 20mm to 0.06mm, Silt - 0.06mm. to 0.002mm., Clay - finer than 0.002mm.

c. The terms (SM-GM), etc. refer to the Unified Soil Classification System as per Corps of Engineers Technical Memorandum No. 3-357 (March 1953) with attached appendices.

3. The dates shown directly below the ground water (G.W.) are the dates on which the water level in the explorations were measured. Where no water was found, it is so indicated. It is anticipated that the ground water will rise during periods of wet weather. In addition, perched ground water above the water levels indicated (or above the bottom of hole where no ground water is indicated) may be encountered at changes in soil strata or top of rock (if rock is encountered).

LEGEND

- ◉ DH-12 = DRILL HOLE
- ■ TP-3 = TEST PIT
- ● AH-4 = AUGER HOLE

DRIVING DATA	SPOON	CASING
SIZE	3" I.D.	4" I.D.
HAMMER	150 lbs.	150 lbs.
DROP	33"	38"

FOR REFERENCE ONLY
The government assumes no responsibility for the accuracy of the information shown hereon.

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DISTRICT, NEW YORK
CORPS OF ENGINEERS
NEW YORK 3, NEW YORK

DRAWN BY: S.S.
CHECKED BY: E.S.
DESIGNED BY: [illegible]
SUBMITTED: [illegible] Asst. Chief, Found. & Mat. Branch
REVIEWED: [illegible] Assistant Chief, Engineering Division

SPECIAL AAA FACILITIES
IMPROVED NIKE-HERCULES CONTROL SYSTEMS
½ N.Y.56 FORT HANCOCK, N.J.
SUB-SURFACE EXPLORATIONS
VARIOUS SITES (MAP 3) (HIPAR) NEW YORK & NEW JERSEY

RECOMMENDED: [illegible] Chief, Engineering Division

APPROVED: C. M. Duke
COLONEL C.E., DISTRICT ENGINEER
DATE 11 SEPTEMBER 1961

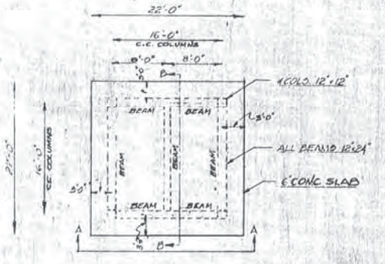
SCALE AS SHOWN
DRAWING NUMBER
SHEET OF

INV. NO. ENG-30-075-[redacted]-22-36

FILE NO. 7820-3838-02A

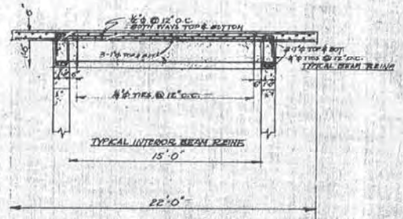
CORPS OF ENGINEERS

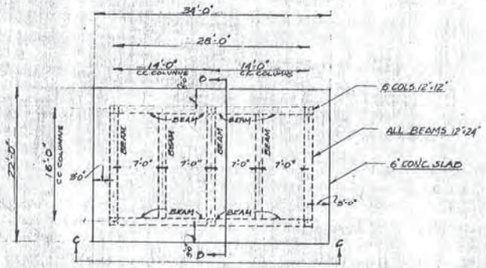
U.S. ARMY



PLAN: ACQUISITION RADAR PAD

SCALE: 1/4"=1'-0"

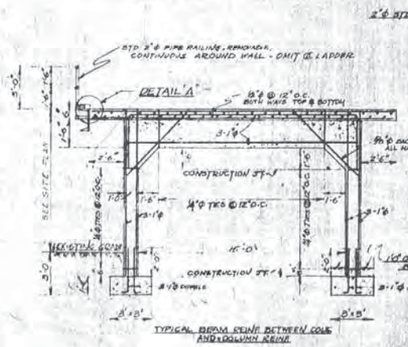




PLAN: MISSILE TRACKING RADAR PAD & TARGET TRACKING RADAR PAD

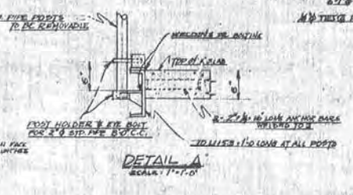
SECTION "B-B"

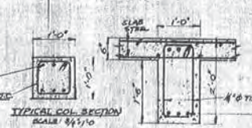
SCALE: 1/4"=1'-0"

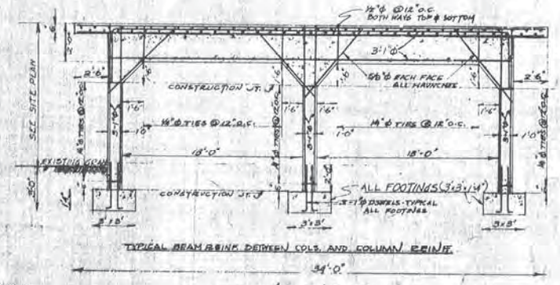


ELEVATION "A-A"

SCALE: 1/4"=1'-0"

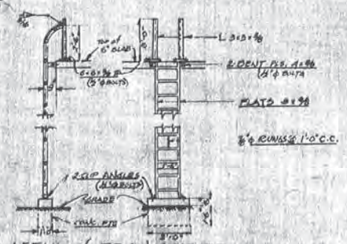






ELEVATION "C-C"

SCALE: 1/4"=1'-0"



NOTES:

1. GALVANIZED PIPE RAILING REQUIRED ON ALL EXPOSED IRON, CONCRETE POSTS AND LADDERS AS DIRECTED.
2. CONCRETE TO DEVELOP AN ULTIMATE COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.
3. REINFORCING STEEL AND CONCRETE TO CONFORM TO A.C.I. CODE LATEST EDITION. LAP ALL BARS 24 DIAMETERS.
4. ALL WELDING IN ACCORDANCE WITH AMERICAN WELDING ASSOCIATION CODE
5. CONCRETE COVER OF REINFORCING STEEL SHALL BE ¾" IN SLAB, AND 1½" IN BEAMS AND COLUMNS

RECORD DRAWING
OF WORK - AS - BUILT
Alexander M. Bruenfeld
Contracting Officer
6 December 1956

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer.
JAN 3 1963

REVIEWED BY SAFETY BRANCH

△ NOTE: STRUCTURES ON THIS SHEET TO BE CONSTRUCTED AT FORT HANCOCK & CRAWFORD SITES ONLY.

REVISION	DATE	DESCRIPTION	BY
JUL 3 1963		ENGINEERS COPY AS BUILT	
ADDED A		RECORD WORK AS BUILT	
△	22 DEC 55	NOTE ADDED.	A.S.

ALEXANDER D. CROSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, NEW YORK

CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK, N.Y.

DRAWN BY:

DESIGNED BY:

SUBMITTED: A.S.C. 17 OCT 55
ARCHITECT - ENGINEER

REVIEWED: M.D. Fiedler
CHIEF, DESIGN BRANCH

REVIEWED: Stanley P. Hamblin
ASSISTANT CHIEF, ENGINEERING DIVISION

RECOMMENDED: Lawrence E. Pence
CHIEF, ENGINEERING DIVISION

APPROVED: John T. Phillips
COLONEL, C.E., DISTRICT ENGINEER

DATE 27 OCT 1955

NEW YORK DEFENSE AREA
SPECIAL AAA FACILITIES
INTERCONNECTING CORRIDOR BETWEEN
RADAR CONTROL VANS; ENGINE GENERATOR
AND FREQUENCY CHANGER BUILDING
(FOR CONTROL AREA)

FT HANCOCK
CRAWFORD CORNERS
NEW JERSEY

SCALE: AS SHOWN

DRAWING NUMBER

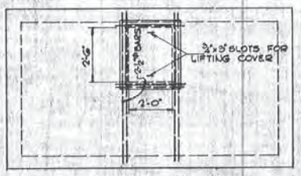
SHEET OF

INV. NO. ENG.-10-075-

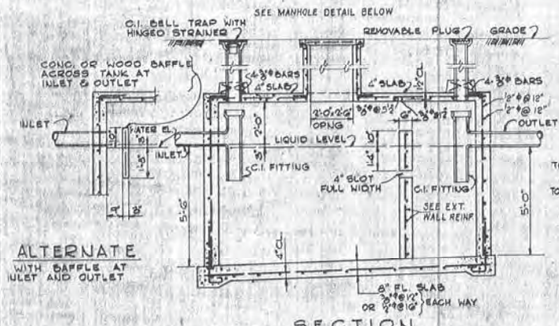
FILE NO. 7620-3838-024

CORPS OF ENGINEERS

U. S. ARMY



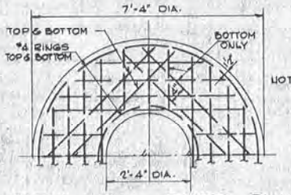
ROOF SLAB PLAN



ALTERNATE
WITH BAFFLE AT INLET AND OUTLET

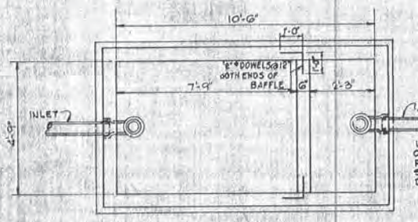
SECTION

NOTES:
FOR INLET INVERT ELEV. SEE APPLICABLE SITE PLANS

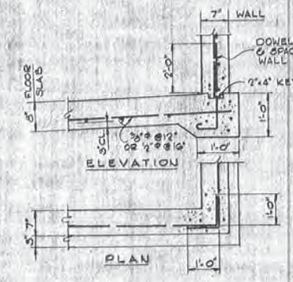


DRY WELL ROOF SLAB
NOT TO SCALE

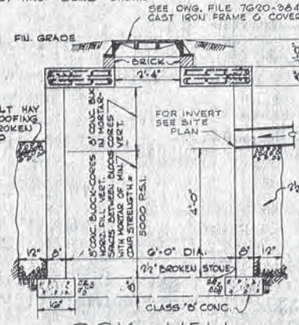
NOTES: 1. STEEL RINGS MAY BE EITHER LAPPED OR WELDED AT ENDS.
2. ALL BARS SHALL BE #4@4" AND SHALL BE HOOKED TO RINGS.
3. SLAB CONCRETE TO BE CLASS 'A'.
4. ONLY HALF SLAB SHOWN.



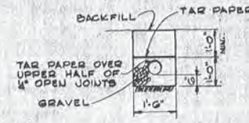
PLAN



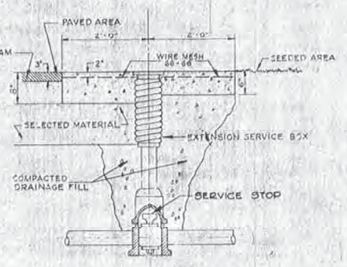
TYPICAL CORNER REINF.



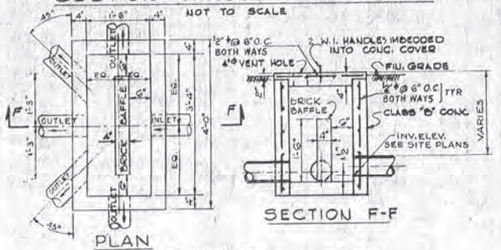
DRY WELL
SCALE: ½"=1'-0"



SECTION THROUGH TILE FIELD
NOT TO SCALE

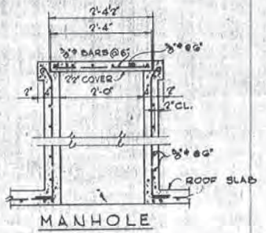


DETAIL OF SERVICE STOP
NO SCALE



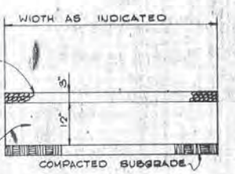
PLAN

DISTRIBUTION BOX
SCALE: ¾"=1'-0"



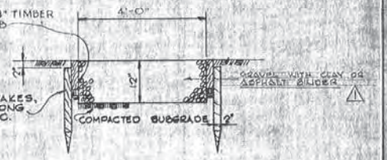
MANHOLE

DETAIL OF SEPTIC TANK
NOT TO SCALE

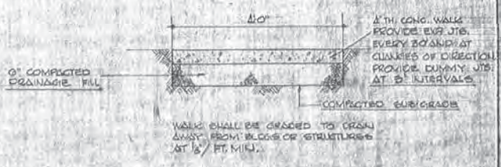


SECTION

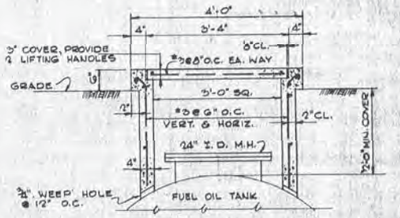
PENETRATION MACADAM PAVEMENT
WITH SINGLE BITUMINOUS SURFACE TREATMENT
SCALE: ¾"=1'-0"



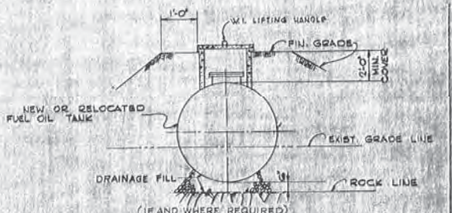
DETAIL OF GRAVEL WALK
SCALE: ¾"=1'-0"



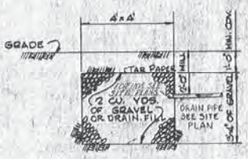
⚠ DETAIL OF CONC. WALK (AT GRAND ISLAND NY SITES) ½ LIP AT CURB
SCALE: ¾"=1'-0"



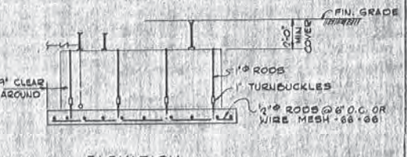
DETAIL OF MANHOLE AT TANK
SCALE: ¾"=1'-0"

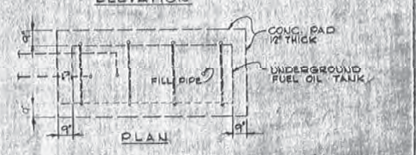


DETAIL OF TANK MOUNDING IN ROCK
NOT TO SCALE

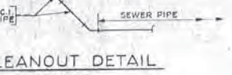


DETAIL OF GRAVEL PIT
SCALE: ¾"=1'-0"





DETAIL OF PAD FOR FUEL OIL TANK
SCALE: ½"=1'-0"



CLEANOUT DETAIL
NO SCALE

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1961

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
	JUL 3 1961	RECORD WORK AS BUILT	
⚠	1 MAY 62	ADDED DETAIL OF CONC. WALK & GRAVEL WALK REV	W/E

JOHN J. KASSNER & CO. ARCHITECT - ENGINEER NEW YORK, NEW YORK

U.S. ARMY ENGINEER DISTRICT, NEW YORK CORPS OF ENGINEERS NEW YORK 3, NEW YORK

DRAWN BY: J.J.D. & L.G.
DESIGNED BY: J.K.T. & R.F.D.
SUBMITTED: [signature] ARCHITECT - ENGINEER
RECOMMENDED: [signature] CHIEF, DESIGN BRANCH
REVIEWED: [signature] CHIEF, CONSTR. BRANCH
RECOMMENDED: [signature] CHIEF, ENGINEERING DIVISION
APPROVED: C. M. Duke, COLONEL C. E., DISTRICT ENGINEER
DATE: 18 SEPTEMBER 1961

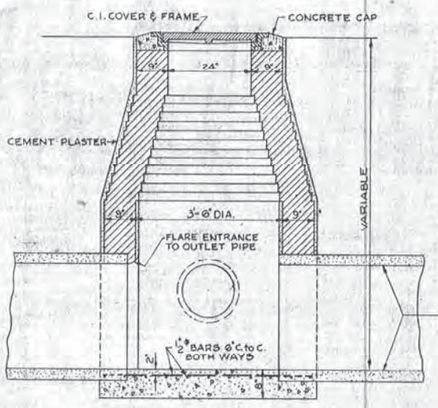
SPECIAL AAA FACILITIES
IMPROVED NIKE-HERCULES CONTROL SYSTEMS
SITE DETAILS

SCALE AS SHOWN
DRAWING NUMBER
SHEET OF

INV. NO. ENG-10-075-[redacted] 276⚠
FILE NO. 7620-3841

CORPS OF ENGINEERS

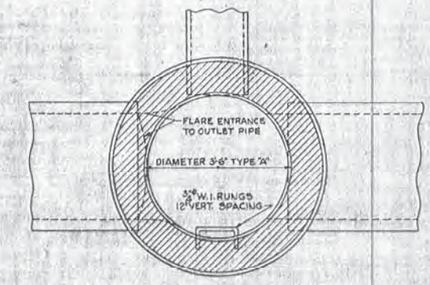
U. S. ARMY



ELEVATION - DRAINAGE MANHOLE

SCALE ¾"=1'-0"

NOTE
FOR SHALLOW MH. SEE GENERAL NOTE NO. 6 AND APPLICABLE DETAILS DWG. FILE NO. 7820-3844 A



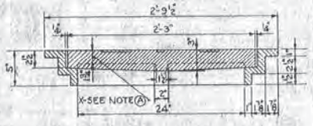
SECTION - MANHOLE

SCALE ¾"=1'-0"



HALF PLAN-MANHOLE COVER & FRAME

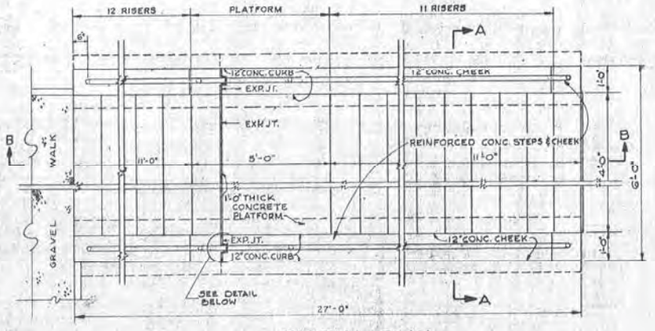
SCALE 1½"=1'-0"



SECTION - MANHOLE COVER & FRAME

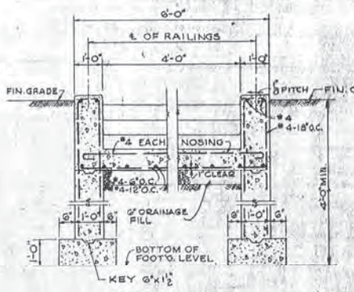
SCALE 1½"=1'-0"

NOTE Ⓐ
FOR MANHOLES SO LOCATED THAT COVER WILL NOT BE SUBJECTED TO TRAFFIC THE THICKNESS OF COVER SHOWN AT X-X AT 1½" MAY BE 1" MAKING WEIGHT OF COVER APPROXIMATELY 200 POUNDS.



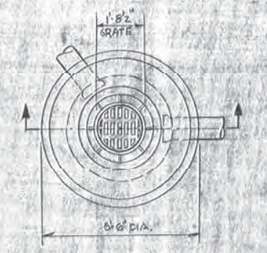
PARTIAL PLAN

SCALE ¼"=1'-0"



SECTION A-A

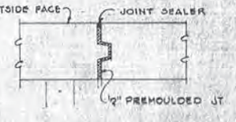
SCALE 1½"=1'-0"



PLAN

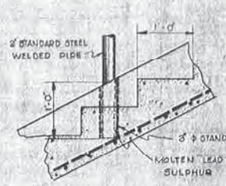
SECTION B-B

SCALE 1½"=1'-0"



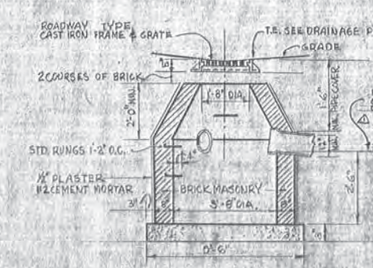
DETAIL OF KEYED JT.

SCALE 1"=1'-0"



DETAIL OF PIPE SLEEVE

SCALE 1"= 1'-0"



SECTION

CATCH BASIN

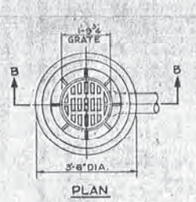
SCALE 1½"=1'-0"



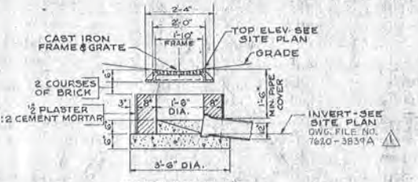
ANCHOR PLAN

TYPICAL DETAILS

NEW CONCRETE STEPS AT CRAWFORD CORNERS



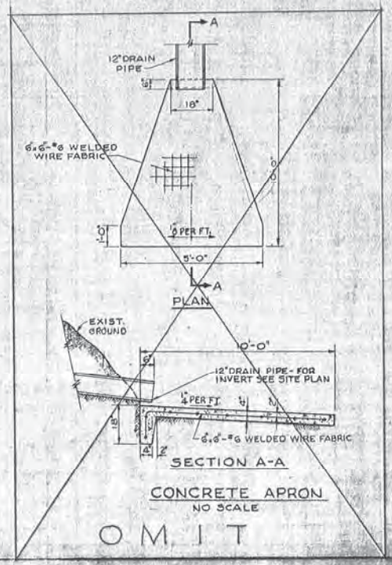
PLAN



SECTION B-B

DROP INLET

NO SCALE

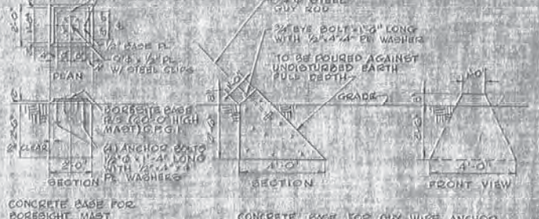


SECTION A-A

CONCRETE APRON

NO SCALE

OMIT



CONCRETE BASE FOR BORESIGHT MAST

SCALE ¾"=1'-0"

CONCRETE BASE FOR GUY WIRE ANCHOR

SCALE ¾"=1'-0"

⚠ BORE SIGHT MAST ANCHORAGE DETAILS FOR ½ NY 56 (C-1) SITE ONLY

RECORD DRAWING

OF WORK - AS - BUILT

Colonel C. E., District Engineer

JUL 3 1963

REVIEWED BY SAFETY BRANCH

NO.	DATE	REVISION	BY
3		RECORD WORK AS BUILT	
⚠	9 AUG 60	Bore sight details added	JJ
⚠	4 JAN 60	Sheet reference No. added at each base section	JJ

JOHN J. KASSNER & CO. ARCHITECT-ENGINEERS NEW YORK, NEW YORK

U.S. ARMY ENGINEER DISTRICT, NEW YORK CORPS OF ENGINEERS NEW YORK, N. Y.

DRAWN BY: L.G.-H.D.

DESIGNED BY: R.P.S.

SUBMITTED BY: [signature]

FIELD WORK BY: M.H. Fiellow

FIELD SURVEY RECORD

REVIEWED: [signature] ASSISTANT CHIEF ENGINEERING DIVISION

RECOMMENDED: [signature] CHIEF ENGINEERING DIVISION

APPROVED: [signature] COLONEL C.E. DISTRICT ENGINEER

DATE: 11 SEPTEMBER 1961

SPECIAL AAA FACILITIES

IMPROVED NIKE-HERCULES CONTROL SYSTEMS

SITE DETAILS

SCALE AS SHOWN

DRAWING NUMBER

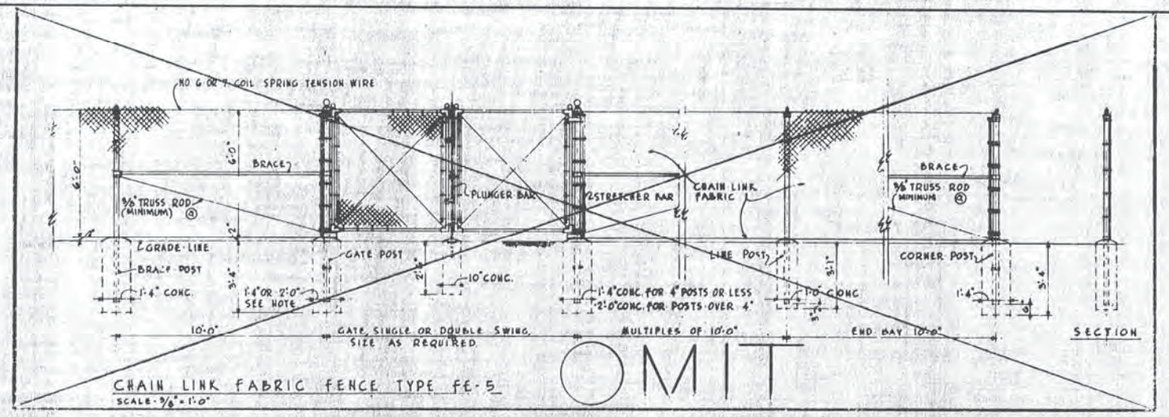
SHEET OF

INV. NO. ENG-30-075-

FILE NO. 7820-3847 A

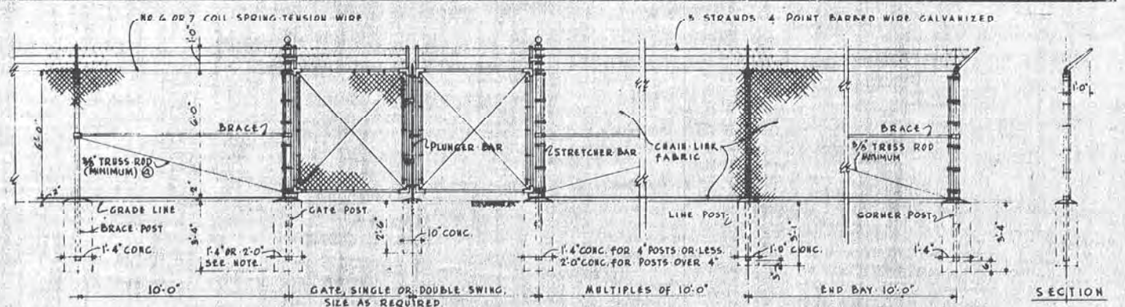
CORPS OF ENGINEERS

U.S. ARMY



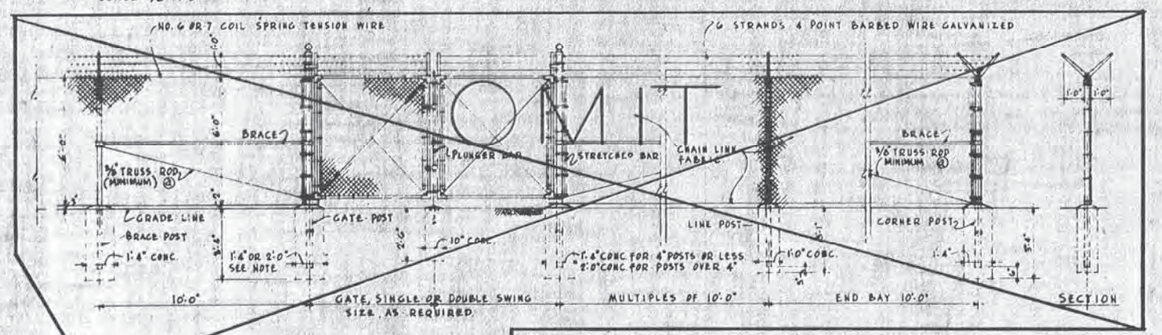
CHAIN LINK FABRIC FENCE TYPE FE-5

SCALE - 3/8" = 1'-0"



CHAIN LINK FABRIC FENCE TYPE FE-6

SCALE - 3/8" = 1'-0"



CHAIN LINK FABRIC FENCE TYPE FE-7

SCALE - 3/8" = 1'-0"



GATE LATCH FORK



GATE LOCK KEEPER



GATE FORK CATCH



LOCK KEEPER GUIDE



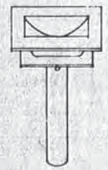
STOP (TO HOLD GATE OPEN)



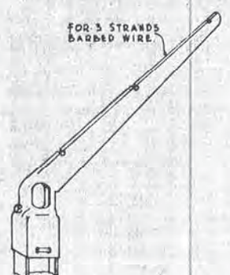
METHOD OF TYING FABRIC TO BRACE RAILS.



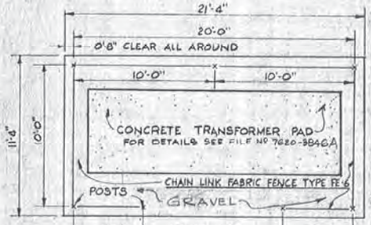
METHOD OF TYING FABRIC TO LINE POSTS



CATCH (FOR GATE PLUNGER BAR)



EXTENSION ARMS FOR "H" COLUMN POSTS. (ARMS SIMILAR FOR TUBULAR POSTS)



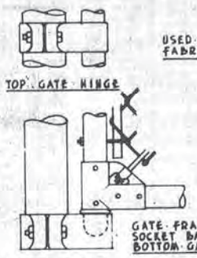
SCHEMATIC DIAGRAM OF POST SPACING

NOTES:

FOR LOCATION OF THIS WORK, SEE APPLICABLE SITE PLANS.
FOR GROUNDING & ELECTRICAL WORK, SEE FILE NO. 7620-3853A
BRACE RAILS & TRUSS RODS SHALL BE CONTINUOUS AROUND TRANSFORMER PADS.



TOP GATE HINGE

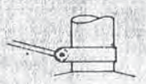


BOTTOM GATE HINGE

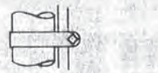
GATE FRAME AND SOCKET BALL FOR BOTTOM GATE HINGE



HOOK BOLT USED FOR STRETCHING FABRIC IN GATES



TRUSS ROD & BAND



STRETCHER BAR BAND



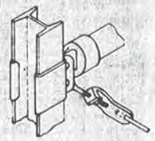
BAND FOR STRETCHING BARBED WIRES (BAND IS SIMILAR FOR COIL SPRING TENSION WIRE.)



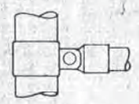
SECTION OF END OR GATE POST



SAFEGUARD TOP FOR "H" COLUMN POSTS (TOP IS SIMILAR FOR TUBULAR POSTS.)



DETAIL OF CLAMP & TRUSS ATTACHMENT FOR "H" COLUMN POSTS



END CLAMP FOR BRACE RAIL OR TOP RAIL.



CORNER CLAMP FOR BRACE RAIL OR TOP RAIL.

GENERAL NOTES:

1. TOP & BOTTOM OF FABRIC SHALL HAVE TWISTED & BARBED FINISH.
2. BRACING POSTS SHALL BE EQUIVALENT TO CORNER POSTS AND SHALL BE BRACED EACH SIDE WITH HORIZONTAL AND DIAGONAL BRACES SIMILAR TO CORNER BRACING.
3. ALL METAL SHALL BE HOT-DIPPED GALVANIZED
4. FENCES & GATES SHALL BE FURNISHED COMPLETE WITH ALL NECESSARY FITTINGS
5. SINGLE OR DOUBLE GATES MAY BE USED FOR OPENINGS UP TO 10' C. TO C. OF GATE POSTS. OPENINGS EXCEEDING 10'-0" C. TO C. OF GATE POSTS SHALL HAVE DOUBLE GATES.
6. FOR GATES - SIZES OF PIPE, SAG RODS, & TURNBUCKLES SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
7. FABRIC TO BE CHAIN LINK, 6'-0" WIDE, #9 GAUGE, 2" MESH, GALVANIZED
8. TYPE FE-6 TO HAVE OVERHANG ARM, 12 GAUGE PRESSED STEEL OR WROUGHT IRON CARRYING 3 STRANDS OF 4 POINT BARBED WIRE.

RECORD DRAWING

OF WORK - AS - BUILT

M M Mitchell

Colonel C. E., District Engineer

JUL 3 1963

REVISED 11 SEPT. 1961 BY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
JOHN J. KASSNER & CO.
ARCHITECT - ENGINEER
FOR
SPECIAL AAA FACILITIES
IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES
NEW YORK & NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	FEB. 3, 1963 RECORD WORK AS BUILT		
1	TRANSFORMER PAD DETAIL REVISED	4 JAN 62	A/E

BOWERS & BARBALAT
ARCHITECT ENGINEER
PITTSBURGH, PA.

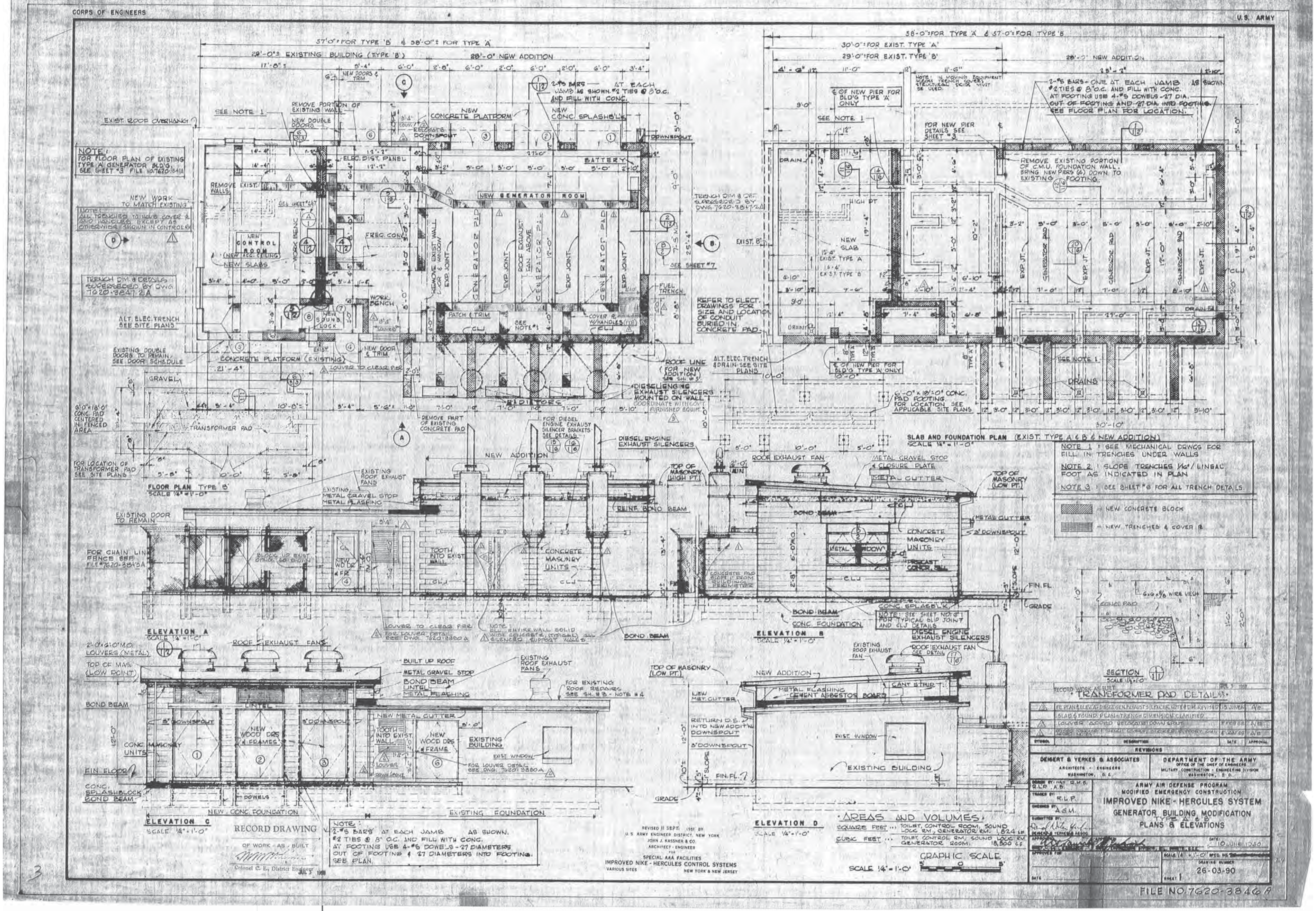
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DESIGNED BY: P. S. N.
TRACED BY: P. S. N.
CHECKED BY: J. T. N.
QUANTITIES BY: Alfred E. Barbalat
APPROVED FOR CHIEF OF ENGINEERS: Edmund B. Gaskill
APPROVED FOR: H. H. Jackson
DATE: 2 JULY 1953

FENCE & DETAILS
TYPE FE-5, FE-6, FE-7

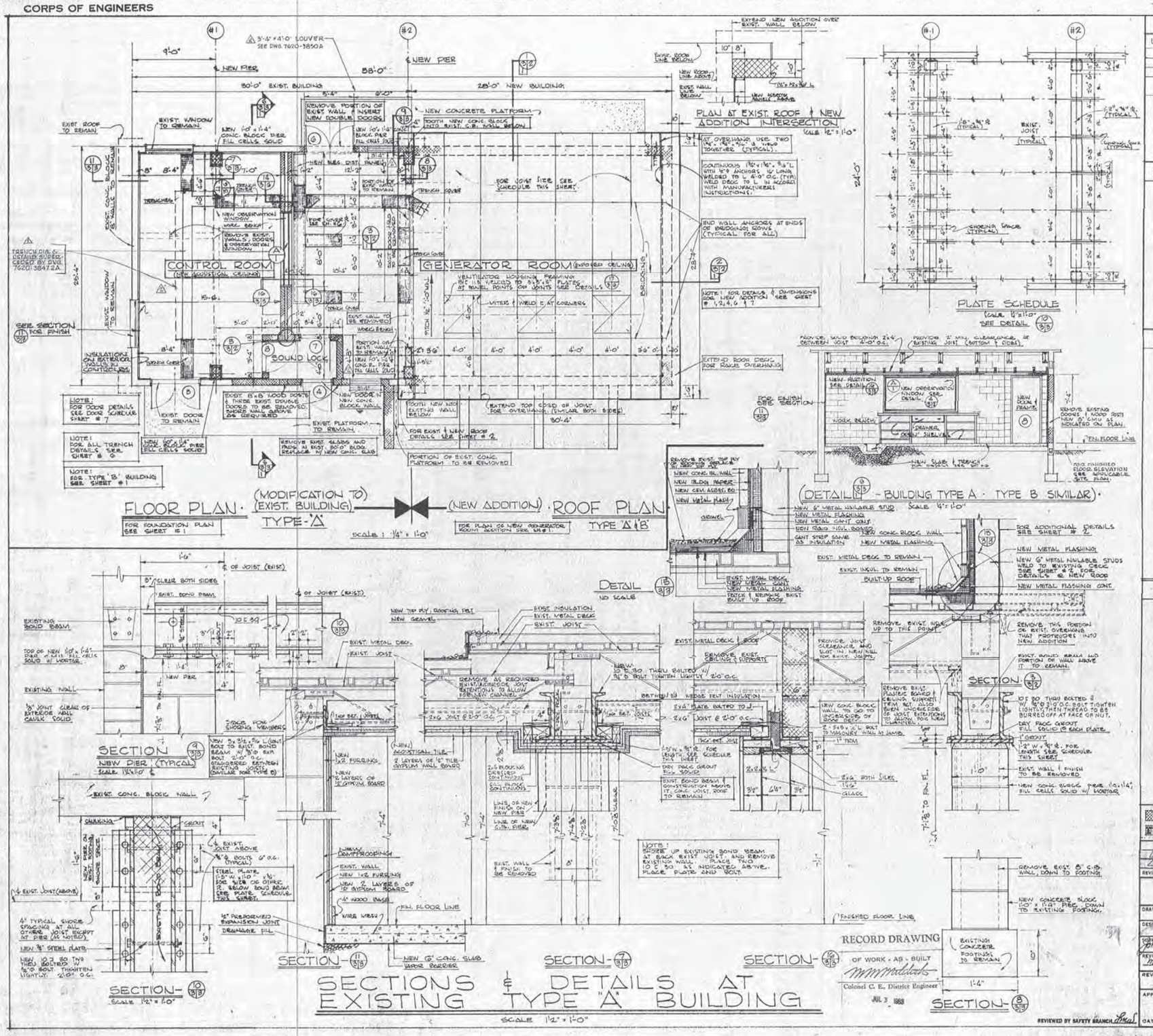
SCALE: AS NOTED
SPEC. NO.
DRAWING NUMBER: E 40-16-06
SHEET 1 OF 1

FILE NO. 7620-3843A


CORPS OF ENGINEERS
U.S. ARMY
FLOOR PLAN TYPE 'B'
SCALE 1/4"=1'-0"
SLAB AND FOUNDATION PLAN (EXIST. TYPE A & B & NEW ADDITION)
SCALE 1/4"=1'-0"
NOTE 1: SEE MECHANICAL DRWGS FOR FILL IN TRENCHES UNDER WALLS
NOTE 2: SLOPE TRENCHES 1/16" / LINEAL FOOT AS INDICATED IN PLAN
NOTE 3: SEE SHEET #6 FOR ALL TRENCH DETAILS.
NEW CONCRETE BLOCK
NEW TRENCHES & COVER
ELEVATION A
SCALE 1/4"=1'-0"
ELEVATION B
SCALE 1/4"=1'-0"
ELEVATION C
SCALE 1/4"=1'-0"
ELEVATION D
SCALE 1/4"=1'-0"
NEW GENERATOR ROOM
NEW CONTROL ROOM
NEW ADDITION
EXISTING BUILDING
TRANSFORMER PAD DETAILS
SECTION
NOTE: 2-#5 BARS AT EACH JAMB AS SHOWN. #2 TIES @ 8" O.C. AND FILL WITH CONC. AT FOOTING USE 4-#5 DOWELS-27 DIAMETERS OUT OF FOOTING & 27 DIAMETERS INTO FOOTING. SEE PLAN.
RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
REVISED 11 SEPT. 1961 BY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
JOHN J. KASSNER & CO.
ARCHITECT - ENGINEER
SPECIAL AAA FACILITIES
IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES
NEW YORK & NEW JERSEY
AREAS AND VOLUMES
GRAPHIC SCALE
SCALE 1/4"=1'-0"
REVISIONS
SYMBOL
DESCRIPTION
DATE
APPROVAL
SLAB & FOUND. PLAN - TRENCH DIMENSION CLARIFIED
DENSERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D.C.
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D.C.
ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
GENERATOR BUILDING MODIFICATION
TYPE "A" & "B"
PLANS & ELEVATIONS
TRACED BY: R.L.P.
CHECKED BY: A.G.M.
DRAWING NUMBER
26-03-90
SHEET 1
FILE NO. 7620-3846 A

CORPS OF ENGINEERS

U.S. ARMY



ROOF FRAMING SCHEDULE

LIVE LOAD	TOTAL LOAD	JOIST	SPACING
30 #/ft	45 #/ft	14 SA	AS SHOWN

ROOF OVERHANG

PROJECTION OF TOP CHORD OF STEEL JOISTS TO HAVE SECTION MODULUS = S(in3)
30#/ft LL S= 21 in3

STEEL FABRICATOR TO MODIFY OR STRENGHTEN TOP CHORD TO PROVIDE REQUIRED MINIMUM SECTION MODULUS ABOUT AXIS OF BENDING

BOND BEAM & REINFORCED C.M.U. LINTELS

1. LINTELS IN INTERIOR PARTITIONS TO BE OF 2500 P.S.I. CONCRETE 7⅝" DEEP 2 #4 TOP & BOTTOM.
2. C.M.U. BOND BEAMS:
   A. GENERAL 2 #6 CONTINUOUS BETWEEN CONTROL JOINTS; LAP 30 DIA.
   B. OVER ①②③④ - 2 #4 TOP & 2 #6 BOTTOM.
   C. OVER WIND ⑤ - 2 #4 TOP & 2 #6 BOTTOM.
3. C.M.U. LINTELS:
   A. OVER ①②③ - 2 #4 TOP & 2 #6 BOTTOM.
   B. OVER TRENCH - 2 #4 BOTTOM.
   C. OVER WINDOW ⑤ - 2 #5 TOP, 5 #5 BOTTOM
4. METAL LINTELS
   A. OVER WINDOW ⑥ 2 Ω 6"x4"x⅜"
   B. OVER TRENCH 2 Ω 6"x4"x⅜"
   C. OVER DOOR ⑥ 2 Ω 4"x3½"x⅜"
5. LINTELS SHALL HAVE 8 INCH BEARING AT EACH END AND SHALL BE THE SAME WIDTH AS THE WALL.
6. WHERE TOP BARS ARE SPECIFIED PROVIDE #2 TIES AT 12"...

STRUCTURAL NOTES

LIVE LOADS: 30 #/SQ. FT. ON ROOF
SOIL BEARING VALUE: ASSUMED 3000 #/SQ. FT.
CONCRETE: CLASS "B", f'c = 2500 PSI ULTIMATE 28 DAY STRENGTH. ALL FILLS FOR VERTICAL CELLS TO BE ONE PART CEMENT, 2 PARTS CONCRETE SAND, 2 PARTS ⅜" PEA GRAVEL & 7½ GALLONS WATER MAX. PER SACK OF CEMENT. PRECAST ITEMS TO BE CLASS "A" CONCRETE f'c 3000 PSI ULTIMATE 28 DAY STRENGTH.

SLAB ON GRADE: REINFORCING TO BE 6"x6" - #6 WELDED WIRE MESH. PLACED 2" OF SLAB DEPTH BELOW TOP OF SLAB.
REINFORCING: SHALL CONFORM TO FEDERAL SPECIFICATION QQ-S-682.

STEEL JOISTS: STEEL JOISTS, BRIDGING & ANCHORS SHALL CONFORM TO CURRENT STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOIST CONSTRUCTION AS ADOPTED BY THE STEEL JOIST INSTITUTE

STEEL DECKING: SHALL BE 20 GA. TO BE WELDED TO JOISTS & OVERLAPS PROVIDED & LOCATED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

FOOTINGS: BOTTOM OF NEW FOOTINGS TO BE 4'-0" BELOW FINISHED GRADE OR CARRIED TO MIN. INTO UNDISTURBED SOIL, WHICHEVER DEPTH COVERS. NEW FOOTINGS TO BE DOWELED INTO EXISTING FOOTINGS AND STEPPED IF REQUIRED. FOR ELEVATION OF BOTTOM OF NEW FOOTINGS SEE APPLICABLE SITE PLAN.

DRAINAGE FILL UNDER FLOOR SLAB TO BE COMPACTED TO MIN. 100 % MOD. AASHO DENSITY.

ARCHITECTURAL NOTES

1. FOR DETAILS OF TRANSFORMER PAD SEE SHEET #1 FOR LOCATION OF TRANSFORMER PAD SEE APPLICABLE SITE PLAN.
2. ELEVATIONS OF TYPE 'A' EXISTING GENERATOR BUILDING SIMILAR TO TYPE 'B' REFER TO SHEET # 2 FOR ELEVATIONS.
3. REMOVE ALL EXISTING ROOF SLABS AND DECK AND REPLACE WITH NEW SLAB, TRENCHES AS INDICATED.
4. REMOVE EXISTING GRAVEL & TOP PLY OF ROOFING FELT FROM EXISTING TYPE A & B GENERATOR BUILDINGS REPAIR ALL EXISTING DEFECTIVE ROOF AREAS AS REQUIRED TO MAKE WATER TIGHT & PROVIDE NEW FLASHING AS NEEDED. REMOVE ALL EXISTING OBSOLETE OPENINGS IN ROOF AS REQUIRED TO MAKE WATER TIGHT, REPLACE WITH NEW TOP PLY OF ROOFING FELT & NEW GRAVEL APPLICATION SHALL BE AS NEW.
5. FLOOR DRAINS TO BE CONNECTED TO GRAVEL PIT OR DRY WELL AS INDICATED ON SITE PLANS

NEW CONCRETE BLOCK
NEW TRENCH & COVER PLATE

REVISION	DATE	DESCRIPTION	BY
	JUL 3 1963	RECORD WORK AS BUILT	
2	7 FEB 63	ADDED LOUVERS & PLAN, REMOVED TRENCH DIM.	A/E
1	4 JAN 63	Clarification of Note 4 TRENCH DIM REV.	A/E

JOHN J. KASSNER & CO. ARCHITECT-ENGINEER NEW YORK, NEW YORK

U.S. ARMY ENGINEER DISTRICT, NEW YORK CORPS OF ENGINEERS NEW YORK 5, NEW YORK

DRAWN BY: ALM
DESIGNED BY: H.W.
SUBMITTED BY: John J. Kassner
REVIEWED: W. J. Sieben, CHIEF, DESIGN BRANCH
REVIEWED: Otto A. D. Hamsher, ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: Francis J. Pierce, CHIEF, ENGINEERING DIVISION
APPROVED: C. M. Duke, COLONEL C. E. DISTRICT ENGINEER
DATE 11 SEPTEMBER 1962

SPECIAL AAA FACILITIES

IMPROVED NIKE-HERCULES CONTROL SYSTEMS
FLOOR PLANS & DETAILS FOR MODIFICATION TO EXISTING GENERATOR BLDG. TYPE 'A' ROOF PLAN FOR TYPE 'A & B'

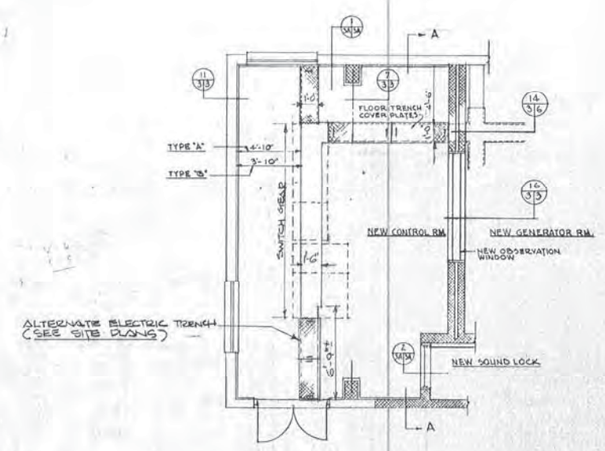
SCALE AS SHOWN
DRAWING NUMBER
SHEET 3 OF

INV. NO. ENG-30-075-62-15 A

FILE NO: 7620-3847A

CORPS OF ENGINEERS

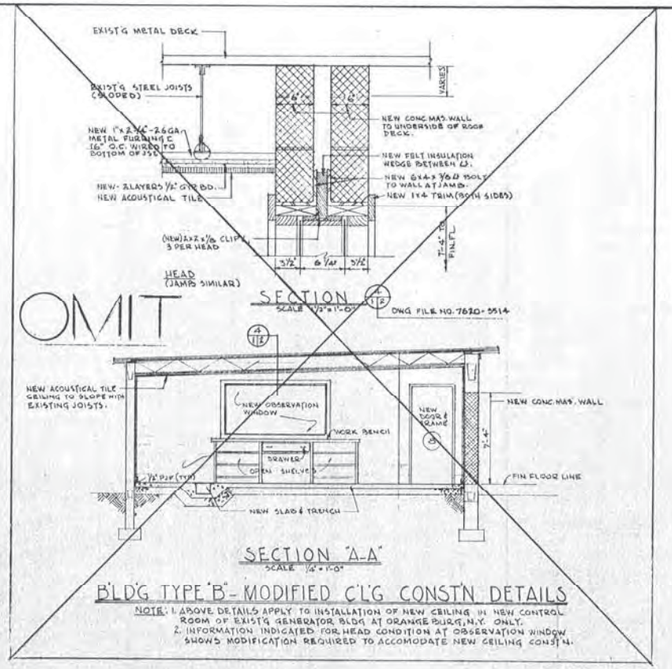
U. S. ARMY



PART FLOOR PLAN - BLDG TYPE 'A' & 'B'

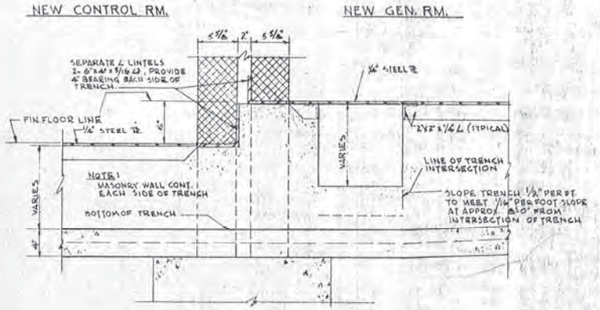
SCALE 1/4"=1'-0"

NOTE: 1. ABOVE PLAN SUPPLEMENTS FLOOR PLANS SHOWN ON DWG FILE NOS. 7620-3847 A FOR SITES LISTED IN GEN NOTE NO. 1.
2. TRENCH LAYOUT INDICATES FLOOR TRENCH MODIFICATION TO SUIT SWITCHGEAR LOCATION.
3. THIS PLAN ALSO SUPPLEMENTS FLOOR PLANS SHOWN ON DWG FILE NO 7620-3846A



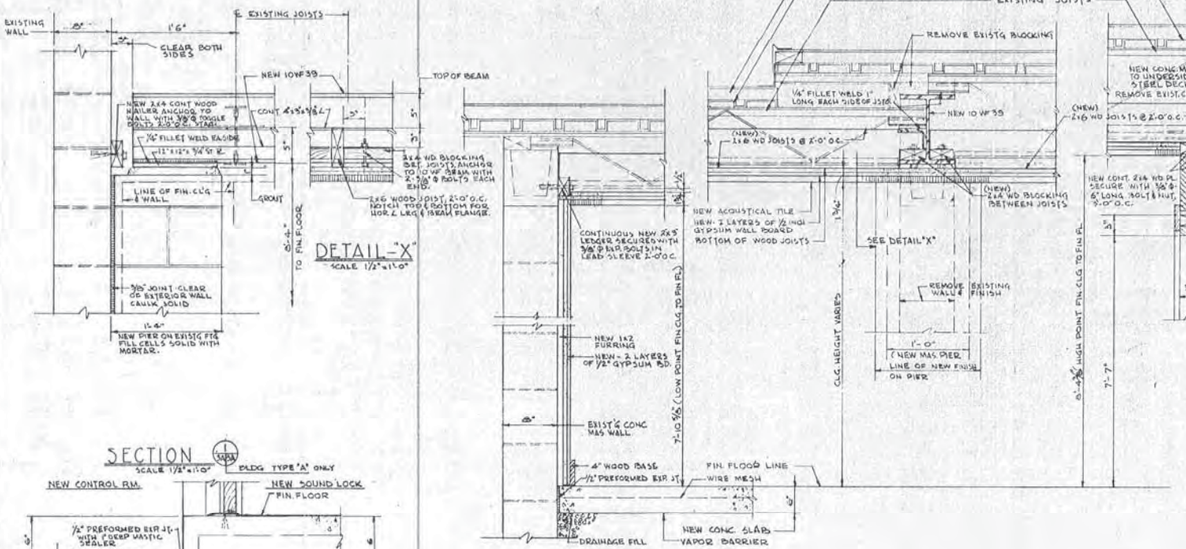
BLDG TYPE 'B' - MODIFIED C'LG CONST'N DETAILS

NOTE: 1. ABOVE DETAILS APPLY TO INSTALLATION OF NEW CEILING IN NEW CONTROL ROOM OF EXIST'G GENERATOR BLDG. AT ORANGE BURG, N.Y. ONLY.
2. INFORMATION INDICATED FOR HEAD CONDITION AT OBSERVATION WINDOW SHOWS MODIFICATION REQUIRED TO ACCOMODATE NEW CEILING CONST'N.



GENERAL NOTES:

1. MODIFICATIONS SHOWN ON THIS DRAWING APPLY TO EXISTING GENERATOR BUILDINGS AT THE FOLLOWING SITES ONLY.
   TYPE A
   CRANFORD CORNERS N.J. N.Y. 54
   FT. HANCOCK N.J. & N.Y. 56
   GRAND ISLAND N.Y. & NIE-41
2. SECTIONS NOTED WITH DWG. FILE NO. SUPERSEDE SAME SECTIONS ON REFERENCED DRAWINGS AND APPLY TO SITES LISTED IN GEN NOTE NO 1.
3. PART FLOOR PLAN, BLDG TYPES 'A' & 'B' AS SHOWN ON THIS SHEET ALSO APPLY TO NY 251 AMITYVILLE, N.Y.



SECTION (1/3A5) DWG FILE NO 7620-3847A

SECTION (11/3J5) DWG FILE NO 7620-3847A

SECTION (7/3J3) DWG FILE NO 7620-3847A

SECTION (10/3J5) DWG FILE NO. 7620-3847A

BLDG TYPE 'A' - MODIFIED CEILING CONSTRUCTION DETAILS

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1961

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
	JUL 3 1961	RECORD WORK AS BUILT	

U. S. ARMY ENGINEER DISTRICT, NEW YORK
CORPS OF ENGINEERS
NEW YORK 3, NEW YORK

DRAWN BY:
CHECKED BY:
DESIGNED BY:
SUBMITTED: M. M. Fiedler, CHIEF DESIGN BRANCH
REVIEWED: David D. Haverda, ASSISTANT CHIEF ENGINEERING DIVISION
RECOMMENDED: Carmen Cusano, CHIEF, ENGINEERING DIVISION
APPROVED: J. M. Duke, COLONEL, CORPS OF ENGINEERS, DISTRICT ENGINEER
DATE 11 SEPTEMBER 1961

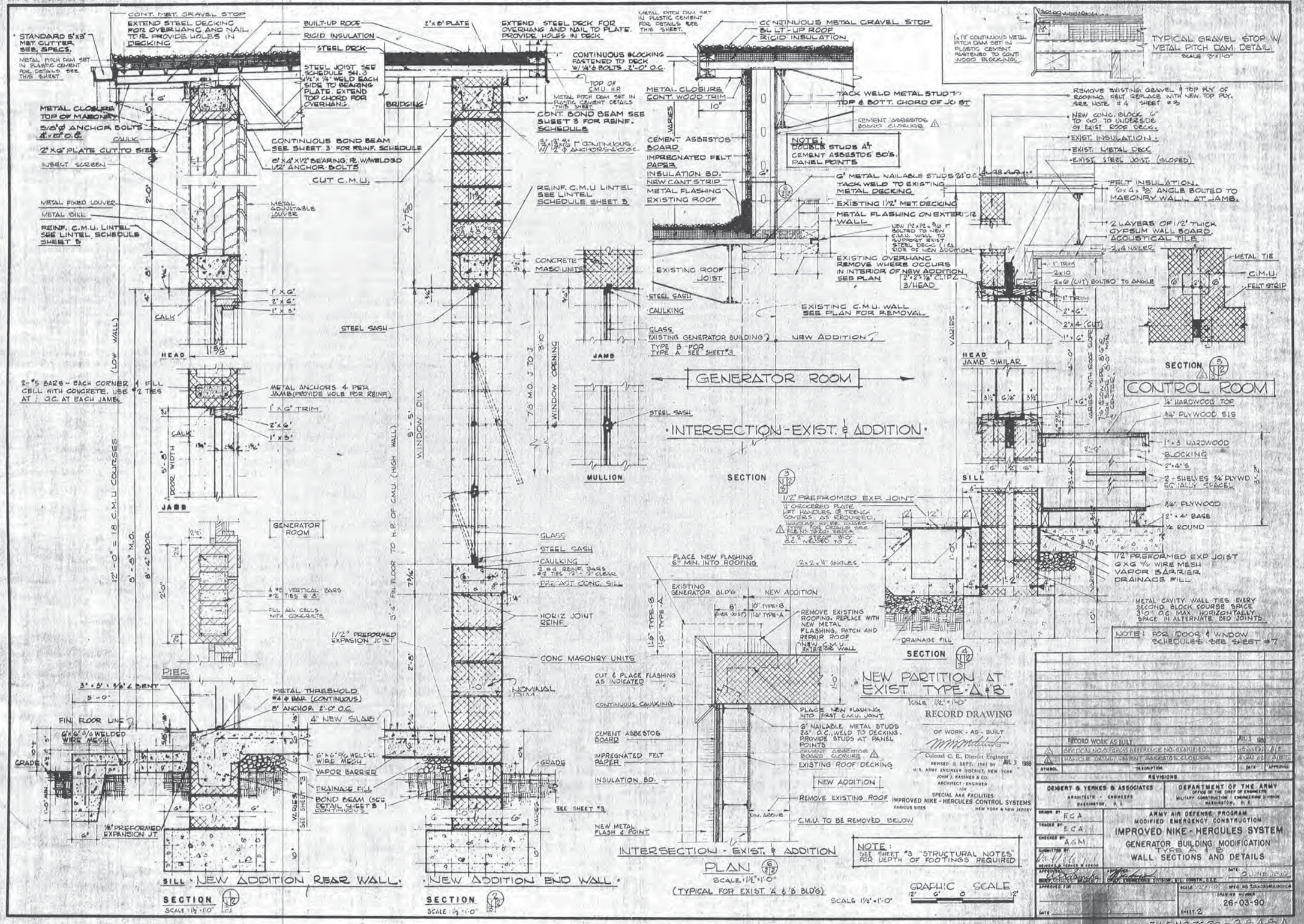
SPECIAL AAA FACILITIES
IMPROVED NIKE-HERCULES CONTROL SYSTEMS
PART FLOOR PLAN AND DETAILS
FOR MODIFICATION TO
EXISTING GENERATOR BUILDING TYPE "A" & "B"

SCALE AS SHOWN
DRAWING NUMBER
SHEET OF

FILE NO. 7620-3847.24

CORPS OF ENGINEERS

U.S. ARMY



RECORD DRAWING

OF WORK - AS - BUILT

Colonel C. E., District Engineer

REVISED 11 SEPT. 1961 BY JUL 3 1962

U.S. ARMY ENGINEER DISTRICT, NEW YORK

JOHN J. KASSNER & CO.

ARCHITECT - ENGINEER

FOR

SPECIAL AAA FACILITIES

IMPROVED NIKE - HERCULES CONTROL SYSTEMS

VARIOUS SITES NEW YORK & NEW JERSEY

SYMBOL	REVISIONS	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1962	
1	SECTION NO. 2 GIVES REFERENCE NO. REQUIRED	10 MAY 61	A/E
2	VARIOUS DETAILS, CEMENT ASBESTOS CLOSURE	4 JAN 62	A/E

DEMERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY E.C.A.
TRACED BY E.C.A.
CHECKED BY A.G.M.
SUBMITTED BY
DEMERT & YERKES & ASSOC.
APPROVED BY
CHIEF, ENGINEERING DIVISION
APPROVED FOR
DATE

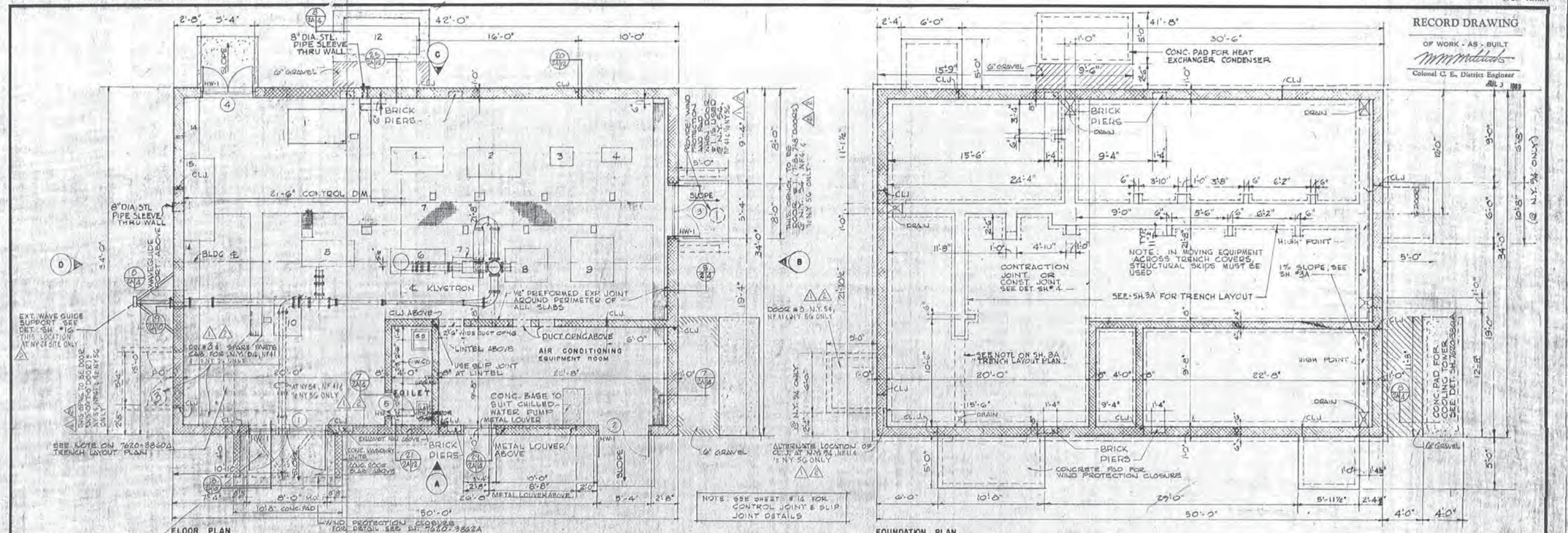
ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
GENERATOR BUILDING MODIFICATION
TYPES A & B
WALL SECTIONS AND DETAILS

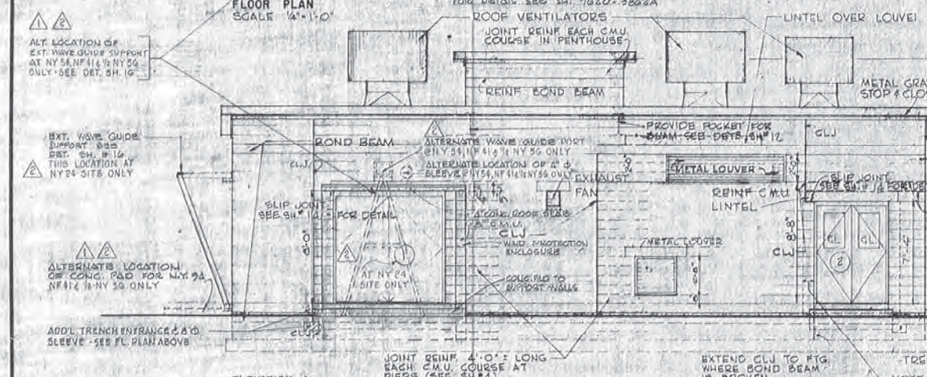
APPROVED
CHIEF, ENGINEERING DIVISION
DATE: 0 JUNE 1960
SCALE 1/2" = 1'-0"
WDEG NO SUBCHARLESTON
DRAWING NUMBER
26-03-90
SHEET 2

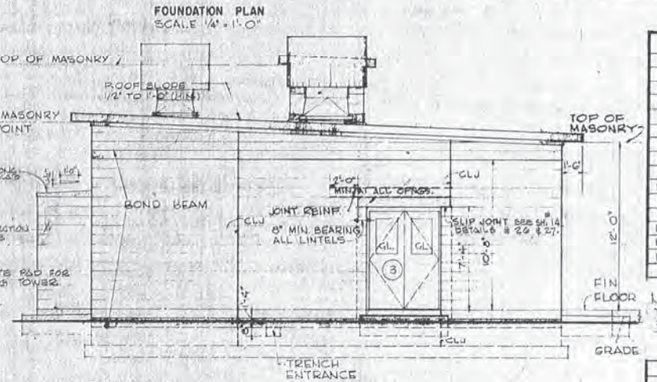
FILE NO. 7620 - 3848 A

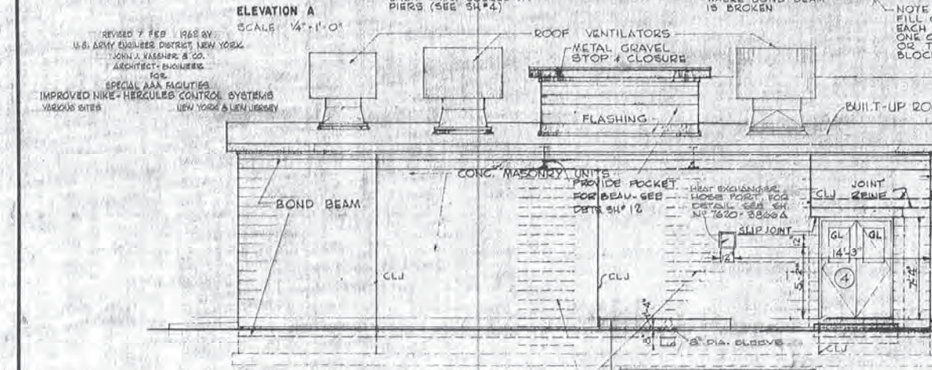
CORPS OF ENGINEERS — U.S. ARMY

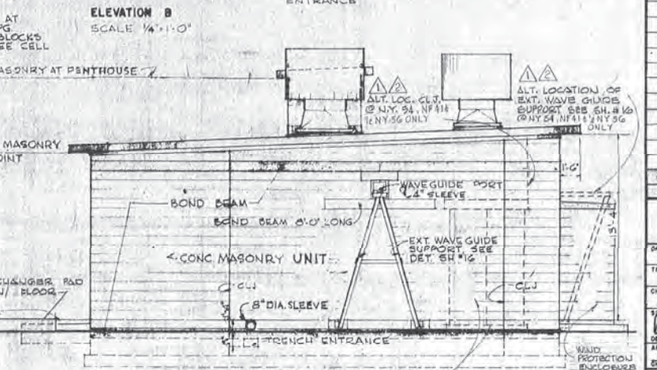
RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1963











GRAPHIC SCALE
SCALE 1/4"=1'-0"

EQUIPMENT SCHEDULE (G.F.G.I.)
1. DRIVER - STALO
2. POWER CONTROL INDICATOR
3. REGULATOR, VOLTAGE
4. STEP-UP TRANSFORMER
5. RECEIVER GROUP
6. TRANSMITTER
7. B.E FILTER
8. MODULATOR
9. HIGH VOTAGE POWER SUPPLY
10. MOVING TARGET INDICATOR
11. HEAT EXCHANGER (COMPRESSOR)
12. HEAT EXCHANGER (CONDENSER)
13.
14. SPARE PARTS
15. WORK BENCH

NOTE: THIS DWG. SUPERSEDES DWG. FILE NO. 7620-3859 A DATED 10 JUNE 1960 & REV. 11 SEPT. 1961.

REVISED 7 FEB 1962 BY U.S. ARMY ENGINEER DISTRICT NEW YORK JOHN J. KASSNER & CO. ARCHITECT-ENGINEERS FOR SPECIAL AAA FACILITIES IMPROVED NIKE-HERCULES CONTROL SYSTEMS MISSILE SITES NEW YORK & NEW JERSEY

REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1963	
1	MISC. NOTES REVISED TO INCLUDE NY 56 SITE	3 APR 62	AIE
2	MISC. NOTES REVISED TO INCLUDE NF 61 SITE	22 MAR 62	AIE

DEIGERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: RHP
TRACED BY: AJ
CHECKED BY: A.I.G.H.
SUBMITTED BY: DEIGERT & YERKES & ASSOC. ARCHITECT-ENGINEERS
APPROVED FOR: CHIEF, ENGINEERING DIVISION, MIL. CONSTR., O.C.E.
APPROVED FOR: CHIEF, ENGINEERING DIVISION, MIL. CONSTR., O.C.E.
DATE: 14 DECEMBER 1961

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIPAR BUILDING - NON CONSOLIDATED
PLANS & ELEVATIONS

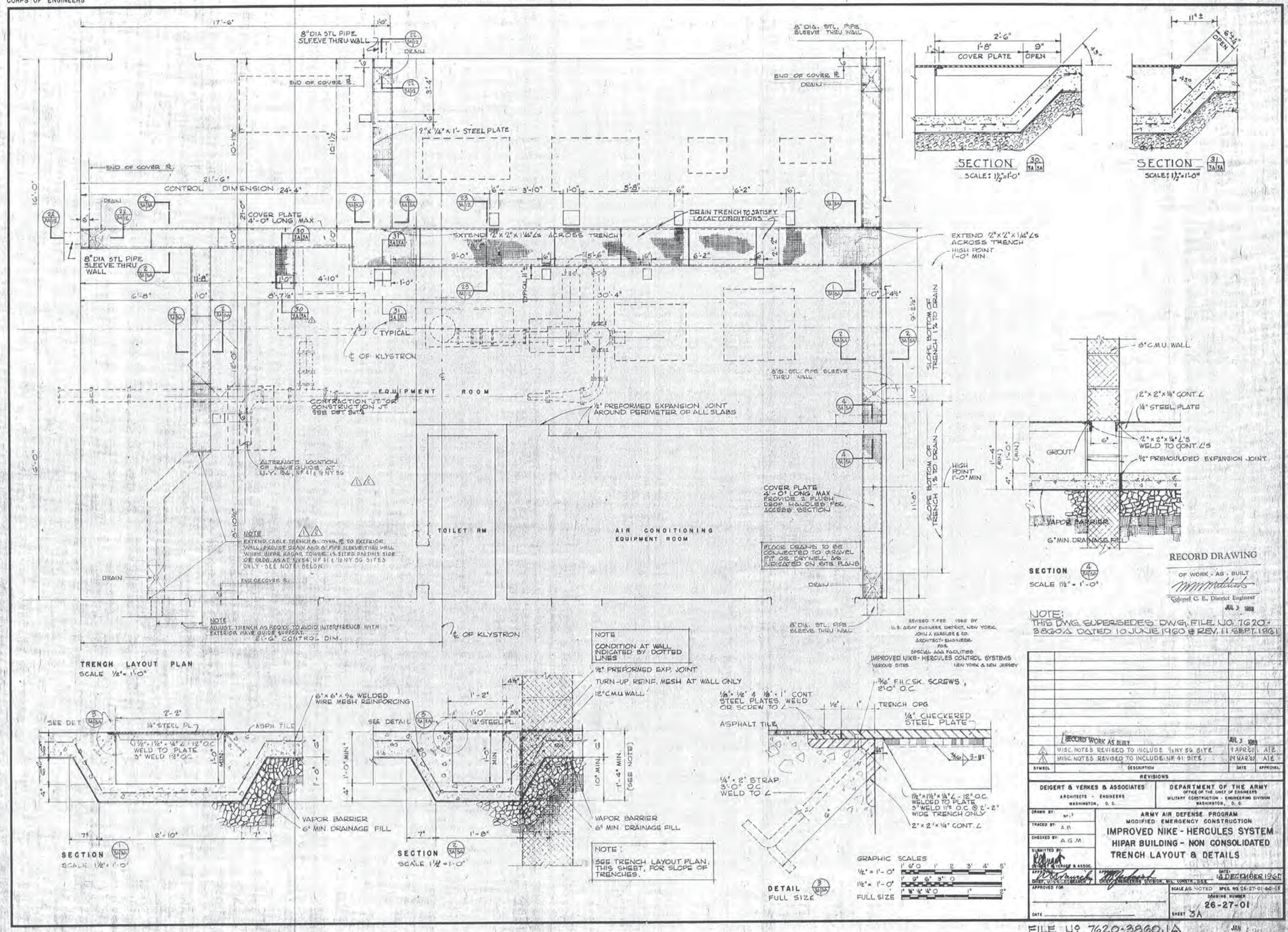
SCALE 1/4" = 1'-0" SPEC. NO. 50-27-NY-621-26
DRAWING NUMBER 26-27-01
SHEET 2A

FILE NO. 7620-3859.1A

FILMED

CORPS OF ENGINEERS

U.S. ARMY



RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E. District Engineer
JUL 3 1968

NOTE:
THIS DWG. SUPERSEDES DWG. FILE NO. 7620-3860A DATED 10 JUNE 1960 & REV. 11 SEPT. 1961

GRAPHIC SCALES
1" = 1'-0" 0 1' 2' 3' 4' 5'
1½" = 1'-0" 0 1' 2' 3' 4' 5'
FULL SIZE 0 1" 2"

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	RECORD WORK AS BUILT	JUL 3 1968	
1	MISC. NOTES REVISED TO INCLUDE 12 NY 56 SITE	9 APR 62	AIE
2	MISC. NOTES REVISED TO INCLUDE NF 41 SITE	21 MAR 62	AIE

DEIGERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: [illegible]
TRACED BY: A.B.
CHECKED BY: A.G.M.
SUBMITTED BY: [illegible]
DEIGERT & YERKES & ASSOC.
APPROVED FOR: [illegible]
CHIEF, DESIGN SECTION
APPROVED FOR: [illegible]
CHIEF, ENGINEERING DIVISION, MILITARY CONSTR. U.S.A.E.
DATE: 18 DECEMBER 1961
DATE

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIPAR BUILDING - NON CONSOLIDATED
TRENCH LAYOUT & DETAILS

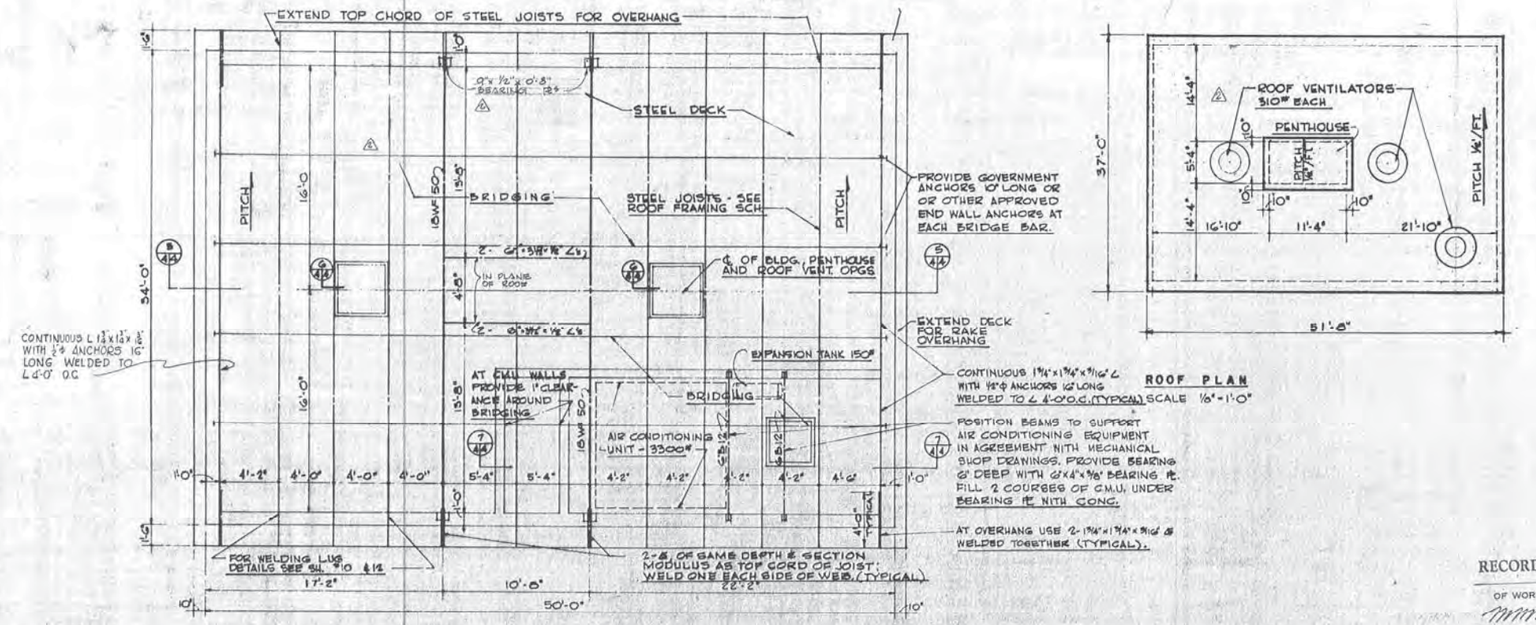
SCALE AS NOTED SPEC. NO. 26-27-01-60-GS
DRAWING NUMBER 26-27-01
SHEET 3A

FILE Nº 7620-3860.1A

JAN 3 1962

CORPS OF ENGINEERS

U.S. ARMY



ROOF PLAN

SCALE 1/16"=1'-0"

RECORD DRAWING

OF WORK - AS - BUILT

Colonel C. E., District Engineer

JUL 3 1959

ROOF FRAMING SCHEDULE

LIVE LOAD	TOTAL LOAD	JOIST	SPACING
30 #/s	45 #/s	18 SJ	AS SHOWN

ROOF OVERHANG

PROJECTION OF TOP CHORD OF STEEL JOISTS TO HAVE MIN. SECTION MODULUS = S (IN³)

30 #/s L.L. S = .27 IN³

STEEL FABRICATOR TO MODIFY OR STRENGHTEN TOP CHORD TO PROVIDE REQUIRED MINIMUM SECTION MODULUS ABOUT AXIS OF BENDING.

BOND BEAM & REINFORCED C.M.U. LINTELS

1. LINTELS IN INTERIOR PARTITIONS TO BE OF 2500 PSI CONC. 7⅝" DEEP 2 #4 TOP & BOTTOM.
2. C.M.U. BOND BEAMS.
   - A. GENERAL - 2 #4 CONTINUOUS BETWEEN CONTROL JOINTS LAP 30D DIA. @ DOORS.
   - B. OVER LOUVERS @ DOORS 1, 2, 3, 4 - 2 #5 TOP 2 #6 BOTTOM.
   - C. UNDER WAVEGUIDE 2 #4 TOP & BOTTOM.
3. C.M.U. LINTELS
   - A. OVER LOUVERS & DOORS 1, 2, 3, 4 - 2 #5 TOP 2 #6 BOTTOM.
   - B. OVER TRENCHES & WAVEGUIDE 2 #4 BOTTOM.
4. LINTELS SHALL HAVE 8" MIN. BEARING AT EACH END AND SHALL BE THE SAME WIDTH AS WALL.
5. WHERE TOP BARS ARE SPECIFIED, PROVIDE #2 TIES AT 12".

STRUCTURAL NOTES

LIVE LOADS: 30# /SQ.FT ON ROOF

SOIL BEARING VALUE: ASSUMED 3000 #/SQ.FT

CONCRETE: CLASS "B", f'c = 2500 PSI ULTIMATE 28 DAY STRENGTH. ALL FILLS FOR VERTICAL CELLS TO BE ONE PART CEMENT, 2 PARTS CONCRETE SAND, 2 PARTS ⅜" PEA GRAVEL & 7½ GALLONS WATER MAX. PER SACK OF CEMENT. PRE-CAST ITEMS TO BE MADE IN CONCRETE TO 3000 PSI ULTIMATE 28 DAY STRENGTH.

FOOTINGS: TO BE CARRIED 1'-0" MIN INTO UNDISTURBED EARTH OR 4'-0" BELOW FINISHED GRADE.

SLAB ON GRADE: REINFORCING TO BE 6"x 6" x ⅝ WELDED WIRE MESH. PLACED @ ½ OF SLAB DEPTH BELOW TOP OF SLAB.

REINFORCING: SHALL CONFORM TO FEDERAL SPECIFICATION QQ-S-632

STEEL JOISTS: STEEL JOISTS, BRIDGING & ANCHORS SHALL CONFORM TO CURRENT STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOIST CONSTRUCTION, AS ADOPTED BY THE STEEL JOIST INSTITUTE.

STEEL DECKING: SHALL BE 20 GA., TO BE WELDED TO JOIST & OVERLAPS PROVIDED & LOCATED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS

⚠ HOIST CAPACITY: 1½ TONS

AIR CONDITIONING EQUIPMENT WEIGHT: SEE PLAN

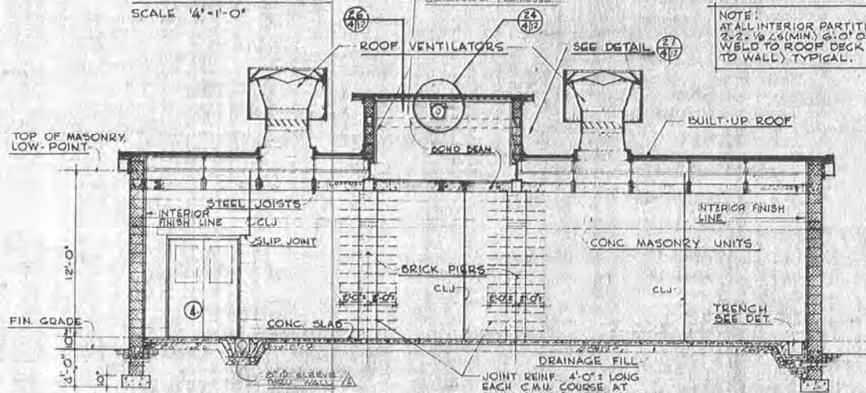
GREATER DEPTH GOVERNS.

FOR ELEVATIONS OF FINISHED FLOOR SEE APPLICABLE SITE PLAN.

DRAINAGE FILL UNDER FLOOR SLAB TO BE TO MIN. 90% MOD. AASHO DENSITY.

ROOF FRAMING PLAN

SCALE 1/4"=1'-0"

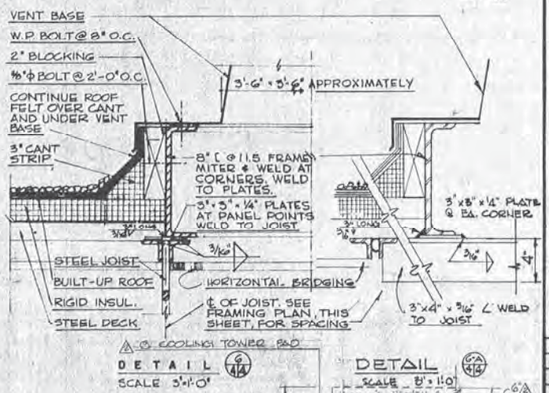


LONGITUDINAL SECTION

SCALE 1/4"=1'-0"

REVISED 11 SEPT. 1961 BY U.S. ARMY ENGINEER DISTRICT, NEW YORK JOHN J. KASSNER & CO. ARCHITECT-ENGINEER FOR SPECIAL AAA FACILITIES IMPROVED NIKE - HERCULES CONTROL SYSTEMS VARIOUS SITES NEW YORK & NEW JERSEY

NOTE: AT ALL INTERIOR PARTITION PROVIDE 6' LONG, 2"x2"x⅛ ⦰ (MIN.) @ 2'-0" O.C. (MAX.) EACH SIDE WELD TO ROOF DECK. (DO NOT ATTACH TO WALL) TYPICAL.



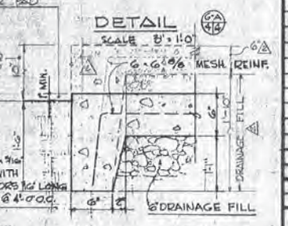
⚠ © COOLING TOWER S&D

DETAIL

SCALE 3"=1'-0"

DETAIL

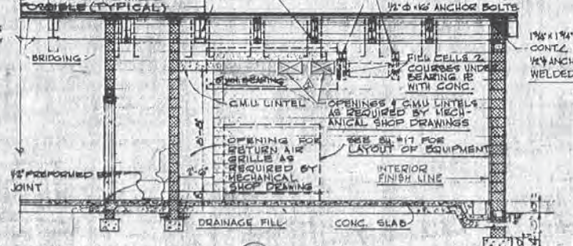
SCALE 3"=1'-0"



SECTION

SCALE 1½"=1'-0"

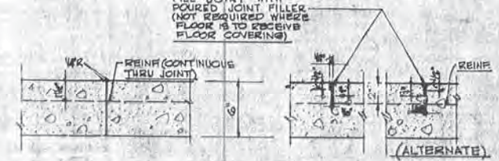
NOTE: USE 2-#5 BARS IN CELLS AT JAMBS OF OPENINGS FOR BEAMS & JOISTS. FILL CELL WITH CONC. CARRY 2 COURSES BELOW OPENING WHERE POSSIBLE (TYPICAL)



LONGITUDINAL SECTION

SCALE 1/4"=1'-0"

FILL JOINT WITH POURED JOINT FILLER (NOT REQUIRED WHERE FLOOR TO RECEIVE FLOOR COVERING)



CONSTRUCTION JOINT

SCALE 3"=1'-0"

FOR LOCATION OF CONST. JT OR CONTROL JT., SEE SHEET #5

CONTRACTION JOINTS

SCALE 3"=1'-0"

GRAPHIC SCALES

3"=1'-0" 1'-0" 0 1' 2' 3' 4' 5' 6' 7' 8'

1/4"=1'-0" 5' 0 5'

1/16"=1'-0" 10' 0 10'

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	RECORD WORK AS BUILT	JUL 3 1959	
⚠	STRUCTURAL NOTES "HOIST CAPACITY" REVISED	5 JAN 60	A/E
⚠	REVISION NOTE "CELLULOID ROOF VENTS"	7 FEB 62	A/E
⚠	CONC. SLAB ON GR., REMOVE "ROOF VENTS" & ADD ALTERNATE "A" ROOF	7 JUNE 62	A/E
⚠	CONSTRUCTION OF TRANSFORMER PENTHOUSE W/ROOF	7 JUNE 62	A/E

DESERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: mjd
TRACED BY: A.B.
CHECKED BY: A.G.M.
SUBMITTED BY:
APPROVED FOR:
DATE:

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION

IMPROVED NIKE - HERCULES SYSTEM HIPAR BUILDING - NON CONSOLIDATED ROOF FRAMING PLAN, LONGITUDINAL SECTION & DETAILS

DATE: 10 JUNE 1960

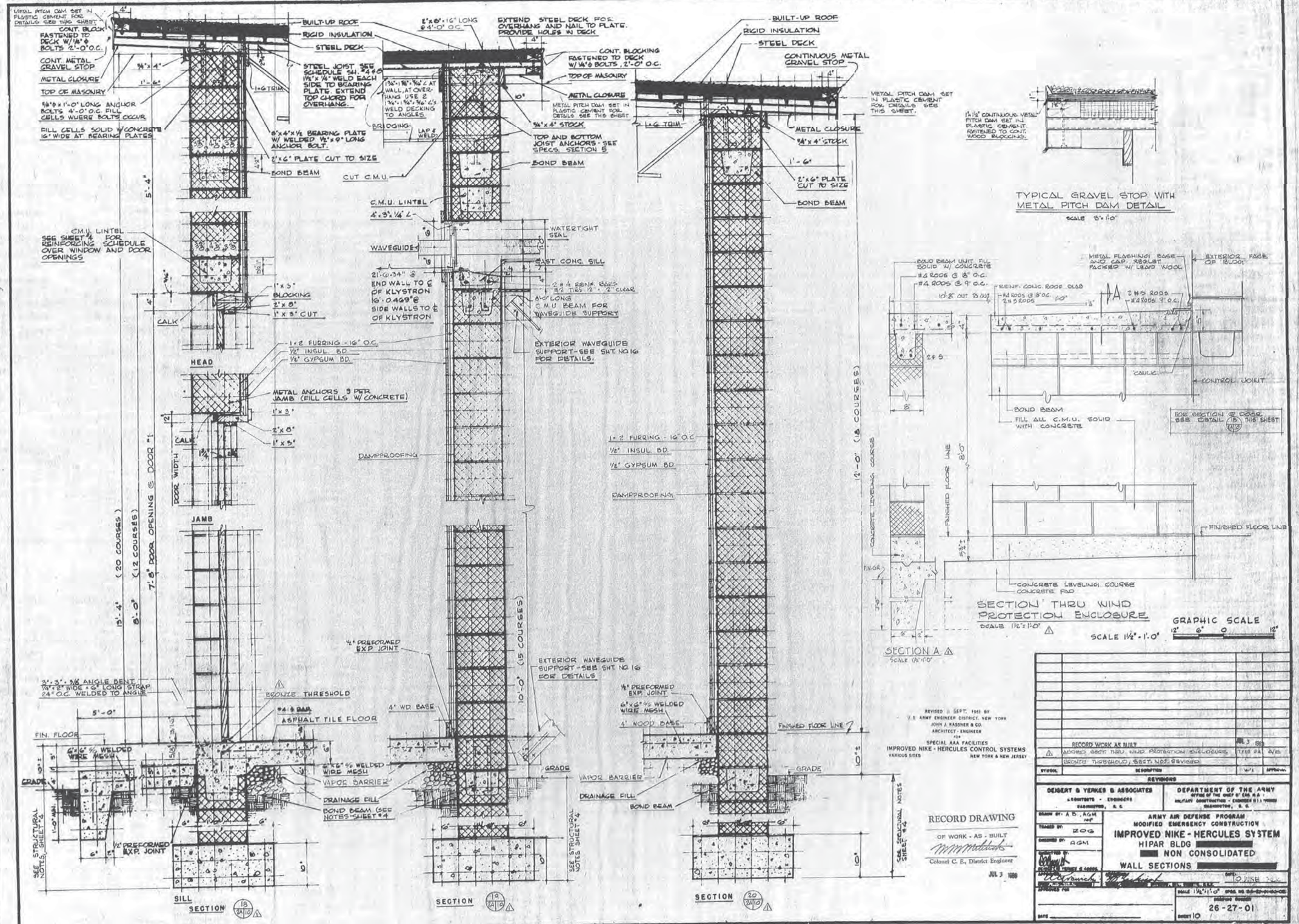
DRAWING NUMBER: 26-27-01

SHEET 4

FILE NO. 7620-38 (11)

CORPS OF ENGINEERS

U.S. ARMY



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U.S. ARMY ENGINEER DISTRICT, NEW YORK
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FOR
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IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES
NEW YORK & NEW JERSEY

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1962

BY/DWN.	DESCRIPTION	W/I	APPROVED
	REVISIONS		
	RECORD WORK AS BUILT	JUL 3 1962	
1	ADDED SECT. THRU WIND PROTECTION ENCLOSURE, TITLE 2A, 4/61		
	BRONZE THRESHOLD, SECT. NOS. REVISED		

DESIGNED BY: A.S., AGM
TRACED BY: ZDG
CHECKED BY: AGM
SUBMITTED BY: [illegible]
APPROVED FOR: [illegible]
DATE: 10 JUNE 1960

DESBERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENG. U.S.
MILITARY CONSTRUCTION - ENGINEER DIV.
WASHINGTON, D. C.

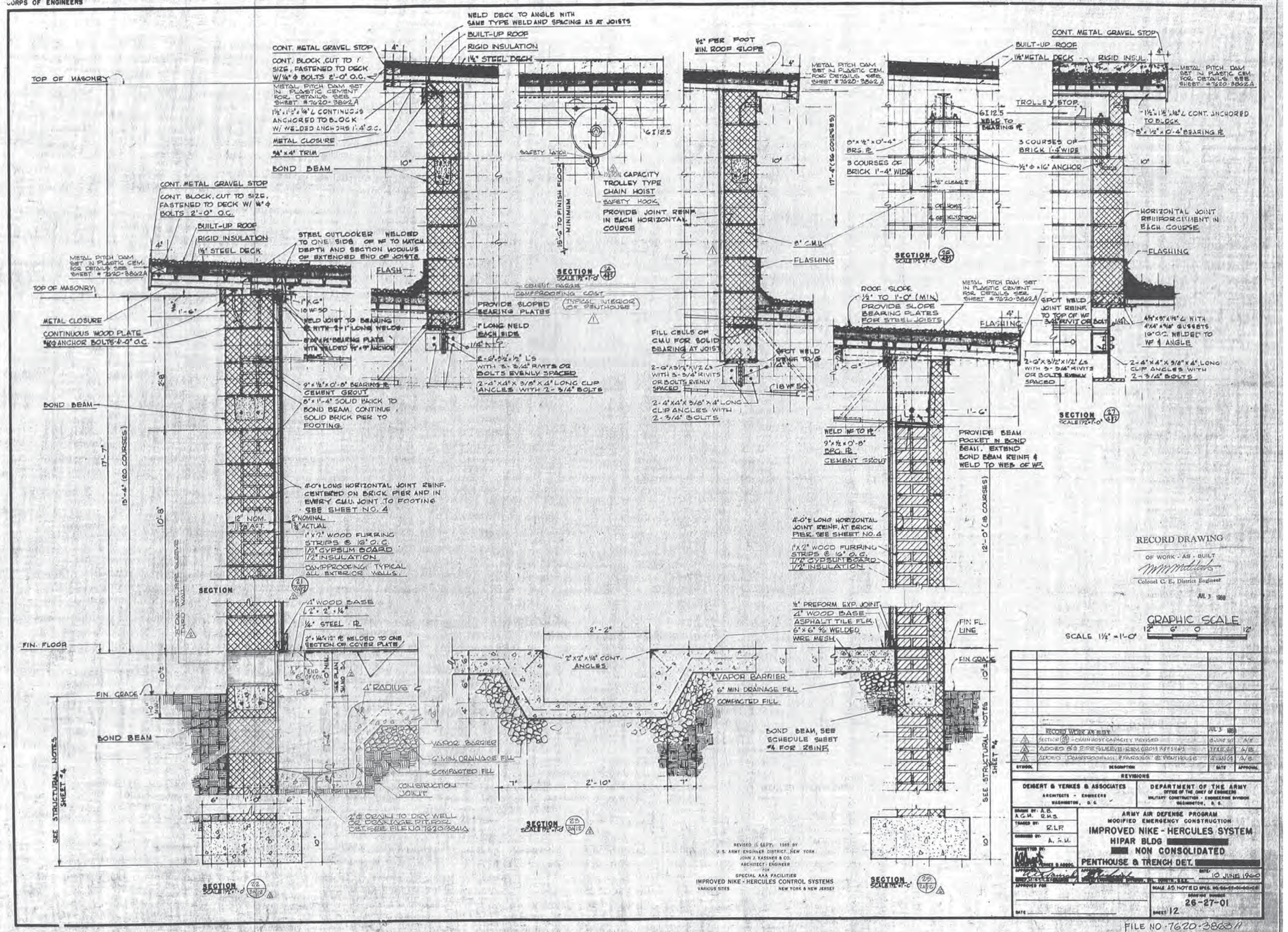
ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIPAR BLDG
NON CONSOLIDATED
WALL SECTIONS

SCALE: 1 1/2"=1'-0" SPEC. NO. 62-22-01-0C-0C
DRAWING NUMBER
26-27-01
SHEET 10

FILE NO: 7620:3862A

CORPS OF ENGINEERS

U.S. ARMY



SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	RECORD WORK AS BUILT	JUL 3 1960	
1	SECTION 23 - CHAIN HOIST CAPACITY REVISED	8 JUNE 61	A/E
2	ADDED 6"ϕ SLEEVE - REINFORCING REVISED	17 SEP 61	A/E
3	ADDED DAMPPROOFING, PARAPETS & PENTHOUSE	21 JUN 62	A/E

DEMART & YERKES & ASSOCIATES
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MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

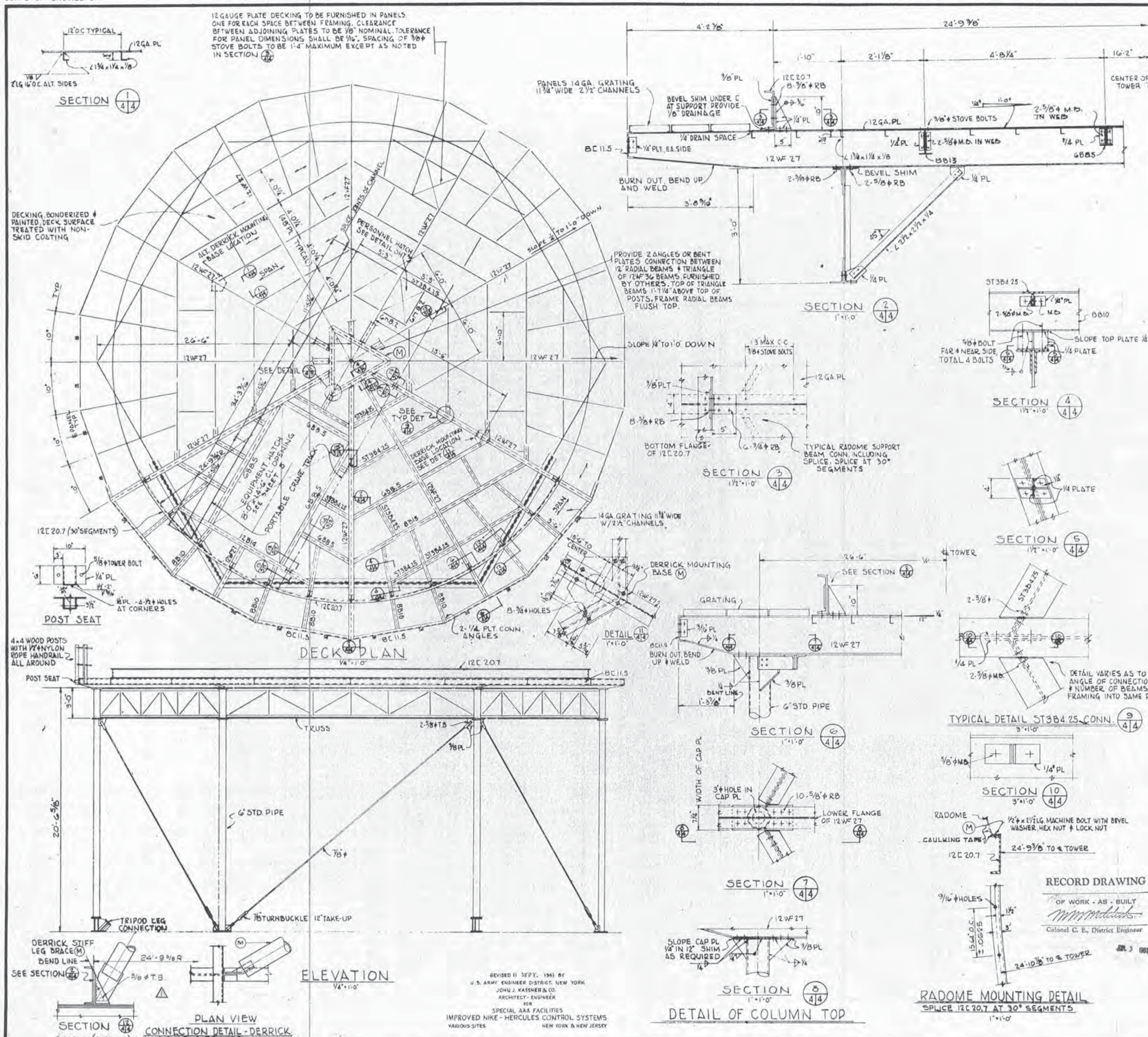
DRAWN BY: A.B.S., A.G.M., R.H.S.
TRACED BY: R.L.P.
DESIGNED BY: A. J. U.
SUBMITTED BY: [redacted]
RECOMMENDED & APPROVED: [redacted]
APPROVED FOR: [redacted]
DATE: [redacted]

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE-HERCULES SYSTEM
HIPAR BLDG [redacted] NON CONSOLIDATED
PENTHOUSE & TRENCH DET. [redacted]
DATE: 10 JUNE 1960
SCALE AS NOTED SPEC. NO. 56-CC-01-60-CC
DRAWING NUMBER 26-27-01
SHEET 12

FILE NO. 7620-3863A

CORPS OF ENGINEERS

U.S. ARMY



GENERAL NOTES

STRUCTURAL STEEL: ALL MATERIAL ABOVE FOUNDATION TO BE HOT-DIPPED GALVANIZED.
ALL FRAMING CONNECTIONS NOT SPECIFIED TO HAVE 3/8 GUSSET PLATES AND 2-5/8" STRUCTURAL RIB BOLTS MINIMUM.
SPACE STITCH BOLTS IN TWO-ANGLE MEMBERS FOR COMPRESSION LOADS.
STITCH BOLTS AND MISC. LIGHT CONNECTION BOLTS MAY BE MACHINE BOLTS.

LEGEND:
RB: STRUCTURAL RIB BOLTS.
(M): MATERIAL AND SUB-ASSEMBLIES FURNISHED AT SITE UNDER SEPARATE CONTRACT, TO BE ERECTED AND CONNECTED BY CONTRACTOR.
TB: TOWER TRANSMISSION BOLT
MB: MACHINE BOLT

LOADS: HORIZONTAL WIND PRESSURE ON FLAT SURFACES
WIND - OPERATING ------- 15 LBS. PER SQ. FT.
WIND - SURVIVAL -------- 60 LBS. PER SQ. FT.
ICE - 2 INCHES THICK RADIAL GLAZE ON ALL EXPOSED PARTS (9.5 P.S.F.).
LIVE LOAD ON DECK - 100 LBS. PER SQ. FT. OUTSIDE RADOME
40 LBS. PER SQ. FT. INSIDE RADOME

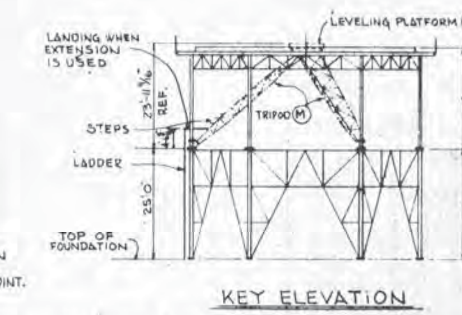
NUTS & WASHERS: FOR RIBBED BOLTS FURNISH ANCO NUTS. FOR TRANSMISSION TOWER & MACHINE BOLTS FURNISH LOCK WASHERS.

GLASS REINFORCED PLASTIC RADOME

1-RADIUS = 26.8 FEET



2 - 275 PIECES, AND FASTENERS, AND LIGHTNING ROD FURNISHED BY GOVERNMENT, TO BE ASSEMBLED AND ERECTED BY CONTRACTOR. FOR RADOME DESCRIPTION SEE MISSILE PURCHASE DESCRIPTION MPD 595 & MIL-R-9527B (USAF). RADOME CW-396. AVAILABLE AOMC, REDSTONE ARSENAL, ALABAMA



KEY ELEVATION

NOTE: ITEMS SHOWN ON THIS SHEET ARE GOVERNMENT FURNISHED & CONTRACTOR ERECTED.

SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1963	
△	SECTION 12 REVISED	7 FEB 62	A/E

REVISIONS

DEIGERT & YERKES & ASSOCIATES, ARCHITECTS - ENGINEERS, WASHINGTON, D.C.

DEPARTMENT OF THE ARMY, OFFICE OF THE CHIEF OF ENGINEERS, MILITARY CONSTRUCTION - ENGINEERING DIVISION, WASHINGTON, D.C.

DRAWN BY: KHJ
TRACED BY: KHJ
CHECKED BY: ASH

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIGH POWER ACQUISITION RADAR TOWER
HIPAR
CONUS PLATFORM - PLAN AND DETAILS

DATE: 27 JULY 1960

APPROVED FOR

DATE

SCALE AS NOTED SPEC. NO. 26-27-06-08-CE

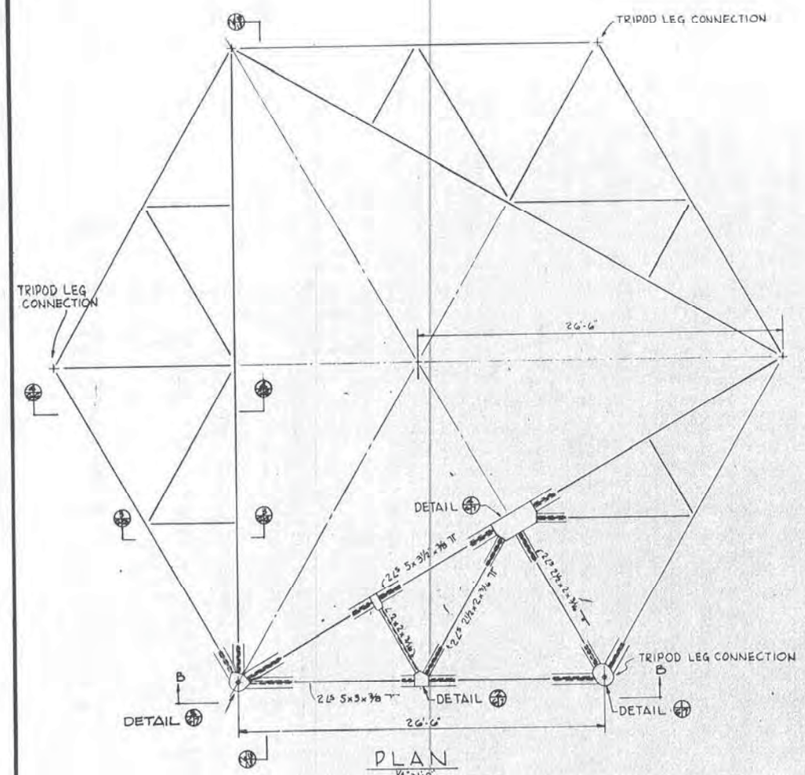
DRAWING NUMBER 35-03-56

SHEET 4

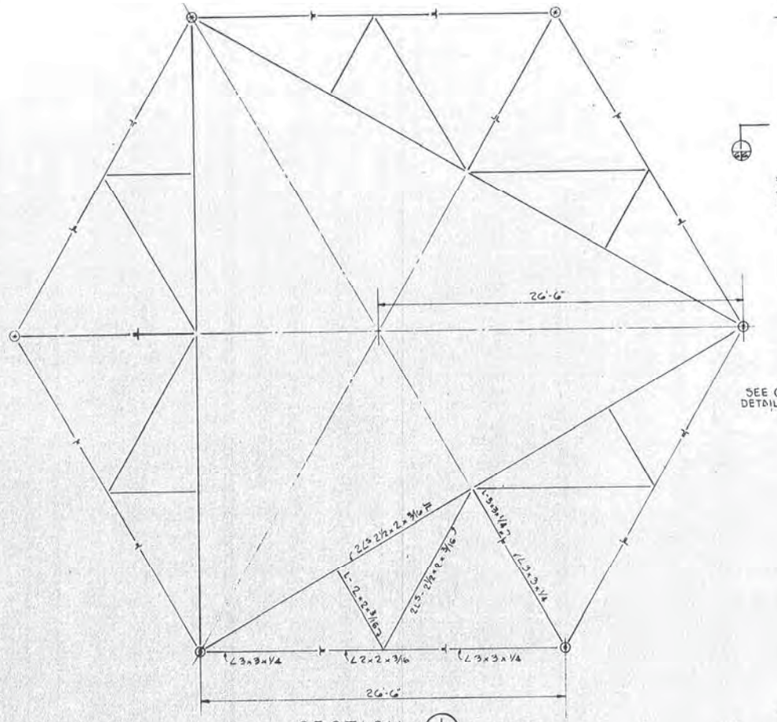
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CORPS OF ENGINEERS

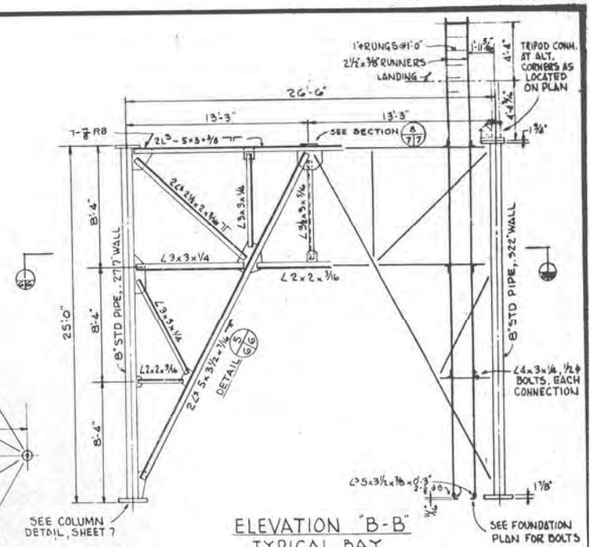
U.S. ARMY



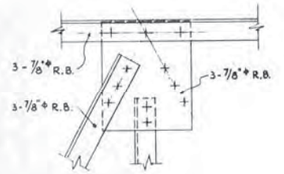
PLAN
1/4" = 1'-0"

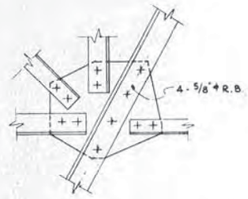


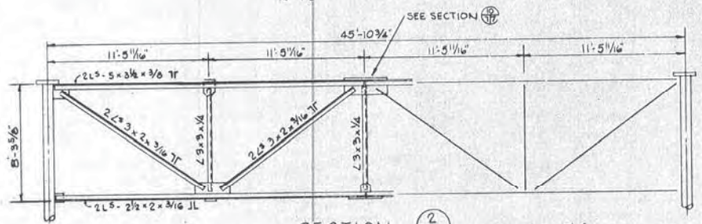
SECTION (1/6/6)
1/4" = 1'-0"



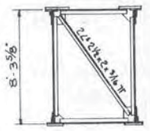
ELEVATION "B-B"
TYPICAL BAY
1/4" = 1'-0"



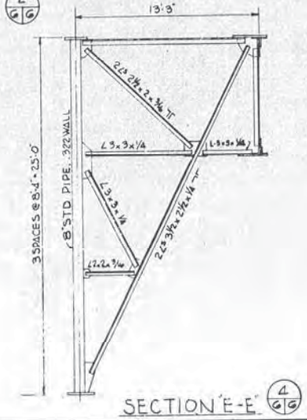




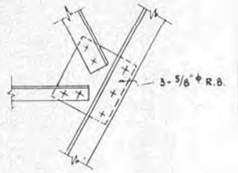
SECTION (2/6/6)
1/4" = 1'-0"



SECTION (3/6/6)
1/4" = 1'-0"



SECTION "E-E" (4/6/6)



DETAIL (5/6/6)
1/2" = 1'-0"

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1963

REVISED 11 SEPT. 1961 BY
U.S. ARMY ENGINEER DISTRICT NEW YORK
JOHN J. KASSNER & CO.
ARCHITECT ENGINEER
FOR
SPECIAL AAA FACILITIES
IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES NEW YORK & NEW JERSEY

NOTE: ITEMS SHOWN ON THIS SHEET ARE GOVERNMENT FURNISHED & CONTRACTOR ERECTED.

SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1963	

REVISIONS

DEMBERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: K H J
TRACED BY: K H J
CHECKED BY: A S H
DESIGNED & TYPED BY: K H J

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION

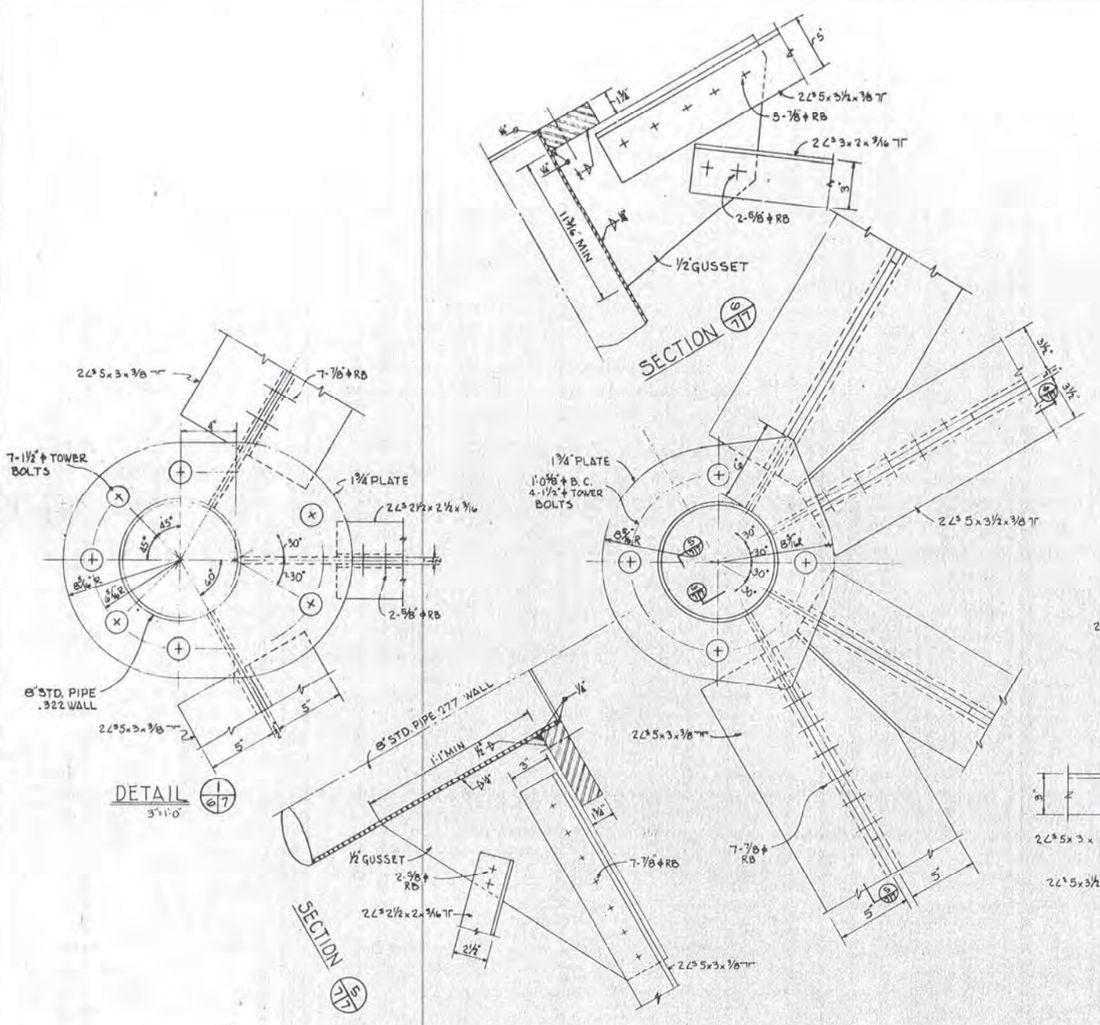
IMPROVED NIKE - HERCULES SYSTEM
HIGH POWER ACQUISITION RADAR TOWER HIPAR
EXTENSION - PLAN AND DETAILS

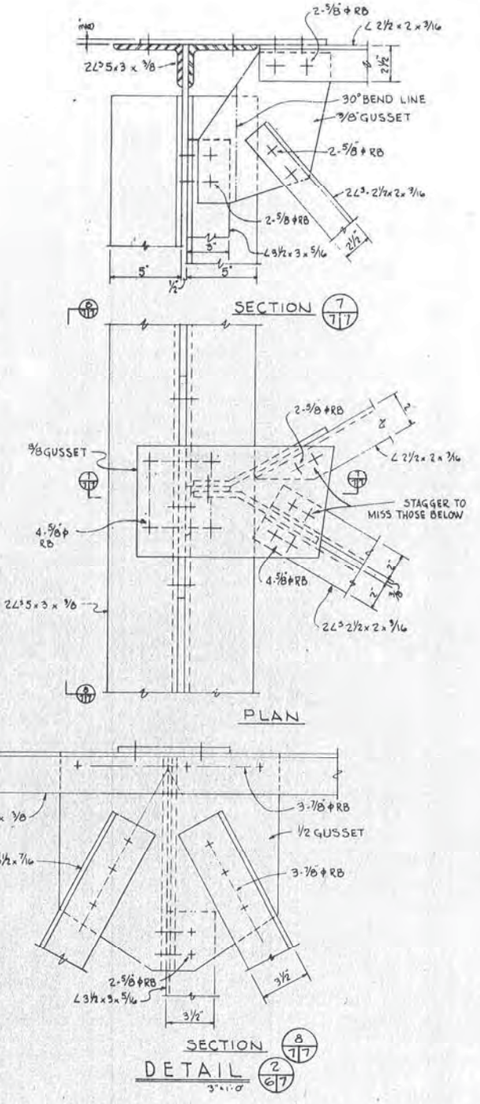
APPROVED FOR
DATE
DATE: 27 JULY 1960
SCALE AS NOTED
DRAWING NUMBER: 35 - 03 - 56
SHEET 6

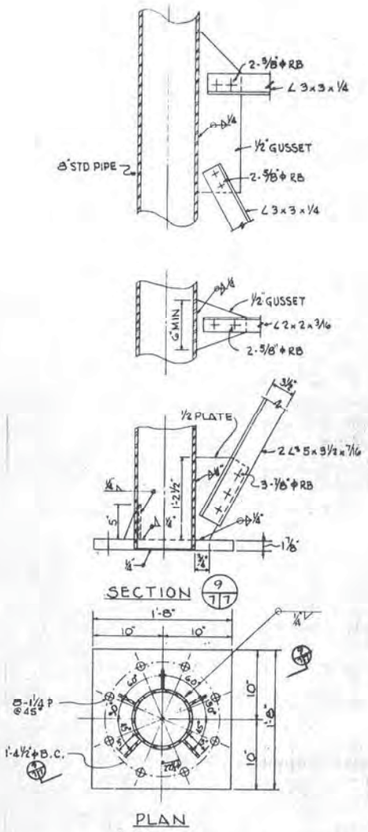
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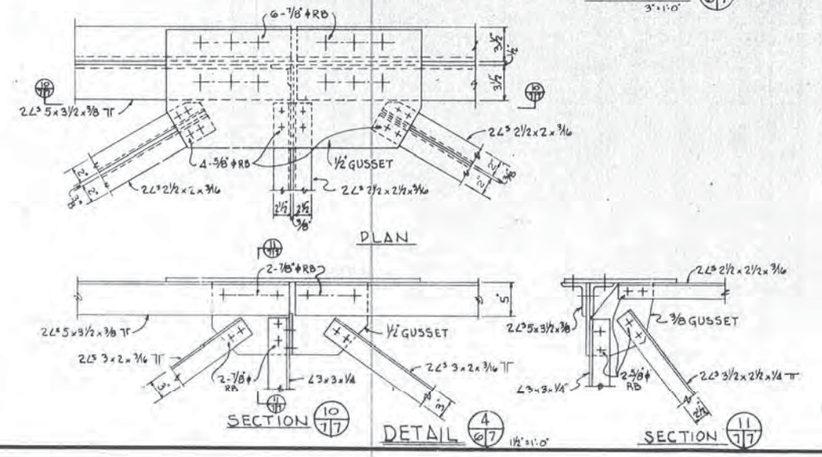
CORPS OF ENGINEERS

U.S. ARMY









NOTE:
ITEMS SHOWN ON THIS SHEET ARE GOVERNMENT FURNISHED AND CONTRACTOR ERECTED

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1963

REVISED 11 SEPT. 1961 BY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
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VARIOUS SITES
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SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1963	

REVISIONS

DEIGERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: K H J
TRACED BY: K H J
CHECKED BY: A S H
SUBMITTED BY: [signature]
DEIGERT & YERKES & ASSOC.
APPROVED: [signature] DATE: 27 JULY 1960
CHIEF, MILITARY ENGINEERING DIV.
APPROVED FOR
DATE

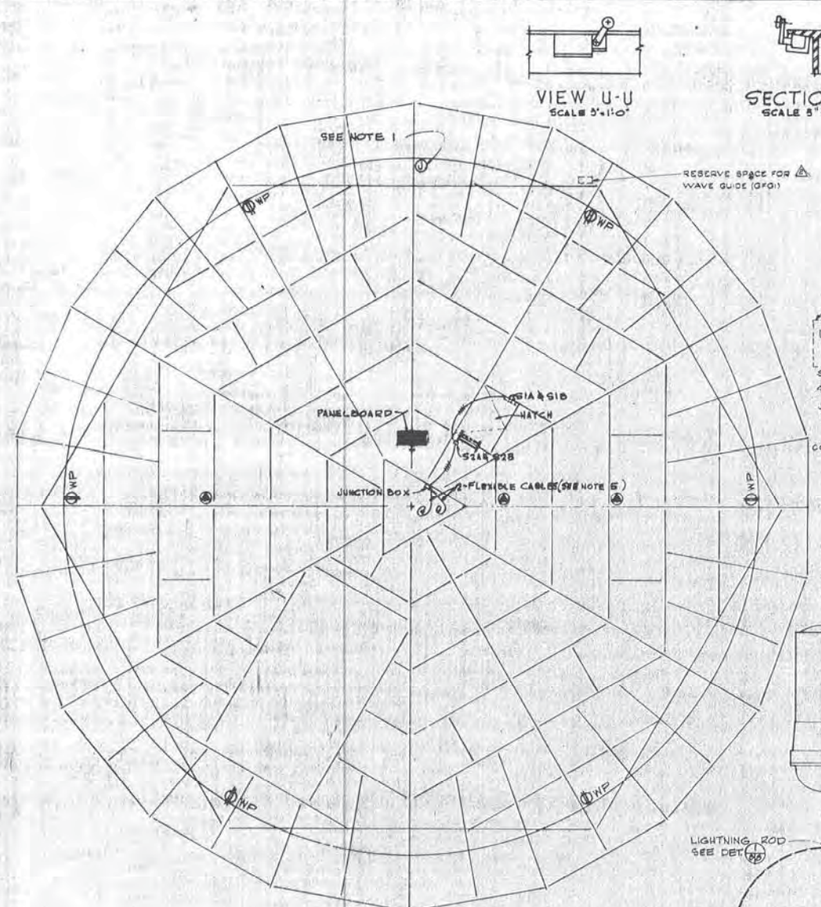
ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIGH POWER ACQUISITION RADAR TOWER
HIPAR
EXTENSION DETAILS

SCALE AS NOTED SPEC. NO. 60-07-01-60-CS
DRAWING NUMBER
35-03-56
SHEET 7

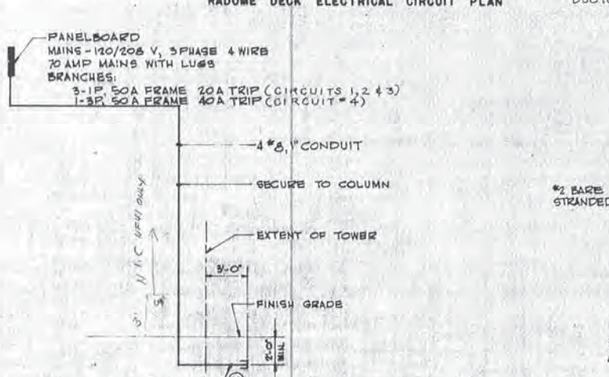
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CORPS OF ENGINEERS

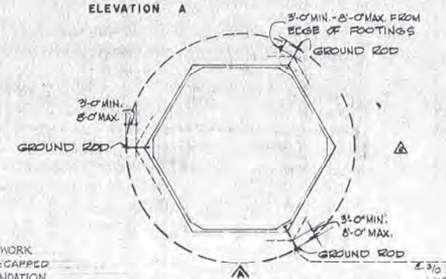
U.S. ARMY



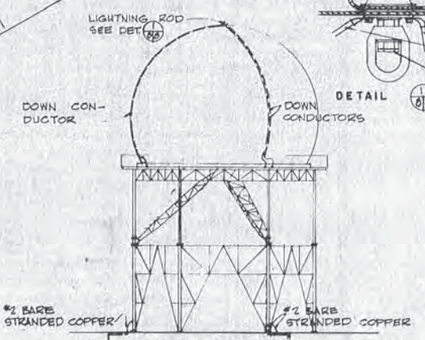
RADOME DECK ELECTRICAL CIRCUIT PLAN



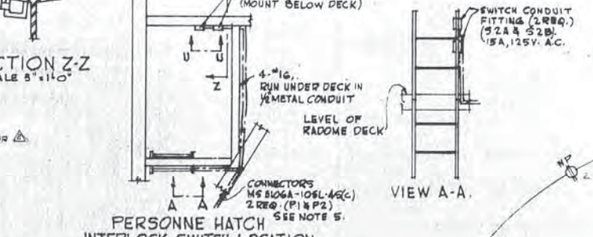
RISER DIAGRAM



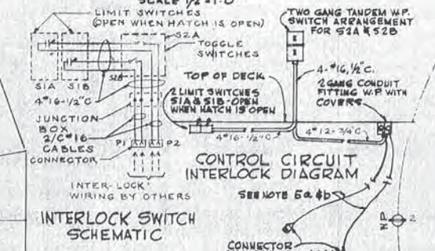
PLAN OF LIGHTNING PROTECTION FOR RADOME



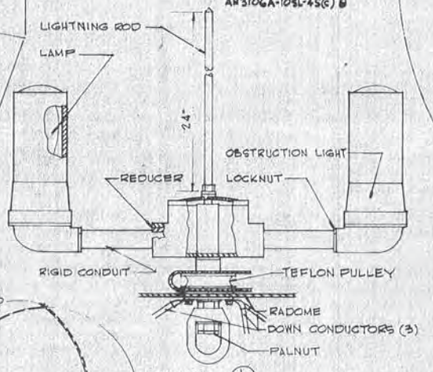
ELEVATION A



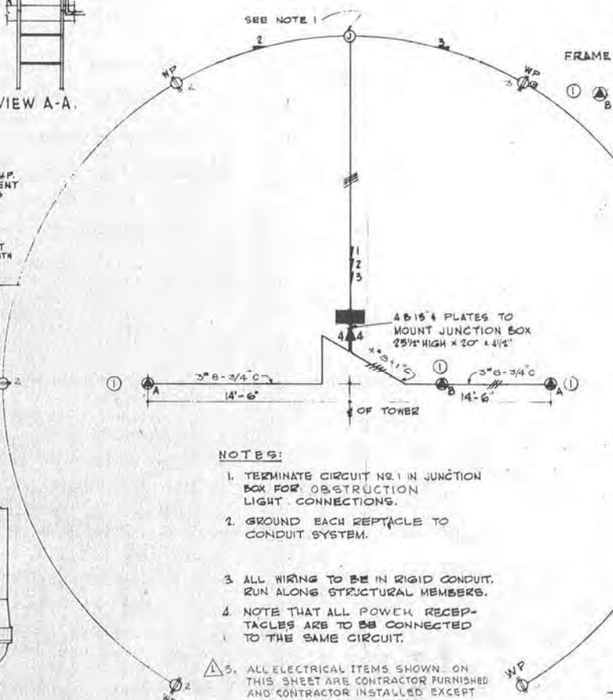
PERSONNE HATCH INTERLOCK SWITCH LOCATION
SCALE 1½"=1'-0"

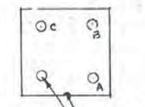


INTERLOCK SWITCH SCHEMATIC



DETAIL





① (A) (B) SEQUENCE OF PHASE CONN FOR 4-POLE RECEPTACLE LOOKING AT FACE OF RECEPACLE.

NOTES:

1. TERMINATE CIRCUIT NO. 1 IN JUNCTION BOX FOR OBSTRUCTION LIGHT CONNECTIONS.
2. GROUND EACH REPTACLE TO CONDUIT SYSTEM.
3. ALL WIRING TO BE IN RIGID CONDUIT. RUN ALONG STRUCTURAL MEMBERS.
4. NOTE THAT ALL POWER RECEPTACLES ARE TO BE CONNECTED TO THE SAME CIRCUIT.
5. ALL ELECTRICAL ITEMS SHOWN ON THIS SHEET ARE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED EXCEPT OBSTRUCTION LIGHT WHICH IS GOVERNMENT FURNISHED AND CONTRACTOR INSTALLED, EXCEPT AT NP41 SITE, SEE NOTE 'A' BELOW LEFT.

CIRCUIT DIAGRAM

PROVIDE LIGHTNING PROTECTION AS FOLLOWS:

1. AIR TERMINAL AT TOP OF RADOME 24" LONG - SEE DETAIL.
2. RUN 3 DOWN CONDUCTORS INSIDE RADOME TO SUPPORTING STRUCTURE. BOLT OR THERMO-CHEMICAL WELD TO STRUCTURE AS SHOWN. CONDUCTORS TO BE AWG #2 BRAIDED COPPER SUPPORTED AT 2'-0" INTERVALS. NO SHARP BENDS WILL BE ALLOWED.
3. PROVIDE ONE COPPER-CLAD STEEL GROUND ROD AT EACH OF THE THREE LOCATIONS INDICATED, ROD TO BE ¾" X 10'-0" LOCATED A MINIMUM OF 3'-0" & A MAXIMUM OF 8'-0" FROM THE FOUNDATION. BRAZE OR THERMO-CHEMICAL WELD CONDUCTOR TO ROD, AND DRIVE ROD TO PROVIDE 18" COVER OVER TOP OF ROD AND DOWN CONDUCTOR BETWEEN ROD AND FOUNDATION.

5A-SWITCHES S1A & S2A CONNECT WITH ¾" NO 16 AWG TYPE SO FLEXIBLE CABLE THRU JUNCTION BOX WITH 10'-0" LEAD (FLEXIBLE CABLE) FROM BOX TO CONNECTOR P1.

B-SWITCHES S1B & S2B CONNECT WITH 2/C NO 16 AWG TYPE SO FLEXIBLE CABLE THRU JUNCTION BOX WITH 10'-0" LEAD (FLEXIBLE CABLE) FROM BOX TO CONNECTOR P2.

NOTE A
AT THE NP41 SITE, ALL UNDERGROUND ELECTRICAL WORK SHALL BE COMPLETED AND CONDUITS STOPPED & CAPPED AT A POINT 3' ABOVE FIN. AT THE HIPAR TOWER FOUNDATION

3/0 AWG BARE RUN CONTINUOUS TO HIPAR BLDG., GENERATOR BLDG. & TRANSFORMER BANK GROUND. SEE DWG 16-08-299, SH 3 NOTE 12. 16-08-300, SH 2 NOTE 13.

SPECIAL AAA FACILITIES
IMPROVED NIKE - HERCULES CONTROL SYSTEMS
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IMPROVED NIKE - HERCULES CONTROL SYSTEMS
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SYMBOL LIST

(A) 3-POLE WEATHERPROOF RECEPTACLE IN C.I. BOX WITH GASKETED SCREW CAP. RECEPTACLE SHALL BE EQUAL TO CROUSE-HINDS PLUG NO. ARJ 3373 AND ACCEPT CROUSE-HINDS NO AEQ 1337, TWO PHASES AND NEUTRAL. PROVIDE FOR GROUNDING THRU SHELL OF PLUG.

DUPLEX RECEPTACLE IN CAST METAL OUTLET BOX WITH SPRING-HINGED, GASKETED CAST METAL COVER. RECEPTACLE TO BE GROUNDING TYPE, 15A, 125V, 3P, 2W

(B) 4-POLE, WEATHERPROOF RECEPTACLE IN C.I. BOX WITH GASKETED SCREW CAP. POLES FOR 3-PHASES 4TH POLE FOR EQUIPMENT GROUND. RECEPTACLE TO BE SIMILAR TO CROUSE-HINDS AEQ 1348 AND ACCEPT CROUSE-HINDS PLUG No. ARJ 3483

BRANCH PANEL WITH WEATHERPROOF ENCLOSURE. SEE RISER DIAGRAM FOR DETAILS.

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1963

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	RECORD WORK AS BUILT	JUL 3 1963	
4	NOTES REV. & NOTE 5 ADDED - APPLICABLE AT NP41 ONLY	3/19/63	AIR
3	RISER DIAGRAM & LIGHTNING PLAN REVISED (NOTE 4 DELETED) SPACE FOR WAVE GUIDE SHOWN	7/18/62	AIR
2	CLARIFIED NOTES	3/30/62	AIR

DEIGERT & VERKES, & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: K.C.
TRACED BY: Roy
CHECKED BY: K.V.C.
SUBMITTED TO: Carl Obert, DEIGERT & VERKES & ASSOC.
APPROVED FOR: CHIEF, ENGINEERING DIVISION
APPROVED FOR: DATE

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIGH POWER ACQUISITION RADAR TOWER
HIPAR
CONUS PLATFORM - ELECTRICAL CIRCUITS

DATE: 27 JULY 1960

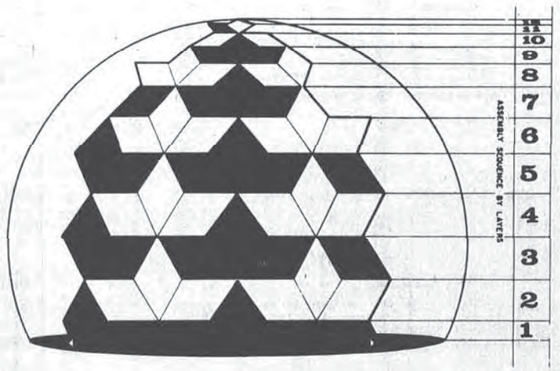
SCALE: NO SCALE, SPEC. NO. DE-27-01-60-CE
DRAWING NUMBER: 36-03-56
SHEET 9

FILE NO. 7620-3878 A

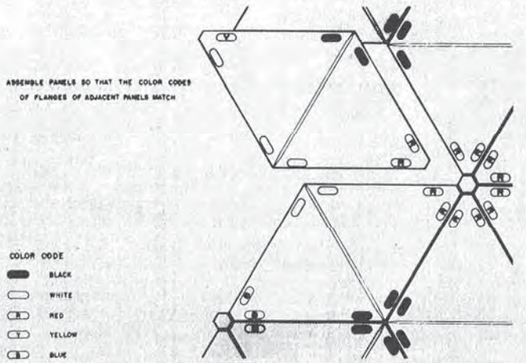
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CORPS OF ENGINEERS

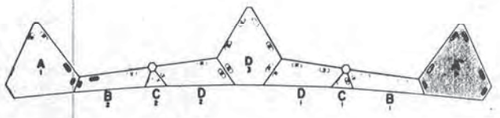
U.S. ARMY



RADOME ERECTION-FIFTH SEGMENT PATTERN FIG. 1



RADOME ERECTION-PANEL ASSEMBLY COLOR CODE PATTERN FIG. 2



LAYER 1

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 1 EACH SEGMENT IS THE SAME:

PANELS REQUIRED:	
5 A1	5 D1
5 B1	5 D2
5 B2	5 D3
5 C1	10 6-WAY HUBS
5 C2	

BEGIN THE LAYER ASSEMBLY BY FASTENING A C-1 BASE PANEL TO THE BASE RING ON TWO RED BOLTS.

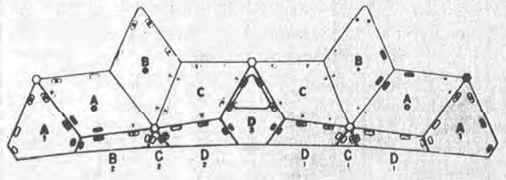
REMAINING BASE LAYER PANELS MAY THEN BE ADDED ON EITHER SIDE IN THE ORDER SHOWN ABOVE.

MAKE SURE THE COLOR CODES OF ADJACENT FLANGES MATCH.

THE BOLTS HOLDING THE PANELS TO THE BASE RING SHOULD NOT BE TIGHTENED UNTIL ALL THE BASE PANELS ARE IN PLACE.

ADD SIX-WAY HUBS AS SHOWN.

RADOME ERECTION-LAYER 1, PANEL ASSEMBLY PATTERN FIG. 3

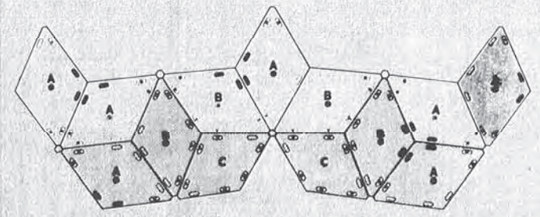


LAYER 2

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 2 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
10 AL	ADD C AND AL PANELS IN LOCATIONS SHOWN
5 BL	MATCH THE COLOR CODES OF ADJACENT FLANGES
5 BR	ADD BL AND BR PANELS
10 C	ADD 6-WAY HUBS AS SHOWN
10 6-WAY HUBS	TIGHTEN BOLTS AROUND COMPLETED VERTICES ONLY
	CHECK ALL BOLTS OF LAYER BELOW FOR TIGHTNESS

RADOME ERECTION-LAYER 2, PANEL ASSEMBLY PATTERN FIG. 4

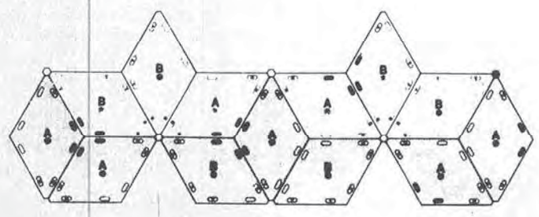


LAYER 3

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 3 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
10 AL	ADD AR, BL AND BR PANELS IN LOCATIONS SHOWN
10 AR	MATCH COLOR CODES OF ADJACENT FLANGES
5 BL	ADD AL PANELS
5 BR	ADD 6-SIDED HUBS AS SHOWN
10 6-WAY HUBS	CHECK ALL BOLTS OF LAYER BELOW FOR TIGHTNESS

RADOME ERECTION-LAYER 3, PANEL ASSEMBLY PATTERN FIG. 5

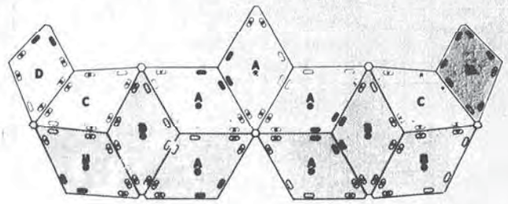


LAYER 4

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 4 EACH SEGMENT IS THE SAME

PANELS REQUIRED	
10 AR	ADD AR PANELS AND LOWER BR AND BL PANELS IN LOCATIONS SHOWN
10 BL	MATCH COLOR CODES OF ADJACENT FLANGES
10 BR	ADD UPPER BR AND BL PANELS
10 6-WAY HUBS	ADD 6-WAY HUBS AS SHOWN
	CHECK ALL BOLTS OF LAYER BELOW FOR TIGHTNESS

RADOME ERECTION-LAYER 4, PANEL ASSEMBLY PATTERN FIG. 6

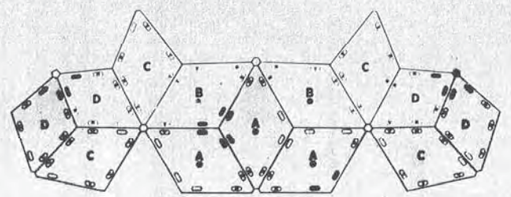


LAYER 5

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 5 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
10 AL	ADD AL AND C PANELS IN LOCATIONS SHOWN
5 AR	MATCH COLOR CODES OF ADJACENT FLANGES.
10 C	ADD AR AND D PANELS.
5 D	ADD 6-WAY HUBS AS SHOWN.
10 6-WAY HUBS	CHECK ALL BOLTS ON LAYER BELOW FOR TIGHTNESS.

RADOME ERECTION-LAYER 5, PANEL ASSEMBLY PATTERN FIG. 7



LAYER 6

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 6 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
5 BL	5 BR
10 C	10 D
5 6-WAY HUBS	
5 5-WAY HUBS	

ADD BL, BR AND D PANELS IN LOCATIONS SHOWN.
MATCH COLOR CODES OF ADJACENT FLANGES
ADD C PANELS.
ADD 5 AND 6-WAY HUBS AS SHOWN
CHECK ALL BOLTS IN LAYER BELOW FOR TIGHTNESS

RADOME ERECTION-LAYER 6, PANEL ASSEMBLY PATTERN FIG. 8

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1961

REVISED 11 SEPT. 1961 BY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
JOHN J. KASSNER & CO.
ARCHITECT - ENGINEER
FOR
SPECIAL AAA FACILITIES
IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES — NEW YORK & NEW JERSEY

NOTE:
ITEMS SHOWN ON THIS SHEET ARE GOVERNMENT FURNISHED AND CONTRACTOR ERECTED.

SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1961	

REVISIONS

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ARCHITECTS - ENGINEERS
WASHINGTON, D.C.

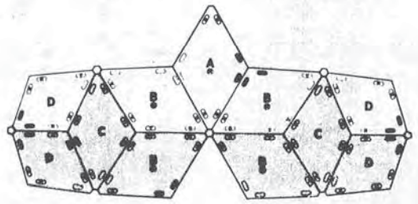
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D.C.

DRAWN BY A.G.H.
TRACED BY A.G.H.
CHECKED BY C.H.
SUBMITTED BY JOHN J. KASSNER & ASSOC.
APPROVED DATE: 27 JULY 1960
CHIEF, MIL. C-E BRANCH, ENGR. ENGINEERING DIVISION, NEL CORPS OF ENGINEERS
APPROVED FOR
DATE

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIGH POWER ACQUISITION RADAR TOWER
HIPAR
RADOME ERECTION DIAGRAMS - PART I

SCALE NO. SCALE SPEC. NO. CONSTRUCTION
DRAWING NUMBER
35 - 03 - 56
SHEET 10

FILE NO. 7620-3879 A

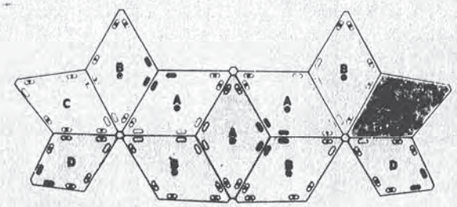


LAYER 7

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 7 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
5 AR	ADD BL, BR AND LOWER D PANELS IN LOCATIONS SHOWN
5 BL	MATCH COLOR CODES OF ADJACENT FLANGES
5 BR	ADD AR AND UPPER D PANELS
10 D	ADD 6-WAY HUBS AS SHOWN.
10 6-WAY HUBS	CHECK ALL BOLTS ON LAYER BELOW FOR TIGHTNESS

RADOME ERECTION-LAYER 7, PANEL ASSEMBLY PATTERN FIG. 9

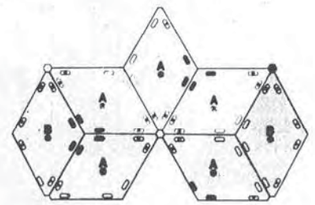


LAYER 8

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 8 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
10 AL	ADD AL AND C PANELS IN LOCATIONS SHOWN
5 BL	MATCH COLOR CODES OF ADJACENT FLANGES
5 BR	ADD BL AND BR PANELS
5 C	ADD 6-WAY HUBS AS SHOWN
5 6-WAY HUBS	CHECK ALL BOLTS ON LAYER BELOW FOR TIGHTNESS

RADOME ERECTION-LAYER 8, PANEL ASSEMBLY PATTERN FIG. 10

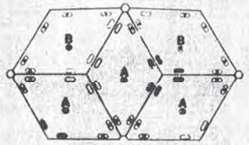


LAYER 9

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 9 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
5 AL	ADD AR PANELS IN LOCATIONS SHOWN.
10 AR	MATCH COLOR CODES OF ADJACENT FLANGES.
5 6-WAY HUBS	ADD AL PANELS.
	ADD 6-WAY HUBS AS SHOWN
	CHECK ALL BOLTS ON LAYER BELOW FOR TIGHTNESS.

RADOME ERECTION-LAYER 9, PANEL ASSEMBLY PATTERN FIG. 11

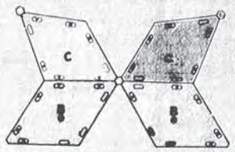


LAYER 10

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 10 EACH SEGMENT IS THE SAME

PANELS REQUIRED:	
5 BL	ADD BL AND BR PANELS IN LOCATIONS SHOWN.
5 BR	MATCH COLOR CODES OF ADJACENT PANELS.
5 6-WAY HUBS	ADD 6-WAY HUBS AS SHOWN.
	CHECK ALL BOLTS IN LAYER BELOW FOR TIGHTNESS.

RADOME ERECTION-LAYER 10, PANEL ASSEMBLY PATTERN FIG. 12

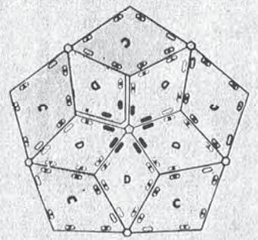


LAYER 11

THIS PATTERN SHOWS ONE FIFTH SEGMENT OF LAYER 11

PANELS REQUIRED:	
5 C	ADD C PANELS IN LOCATIONS SHOWN
	MATCH COLOR CODES OF ADJACENT FLANGES
	CHECK ALL BOLTS IN LAYER BELOW

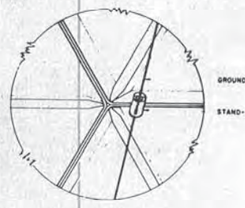
RADOME ERECTION-LAYER 11, PANEL ASSEMBLY PATTERN FIG. 13



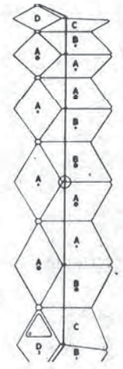
LAYER 12

PANELS REQUIRED:	
4 D	ADD D PANELS IN LOCATIONS SHOW
1 D WITH ACCESS DOOR	MATCH COLOR CODES OF ADJACENT FLANGES
1 5-WAY HUB WITH LIGHTNING ROD ASSEMBLY	ADD LIGHTNING ROD ASSEMBLY
	CHECK LAYER BELOW AND THIS LAYER FOR TIGHTNESS

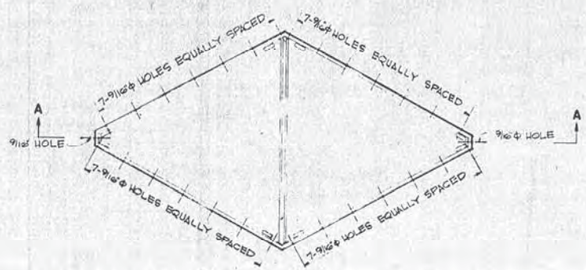
RADOME ERECTION-LAYER 12, PANEL ASSEMBLY PATTERN FIG. 14



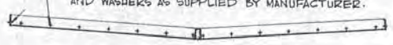
INSTALL GROUND WIRE STAND OFF INSULATORS AT LOCATIONS SHOWN.
THREAD GROUND WIRE THROUGH STAND OFFS
FASTEN TOP END OF GROUND WIRE TO PLATE ON LIGHTNING ROD HUB AS SHOWN WITH 1/4-20 BOLT AND LOCK WASHER



RADOME ERECTION-LIGHTNING ROD GROUND WIRE INSTALLATION



RADOME ERECTION-TYPICAL BOLT LOCATIONS FOR PANELS



SECTION A-A

NOTE:
ITEMS SHOWN ON THIS SHEET ARE GOVERNMENT FURNISHED AND CONTRACTOR ERECTED.

RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1969

REVISED 11 SEPT. 1961 BY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
JOHN J. KASSNER & CO.
ARCHITECT - ENGINEER
FOR
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IMPROVED NIKE - HERCULES CONTROL SYSTEMS
VARIOUS SITES NEW YORK & NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	RECORD WORK AS BUILT	JUL 3 1969	

REVISIONS

DEIGERT & YERKES & ASSOCIATES
ARCHITECTS - ENGINEERS
WASHINGTON, D.C.

DEPARTMENT OF THE ARMY
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MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D.C.

DRAWN BY A.G.H. R.L.P.
TRACED BY R.L.P.
CHECKED BY C.H.

ARMY AIR DEFENSE PROGRAM
MODIFIED EMERGENCY CONSTRUCTION
IMPROVED NIKE - HERCULES SYSTEM
HIGH POWER ACQUISITION RADAR TOWER
HIPAR
RADOME ERECTION DIAGRAMS - PART 2

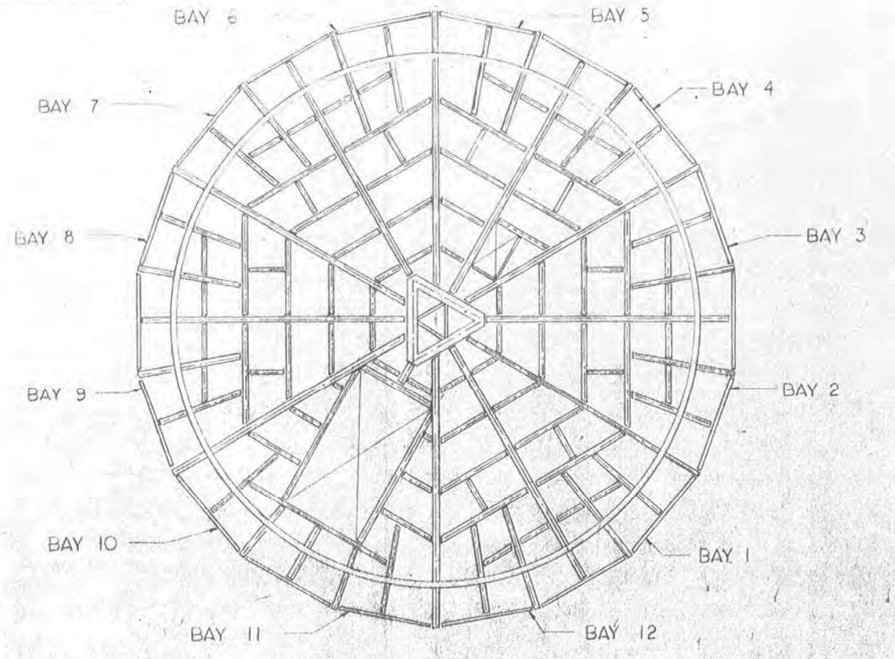
APPROVED BY: DEIGERT & YERKES & ASSOC. DATE: 27 JULY 1960
CHIEF, C-E DES BRANCH — CHIEF, ENGINEERING DIVISION, MIL. CONSTR., OCE
APPROVED FOR
DATE

SCALE NO SCALE SPEC. NO. DAEN-ETM-60-1-1
DRAWING NUMBER 35-03-56
SHEET 11

FILE NO. 7620-38801

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



FINAL ASSEMBLY NOTES

(1) ALL MEMBERS ARE ASSEMBLED IN ACCORDANCE TO FIND NUMBERS

(2) FIND NUMBERS AND CORRESPONDING PART NUMBERS ARE LISTED ON PARTS LISTS PL 13200E1150
EXAMPLE (204) FIND NUMBER — [13200E1152 PART NUMBER

(3) INSTALLATION OF BOLTS AS INDICATED, ARROW SIDE INDICATES HEAD OF BOLT

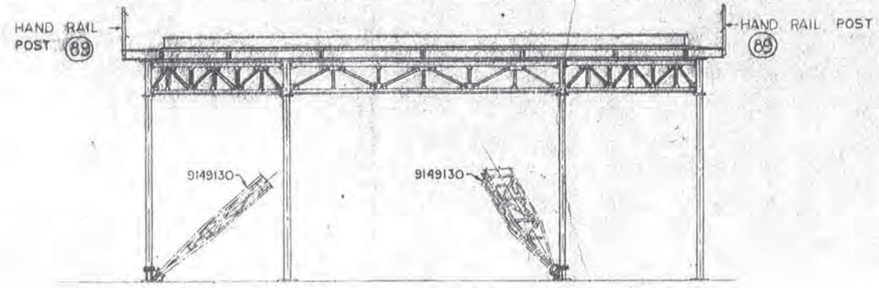
(4) SHIMS ARE PROVIDED FOR NOMINAL I SECTION DEPTH ROLLING TOLERANCES MAY REQUIRE ADDITIONAL SHIMS OR SHIMS TO BE REMOVED TOP OF I SECTION MUST BE HELD TO THE DIMENSION AT INTERSECTION OF CURVED CHANNEL AS SHOWN ON DETAIL "A1" ON DRAWING 13200E1151 SHEET 6 OF 13

(5) * INDICATES DIRECTION OF MEMBER

(6) CURVED RADOME HOLD DOWN CHANNEL IS ASSEMBLED TO DECK AFTER DECK PANELS ARE IN PLACE

(7) REFER TO ORDNANCE CORPS DRAWINGS 9149100 SHEETS 1 OF 2 AND 2 OF 2 FOR ASSEMBLY OF TRIPOD

(8) ALL 9149___ PART NUMBERS ARE ORDNANCE CORPS DRAWINGS EXAMPLE 9149130



DRAWING INDEX	
DRAWING NO	DESCRIPTION
D13200E1151 SHEET 1	GENERAL ARRANGEMENT
D13200E1151 SHEET 2	PLACEMENT OF TRUSSES AND COLUMNS
D13200E1151 SHEET 3	ASSEMBLY OF TRUSSES
D13200E1151 SHEET 4	PLACEMENT OF SUPPORT BEAMS BAYS 5,6,7,8
D13200E1151 SHEET 5	PLACEMENT OF SUPPORT BEAMS BAYS 1,2,3,4
D13200E1151 SHEET 6	PLACEMENT OF SUPPORT BEAMS BAYS 9,10,11,12
D13200E1151 SHEET 7	ENLARGED VIEWS OF CONNECTIONS IN RADOME PLATFORM
D13200E1151 SHEET 8	ENLARGED VIEWS OF CONNECTIONS IN RADOME PLATFORM
D13200E1151 SHEET 9	ENLARGED VIEWS OF CONNECTIONS IN RADOME PLATFORM
D13200E1151 SHEET 10	PLACEMENT OF DECK PANELS
D13200E1151 SHEET 11	PLACEMENT OF DECK PANELS
D13200E1151 SHEET 12	PLACEMENT OF DECK PANELS
D13200E1151 SHEET 13	PLACEMENT OF ELECTRICAL INSTALLATIONS

DOCUMENTATION APPROVAL USAERDL BS 7/6/67

REFERENCE DWG.

PREPARED FOR BELL TELEPHONE LABORATORIES INC. BY DRESSER-IDECO CO. COLUMBUS, OHIO

APPROVED: [signature] CHIEF, DESIGN BRANCH

APPROVED: [signature] CHIEF, ENGINEERING DIVISION

APPROVED: [signature] CHIEF, PRODUCTION

DRAWN G.H.P. TRACED EDD CHECKED

GS-57214

SUPPORT, RADOME IMPROVED NIKE-HERCULES

SCALE: 1" = 6'-0"

U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT LABORATORIES CORPS OF ENGINEERS FORT BELVOIR, VA.

D13200E1151

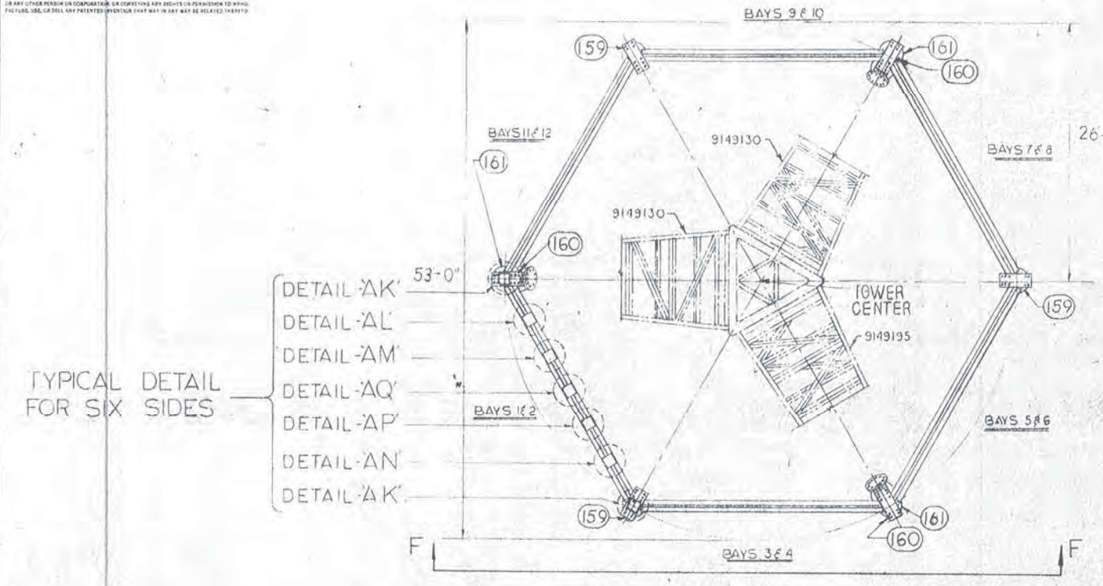
SHEET 1 OF 13

FILE NO. 7620-3930A

43

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCURE-MENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY, NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANU-FACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
(1)	FIND NO (305) WAS (304) AND FIND NO (306) WAS (303) FOR DETAIL 'BE' FIND NO (304) WAS (305) FOR DETAIL 'BD'		

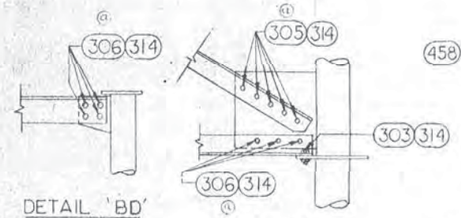


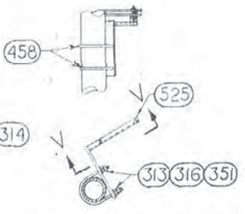
FINAL ASSEMBLY NOTES

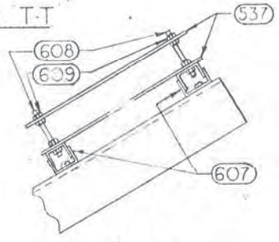
(1) SEE DRAWING 13200E1151 SHEET 1 OF 12

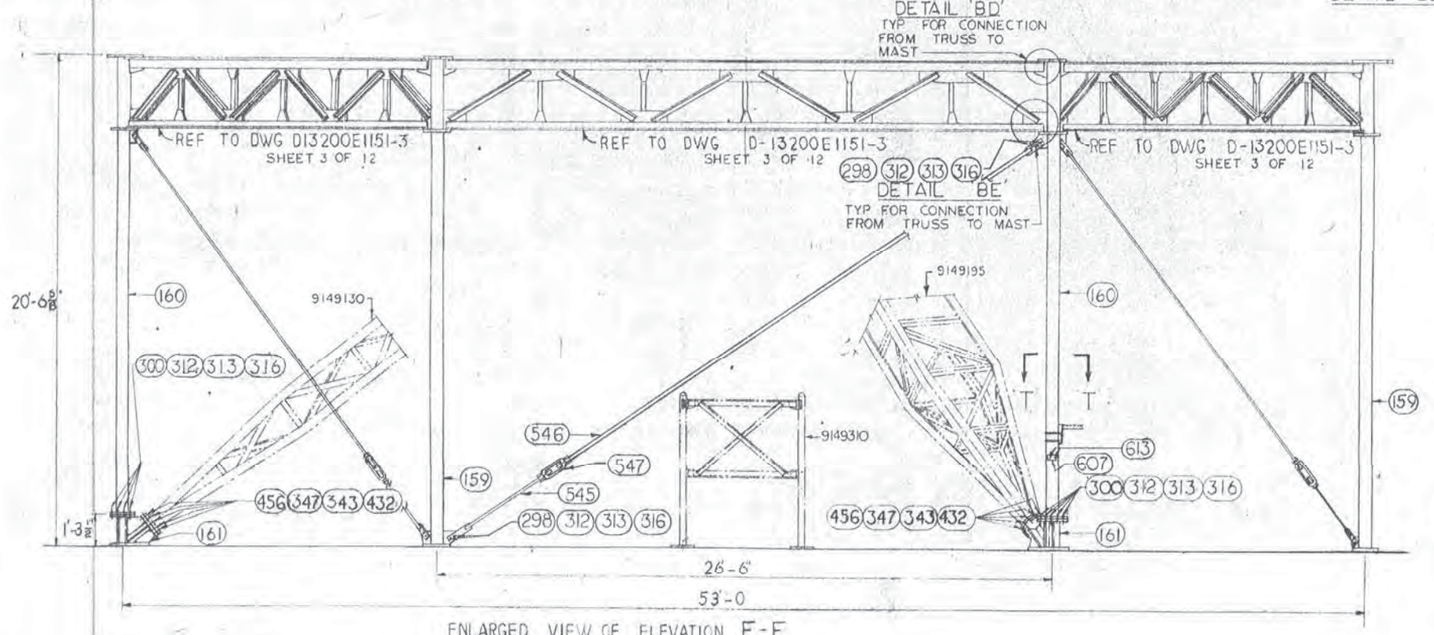
(2) SEE ASSEMBLY DRAWING D13200E1151 SHEET 2 OF 12 FOR DETAILS 'BD' & 'BE'

(3) SEE ASSEMBLY DRAWING D13200E1151 SHEET 9 OF 12 FOR DETAILS 'AK', 'AL', 'AM' 'AQ', 'AP'









ENLARGED VIEW OF ELEVATION F-F

REFERENCE DWG.

DESIGNED	CHECKED FOR PRODUCTION	DRAWN CMP	TRACED EDU

DOCUMENTATION APPROVAL BRANCH CHIEF 7/16/59

GS-57214
SUPPORT, RADOME
IMPROVED NIKE-HERCULES

SCALE: NONE

PREPARED FOR BELL TELEPHONE LABORATORIES INC. DRESSER ELECTRIC CO.

U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT LABORATORIES CORPS OF ENGINEERS FORT BELVOIR, VA.

D13200E1151

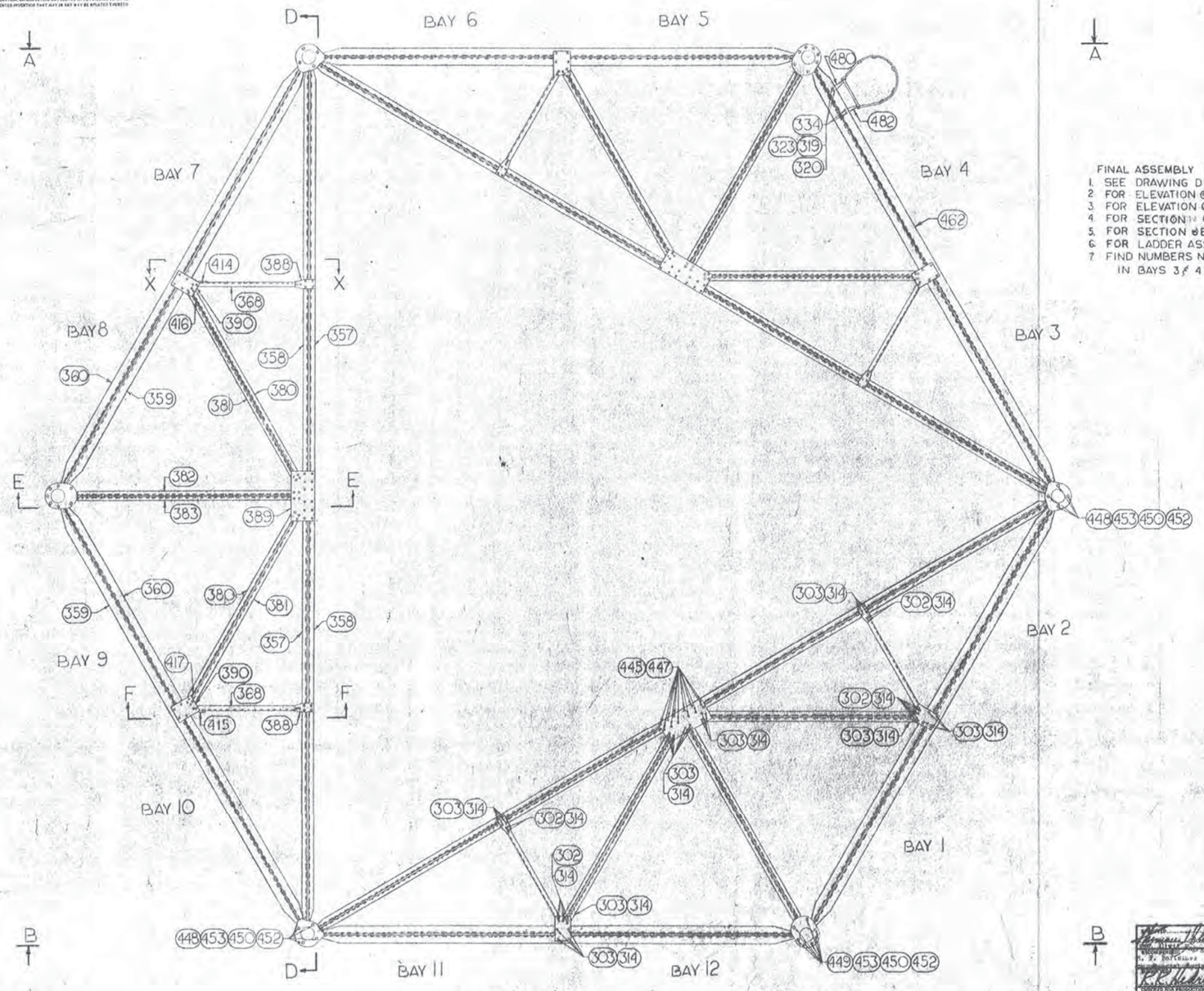
SHEET 2 OF 13

FILE NO. 7620-3931A

MAR 2 0 1967

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCURE-MENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY, NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANU-FACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



PLAN VIEW Z-Z

FINAL ASSEMBLY NOTES:
1. SEE DRAWING DI3200E1461 SHEET 1 OF 8
2. FOR ELEVATION @ A-A SEE DRAWING DI3200E1461 SHEET 3 OF 8
3. FOR ELEVATION @ B-B SEE DRAWING DI3200E1461 SHEET 4 OF 8
4. FOR SECTION @ D-D SEE DRAWING DI3200E1461 SHEET 6 OF 8
5. FOR SECTION @ E-E, F-F SEE DRAWING DI3200E1461 SHEET 7 OF 8
6. FOR LADDER ASSEMBLY SEE DRAWING DI3200E1461 SHEET 8 OF 8
7. FIND NUMBERS NOTED TYPICAL IN ALL BAYS, EXCEPT AS NOTED IN BAYS 3 & 4

DOCUMENTATION APPROVAL
USAERDL BY

DESIGNED FOR PRODUCTION
BY
DATE

DRAWN	TRACED	CHECKED
RE		EDD

REFERENCE DWG

GS-59067
EXTENSION, RADOME, SUPPORT
IMP NIKE-HERCULES

SCALE: 3/4"-0"

PREPARED FOR
BELL TELEPHONE LABORATORIES INC.
BY
DRESSER IDECO CO
COLUMBUS, OHIO

U. S. ARMY
ENGINEER RESEARCH AND DEVELOPMENT LABORATORIES
CORPS OF ENGINEERS
FORT BELVOIR, VA.

DI3200E1461
SHEET 2 OF 8

FILE NO. 7620-3945A

MAR 8 L 1961

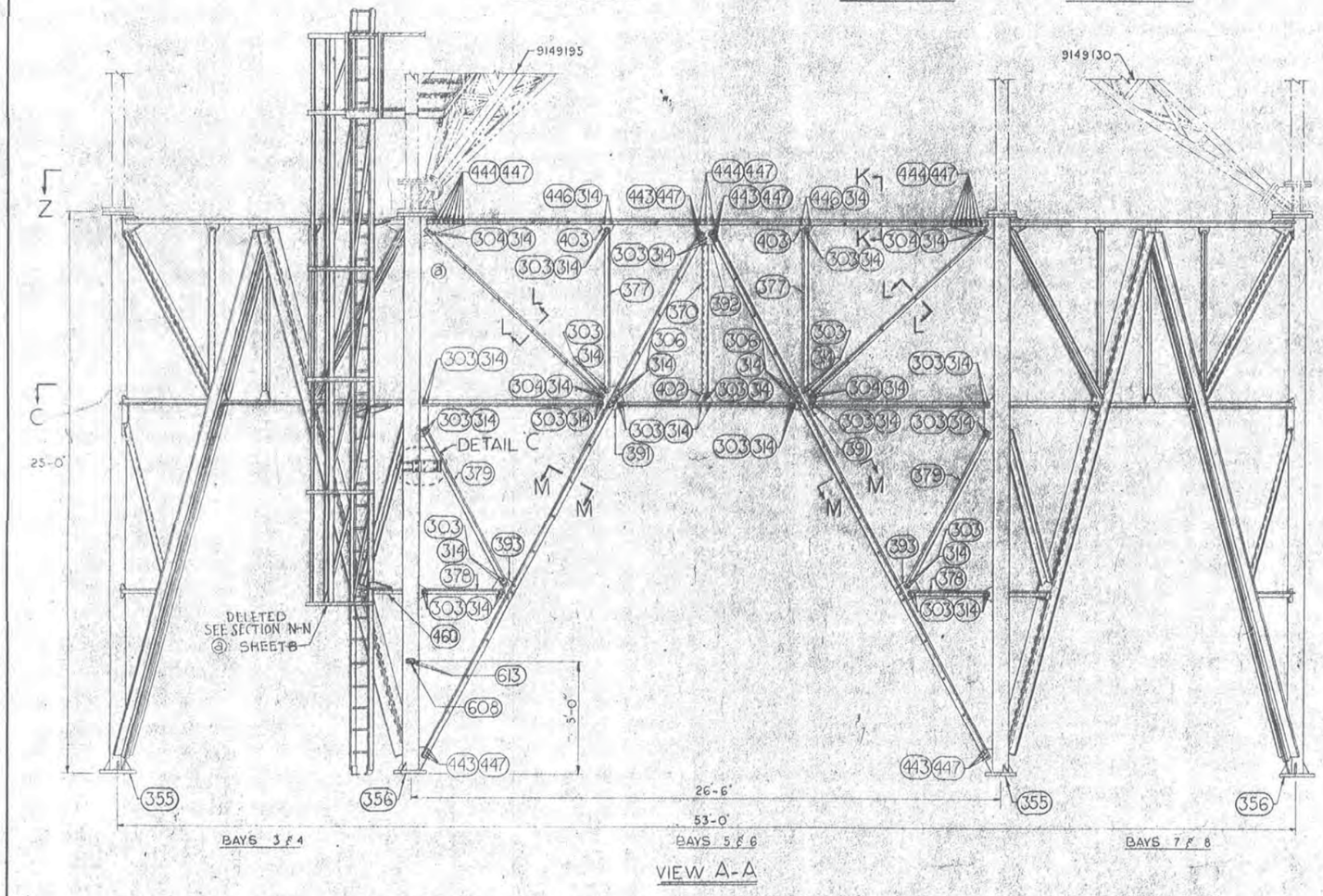
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
(a)	DETAIL C DELETED	[illegible]	[illegible]

SECTION K-K

SECTION L-L

SECTION M-M



VIEW A-A

(d)

FINAL ASSEMBLY NOTE:
1. SEE DRAWING D13200E1461 SHEET 1 OF 8
2. SEE DRAWING D13200E1461 SHEET 2 OF 8 FOR DIRECTION OF PROJECTION
3. ALL BAYS SIMILAR, EXCEPT AS NOTED IN BAY 4
4. SEE DRAWING D13200E1461 SHEET 2 OF 8 FOR VIEW @ G-G
5. SEE DRAWING D13200E1461 SHEET 5 OF 8 FOR SECTION @ C-C

REFERENCE DWG.

DOCUMENTATION APPROVAL USAERDL BY [illegible] 1/16/59

PREPARED FOR BELL TELEPHONE LABORATORIES, INC. BY DIRECTOR OF DEFENSE RESEARCH & ENGINEERING

DESIGNED	H. Z. Barkacs	GS-59067	U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT LABORATORIES CORPS OF ENGINEERS FORT BELVOIR, VA.
CHECKED	[illegible]	EXTENSION, RADOME, SUPPORT IMP NIKE-HERCULES	D13200E1461
CHECKED FOR PRODUCTION	[illegible]		SHEET 3 OF 8
DRAWN	JE	TRACED	APPROVED EDD
		SCALE: 3"=1'-0"	

FILE NO. 7620-3946A

MAR 20 1959


CORPS OF ENGINEERS
U.S. ARMY
FOR CONTINUATION SEE INSERT
EXIST. GATE
ENTRANCE
EXIST. FENCE
INSERT
SCALE: 1"=40'
EXIST. MAC. ROAD
VICINITY MAP
SCALE IN MILES
RARITAN BAY
FORT HANCOCK
SITE OF WORK
SANDY HOOK BAY
KEYPORT
MATAWAN
GARDEN STATE PKWAY
RED BANK
ATLANTIC OCEAN
M.T.R. ON EXIST. CONC. PLATFORM
ELEV. OF PLATFORM 22.0
BASE LINE
INSTALL DAVIT
LADDER
NEW 20'-0" TOWER FOR TTR
NEW 1500 GAL. SEPTIC TANK
NEW DISTRIBUTION BOX, I.E. 7.0
NEW TILE FIELD
NEW WOOD POSTS AT EACH CORNER
6" A.T. DRAIN TILE
EXIST. BORE SIGHT MAST TO BE RELOCATED
RECORD DRAWING
OF WORK - AS - BUILT
Colonel C. E., District Engineer
JUL 3 1989
EXIST. EARTH ROAD
MEET EXISTING ROAD SURFACE
CONTRACTOR'S STORAGE AREA
MACADAM BASKETBALL COURT
FOR CONTINUATION SEE INSERT BELOW
TTR ON EXIST. CONC. PLATFORM
EXISTING EARTH & GRAVEL ROAD
EXIST. MACADAM PAVT.
EXIST. LADDER TO REMAIN
NEW LOCATION FOR BORE SIGHT MAST ON 5' MOUND
SITE PLAN
SCALE 1"=20'
ELECTRICAL NOTES
1. SEE DRAWING #7620-3854 FOR ELECTRICAL SYMBOL LIST AND UNDERGROUND FEEDER SCHEDULE.
2. ALL NEW DIRECT BURIAL CABLES SHALL BE INSTALLED IN RIGID STEEL CONDUIT UNDER ROADWAYS, PAVED WALKS AND FROM A POINT 5 FEET OUTSIDE BUILDING WALL TO TERMINATING EQUIPMENT OR JUNCTION BOX. ALL EXISTING DIRECT BURIAL CABLE UNDER NEW ROADWAYS SHALL BE INSTALLED IN CONDUIT.
3. ALL EQUIPMENT BEING REMOVED SHALL REMAIN THE PROPERTY OF THE GOVERNMENT, STORED WHERE DIRECTED AND PROVIDED WITH WEATHERPROOF PROTECTION.
4. ALL EXISTING WIRING OF STRUCTURES BEING ABANDONED SHALL BE REMOVED COMPLETELY.
5. DESIGNATED EQUIPMENT SHALL BE REMOVED AFTER GENERATOR BUILDING IS FULLY OPERATIONAL.
6. EXISTING PRIMARY IS 2400 V. CONNECT NEW TRANSFORMER SUB-STATION 2400 V.Δ-120/208 V.Y.
7. EXISTING AERIAL CONDUCTORS ARE COPPER. ALL NEW CONDUCTORS SHALL MATCH EXISTING WIRING.
8. PROVIDE 1-8" CONDUIT UNDER PAVEMENT, APPROX 30'-0" LG. LOCATION TO BE DETERMINED BY THE SITE COMMANDER.
9. CONNECT ALL GROUNDS TO HIPAR TOWER COUNTERPOISE. SEE DWG. FILE NO'S. 7620-3878A, -3869A, -3852A, -3853A.
GENERAL NOTES
A. ROOF L.L. 30 PSF
B. TEMPERATURE ZONE "O"
C. MAX SOIL BEARING CAPACITY ASSUMED FOR FOUNDATION DESIGN PURPOSES = 4,000 P.S.F.
D. PILES FOR NEW TOWER SHAFT FOUNDATION SHALL BE CAST-IN-PLACE CONCRETE PILES, METAL SHELL DRIVEN TO 15 TONS CAPACITY. ASSUMED LENGTH OF PILES FOR BIDDING IS 20'-0". MINIMUM PILE LENGTH SHALL BE 16'-0". FOR ADDITIONAL PILE DATA SEE SPECIFICATIONS.
E. FOR BORING INFORMATION SEE FILE NO. 7620-3838.02A
F. ALL DISTURBED PAVT. & CUTS SHALL BE REPLACED IN KIND. ALL OTHER DISTURBED AREAS SHALL BE GRADED & HAY MULCH SEEDED.
G. NEW DENOTES WORK TO BE DONE UNDER THIS CONTRACT.
H. FOR ORIENTATION OF NEW 10' & 20' TOWERS SEE DWG. FILE NO. 7620-3880A NOTES 1 & 2.
B.M. EL.-EX. GEN. BLDG. F.F.EL. 13.0
INSERT
SCALE: 1"=200'
INSTALL M.V. DISC. SWITCH & KEY INTER LOCK
EXISTING PUMP HOUSE
EXIST. BLDG.
TO CONTROL AREA
REVIEWED BY SAFETY BRANCH
SITE PLAN LEGEND
NEW GRAVEL WALK WITH WOOD CURBS
NEW PENETRATION MACADAM PAVEMENT
NEW DRY WELL
NEW GRAVEL PIT
EXISTING LIGHTS
100 EXISTING GRADE CONTOUR LINE
100 FINISHED GRADE CONTOUR
+100.00 FINISHED SPOT GRADE ELEVATION
I.E. INVERT ELEVATION
F.F.EL. FINISHED FLOOR ELEVATION
FDN. FOUNDATION
F.O. FUEL OIL
4M 4000
M.H. MANHOLE
6"A.T. NEW 6" AGRICULTURAL TILE
2"DR. NEW 2" DRAIN
6"SAN. NEW 6" SANITARY SEWER
C.O. CLEANOUT
C.W. COLD WATER SERVICE
MTR MISSILE TRACKING RADAR
A.R. ACQUISITION RADAR
TRR TARGET RANGING RADAR
TTR TARGET TRACKING RADAR
EX. EXIST. EXISTING CONSTRUCTION
GR. GRAVEL
JUL 3 1989 RECORD WORK AS BUILT
4 | 27 APR. '62 | DAVITS & CRANE ADDED TO TOWERS, 8" D DUCT ADDED AT HIPAR BLDG. | A/E
3 | 9 APR. '62 | HIPAR BLDG & TOWER RELOCATED & REORIENTATED, 10'-0" TOWER RELOCATED; 20'-0" TOWER ADDED; MED. & P. EL. TTR PLAT. DELETED; AR PLAT. FTG. EL. RED. BORE SIGHT NOT RELOC. | A/E
GRADING AT HIPAR BLDG. COOL TOWER PAD RELOCATED | A/E
2 | 7 FEB 62 | WIND WALLS ADDED DOOR #1, MISC. ELECT. DTL'S. HIPAR TOWER LADDER & FOOTING | A/E
HEAT EXCHANGER PAD ADDED & WALK RELOCATED LEGEND | A/E
1 | 4 JAN 62 | HIPAR ROAD, PLATFORM FTG. EL. & MISC. REV. | A/E
REVISION | DATE | DESCRIPTION | BY
JOHN J. KASSNER & CO.
ARCHITECT - ENGINEER
NEW YORK, NEW YORK
U.S. ARMY ENGINEER DISTRICT, NEW YORK
CORPS OF ENGINEERS
NEW YORK 3, NEW YORK
DRAWN BY: L.G.
DESIGNED BY: R.P.S.
SUBMITTED: ARCHITECT-ENGINEER
REVIEWED: M. N. Fialkow CHIEF, DESIGN BRANCH
SPECIAL AAA FACILITIES
IMPROVED NIKE-HERCULES CONTROL SYSTEMS
SITE PLAN
& VICINITY MAP
1/2 N.Y. 56C-1 FORT HANCOCK, N.J.
VARIOUS SITES (PKG. 3)
(HIPAR)
NEW YORK & NEW JERSEY
REVIEWED: Stanley A. Handel ASSISTANT CHIEF, ENGINEERING DIVISION
RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED: C. M. Duke COLONEL C.E., DISTRICT ENGINEER
DATE 11 SEPTEMBER 1961
SCALE AS SHOWN
DRAWING NUMBER
SHEET OF
INV. NO. ENG-30-075-[redacted]
FILE NO. 7620-1838A

CORPS OF ENGINEERS

U. S. ARMY

LOG OF BORINGS



LEGEND

T.S	TOP SOIL
LO	LOAM
S	SAND
FS	FINE SAND
MS	MEDIUM SAND
C	CLAY
SI.	SILT
G	GRAVEL
WL	WATER LEVEL

○ DENOTES NO OF BLOWS REQUIRED TO DRIVE 2" O.D. SAMPLING PIPE 1'-0" USING 140# WEIGHT FALLING 30".

△ NOTES
BORINGS #1-6 TAKEN FEB 3 TO FEB 7, 1954
BORINGS #2A, 4A, 6A TAKEN FEB 26 TO MAR 2 1954

SCALE: 1" = 100'

NOTE:
ALL INDICATED BEARINGS ARE SHOWN FROM TRUE NORTH.
ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL.
△ DATUM & HORIZONTAL CONTROL ESTABLISHED AT EL 37.70 ON ℄ INTERSECTION OF BRIDGE & N.J. ROUTE 4. (SEE DWG. FILE NO 7611-1502)

LEGEND

- STRUCTURES BY CONTR.
- EXISTING STRUCTURES
- CONC. PAVED AREA
- PROPOSED GRAVEL ROAD
- EXISTING ROAD
- PROPERTY LINE
- DRILL HOLE
- EXISTING PATH
- EASEMENT LINE
- STRUCTURES BY ARMY (FOUND. & SLAB BY CONTR.)
- GRAVEL WALK BY CONTRACTOR

RECORD DRAWING
OF WORK - AS - BUILT
Edwin M. Haendel
Contracting Officer
23 September 1955

FOR REFERENCE ONLY
The government assumes no responsibility for the accuracy of the information shown hereon.
CLEARING FOR LINE OF SIGHT & MASKING

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
3	15 NOV 54		
2	15 SEPT 54	GENERAL REVISIONS.	L.K.
1	6 AUG. 54	ADDED CENTRAL HEATING SYSTEM & SLABS	W.B.P.
	26 APR 54	NOTES ADDED, GEN BLDG. RELOCATED, FENCE MOVED	L.K.
	2 APR 54	GENERAL REVISIONS	W.W.G.

RAYMOND AND RADD
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

DRAWN BY: W.W.G.
DESIGNED BY:
SUBMITTED: ARCHITECT - ENGINEER
REVIEWED: CHIEF, DESIGN BRANCH
REVIEWED: ASSISTANT CHIEF ENGINEERING DIVISION
APPROVED: COLONEL C. E., DISTRICT ENGINEER
DATE 15 MARCH 1954

NEW YORK DEFENSE AREA
"NIKE" PROJECT
LAUNCHING AREA
GENERAL SITE PLAN
VICINITY OF SOUTH AMBOY NEW JERSEY

RECOMMENDED: CHIEF, ENGINEERING DIVISION

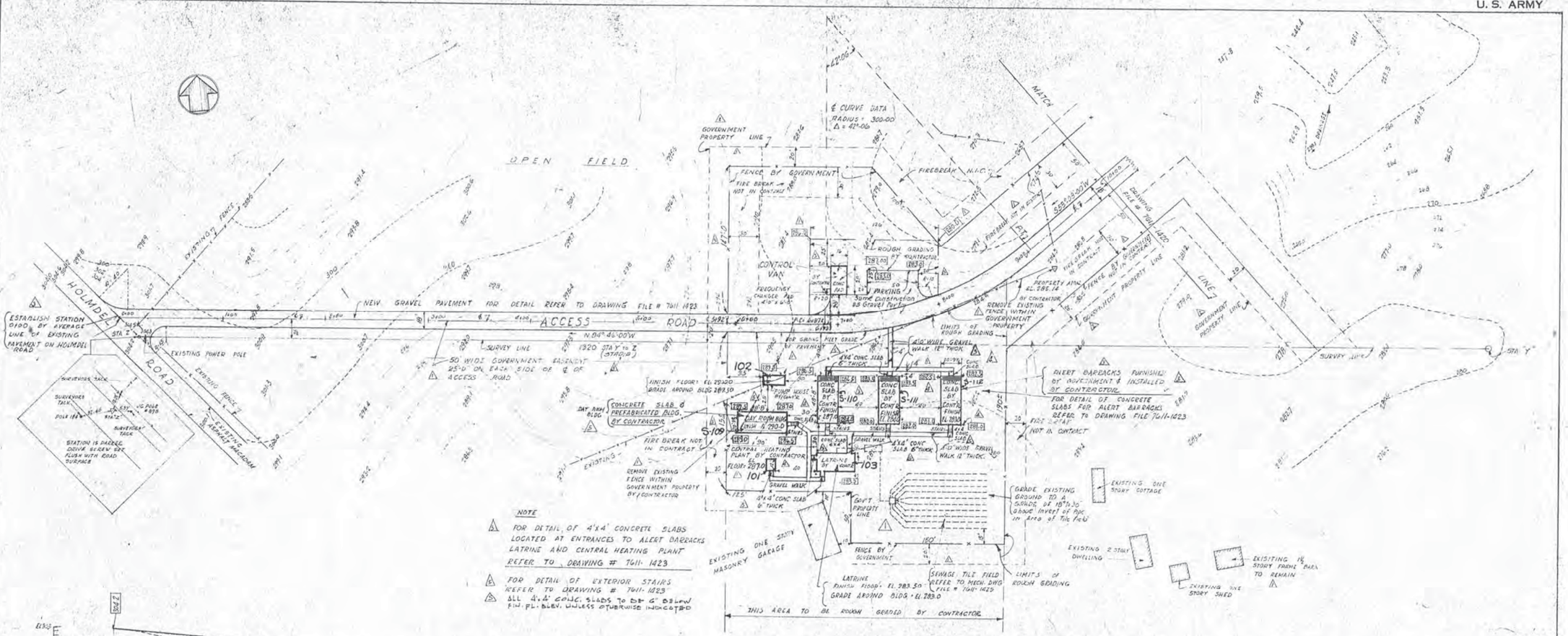
SCALE: AS SHOWN

DRAWING NUMBER
60-08-01
SHEET OF

FILE NO. 7611-2303

CORPS OF ENGINEERS

U. S. ARMY





PROFILE ALONG CENTER LINE OF ACCESS ROAD

SCALE HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

PLAN

0 20 40 80 120 160 200

SCALE: 1" = 40'-0"

— LEGEND —

8.5 — EXISTING ELEVATION
10 — EXISTING GROUND CONTOUR
17.00 — FINISHED GRADE ELEVATION

RECORD DRAWING
OF WORK - AS - BUILT
Contracting Officer
25 September 1955

FOR REFERENCE ONLY
The government assumes no responsibility for the accuracy of the information shown hereon.
CLEARING FOR LINE OF SIGHT & MASKING
REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
7	15 NOV 54	[illegible]	A.V.D.
6	30 SEPT 54	DAY ROOM BUILDING ADDED	A.V.D.
5	30 SEPT 54	NOTE REVISED TO ALERT BARRACKS FURNISHED BY GOV'T & INSTALLED BY CONTRACTOR	A.V.D.
4	30 SEPT 54	GRAVEL WALKS & CONCRETE SLABS ALERT BARRACKS, LATRINE & HEATING PLANT ADDED	A.V.D.
3	5 AUG 54	750 GALLON FUEL OIL STORAGE TANK DELETED.	A.V.D.
2	5 AUG 54	CENTRAL HEATING PLANT ADDED	A.V.D.
1	5 AUG 54	CONCRETE SLAB FOR ALERT BARRACKS ADDED	A.V.D.
0	1 JUNE 54	DIMENSIONS ADDED. GENERAL REVISIONS.	A.V.D.
	2 MAY 54	GOVERNMENT PROPERTY LINE REVISED.	A.V.D.
	9 MARCH 54	GENERAL REVISIONS	A.V.D.

ALEXANDER D. CROSETTI & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N.Y.

CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N.Y.

DRAWN BY: A.V.D.
DESIGNED BY: A.V.D. ARCHITECT ENGINEER
SUBMITTED: [signature] CHIEF, DESIGN BRANCH
REVIEWED: M. M. Fiddler ASSISTANT CHIEF, ENGINEERING DIVISION
REVIEWED: [signature] CHIEF, ENGINEERING DIVISION
RECOMMENDED: [signature] CHIEF, ENGINEERING DIVISION
APPROVED: [signature] DISTRICT ENGINEER
DATE: 25 MARCH 1954

NEW YORK DEFENSE AREA
"NIKE" PROJECT
LAUNCHING AREA
ACCESS ROAD
VICINITY OF CRAWFORD CORNERS NEW JERSEY

SCALE AS SHOWN
DRAWING NUMBER 60-08-01
SHEET OF

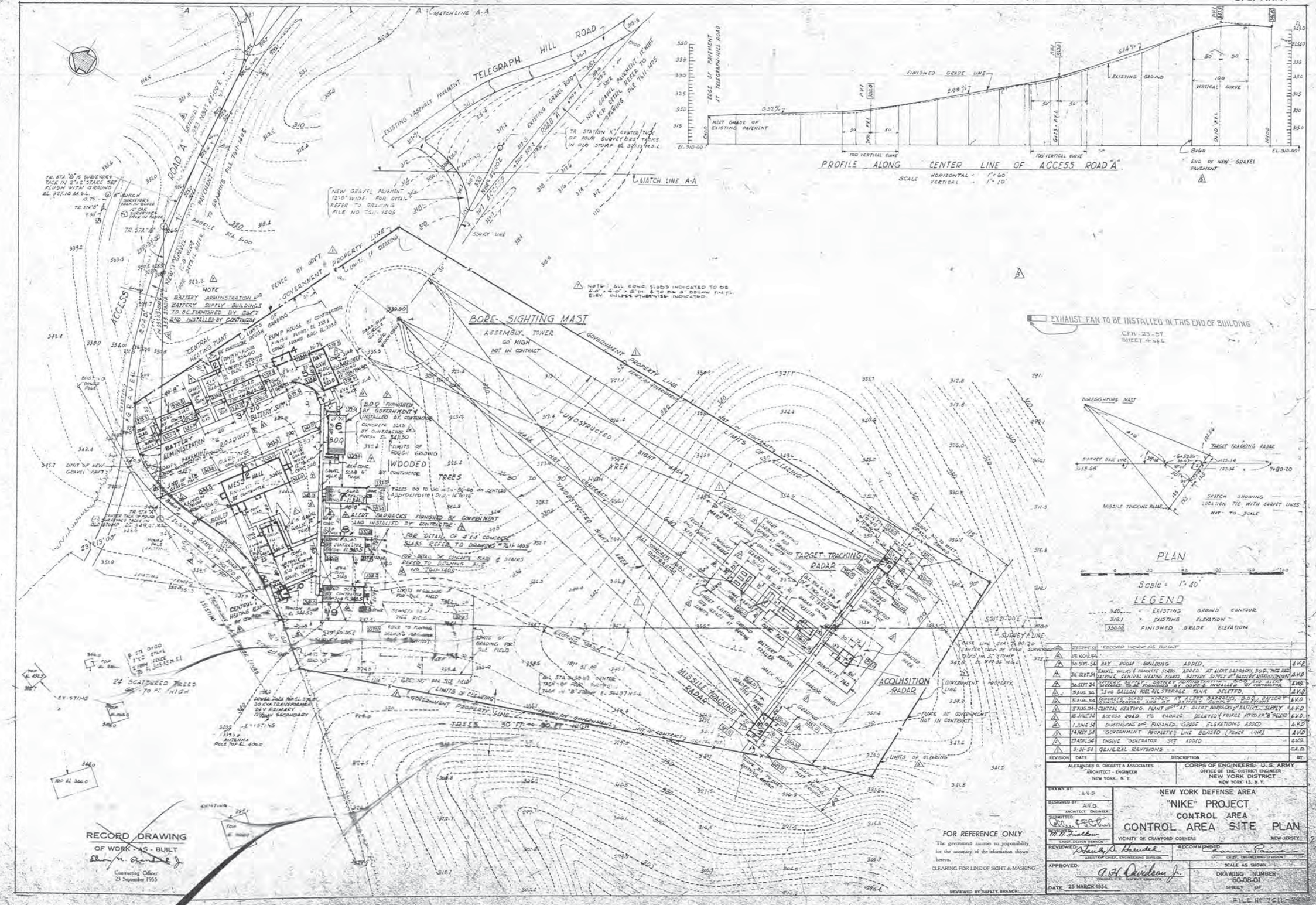
FILE Nº 7611-1422

21

31

CORPS OF ENGINEERS

U. S. ARMY



REVISION	DATE	DESCRIPTION	BY
1	15 NOV 54	"RECORD WORK AS BUILT"	
2	30 SEPT 54	24'x 100' ROOM BUILDING ADDED	A.V.D.
3	30 SEPT 54	GRAVEL WALKS & CONCRETE SLABS ADDED AT ALERT BARRACKS, BOQ, MESS HALL, CENTRAL HEATING PLANT, BATTERY SUPPLY & BATTERY ADMINISTRATION	A.V.D.
4	30 SEPT 54	SEWERAGE, WATER & ELECTRICITY SYSTEMS ADDED AT BATTERY SUPPLY & BATTERY ADMINISTRATION BUILDINGS	A.V.D.
5	5 AUG 54	7500 GALLON FUEL OIL STORAGE TANK DELETED	A.V.D.
6	5 AUG 54	CONCRETE SLABS ADDED AT ALERT BARRACKS, BOQ, BATTERY ADMINISTRATION AND SUPPLY BUILDINGS	A.V.D.
7	5 AUG 54	CENTRAL HEATING PLANT ADDED AT ALERT BARRACKS, BATTERY SUPPLY	A.V.D.
8	28 JUNE 54	ACCESS ROAD TO RADAR DELETED (PROFILE ADDED ON 8 FEB 54)	A.V.D.
9	1 JUNE 54	DIMENSIONAL AND PERSONNEL GREEN ELEVATIONS ADDED	A.V.D.
10	14 MAY 54	GOVERNMENT PROPERTY LINE REVISED (RADAR AREA)	A.V.D.
11	29 APR 54	ENGINE "GENERATOR SET" ADDED	A.V.D.
12	3-31-54	GENERAL REVISIONS	C.A.D.

ALEXANDER C. CROSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS - U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

DRAWN BY: A.V.D.
DESIGNED BY: A.V.D. ARCHITECT ENGINEER
SUBMITTED: [signature] CHIEF, DESIGN BRANCH
REVIEWED: [signature] ASST CHIEF, ENGINEERING DIVISION
APPROVED: [signature] DISTRICT ENGINEER
DATE: 25 MARCH 1954

NEW YORK DEFENSE AREA
"NIKE" PROJECT
CONTROL AREA
CONTROL AREA SITE PLAN
VICINITY OF CRAWFORD CORNERS NEW JERSEY

RECOMMENDED: [signature] CHIEF, ENGINEERING DIVISION

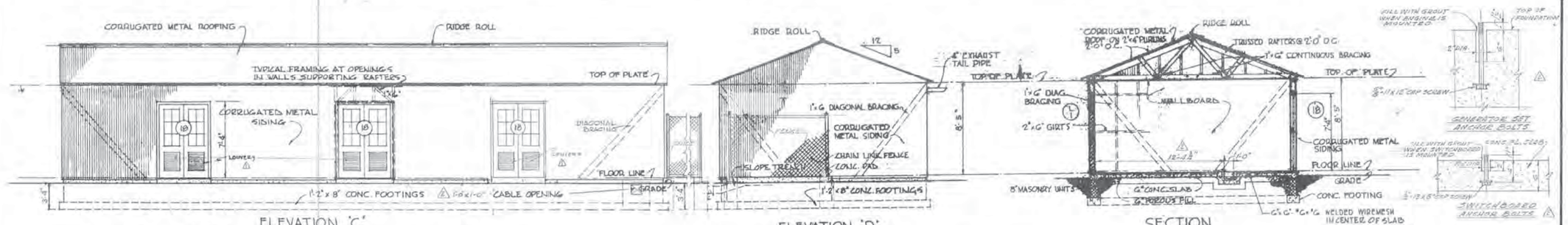
SCALE AS SHOWN

DRAWING NUMBER 60-08-01
SHEET OF

FILE NO. 761-1405

CORPS OF ENGINEERS

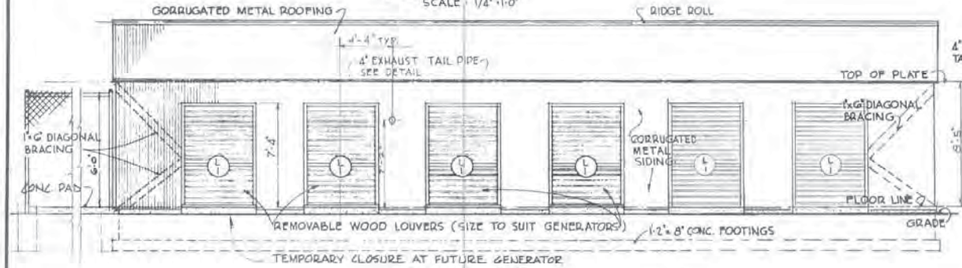
U. S. ARMY



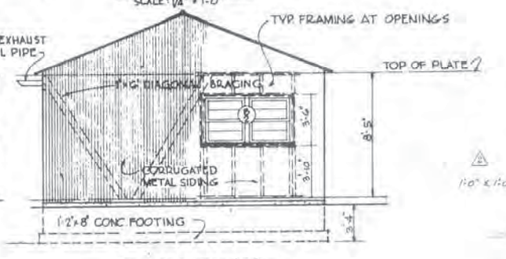
ELEVATION "C"
SCALE: 1/4"=1'-0"

ELEVATION "D"
SCALE: 1/4"=1'-0"

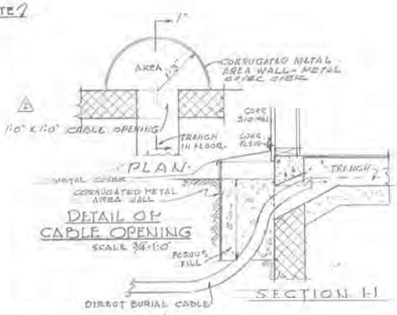
SECTION
SCALE: 1/4"=1'-0"



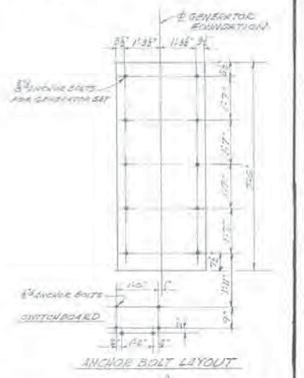
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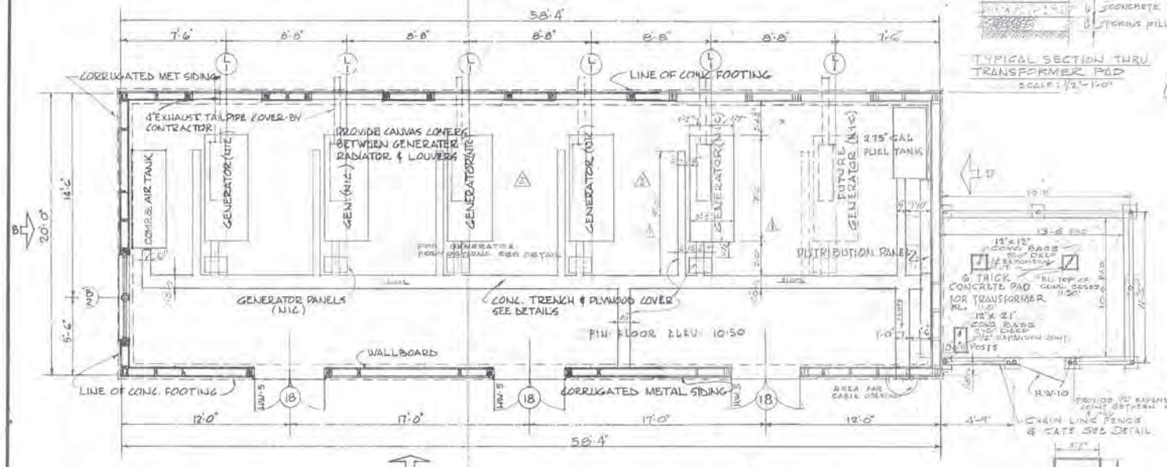
ELEVATION "B"
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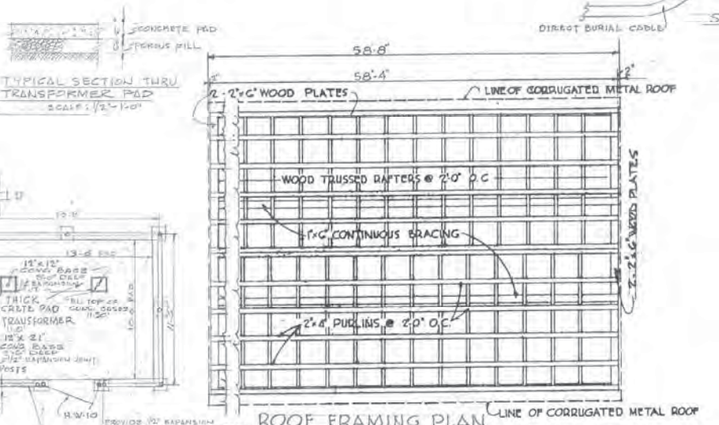
DETAIL OF CABLE OPENING
SCALE: 3/4"=1'-0"



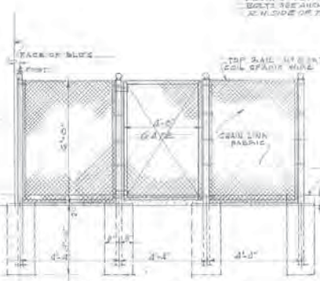
ANCHOR BOLT LAYOUT



PLAN
SCALE 1/4"=1'-0



ROOF FRAMING PLAN



DETAIL OF FENCE & GATE
SCALE: 3/16"=1'-0"

GENERAL NOTES

1. TOP AND BOTTOM OF FABRIC SHALL HAVE TWISTED AND BARBED PICKS.
2. ALL METAL SHALL BE HOT DIPPED GALVANIZED.
3. FENCES AND GATES SHALL BE FURNISHED COMPLETE WITH ALL NECESSARY FITTINGS.
4. FOR GATES, SIZES OF PIPE, BARRODS, TURNBUCKLES SHALL BE AS RECOMMENDED BY THE MFR'S.
5. FENCE TO BE CHAIN LINK, 6'-0" WIDE, 9 GUAGE, 2 INCH MESH GALVANIZED.
6. LINE POSTS - 2.25" H SECTION 4.1 #/FT. OR 2.5" O.D. TUBULAR STEEL 5.65/FT.
7. END, ANGLE, CORNER OR PULL POST 3" O.D. TUBULAR STEEL 5.79 #/FT.
8. BRACES - 1.625" O.D. TUBULAR STEEL 2.27 #/FT. OR 1.5 A.I.S.I. H SECTION 2.27 #/FT.
9. GATE POSTS 3" O.D. TUBULAR STEEL 5.79 #/FT. SINGLE GATE 4'-0" WIDE

NOTES

6. SEE DRAWING G171-816 FOR LOCATION
5. WALL & CEILING LINING WILL BE NONCOMBUSTIBLE
4. FOUNDATION DETAILS TO BE FURNISHED BY CONTRACTING OFFICER
3. ALL EQUIPMENT (N.I.C) TO BE FURNISHED BY GOVERNMENT AND INSTALLED BY CONTRACTOR
2. TRENCHES TO BE LOCATED TO SUIT GENERATOR & ELECTRICAL EQUIPMENT
1. ALL GLAZING SHALL BE GLASS SUBSTITUTE, REINFORCED

SCHEDULE OF DRAWINGS

DRAWING NR.	SHEET	TITLE
ME 26-03-40	1	PLANS, ELEVATIONS & SECTION
ME 26-03-40	2	DETAILS
ME 26-03-40	3	ELECTRICAL & MECHANICAL

REVISED 22 MARCH 1954 BY OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

RECORD DRAWING
OF WORK - AS - BUILT
Edwin M. Barnhill Jr.
Contracting Officer
5 October 1955

STRUCTURAL NOTES

LOADING: ~~roof snow~~, 30#/SQ.FT. & ~~roof foot~~ - LIVE LOAD ON ROOF

SOIL VALUE: ASSUMED AT 3000#/SQ.FT.

CONCRETE: CLASS 'B', 2500#/SQ.IN.

REINFORCEMENT: SHALL CONFORM TO FEDERAL SPECIFICATION QQ-B-71, TYPE B, GRADES 2, 3, 4 OR 5 REINFORCING BARS OF THE HI-BOND TYPE IN ACCORDANCE WITH A.S.T.M. SPEC. A305. WIRE MESH SHALL CONFORM TO A.S.T.M. SPEC. A185-57

STRUCTURAL LUMBER: SHALL BE OF QUALITY TO PERMIT THE FOLLOWING UNIT STRESSES
TRUSSED RAFTERS { fb = 1100#/SQ.IN. fc = 885#/SQ.IN. E = 1,200,000#/SQ.IN

BOTTOM OF FOOTINGS SHALL BE BELOW FROST LINE, & 1'-0" MIN. INTO UNDISTURBED SOIL.

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
A	RECORD WORK AS BUILT	5 OCT 55	
A	GENERATORS & TRENCHES REVISED.	22 MAR 54	J.W.
A	GENERAL REVISIONS	9 MAR 53	A.E.

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1632 K STREET, N. W. WASHINGTON, D. C.

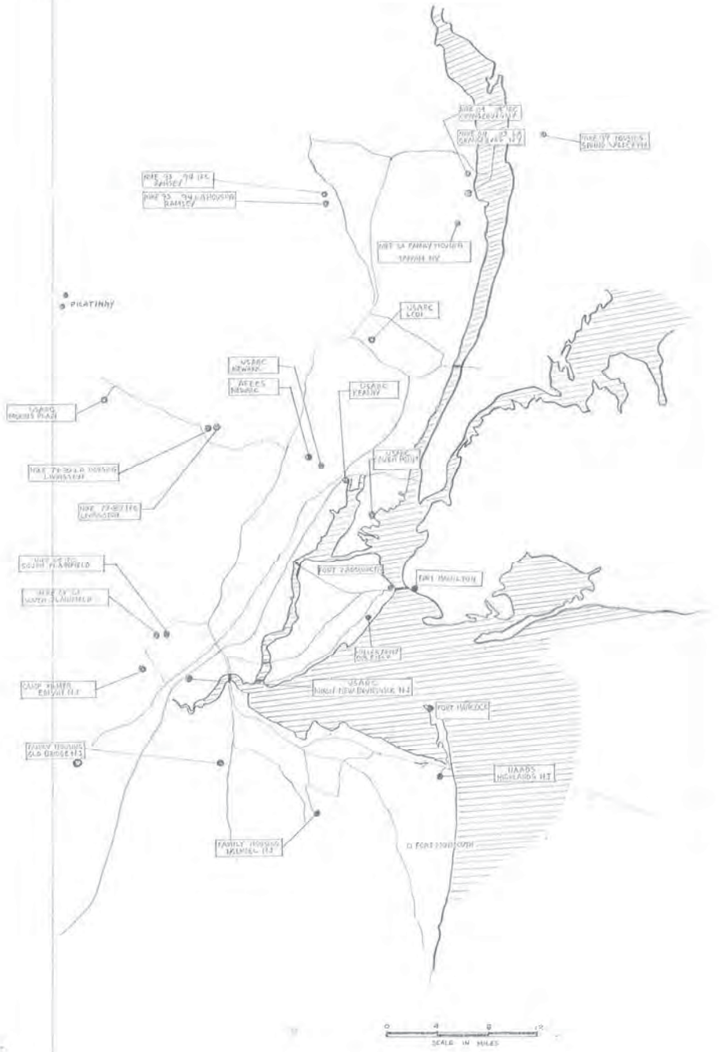
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

DRAWN BY: K.T
TRACED BY: K.T
CHECKED BY: E.V.G.
SUBMITTED: [signature]
APPROVED: [signature] DATE: 22 JAN 1954
CHIEF STRUCTURES BRANCH
APPROVED FOR: [signature] CHIEF ENGINEERING DIVISION, WASH., D.C.
DATE:

NIKE-I
GENERATOR BUILDING
BATTERY
LAUNCHING AREA
PLANS, ELEVATIONS & SECTION

SCALE AS NOTED SPEC. NO. ME 26-03-40 (5)
DRAWING NUMBER ME 26-03-40
SHEET 1

FILE Nº G171-821



NIKE MISSILE SITES / METROPOLITAN AREA — NY-11

OFFICE OF THE POST ENGINEER

FORT HANCOCK, N.J.

DRAWN BY

CHECKED BY

TRACED

DATE

RECOMMENDED

SCALE

APPROVED

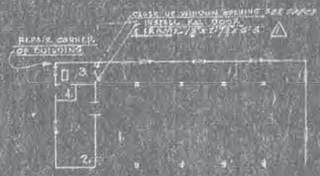
DRAWING NUMBER

CORPS OF ENGINEERS

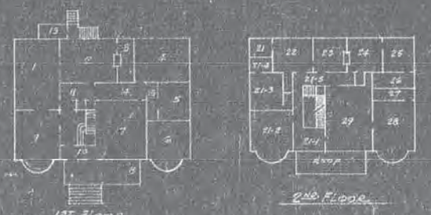
U.S. ARMY



BLDG. "162"

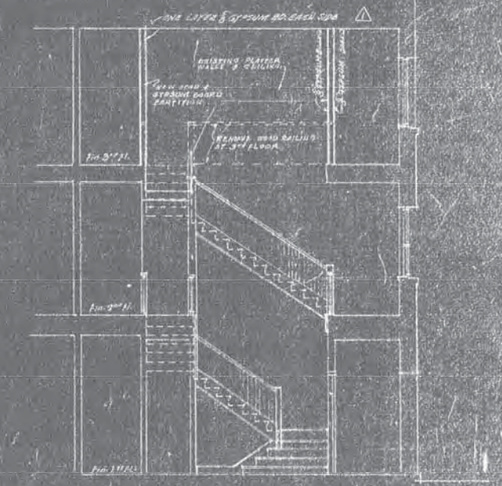


BLDG. T-196

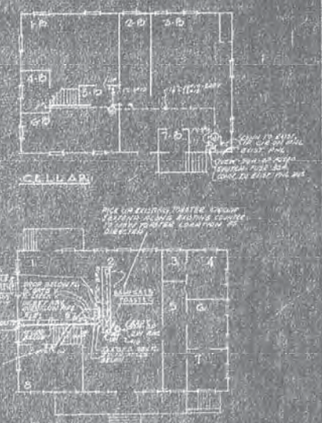


BLDG. "27"

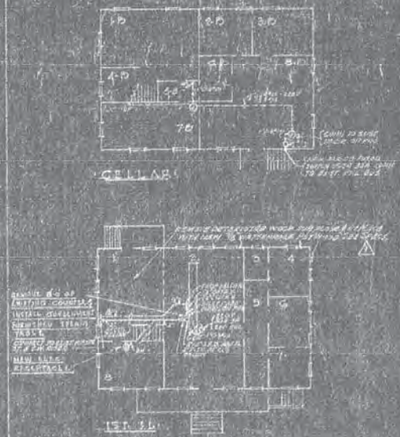
Note: See Specifications for Items of Work in Buildings 25-1-1 26, 27, 56, 57, 58, 159 & T-196



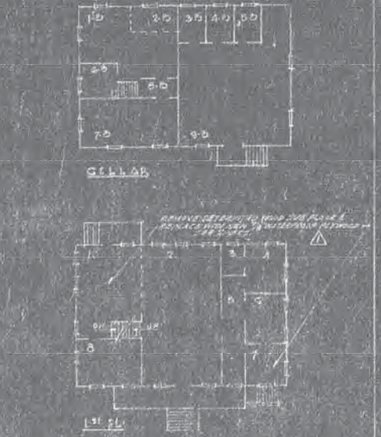
SECTION - 1-1



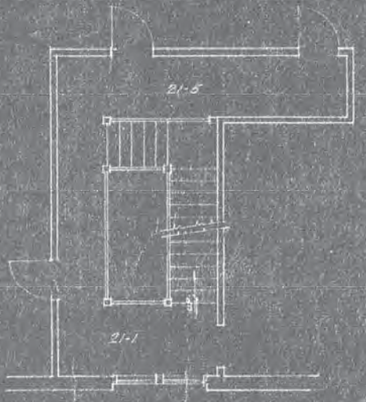
BLDG. "58"



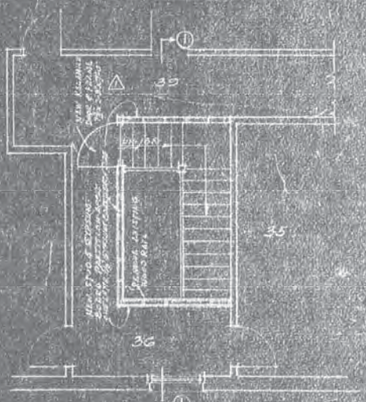
BLDG. "57"



BLDG. "56"

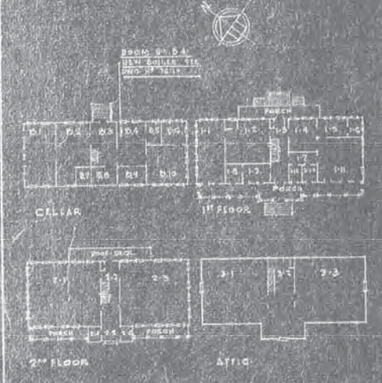


PLAN AT 2nd FLOOR

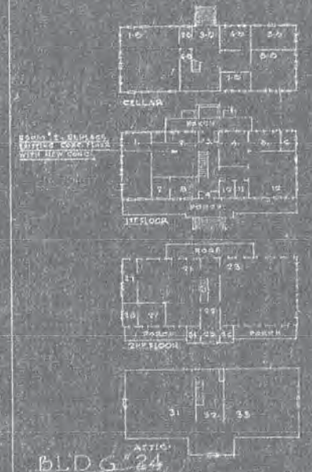


PLAN AT 3rd FLOOR

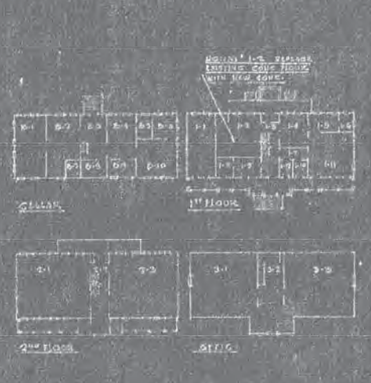
BLDG. "27" DETAIL OF STAIR ENCLOSURE AT 3rd FLOOR



BLDG. "23"

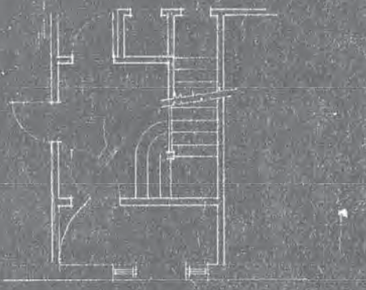


BLDG. "24"



BLDG. "25"

REVIEWED BY SAFETY BRANCH



PLAN AT 1st FLOOR

REVISION	DATE	DESCRIPTION

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N.Y.

CORPS OF ENGINEERS, U.S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK, N.Y.

DRAWN BY: A.G.P.
DESIGNED BY: A.G.P.
SUBMITTED: [illegible] ARCHITECT ENGINEER
REVIEWED: M. M. Faulkner CHIEF DESIGN BRANCH
REVIEWED: Charles S. Hunsicker ASSISTANT CHIEF ENGINEERING DIVISION
APPROVED: G. H. Davidson COLONEL, C.E., DISTRICT ENGINEER
DATE: 22 MARCH 1954

NEW YORK DEFENSE AREA
NIKE PROJECT
REHABILITATED BUILDINGS
DIAGRAMATIC PLANS
FORT HANCOCK NEW JERSEY

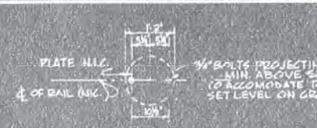
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DRAWING NUMBER 60-08-02
SHEET [illegible] OF [illegible]

646/41,924 11-03-45 FILE NO. [illegible]

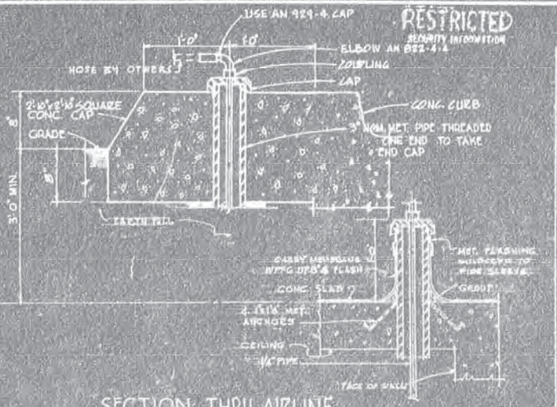
CORPS OF ENGINEERS

U.S. ARMY

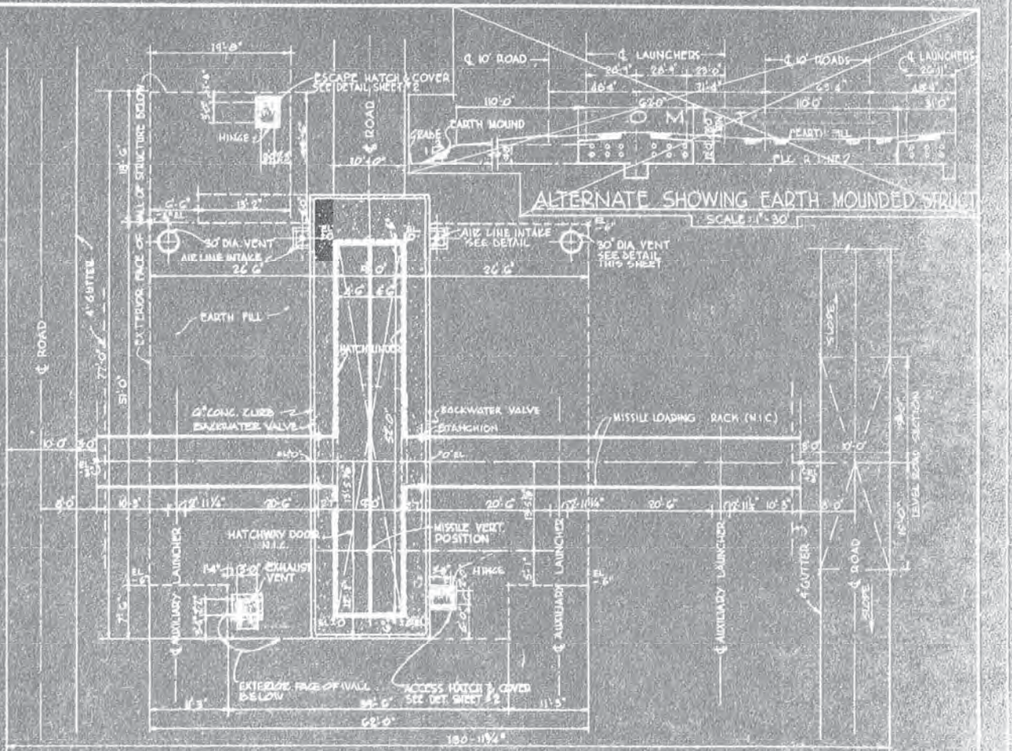
RESTRICTED
SECURITY INFORMATION



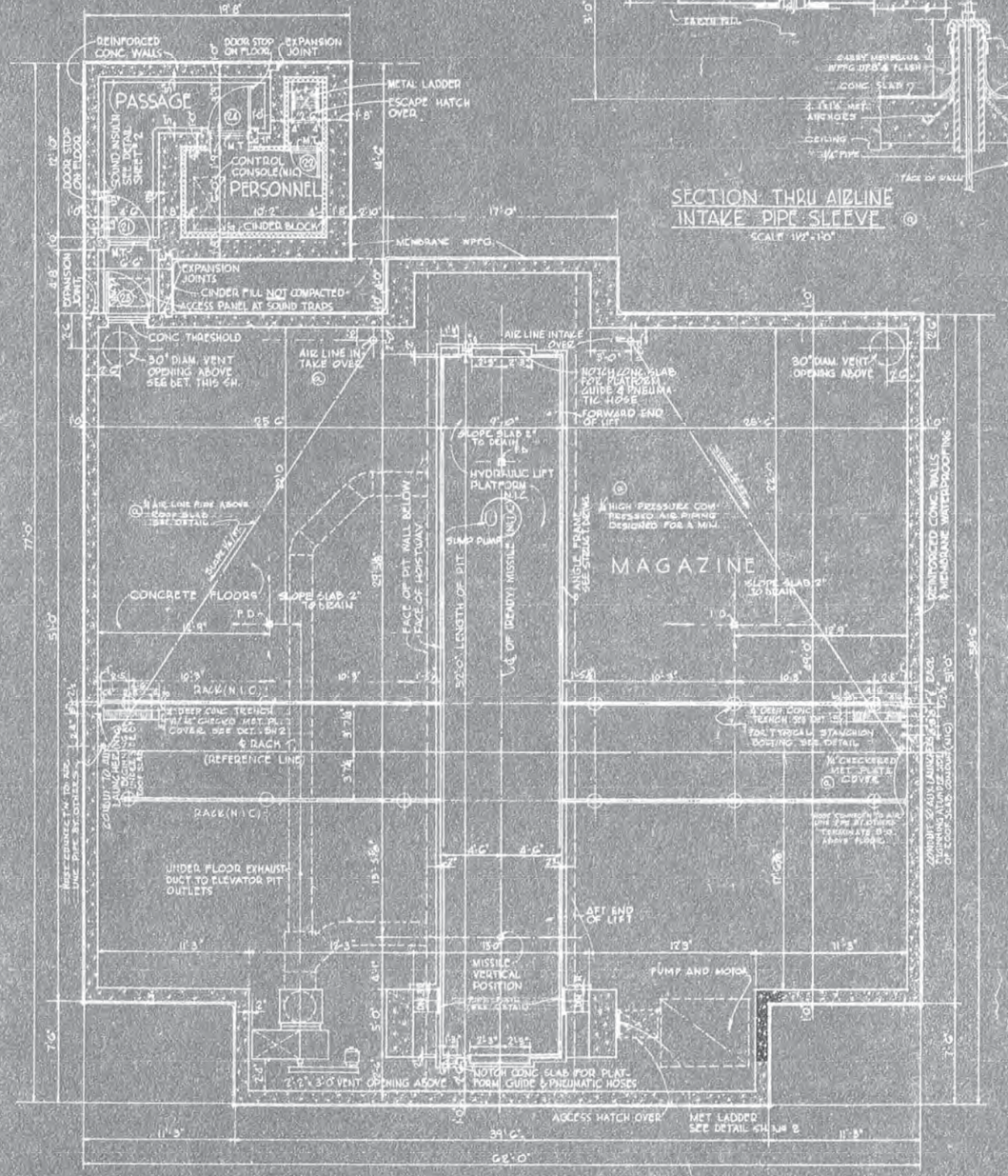
BOLTS FOR STANCHION PLATE
SCALE: 3/4" = 1'-0"



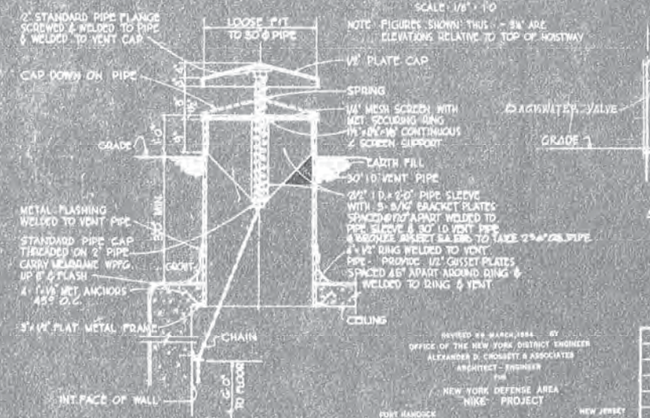
SECTION THRU AIRLINE INTAKE PIPE SLEEVE ⑥
SCALE: 1½" = 1'0"



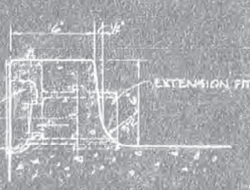
ALTERNATE SHOWING EARTH MOUNDED STRUCT.
SCALE: 1" = 30'



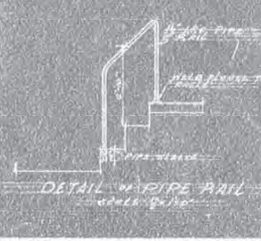
FLOOR PLAN
PERSONNEL SHELTER WITH CONTROL PANEL
SCALE: 1/4" = 1'-0"



SECTION THRU METAL VENT
SCALE: 3/4" = 1'-0"



NOTE: ALL FLOORS TO RECEIVE HARDENER & DUSTPROOFER



DETAIL OF PIPE RAIL

DESIGNED IN MARCH 1954 BY OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
NIKE - PROJECT
FORT HANCOCK NEW JERSEY

SCHEDULE OF DRAWINGS

DRAWING NO.	SHEET	TITLE
ME 55-15-10	1	PLANS
ME 55-15-20	2	SECTIONS
ME 55-15-30	3	FOUNDATION PLAN
ME 55-15-40	4	FRAMING PLAN
ME 55-15-50	5	SECTIONS
ME 55-15-60	6	DETAILS
ME 55-15-70	7	PLUMBING & HEATING
ME 55-15-80	8	ELEC. DIAGRAM
ME 55-15-90	9	HOIST FRAME ASSEMBLY DETAILS
ME 55-15-100	10	DOOR ASSEMBLY DETAILS
ME 55-15-110	11	DOOR OPERATOR & LOADING BAR
ME 55-15-120	12	PLATFORM
ME 55-15-130	13	COUNTER WEIGHT & GUIDE ASSEMBLIES
ME 55-15-140	14	CYLINDER ASSEMBLY
ME 55-15-150	15	POWER UNIT

@	GENERAL REVISIONS		
SYMBOL	DESCRIPTION	DATE	APPROVAL

REVISIONS

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1422 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
MILITARY CONSTRUCTION - CONSTRUCTION DIVISION

DRAWN BY: K.T.
TRACED BY: K.T.
CHECKED BY: E.V.G.
APPROVED BY:
SUBMITTED BY:
APPROVED BY:
CHIEF ENGINEERING DIVISION
CHIEF ARCHITECTURAL DIVISION
DATE: 27 MAY 1955

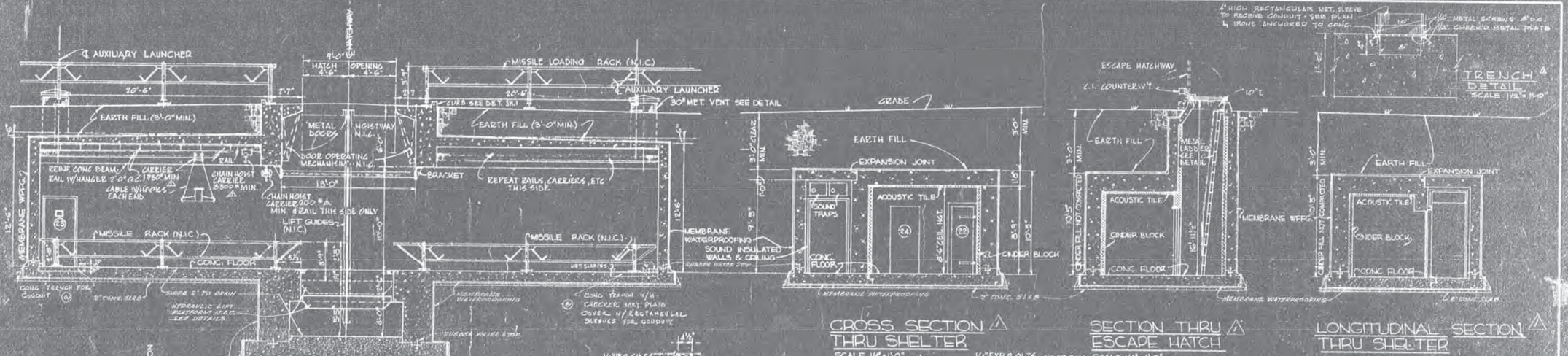
NIKE-I
UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE-B
PLANS

SCALE AS NOTED
SHEET NO. 1
ME 55-15-10

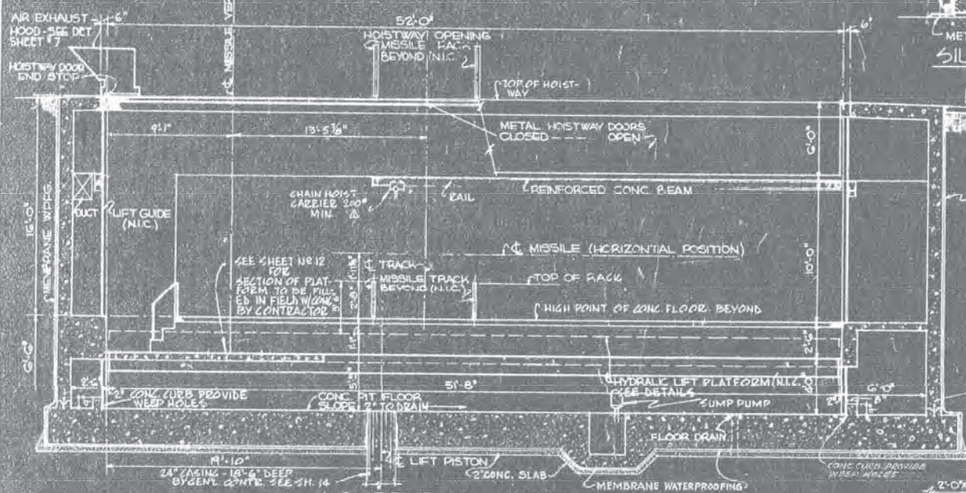
646/41/924 22 of 45 FILE NO. SIP 824

CORPS OF ENGINEERS

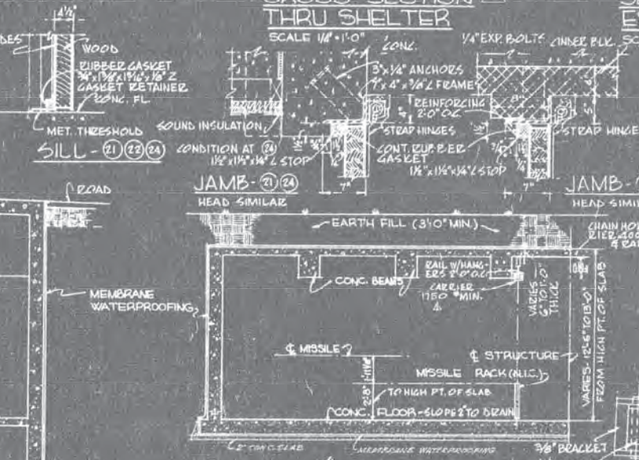
U. S. ARMY



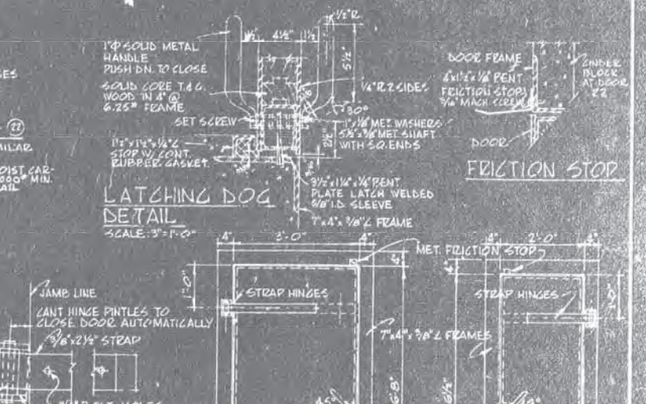
CROSS SECTION
SCALE 1/4"=1'-0"



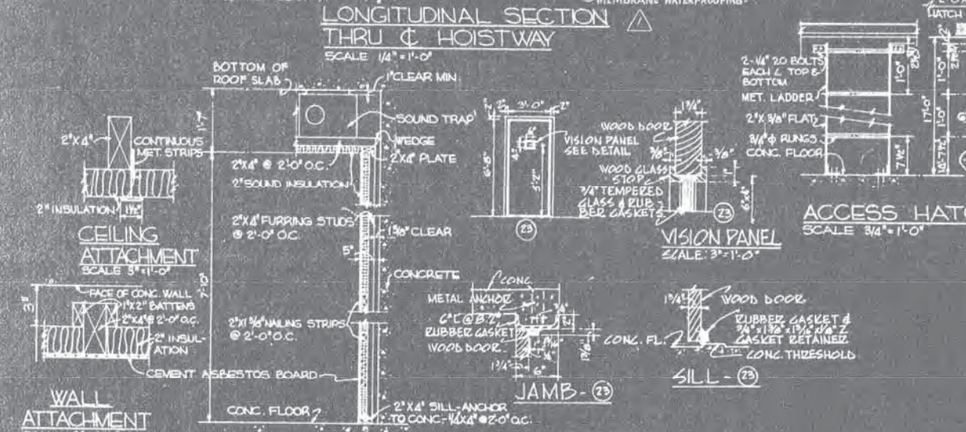
LONGITUDINAL SECTION THRU ℄ HOISTWAY
SCALE 1/4"=1'-0"

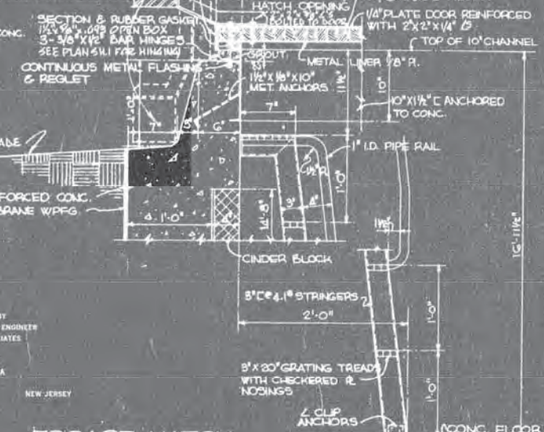


1/2 LONGITUDINAL SECTION
SCALE 1/4"=1'-0"









REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		
⚠	GENERAL REVISIONS	23 DEC. 1958	
⑥	GENERAL REVISIONS	28 NOV. 1958	

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
WASHINGTON, D. C.

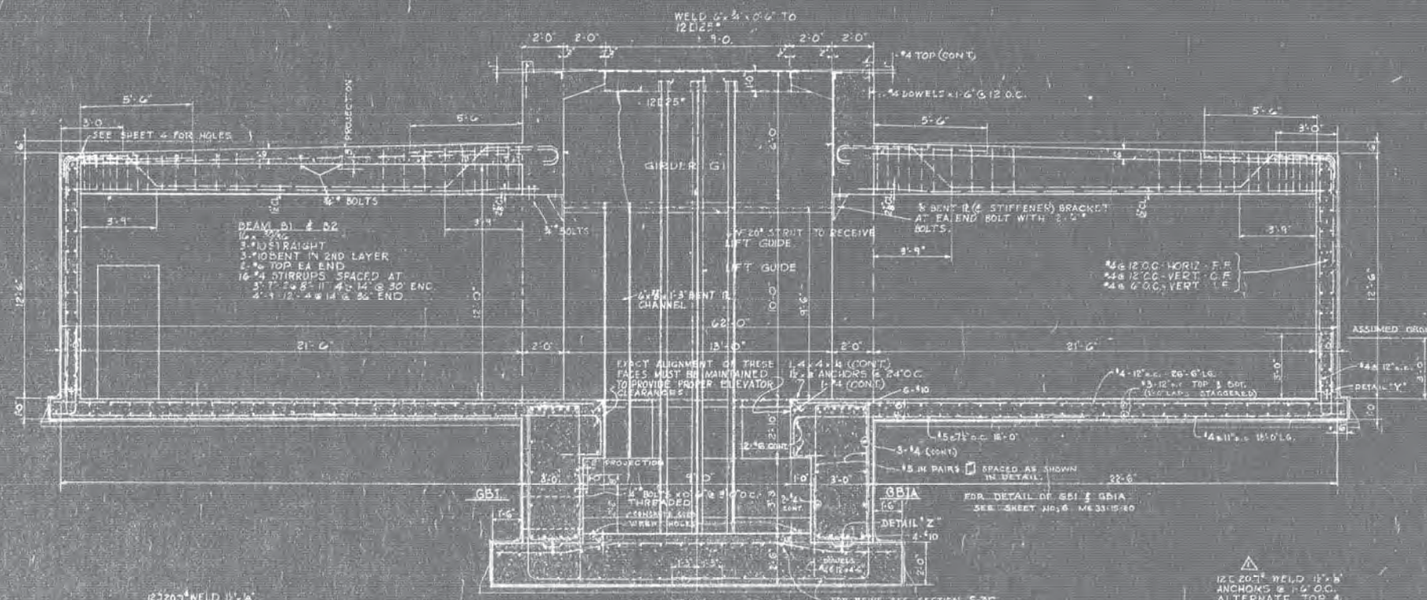
DRAWN BY: D.G.
TRACED BY: D.G.
CHECKED BY: E.V.D.
SURVEYED BY:
APPROVED BY: DATE:
CHIEF STRUCTURAL ENGINEER
APPROVED BY: DATE: 23 DEC. 1958
CHIEF ENGINEERING DIVISION, MIL. CONSTR., O.C.E.
APPROVED FOR: DATE:
SCALE AS NOTED
SPEC. NO. NIK-15-20-1958
DRAWING NUMBER
ME 33-15-20
SHEET 2

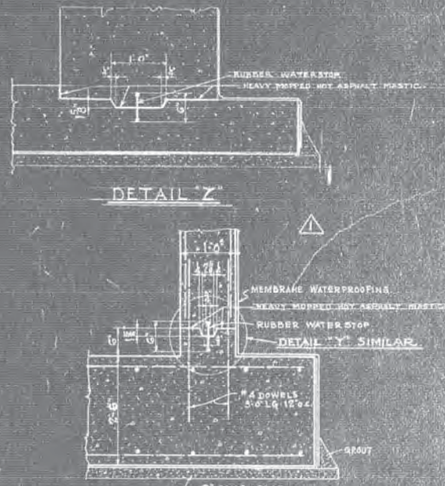
NIKE-I UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE-"B" SECTIONS

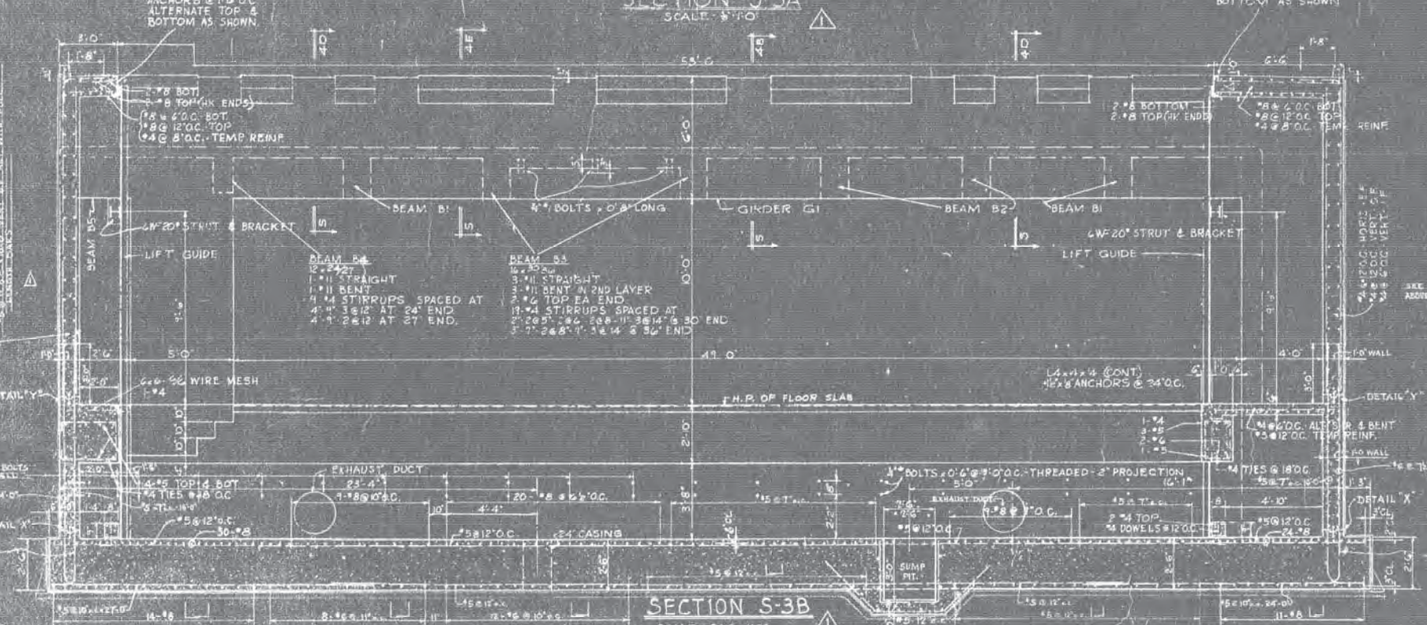
646/41,924 23 05,45 FILE N° 211.852

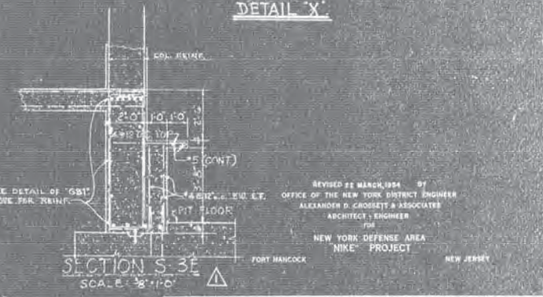
CORPS OF ENGINEERS

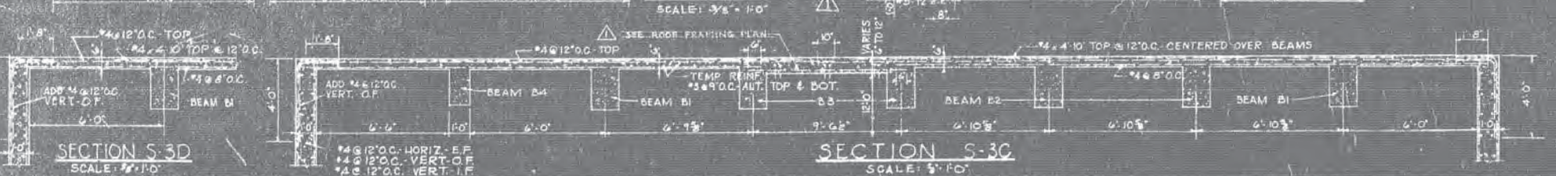
U. S. ARMY











REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
NIKE PROJECT
FORT HANCOCK NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D.C.

DRAWN BY:
TRACED BY:
CHECKED BY:
SUBMITTED BY: B. Kaufman
Director of Design
APPROVED: W. E. Hall
CHIEF, STRUCTURES BRANCH
APPROVED FOR: Wm. F. Tompkins
CHIEF, DESIGNING DIVISION, MIL. CONSTR., U.S.E.

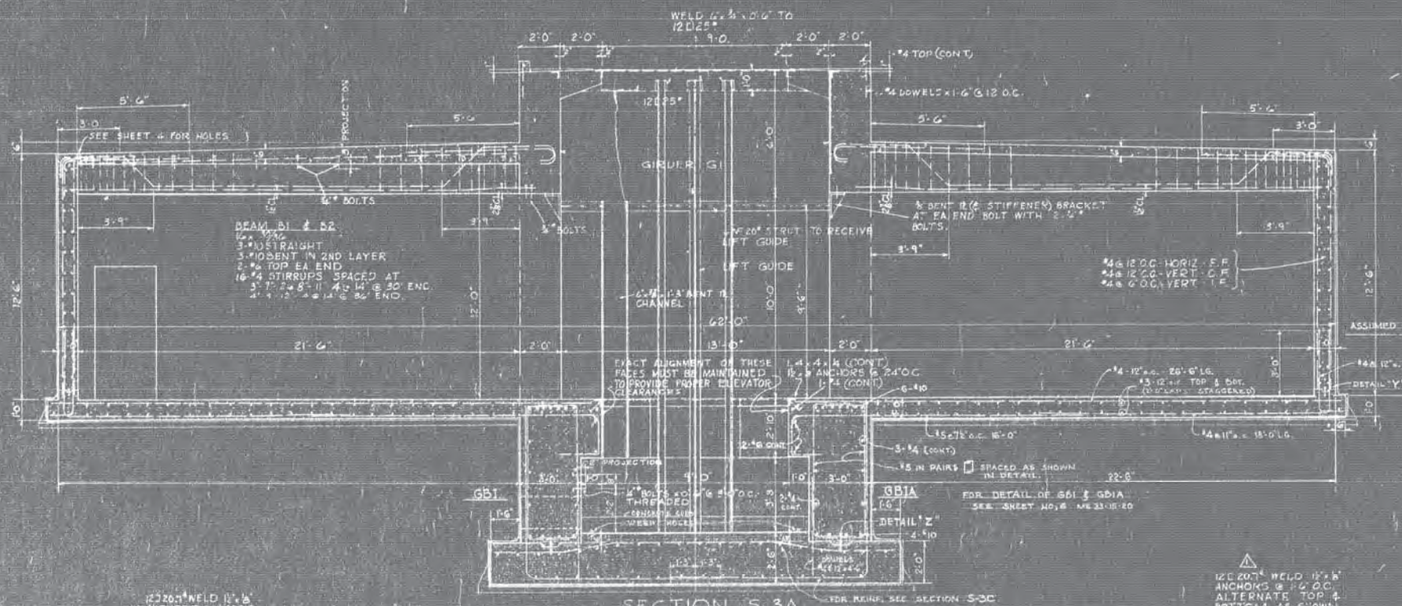
NIKE-I
UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE "B" SECTIONS

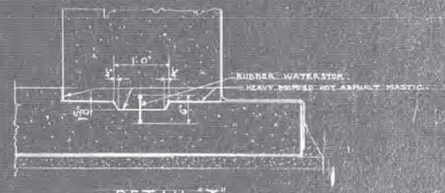
DATE: 23 DEC. 1953
SCALE AS NOTED
DRAWING NUMBER
SHEET 5 ME 33-15-20
DATE:

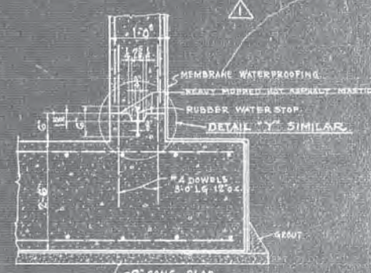
646/41,924 26 of 45 FILE No. 611-888

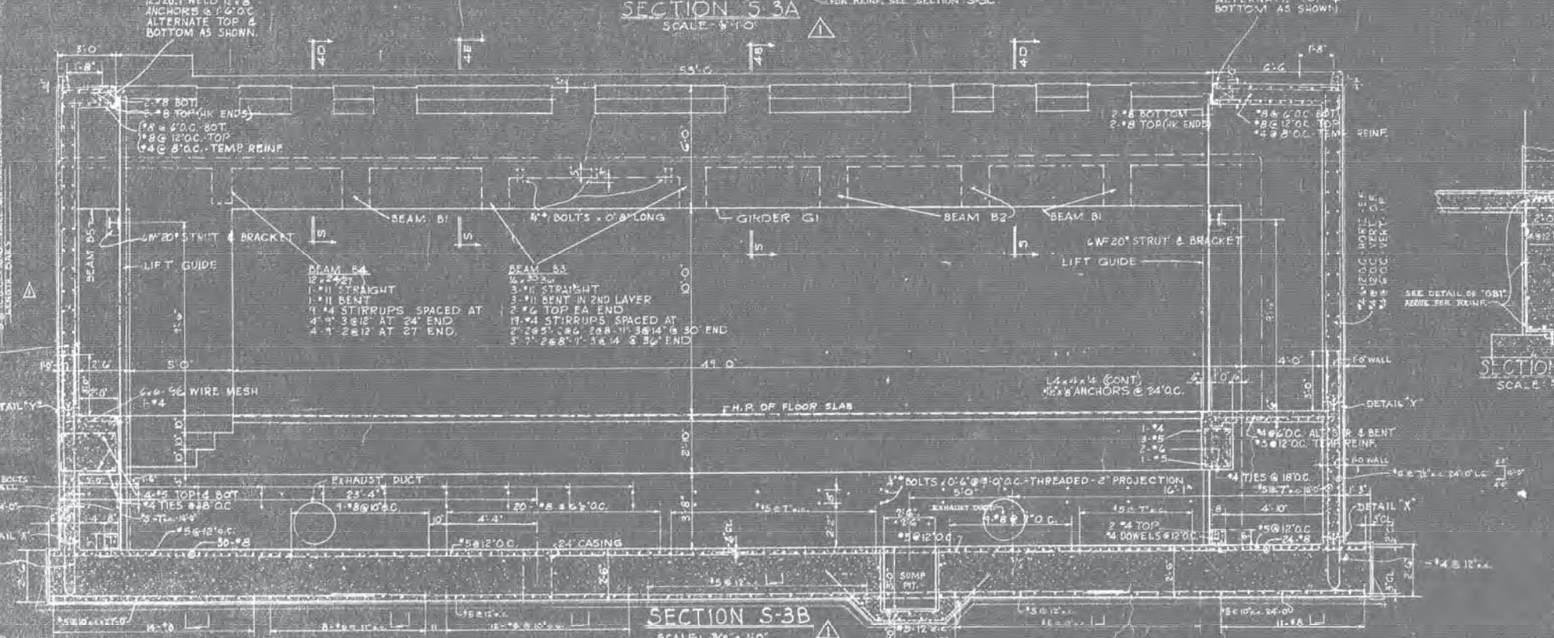
CORPS OF ENGINEERS

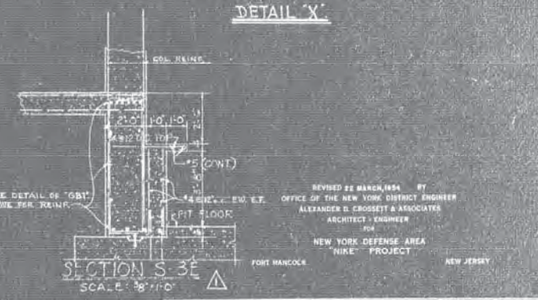
U. S. ARMY

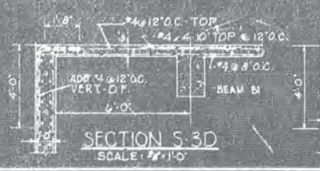


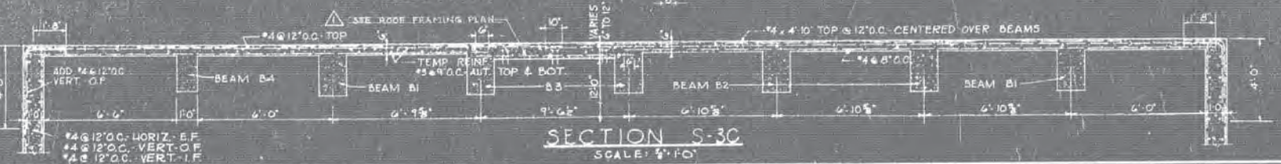












REVISED 22 MARCH, 1954 BY OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER B. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

STATION	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1632 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

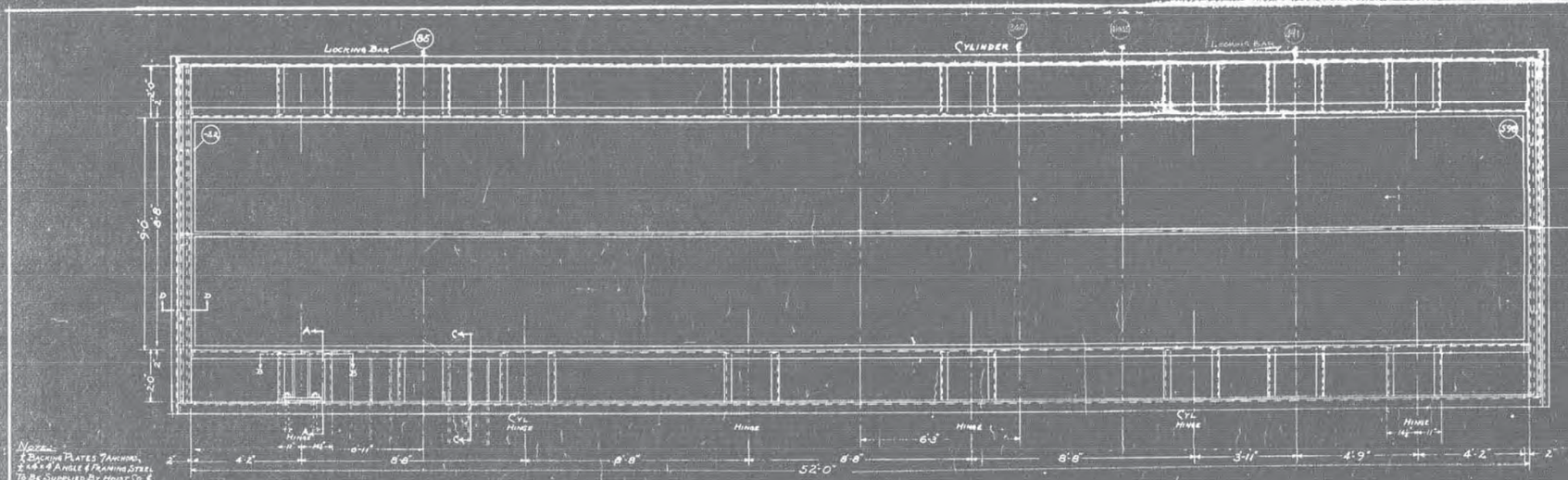
DRAWN BY:
TRACED BY:
CHECKED BY:
SUBMITTED BY:
APPROVED FOR:
DATE:

NIKE-I UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE "B" SECTIONS

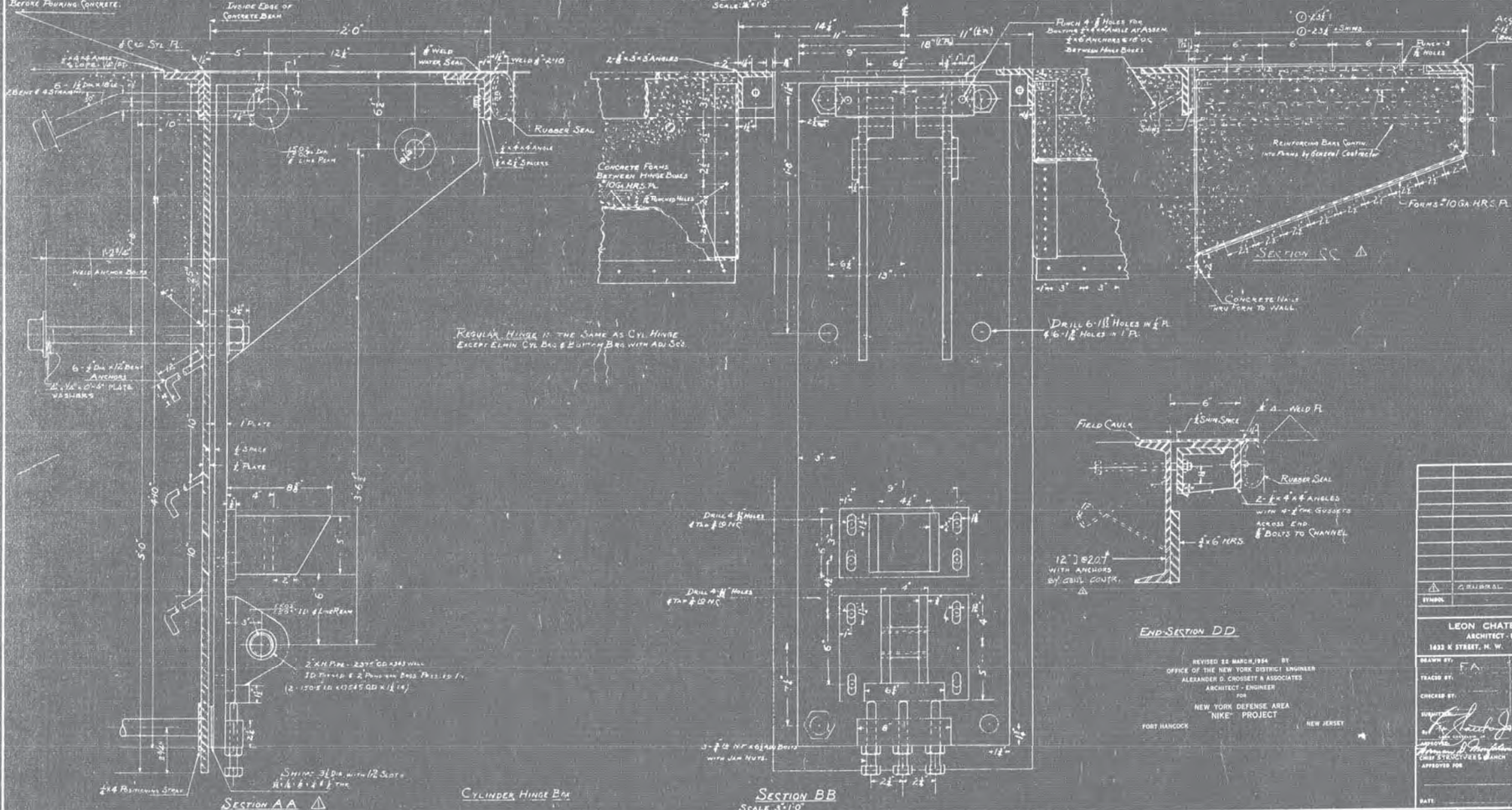
DATE: 23 DEC. 1953
SCALE AS NOTED.
SHEET 5 ME 33-15-20

646/41,924 26 of 45 FILE No. 611.882

611.882



NOTE:
1 BACKING PLATES, ANCHORS, 1 - 4 x 4 x 1/2 ANGLE & FRAMING STEEL TO BE SUPPLIED BY HOIST CO. & PAINTED BY GEN'L CONTRACTOR BEFORE POURING CONCRETE.



END-SECTION DD

REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK, NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
⚠	GENERAL REVISIONS	REVISED 6/19	

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: F.A.
TRACED BY:
CHECKED BY:
SUBMITTED BY:
RECOMMENDED FOR APPROVAL:
APPROVED:
APPROVED FOR:
DATE:

NIKE-I
UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE-"B"
TOP FRAME
ASSEMBLY & DETAILS

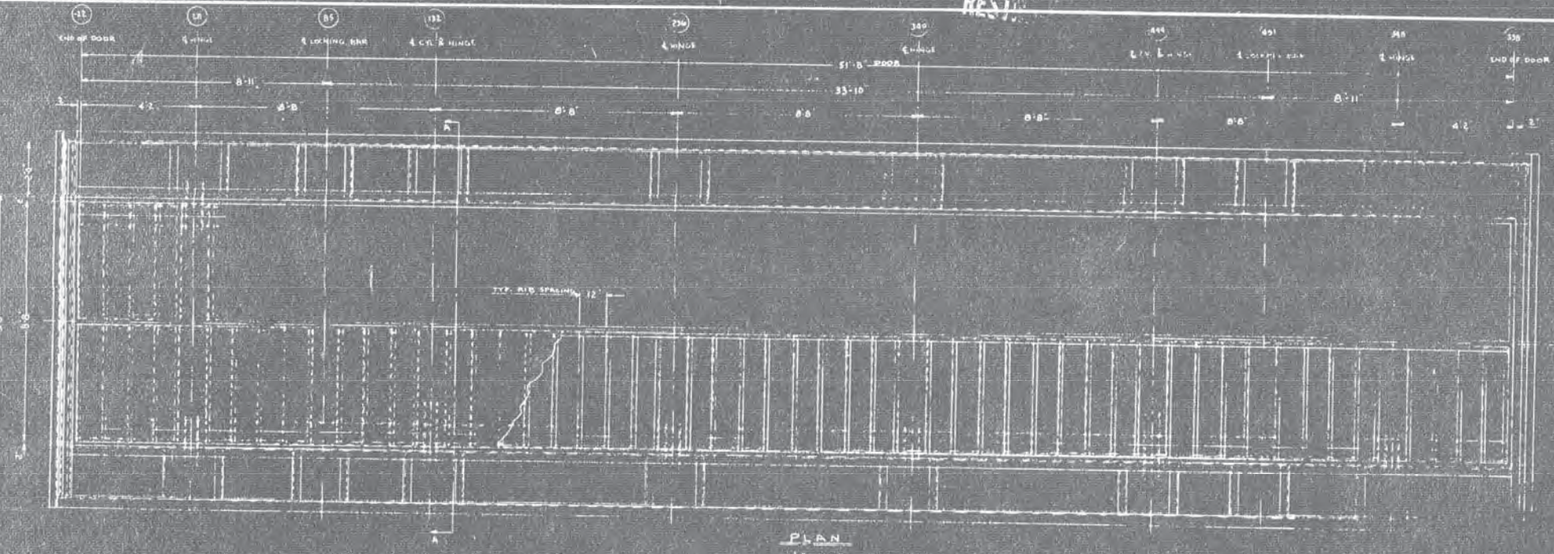
SCALE 3"=1'-0" SPEC. HEADING OR DRAWING NUMBER
SHEET 9 ME 33-15-20
25 DEC. 1953

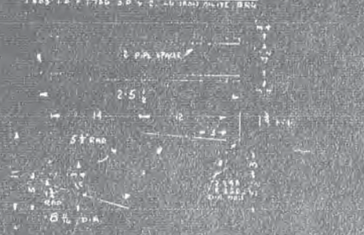
646/41,924 30 of 45 FILE No 6171.832

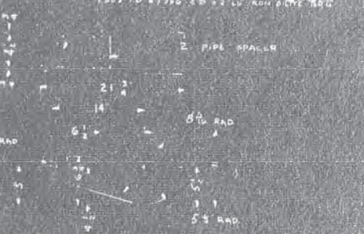
CORPS OF ENGINEERS

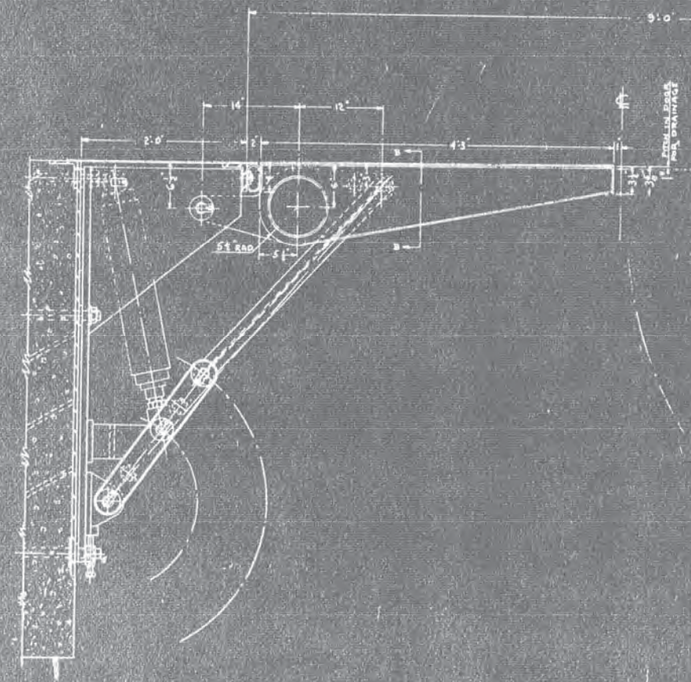
U. S. ARMY

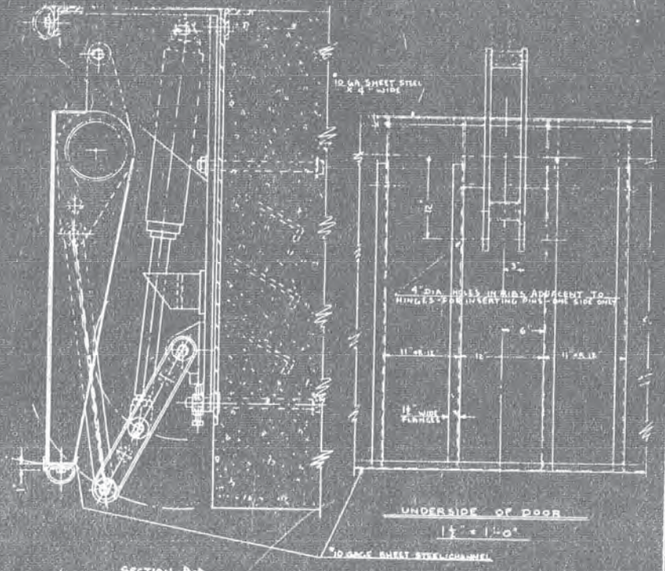
RESTRICTED

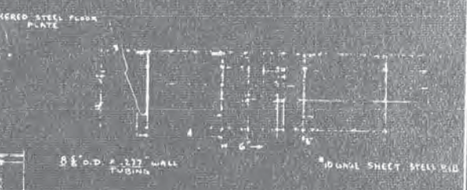












SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1625 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: HH
TRACED BY:
CHECKED BY:

NIKE-I
UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE "B" DOOR ASSEMBLY & DETAILS

DATE: 23 DEC 1955

CHIEF OF ENGINEERS | CHIEF ENGINEERING DIVISION, MIL. CONSTR., ARA

SCALE AS NOTED | SYNC. MAPS 16-06-19, 2015

DRAWING NUMBER: 10 ME 33-15-20

REVISED 12 MARCH, 1956 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROCKETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

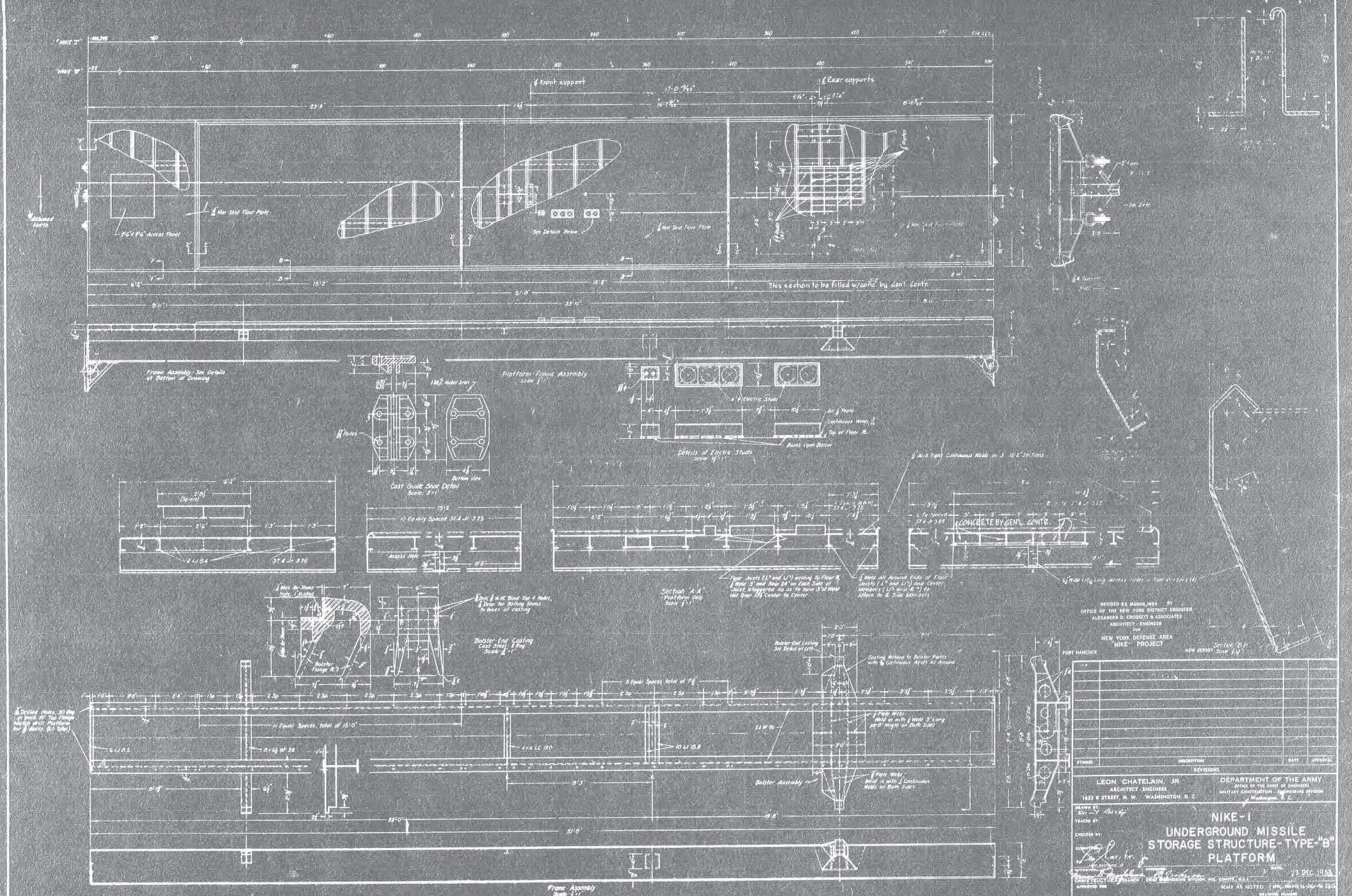
33

RESTRICTED

646/41924 3105 45 FILE NO 6171.833

RESTRICTED

U. S. ARMY



REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROCKETT & ASSOCIATES
ARCHITECT - ENGINEERS
FOR
NEW YORK DEFENSE AREA
NIKE - PROJECT
FORT HANCOCK — Section "B" — NEW JERSEY Scale 1/4"

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

LEON CHATELAIN, JR
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: Alex F. Checked
TRACED BY:
CHECKED BY:
SUBMITTED BY: [signature]
APPROVED BY: [signature]
CONSTRUCTION ENGINEER: [signature]
APPROVED FOR THE CHIEF OF ENGINEERS: [signature]
DATE: 23 DEC. 1953
SCALE AS NOTED
DRAWING NUMBER
Sheet 12 ME 33-15-20

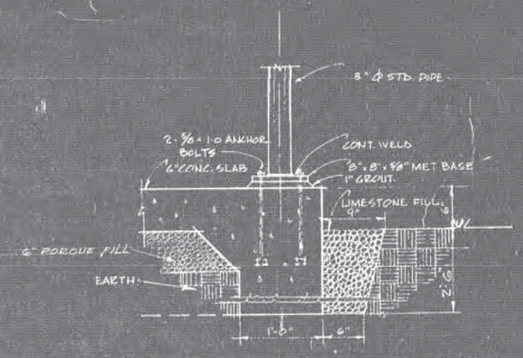
NIKE-I
UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE-"B" PLATFORM

646/41924 33 of 45 FILE Nº 6171-835

RESTRICTED

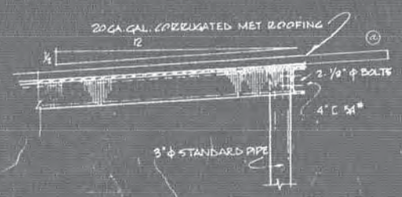
CORPS OF ENGINEERS

U. S. ARMY



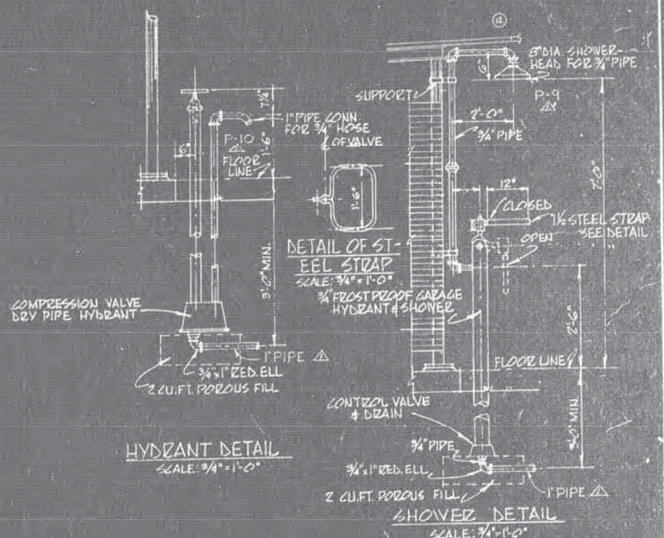
DETAIL OF METAL COLUMNS & GUTTERS

SCALE: 1½" = 1'-0"



EAVES DETAIL

SCALE: 1½" = 1'-0"



DETAIL OF STEEL STRAP

SCALE: ¾"=1'-0"

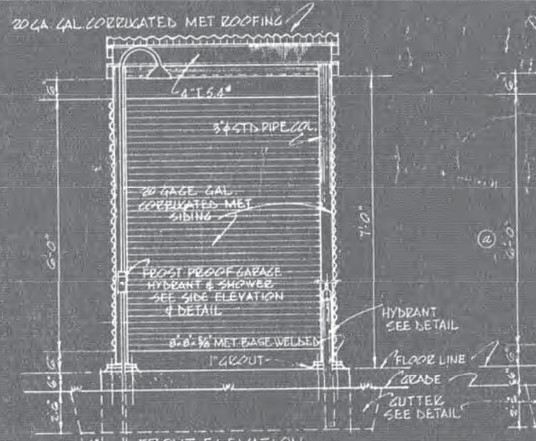
¾ FROST PROOF GARAGE HYDRANT & SHOWER

HYDRANT DETAIL

SCALE: ¾"=1'-0"

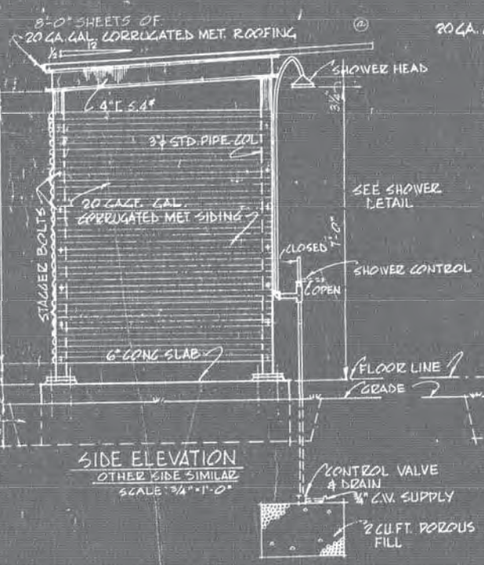
SHOWER DETAIL

SCALE: ¾"=1'-0"



FRONT ELEVATION

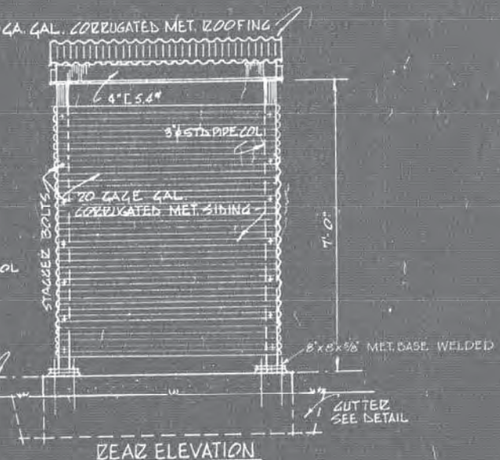
SCALE: ¾"=1'-0"



SIDE ELEVATION

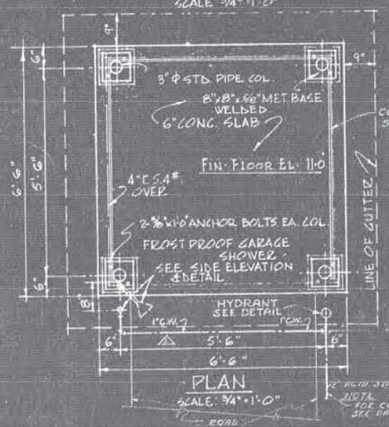
OTHER SIDE SIMILAR

SCALE: ¾"=1'-0"



REAR ELEVATION

SCALE: ¾"=1'-0"



REVISED 22 MARCH, 1954 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
⚠	REQUIRED FOR ZONE 16 HYDRANT & SHOWER ADDED (P-1024 WATER SUPPLY PIPING, DRAWING & SHEETS)	2-19-54	
②	GENERAL REVISIONS	6-10-54	

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1422 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: L.A.H.
TRACED BY: L.A.H.
CHECKED BY: E.V.G.
SUBMITTED:
APPROVED:
APPROVED:
CHIEF, ENGINEERING DIVISION, NE, CORPS, U.S.A.
APPROVED FOR:
DATE:

NIKE-I
ACID STORAGE SHED
PLANS, ELEVATION & DETAILS

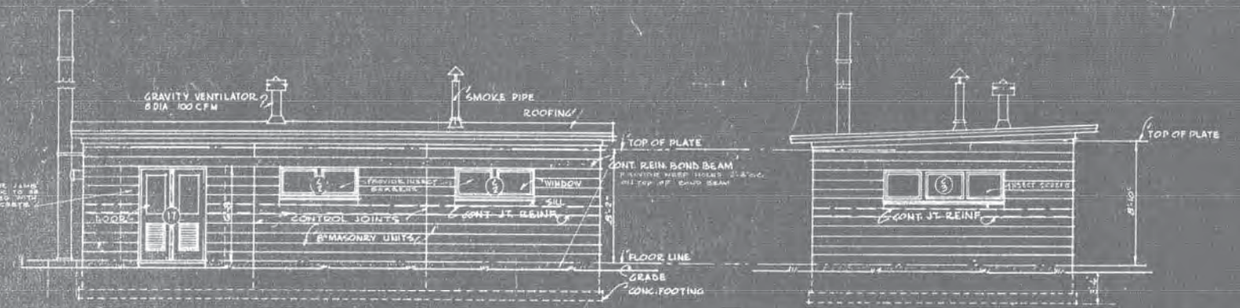
DATE: 23 JAN. 1954

SCALE AS NOTED
DRAWING NUMBER: ME 78-20-02
SHEET 1

646/41,924 41 05 45 FILE No 671-813

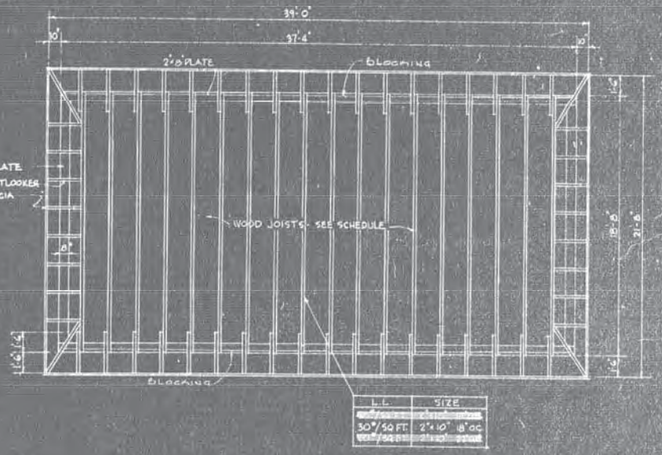
CORPS OF ENGINEERS

U. S. ARMY

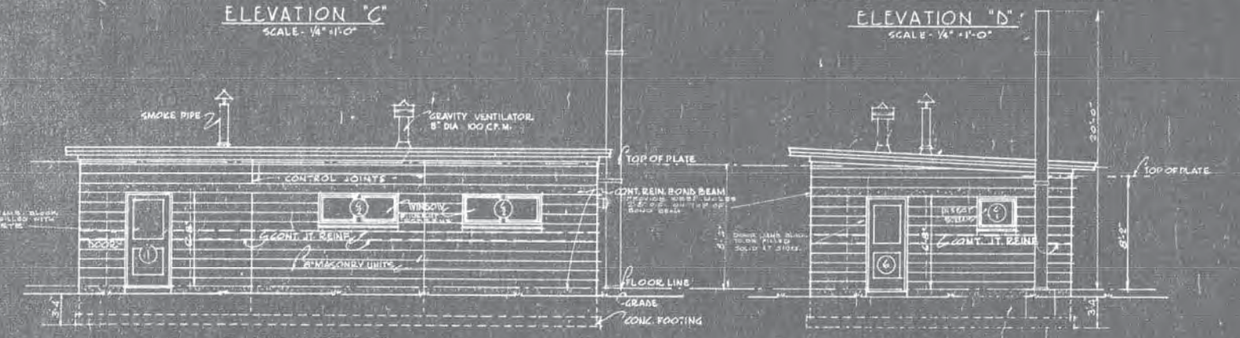


ELEVATION "C"
SCALE - 1/4" = 1'-0"

ELEVATION "D"
SCALE - 1/4" = 1'-0"

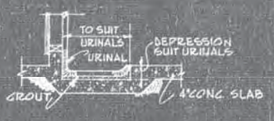


ROOF FRAMING PLAN
SCALE 1/4" = 1'-0"

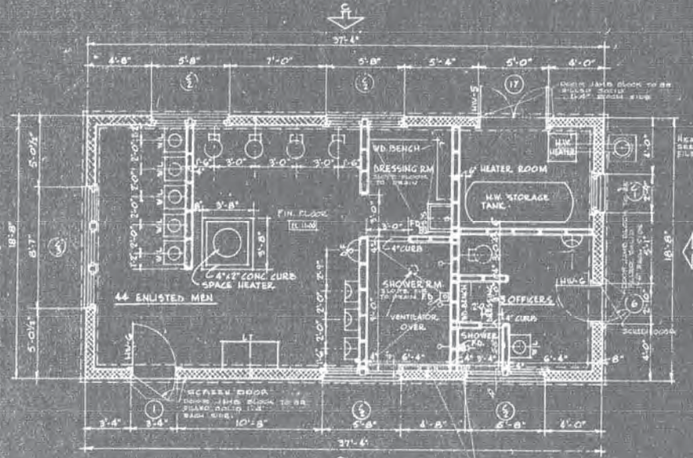


ELEVATION "A"
SCALE - 1/4" = 1'-0"

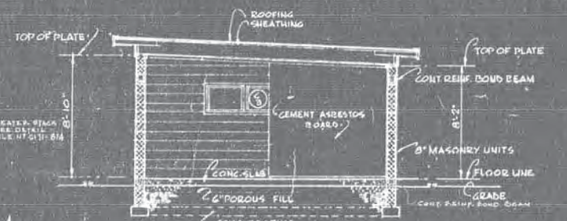
ELEVATION "B"
SCALE - 1/4" = 1'-0"



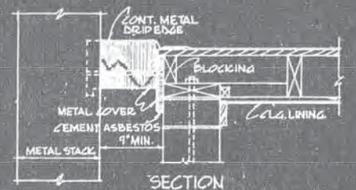
DEPRESSED SLAB AT URINALS
SCALE: 3/4" = 1'-0"



PLAN
SCALE: 1/4" = 1'-0"



CROSS SECTION
SCALE - 1/4" = 1'-0"



SECTION
ALTERNATE FLUE DETAIL AT STACK
SCALE - 1 1/2" = 1'-0"

REVISED 28 MARCH, 1959 BY
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY

AREA		CUBE	
GROSS AREA	697 SQ FT	GROSS BUILDING CUBE	6738 CU FT

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
⚠	GENERAL REVISIONS	17 MAR 59	K.D.
ⓑ	CONC. CURB ADDED TO SHOWER RM. EXT. WALLS	16 FEB 59	[illegible]
ⓐ	GENERAL REVISIONS	15 JUL 58	[illegible]

⚠ 1. ALL EXPOSED SURFACES OF INTERIOR WALLS, CEILINGS, JOINT PARTITIONS, ETC., SHALL BE PAINTED. SEE SPECS.
2. ALL GLAZING SHOULD BE GLASS SUBSTITUTE REINFORCED.
3. CEILING LININGS TO BE NAILED AT ALL BEARINGS, NOT LESS THAN 3/8" FROM EDGE OF SHEETS & 6" O.C. USE FLATHEAD CEMENT COATED NAILS APPROX. 1 3/8" LONG.

NOTES

SCHEDULE OF DRAWINGS

DRAWING NO.	SHEET	TITLE
ME-38-03-16	1	PLANS, ELEVATIONS & SECTION
ME-38-03-16	2	DETAILS
ME-38-03-16	3	PLUMBING & ELECTRICAL

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1625 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING
WASHINGTON, D. C.

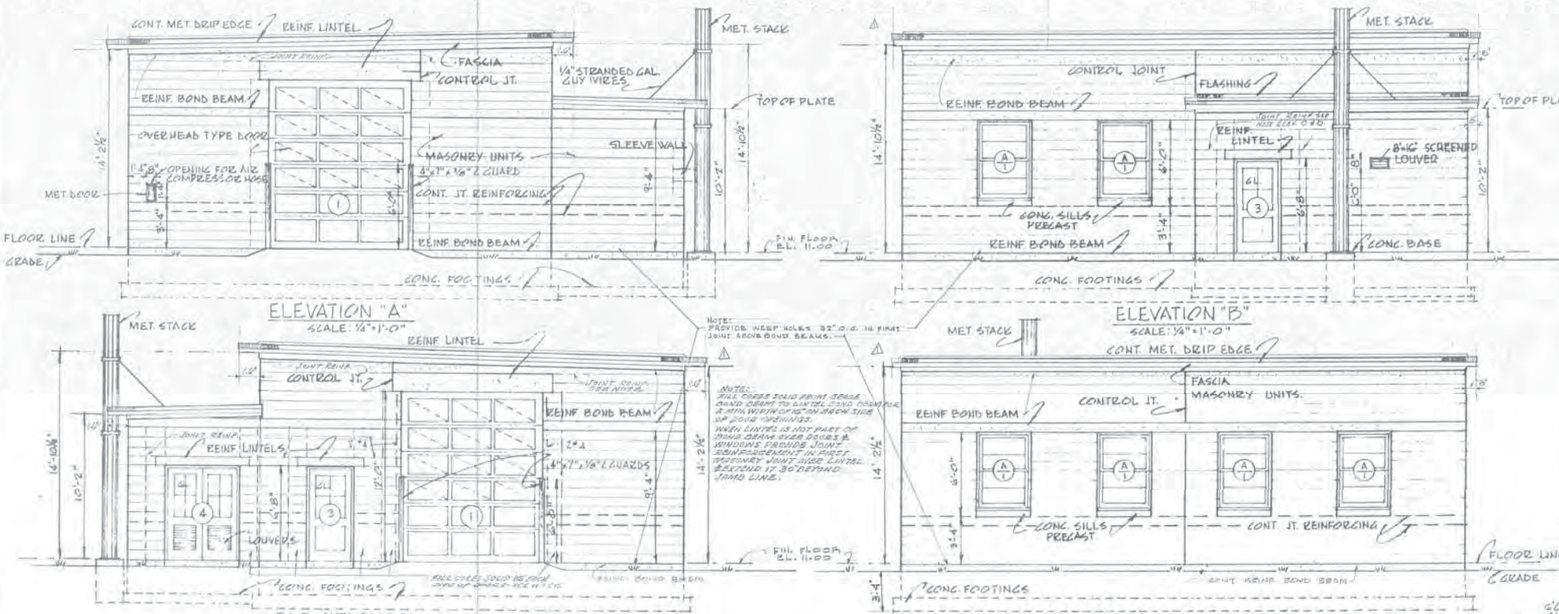
DRAWN BY: L.H.
TRACED BY: L.H.
CHECKED BY: S.L.S.
SUPERVISED BY: [illegible]
APPROVED BY: [illegible]
APPROVED FOR THE CHIEF OF ENGINEERS: [illegible]
CHIEF STRUCTURES BRANCH
APPROVED FOR:
DATE:

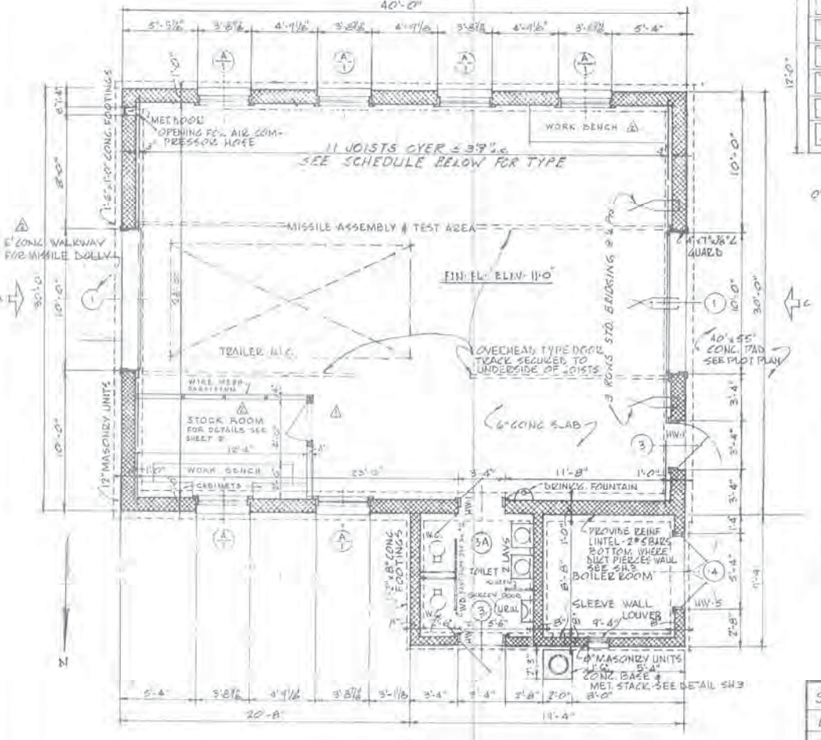
NIKE-I
LATRINE (TYPE "C")
LAUNCHING AND CONTROL AREAS
PLANS, ELEVATIONS & SECTION

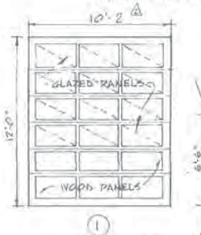
DATE: 2 JUNE 1958
SCALE 1/4" = 1'-0" SPEC. NO. ME 38-03-17 (6358)
DRAWING NUMBER
ME 38-03-18
SHEET

646/41,924 42-045 FILE Nº 617-1-812

CORPS OF ENGINEERS U. S. ARMY

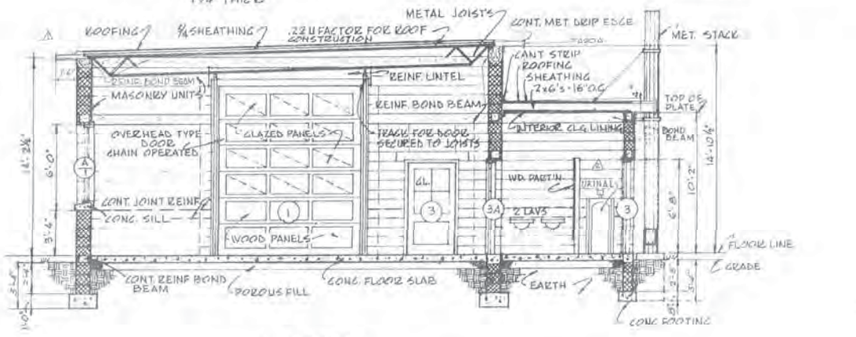


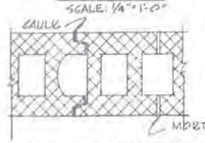








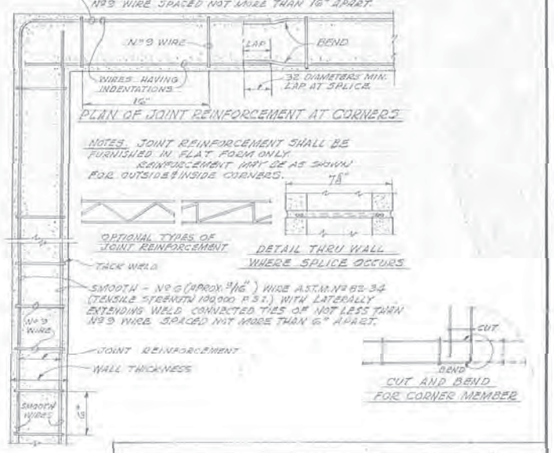




STEEL JOIST TYPES	
LIVE LOAD	TYPE
20 #/s.f.	SJ 16 S W
30 #/s.f.	SJ 14 S W
40 #/s.f.	SJ 12 T W

RECORD DRAWING
OF WORK - AS - BUILT
Edwin M. Randall Jr
Contracting Officer
5 October 1955

REVISED 22 MARCH, 1954 BY:
OFFICE OF THE NEW YORK DISTRICT ENGINEER
ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
FOR
NEW YORK DEFENSE AREA
"NIKE" PROJECT
FORT HANCOCK NEW JERSEY



4 - IF ALTERNATE TOILET IS OMITTED, SUBSTITUTE WINDOW A/C FOR DOOR 2A.
5 - OMIT ALTERNATE TOILET IF RELATIVE ME 35-05-1 CAN BE USED - SEE LAUNCHING AREA TYPE "B" TYPICAL LAYOUT DIAGRAM ME 16-06-196 SH 2.
2 ALL EQUIPMENT (N.I.C.) TO BE FURNISHED BY GOVERNMENT & INSTALLED BY CONTRACTOR.
1 ALL GLAZING SHALL BE GLASS SUBSTITUTE, REINFORCED

NOTES

STRUCTURAL NOTES

LOADINGS: 20#/SQ.FT., 30#/SQ FT & 40#/SQ.FT. - LIVE LOAD ON ROOF
SOIL VALUE: ASSUMED 3000#/SQ.FT.
CONCRETE: CLASS "B" 2500#/SQ.FT.
REINFORCING: SHALL CONFORM TO FEDERAL SPECIFICATION QQ-B-71a, TYPE "B", GRADES 2, 3, 4 OR 5. REINF. BARS OF THE HI-BOND TYPE IN ACCORDANCE W/A.S.T.M. SPEC. A 305- WIRE MESH SHALL CONFORM TO A.S.T.M. SPEC. A 185-37 IN FLOOR SLAB.
STRUCTURAL LUMBER: SHALL BE OF A GRADE TO PERMIT THE FOLLOWING STRESS: f_b - 1100#/SQ.IN., H - 85#/SQ.IN. & E - 1200000#/SQ.IN.
STEEL JOISTS: SHALL CONFORM TO STEEL JOIST INSTITUTE STANDARD SPECS., AS REVISED OCT. 9, 1951. JOISTS SHALL HAVE WOOD NAILERS ATTACHED TO TOP CHORDS OR SHALL BE OF A TYPE WHICH WILL PROVIDE SATISFACTORY NAILING FACILITY IN THE TOP CHORD TO RECEIVE THE WOOD ROOF DECK. END ANCHORS SHALL BE BUILT INTO THE MASONRY WALLS AT TOP & BOTTOM AT ENDS OF BRIDGING ROWS.
ROOF DECK: SHALL BE 3/4 T&G, DRESSED & CENTER MATCHED 2 SIDES DOUG. FIR #2
BOTTOM OF FOOTINGS SHALL BE BELOW FROST LINE AND 1'-0" MIN. IN UNDISTURBED SOIL.

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
2	RECORD WORK AS BUILT	5 OCT 55	
1	OVERHEAD DOOR WIDTH CHANGED FROM 10'-0" TO 12'-0", STOCK ROOM & WORK BENCHES ADDED, DRAWN AS RECORDED	21 MAY 54	A.S.
0	GENERAL REVISIONS	11 JAN 54	W.F.

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1832 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: LAH
TRACED BY: LAH
CHECKED BY: EVG
SUBMITTED:
APPROVED:
APPROVED:
APPROVED FOR:
DATE:

NIKE-I
MISSILE ASSEMBLY & TEST BLDG.
PLANS, ELEVATIONS & SECTION
DATE: 22 JAN 1954

SCALE AS NOTED | SPEC. NO. ME 16-06-196 S.C.E.
DRAWING NUMBER: ME 35-60-08
SHEET 1

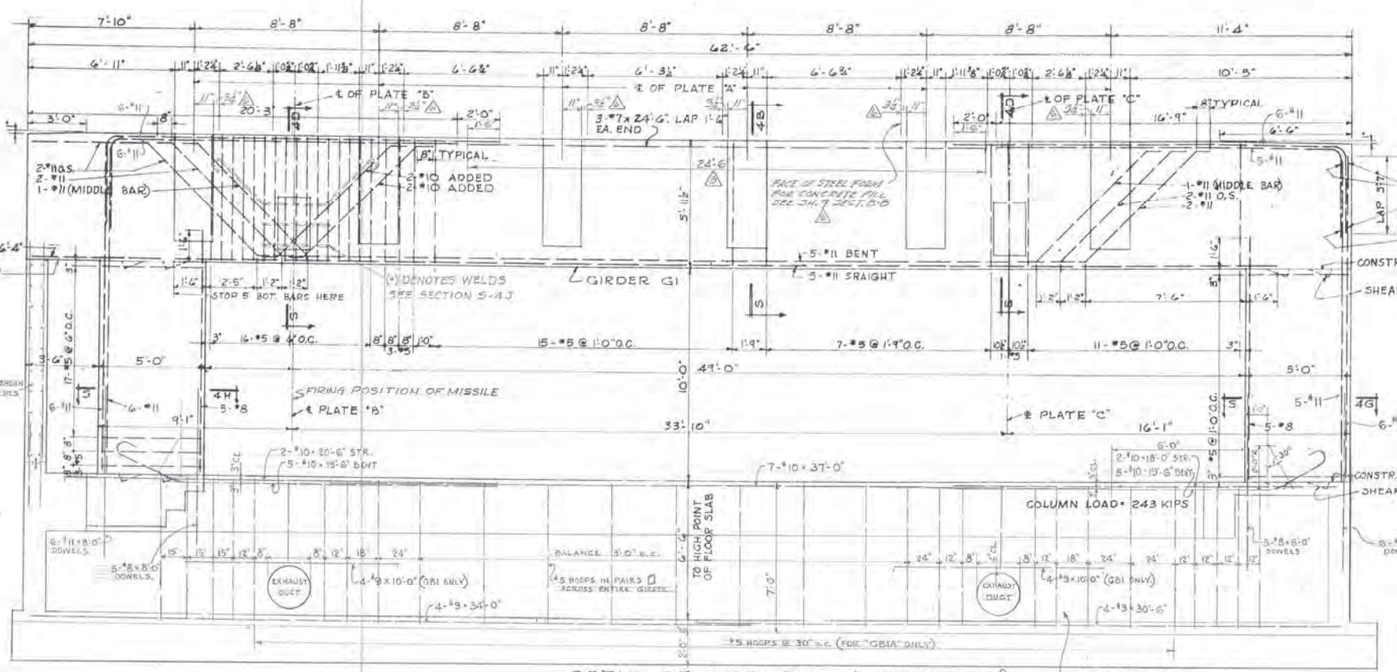
A2
30

31

FILE Nº G111-839

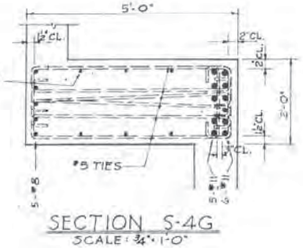
CORPS OF ENGINEERS

U. S. ARMY



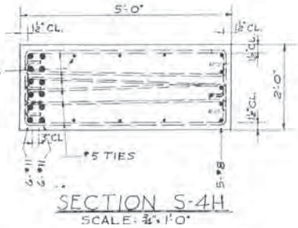
DETAIL OF GIRDERS & COLUMNS

SCALE: 3/8" = 1'-0"



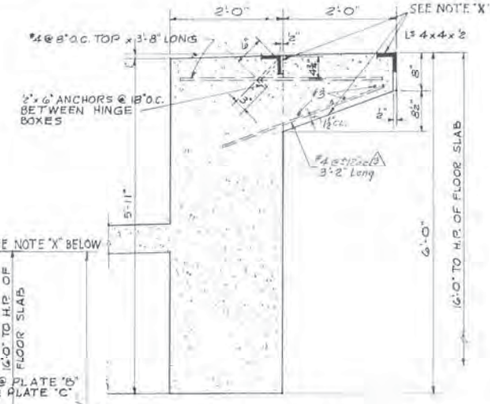
SECTION S-4G

SCALE: 3/4" = 1'-0"



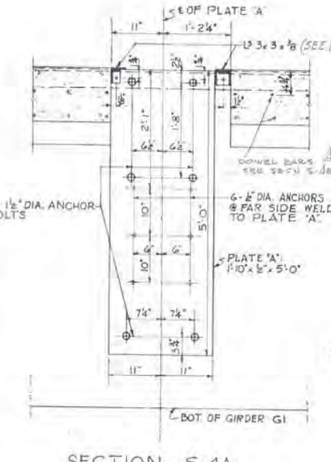
SECTION S-4H

SCALE: 3/4" = 1'-0"



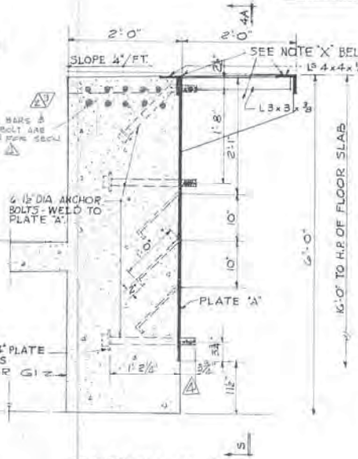
SECTION S-4E

SCALE: 1" = 1'-0"



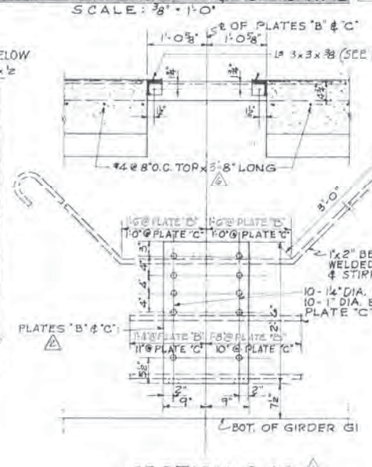
SECTION S-4A

SCALE: 1" = 1'-0"



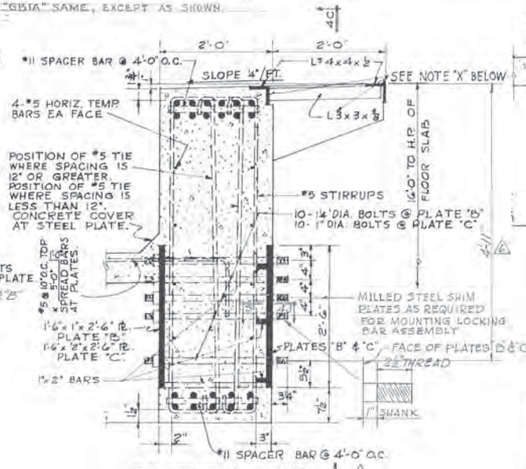
SECTION S-4B

SCALE: 1" = 1'-0"



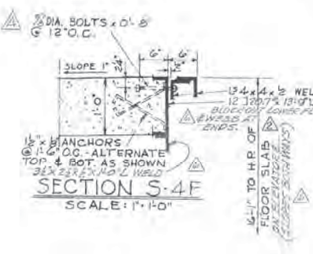
SECTION S-4C

SCALE: 1" = 1'-0"



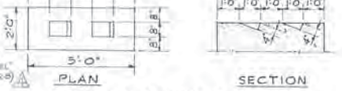
SECTION S-4D

SCALE: 1" = 1'-0"



SECTION S-4F

SCALE: 1" = 1'-0"



DETAILS OF SHEAR KEYS

SCALE: 3/8" = 1'-0"



SECTION S-4J

SCALE: 3" = 1'-0"

NOTE "X": ANGLES & PANS, GOVERNMENT FURNISHED EQUIPMENT, TO BE INSTALLED BY CONTRACTOR.

RECORD DRAWING

OF WORK - AS - BUILT

Edwin M. Randall Jr.

Contracting Officer

5 October 1955

REVISED 22 MARCH, 1954 BY

OFFICE OF THE NEW YORK DISTRICT ENGINEER

ALEXANDER D. CROSSETT & ASSOCIATES

ARCHITECT - ENGINEER

FOR

NEW YORK DEFENSE AREA

NIKE PROJECT

FORT HANCOCK NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
1	RECORD WORK AS BUILT	5-OCT-55	
2	GENERAL REVISIONS	12 NOV 54	J.W.
3	DETAIL OF CHANNEL AT ENDS" DELETED; NOTE ADDED	7 OCT 54	A.S.
4	GENERAL REVISIONS	5 JULY 54	R.J.C.
5	Sect. 3-11, Ctrl. Continued from 11'-6" to 13'-9" Note added, Sect. 3-12, Joint Pans added & Numbered, Entire Drawing Brought Under Sect. 3-15. Joints 7 & 9 Attached to Notch Ends, Key in Sect. 3-14, Minor Corrections Throughout. Added to Sect. 3-16 Omitted Item Deleted, Sect. 3-4, 3-12	21 JUNE 54	R.J.C.
6	Sect. 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16	10 MAY 54	R.J.C.
7	REVISED FOUNDATION, SLABS, SEC. 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16	20 NOV 53	J.W.

LEON CHATELAIN, JR.

ARCHITECT - ENGINEER

1632 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY

OFFICE OF THE CHIEF OF ENGINEERS

MILITARY CONSTRUCTION - ENGINEERING DIVISION

Washington, D. C.

DRAWN BY:

TRACED BY:

CHECKED BY:

SUBMITTED:

APPROVED:

CHIEF STRUCTURES BRANCH

APPROVED FOR:

DATE:

APPROVED:

CHIEF ENGINEERING DIVISION, MIL. CONSTR., O.C.E.

DATE: 23 DEC. 1953

SCALE AS NOTED | SPEC. NO. ME 16-06-190 53 (52)

DRAWING NUMBER

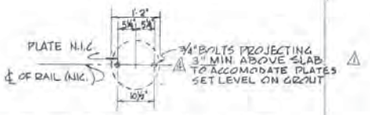
SHEET 6 ME 33-15-20

NIKE-I UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE-"B" DETAILS

FILE No. 6171-829

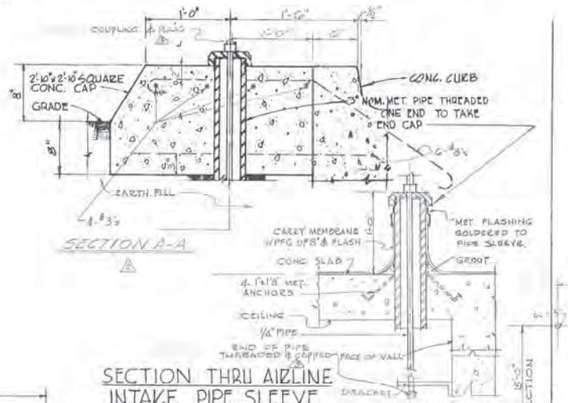
CORPS OF ENGINEERS

U. S. ARMY



BOLTS FOR STANCHION PLATE

SCALE: ¾"=1'-0"



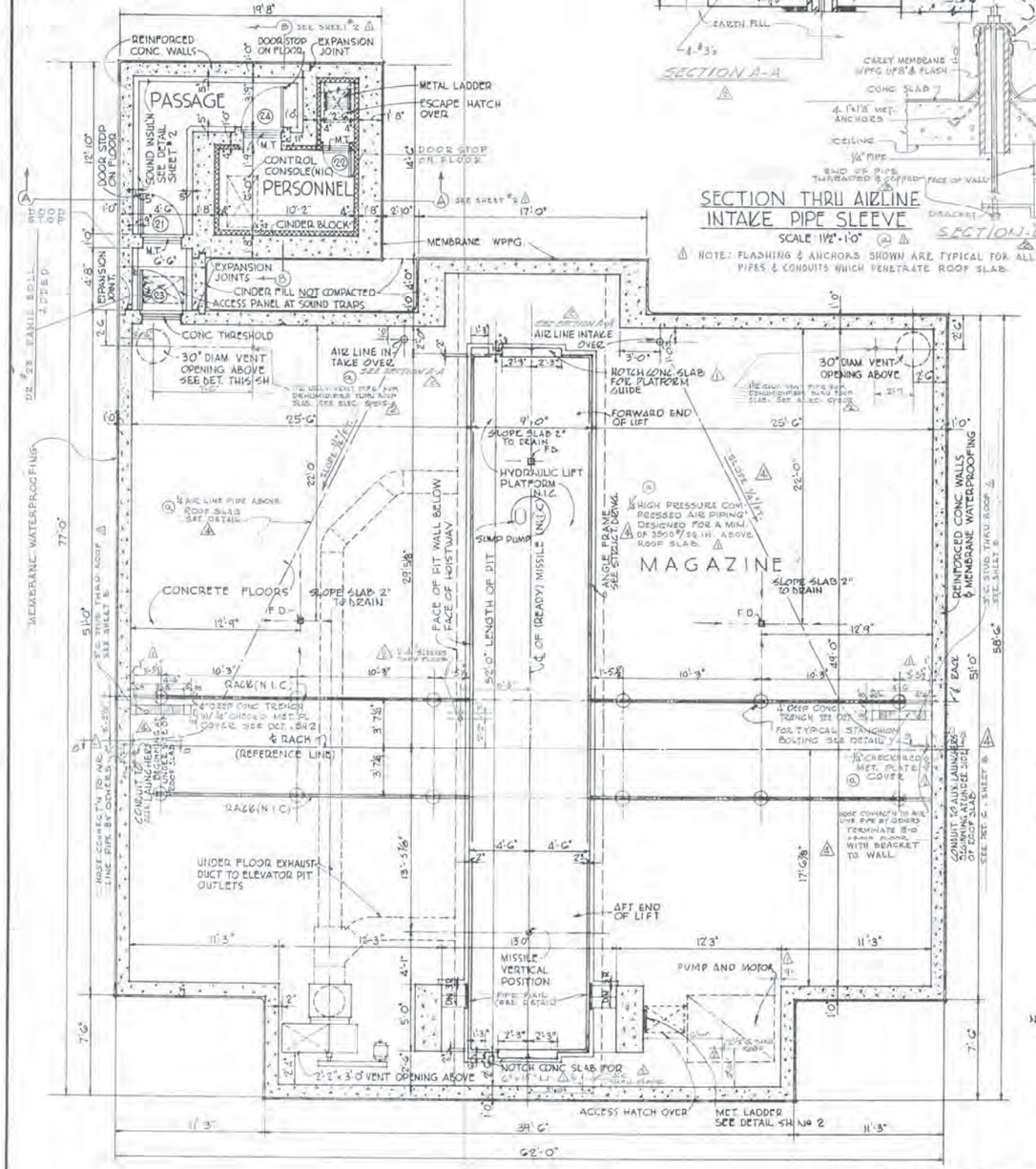
SECTION A-A

SECTION B-B

SECTION THRU AIRLINE INTAKE PIPE SLEEVE

SCALE: 1½"=1'-0"

△ NOTE: FLASHING & ANCHORS SHOWN ARE TYPICAL FOR ALL PIPES & CONDUITS WHICH PENETRATE ROOF SLAB.



FLOOR PLAN

PERSONNEL SHELTER WITH CONTROL PANEL

SCALE: 1/4"=1'-0"

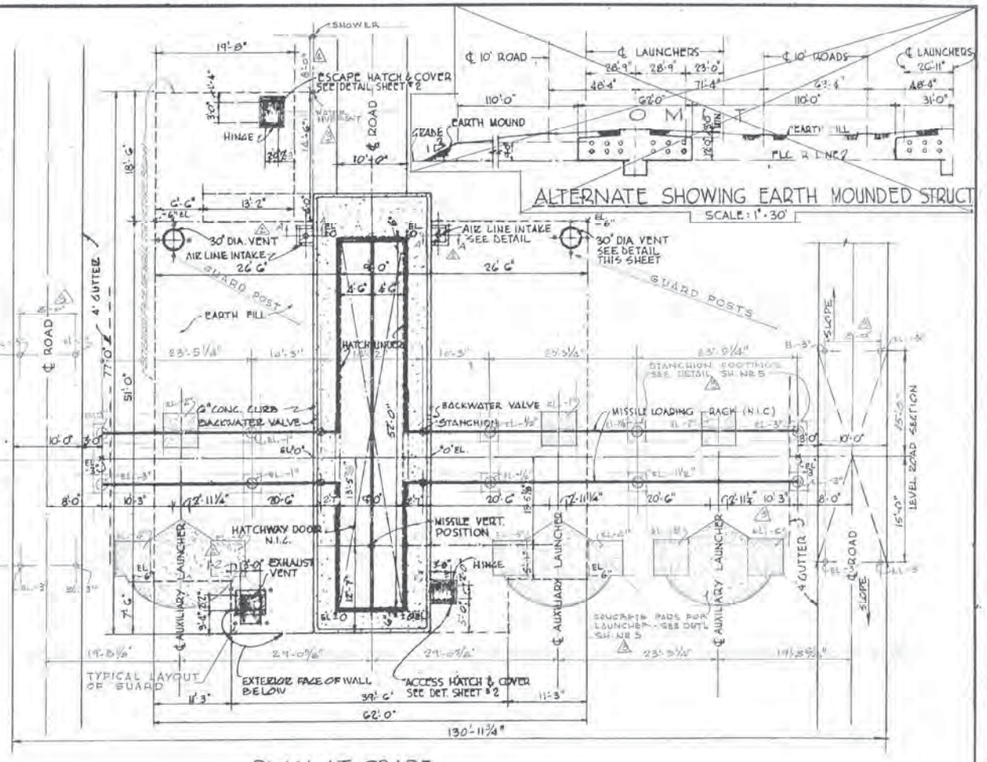
RECORD DRAWING

OF WORK - AS - BUILT

Elmer N. Bramhall Jr.

Contracting Officer

5 October 1955

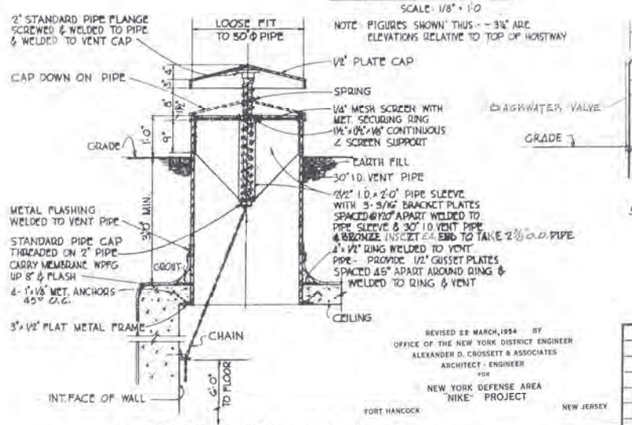


ALTERNATE SHOWING EARTH MOUNDED STRUCT

SCALE: 1"=30'

PLAN AT GRADE

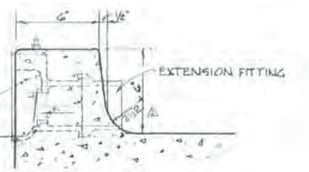
SCALE: 1/8"=1'-0"



SECTION THRU METAL VENT

SCALE: 3/8"=1'-0"

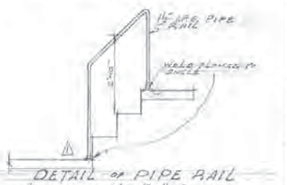
NOTE: FIGURES SHOWN THUS :- -3½" ARE ELEVATIONS RELATIVE TO TOP OF HOISTWAY



CURB DETAIL

SCALE: 3"=1'-0"

NOTE: ALL FLOORS TO RECEIVE HARDENER & DUSTPROOFER



DETAIL OF PIPE RAIL

SCALE: 3"=1'-0"

REVISED 28 MARCH, 1954 BY OFFICE OF THE NEW YORK DISTRICT ENGINEER ALEXANDER D. CROSSETT & ASSOCIATES ARCHITECT - ENGINEER FOR NEW YORK DEFENSE AREA "NIKE" PROJECT FORT HANCOCK NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
△	RECORD WORK AS BUILT	5-OCT-55	
△	GENERAL REVISIONS	2 NOV 54	J.M.
△	GENERAL REVISIONS	1 OCT. '54	A.D.C.
△	GENERAL REVISIONS	30 JUNE 54	A.D.C.
△	GENERAL REVISIONS	20 MAY 54	A.D.C.
(4)	GENERAL REVISIONS	15 MAR 54	W.M.R.

SCHEDULE OF DRAWINGS

DRAWING No.	SHEET	TITLE
ME 33-15-20	1	PLANS
ME 33-15-20	2	SECTIONS
ME 33-15-20	3	FOUNDATION PLAN
ME 33-15-20	4	FRAMING PLAN
ME 33-15-20	5	SECTIONS
ME 33-15-20	6	DETAILS
ME 33-15-20	7	PLUMBING & HEATING
ME 33-15-20	8	ELECTRICAL
ME 33-15-20	9	TOP FRAME ASSEMBLY & DET'S.
ME 33-15-20	10	DOOR ASSEMBLY & DETAILS
ME 33-15-20	11	DOOR OPERATOR & LOCKING BAR
ME 33-15-20	12	PLATFORM
ME 33-15-20	13	EQUALIZER & ACCESSORY DET'S.
ME 33-15-20	14	CYLINDER ASSEMBLY
ME 33-15-20	15	POWER UNIT
ME 33-15-20	16	PIPE SLEEVES & CONDUITS FOR ORGANIC LINERS

LEON CHATELAIN, JR.
ARCHITECT - ENGINEER
1632 K STREET, N. W. WASHINGTON, D. C.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: K.T.
TRACED BY: K.T.
CHECKED BY: E.V.G.
SUBMITTED
APPROVED
APPROVED FOR
DATE

NIKE-I UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE "B" PLANS

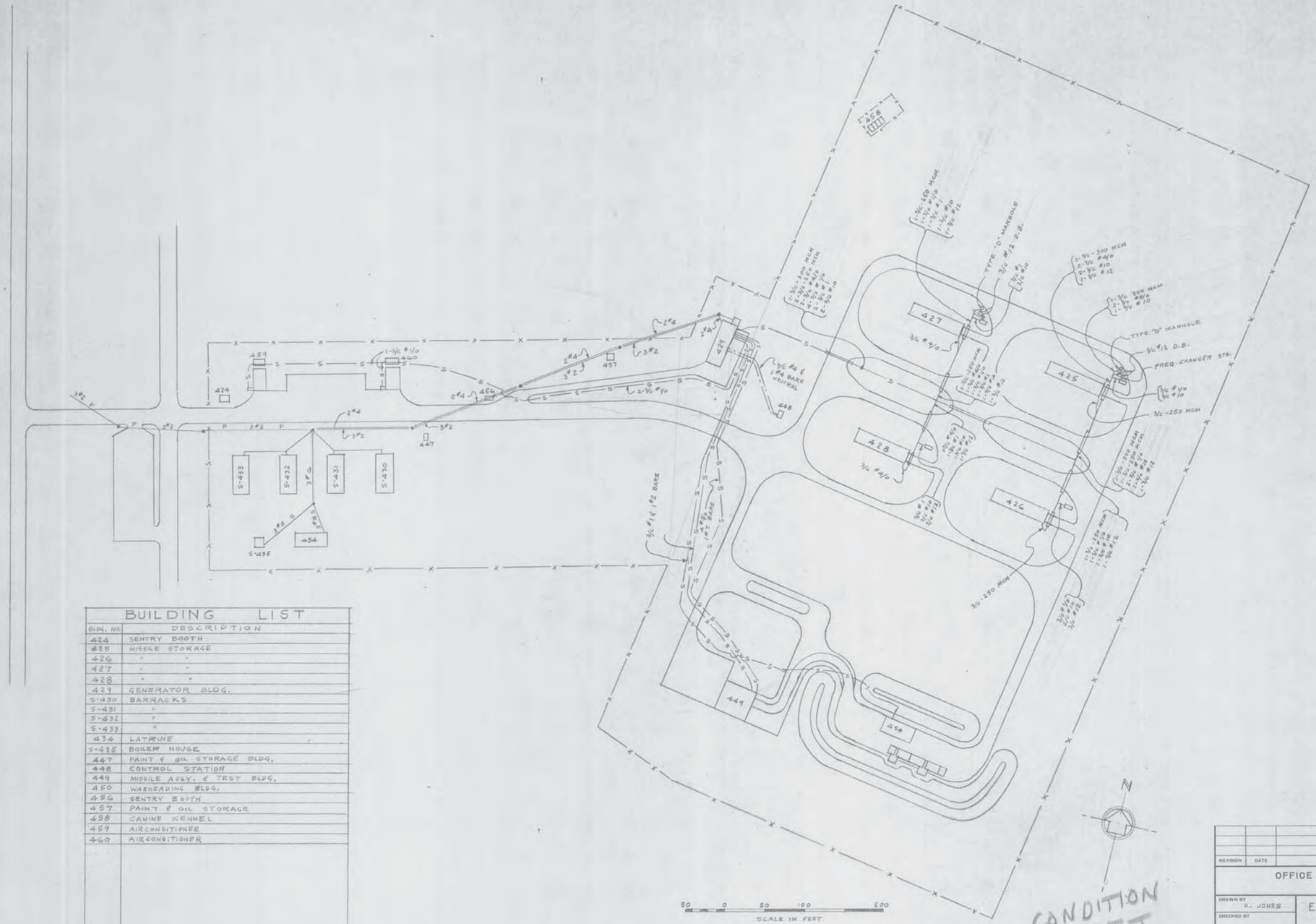
DATE 28 DEC 1955

SCALE AS NOTED

DRAWING NUMBER

SHEET 1 ME 33-15-20

FILE No 6171-8.24



BUILDING LIST	
BLDG. NO.	DESCRIPTION
424	SENTRY BOOTH
425	MISSILE STORAGE
426	" "
427	" "
428	" "
429	GENERATOR BLDG.
S-430	BARRACKS
S-431	"
S-432	"
S-433	"
434	LATRINE
S-435	BOILER HOUSE
447	PAINT & OIL STORAGE BLDG.
448	CONTROL STATION
449	MISSILE ASSY. & TEST BLDG.
450	WARHEADING BLDG.
456	SENTRY BOOTH
457	PAINT & OIL STORAGE
458	CANINE KENNEL
459	AIRCONDITIONER
460	AIRCONDITIONER

UNDER NO CONDITION
DETACH SHEET

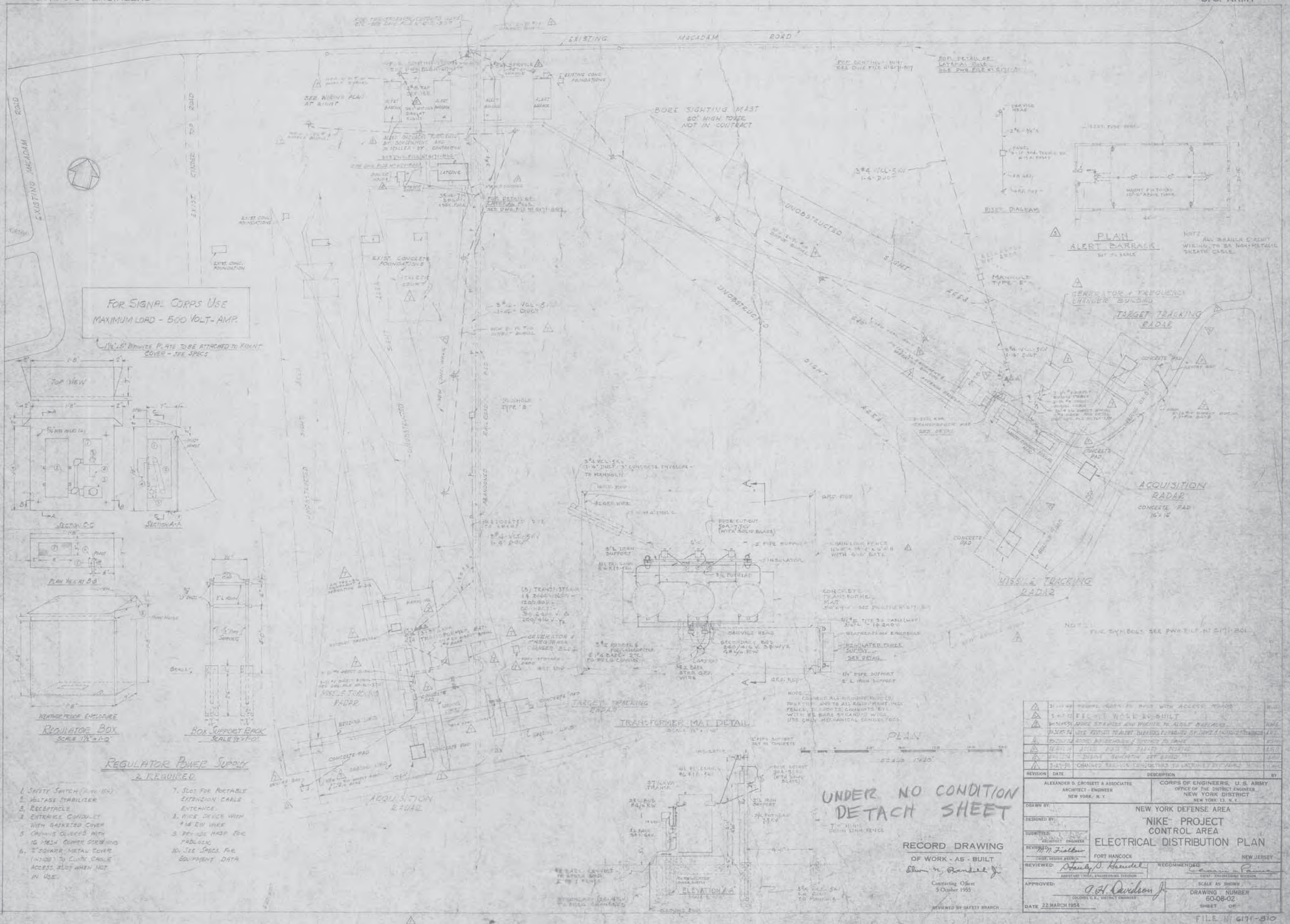
REVISION	DATE	DESCRIPTION

OFFICE OF THE POST ENGINEER
FORT HANCOCK, N. J.

DRAWN BY: K. JONES	ELECTRICAL DISTRIBUTION LAUNCHING AREA FORT HANCOCK
CHECKED BY	
SUBMITTED	
DATE: 12 DEC 62	
RECOMMENDED	SCALE
APPROVED	DRAWING NUMBER: 155-47

CORPS OF ENGINEERS

U. S. ARMY



REVISION	DATE	DESCRIPTION	BY
1	11-10-54	ADDING FLOOR TO BOX WITH ACCESS DOOR	WJD
2	5-27-55	AS BUILT	WJD
3	6-15-55	ADDED STAKES AND WIRING TO ALERT BARRACKS	WJD
4	9-30-55	USE KEYED TO ALERT BARRACKS PURSUANT TO LOVE & INTERCOMMUNICATION LTR.	WJD
5	10-4-55	ROAD RELOCATED & STOVE TO SHARE	WJD
6	10-5-55	ADDED FOR TO FENCE POSTS	WJD
7	10-11-55	DISCONNECTION OF ALERT	WJD
8	2-21-56	CHANGED BELOW CONDUCTORS TO LATCHED DISCHARGE	WJD

ALEXANDER D. CROSSETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, N. Y.

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 13, N. Y.

DRAWN BY:
DESIGNED BY:
SUBMITTED:
ARCHITECT - ENGINEER
REVIEWED:
CHIEF, DESIGN BRANCH

NEW YORK DEFENSE AREA
"NIKE" PROJECT
CONTROL AREA
ELECTRICAL DISTRIBUTION PLAN
FORT HANCOCK
NEW JERSEY

REVIEWED: Stanley P. Shrenkel
ASSISTANT CHIEF, ENGINEERING DIVISION

RECOMMENDED:
CHIEF, ENGINEERING DIVISION

APPROVED: O. H. Davidson Jr.
COLONEL C.E., DISTRICT ENGINEER

DATE 22 MARCH 1954

SCALE AS SHOWN

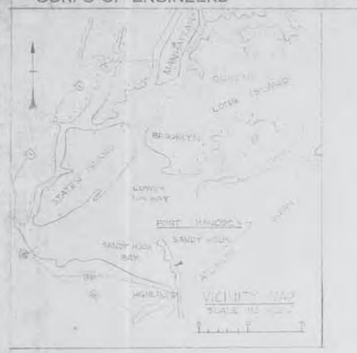
DRAWING NUMBER
60-08-02

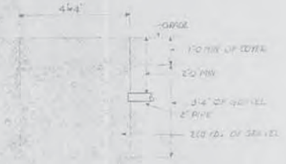
SHEET OF

FILE NO. 6171-810

CORPS OF ENGINEERS

U. S. ARMY





DETAIL OF GRAVEL PIT
NO SCALE

ADDITIVE ITEM B

NEW TARGET TRACKING RADAR PAD = EL. 22.00
NEW ACQUISITION RADAR PAD = EL 22.00
NEW MISSILE TRACKING RADAR PAD = EL 22.00
FOR DETAIL OF NEW PADS REFER TO DRAWING
FILE # 7611- 3712-1

ADDITIVE ITEM B

NEW TARGET TRACKING RADAR PAD = EL 20.00
NEW ACQUISITION RADAR PAD = EL 20.00
NEW MISSILE TRACKING RADAR PAD = EL 20.00
FOR DETAIL OF NEW PADS REFER TO DRAWING FILE # 7611- 3712-1

CONTROL AREA "1"

CONTROL AREA "2"

GENERATOR & FREQUENCY CHANGER BUILDING

RADAR CONTROL VAN
SPARE PARTS

BATTERY CONTROL VAN

REMOVE EXISTING CONCRETE PAD ADDITIVE ITEM B

REMOVE EXISTING CONCRETE PAD ADDITIVE ITEM B

TARGET TRACKING RADAR

MISSILE TRACKING RADAR

ACQUISITION RADAR

LEGEND

PLAN

SECTION IN CUT

SECTION IN FILL

TO MEET EXISTING GRADE

WIDTH AS INDICATED

PITCH ½ PER FT.

COMPACTED GRAVEL SURFACE COURSE SELECT MATERIAL-SEE SPECIFICATIONS

TO MEET EXISTING GROUND

COMPACTED SUBGRADE

COMPACTED GRAVEL BASE COURSE

TYPICAL SECTION
GRAVEL PAVEMENT
SCALE 3/8"=1'-0"

RECORD DRAWING
OF WORK - AS - BUILT
Oscar M. Brumfiel
Contracting Officer
6 December 1956

REVIEWED BY SAFETY BRANCH

REVISION	DATE	DESCRIPTION	BY
4	21 MAY 58	RECORD WORK AS BUILT	E.W.F.
3	6 DEC 56	RECORD WORK AS BUILT	J.W.C.
2		MAST SHOWN AT ORIGINAL	J.W.C.
1	31 JAN 56	REVISED WATER PIPING TO CONTROL AREA "2"	F.R.H.
0	20 SEP 55	ADDITIVE ITEM "A" DELETED	J.W.C.

ALEXANDER D. CROBETT & ASSOCIATES
ARCHITECT - ENGINEER
NEW YORK, NEW YORK

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
NEW YORK DISTRICT
NEW YORK 5, N.Y.

DRAWN BY:

DESIGNED BY: A.V.P.

SUBMITTED: [illegible] ARCHITECT - ENGINEER

REVIEWED: W. N. Fiallow CHIEF, DESIGN BRANCH

REVIEWED: Frank D. Haendel ASSISTANT CHIEF, ENGINEERING DIVISION

APPROVED: John T. Phillip COLONEL C.E., DISTRICT ENGINEER

DATE: 27 OCT 1955

NEW YORK DEFENSE AREA
SPECIAL AAA FACILITIES
INTERCONNECTING CORRIDOR BETWEEN
RADAR CONTROL VANS; ENGINE GENERATOR
AND FREQUENCY CHANGER BUILDING
(FOR CONTROL AREA)
SITE PLAN & WATER LINE
FORT HANCOCK NEW JERSEY

RECOMMENDED: Charles E. Pierce CHIEF, ENGINEERING DIVISION

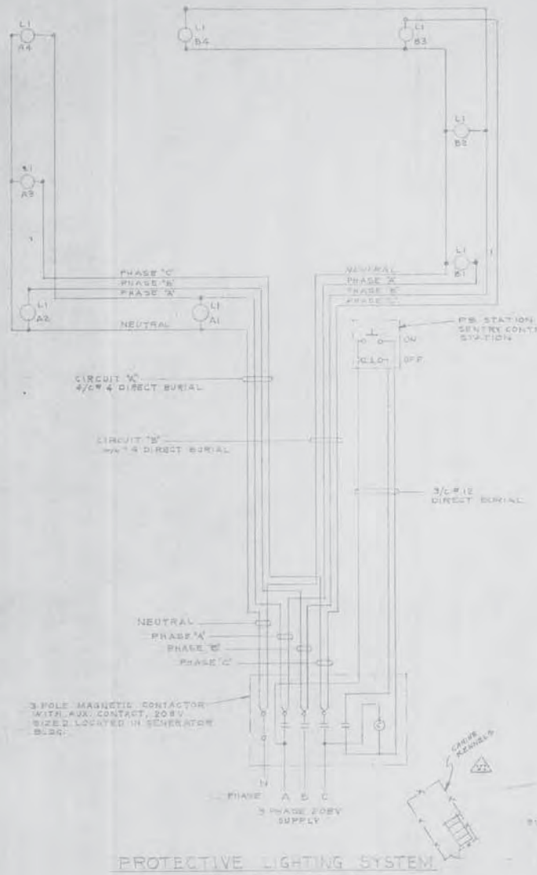
SCALE AS SHOWN

DRAWING NUMBER

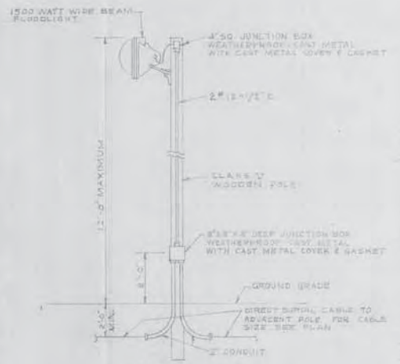
SHEET OF

FILE NO. 7611 - 3708

UNDER NO CONDITION DETACH SHEET



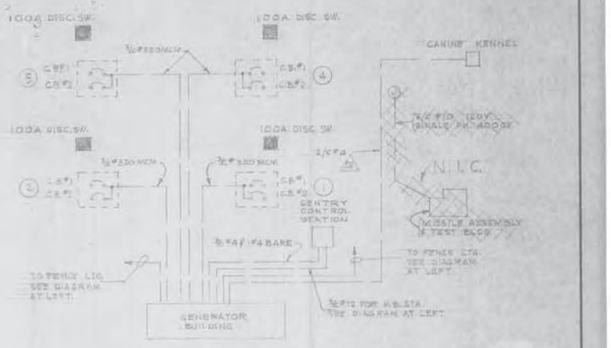
PROTECTIVE LIGHTING SYSTEM
WIRING DIAGRAM



DETAIL NO. 10
TYPICAL FLOODLIGHT MOUNTINGS
NO SCALE



DETAIL Nº11
SCALE 3"=1'-0"



SINGLE LINE DIAGRAM

FEEDER TO C.B.#1 IN MAGAZINE #1, 2, 4 & 5
DISCONNECT EXISTING 3/C#2, 3/C#4, 3/C#250MCM & 3/C#500MCM RESPECTIVELY FOR REPLACE WITH 350MCM CABLES.

NEUTRAL TO MAGAZINES #1, 2, 4 & 5
FOR EXISTING BARE CABLES.

FEEDER TO 100A DISC. SWITCH AT FREQUENCY CHANGER NO. 1, 2, 4 & 5
USE EXISTING 3/C#1, 3/C#2, 3/C#4 & 3/C#4 OR 3/C#10 RESPECTIVELY & CONNECT TO NEW DISC. SWITCH.

NOTES:

1. IT IS BELIEVED THAT THERE IS A 4" CONDUIT THROUGH MAGAZINE WALL CONTAINING EXISTING CABLES TO EXISTING WIREWAY. CONTRACTOR MAY REMOVE EXISTING CABLE AND REUSE CONDUIT FOR ENTRY OF NEW SERVICE. CONTRACTOR(S) SHALL INCLUDE IN ANY EVENT COST OF RECONNECTING NEW CABLE IN 4" CONDUIT, AFTER INSTALLING CABLE BACK END OF 4" CONDUIT WITH DUCT SEAL.
2. CONTRACTOR SHALL PLACE SPARE CONDUIT 24" BELOW GRADE, EXTENDING 5'-0" BEYOND POINT AND CEMENT CONCRETE AND CAP ENDS. PAINT A SIGN NEAR EACH END OF CONDUIT, ON THE CONCRETE, AS PER DETAIL NO 11.
3. CONTRACTOR SHALL REMOVE EXISTING FREQUENCY CHANGER AND SHALL INSTALL AND CONNECT NEW OR REWIRE EXISTING CHANGER INCLUDING NEW 100 AMP DISCONNECT SWITCH.

LEGEND

- FLOODLIGHT - POLE MOUNTED, SEE DETAIL NO 10 THIS DRAWING
- INDICATES CIRCUIT NUMBER AND POLE NUMBER
- INDICATES 3/4" x 10'-0" GROUND ROD, CONNECTION BETWEEN FENCE AND GROUND ROD SHALL BE #1/0 STRANDED CABLE
- MARKER FOR LOCATING SPARE CONDUITS, SEE DETAIL NO 11, DWG. FILE NR 7620-2778.
- SECURITY STATION SEE DETAIL NO 9 DWG. FILE NO 7620-2778
- HANDHOLE - FOR ADDITIONAL CONDUITS AND DETAILS, SEE DWG., FILE NR. 7620-2771
- FREQUENCY CHANGER - AT H.W. - SEE NOTE NO 3 THIS DWG. AND DETAIL NO 8, DWG. FILE NR 7620-2778
- CONDUIT RUN CAPPED 5 FEET BEYOND END OF PAVING ON EARTH AS NOTED.
- CONDUIT RUN FOR LAUNCHER CONTROL VAN CAPPED 10 FEET BEYOND END OF PAVING
- DIRECT BURIAL POWER AND CONTROL CABLE SYMBOL "A" "B" "C"
- CONDUIT RUN UNDERGROUND
- JUNCTION BOX CAST METAL, WEATHERPROOF SIMILAR TO CROUSE-HINDS CO. CAT # FDC2

FOR CABLE SIZES IN THIS AREA SEE SINGLE LINE DIAGRAM ON GENERATOR BUILDING DWG. FILE NR 7620-2779 AFTER INSTALLATION, ONLY NEW CABLE TO BE USED TO ASSURE CABLE TO EACH MAGAZINE AS PER ORIGINAL INSTALLATION.

NOTE
PROVIDE BUILDING MOUNTED, WEATHERPROOF, FLOODLIGHTS & SPEAKERS

GENERAL DRAWINGS

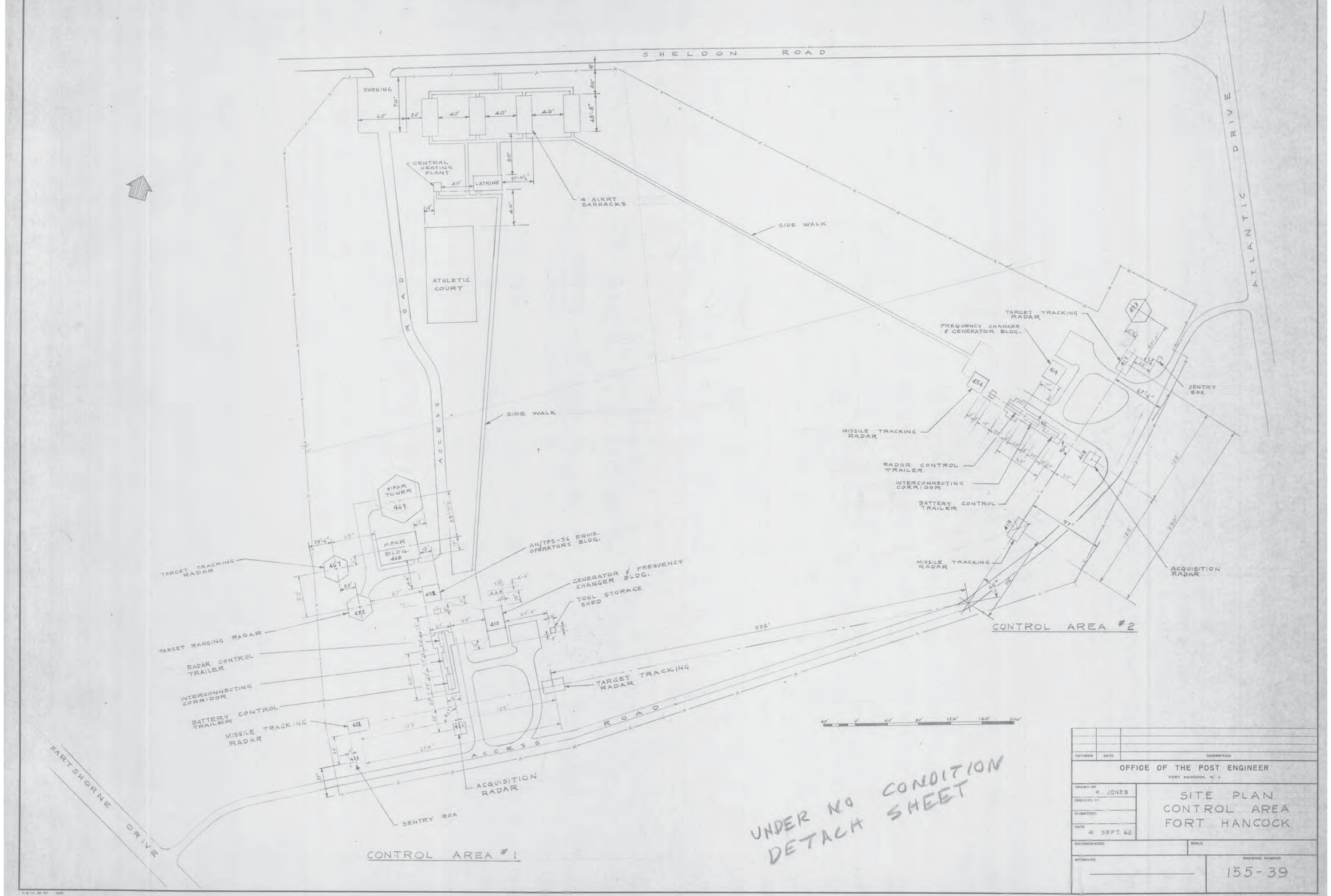
	DWG. FILE NR
GENERATOR BUILDING - ELEC. MODIFICATION PLAN, INDEX - SATELLITE LAUNCHER BASE & TRANSMISSION DETAILS	7620-2728
ELECTRICAL CONSTRUCTION DETAILS	7620-2771
TYPICAL 208 - 3 PHASE ELECTRICAL	7620-2775
CANINE KENNELS - PLAN, SECTIONS & DETAILS	7620-2780
SENTRY CONTROL STATION - ELECT. PLANS & DETAILS	7620-2781
ELECTRICAL SCHEMATIC & INSTALLATION DETAILS	7620-2783
	7620-2797

REVISION	DATE	DESCRIPTION	
4	27 JAN 59	CANINE KENNELS RELOCATED AS BUILT	W.C.
3	2 SEPT 58	CHANGED 4" CONDUIT SIZE TO 6"	G.F.
2	8 AUG 58	RELOCATED CANINE KENNELS & CHANGED CABLE SIZE	W.C.
		TO SHOW GROUND OUTLINE OF CONSTRUCTION ON AS BUILT DRAWING	
		CHANGED NO. OF WIRES IN CONDUIT BETWEEN BASE, HOUSE AND	
1	24 JUNE 58	SENTRY STATION & ADDED CONDUIT & CABLE FOR ELEVATOR SIGNAL SYSTEM	W.C.
0	9 JUNE 58	ADDED CONDUIT & CABLE FOR ELEVATOR SIGNAL SYSTEM	W.C.
1	5 MAY 58	ADDED NOTE 3 BOTH UNDER SECURITY FENCE GATE CONDUIT SCHEDULE	J.M.S.

OFFICE OF THE POST ENGINEER
FORT HANCOCK, N. J.

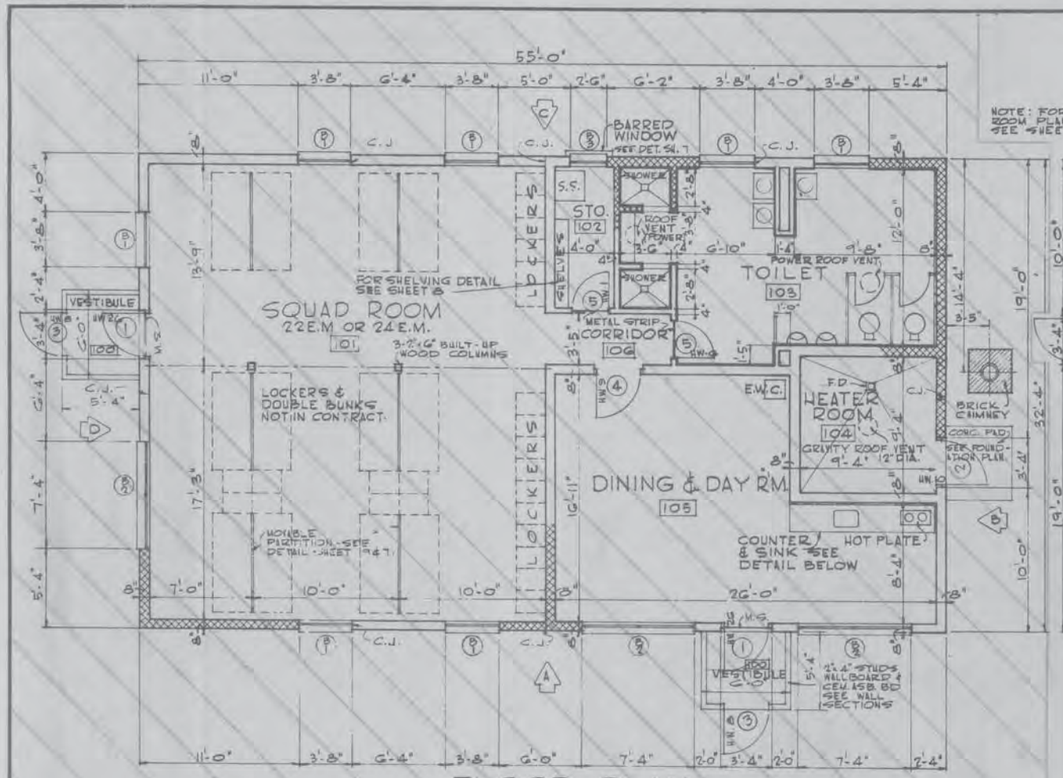
DRAWN BY	SPECIAL AAA FACILITIES
CHECKED BY	CONVERSION OF TACTICAL FACILITIES AND ELEVATOR IMPROVEMENTS, FY 1958
SUBMITTED	LAUNCHING AREA PLAN
DATE	ELECTRICAL
RECOMMENDED	FORT HANCOCK, NEW JERSEY
APPROVED	SCALE
	DRAWING NUMBER

FE-NA 7620-2728


SHELDON ROAD
ATLANTIC DRIVE
HART SHORNE DRIVE
PARKING
70'
60'
20'
40'
40'
40'
20'
48'-8"
CENTRAL HEATING PLANT
40'
LATRINE
37'-6½"
50'
40'
4 ALERT BARRACKS
SIDE WALK
ATHLETIC COURT
ACCESS ROAD
SIDE WALK
HIPAR TOWER 469
HIPAR BLDG. 468
AN/TPS-36 EQUIS. OPERATORS BLDG.
GENERATOR & FREQUENCY CHANGER BLDG.
TOOL SHED STORAGE
TARGET TRACKING RADAR
467
472
TARGET RANGING RADAR
RADAR CONTROL TRAILER
INTERCONNECTING CORRIDOR
BATTERY CONTROL TRAILER
MISSILE TRACKING RADAR
422
423
471
410
TARGET TRACKING RADAR
ACCESS ROAD
ACQUISITION RADAR
SENTRY BOX
CONTROL AREA #1
TARGET TRACKING RADAR
FREQUENCY CHANGER & GENERATOR BLDG.
473
414
454
SENTRY BOX
MISSILE TRACKING RADAR
RADAR CONTROL TRAILER
INTERCONNECTING CORRIDOR
BATTERY CONTROL TRAILER
411
MISSILE TRACKING RADAR
ACQUISITION RADAR
CONTROL AREA #2
535'
40' 0' 40' 80' 120' 160' 200'
UNDER NO CONDITION DETACH SHEET
REVISION
DATE
DESCRIPTION
OFFICE OF THE POST ENGINEER
FORT HANCOCK, N. J.
DRAWN BY K. JONES
CHECKED BY
SUBMITTED
DATE 4 SEPT. 62
RECOMMENDED
SCALE
APPROVED
DRAWING NUMBER
155-39
SITE PLAN
CONTROL AREA
FORT HANCOCK

CORPS OF ENGINEERS

U. S. ARMY



FLOOR · PLAN

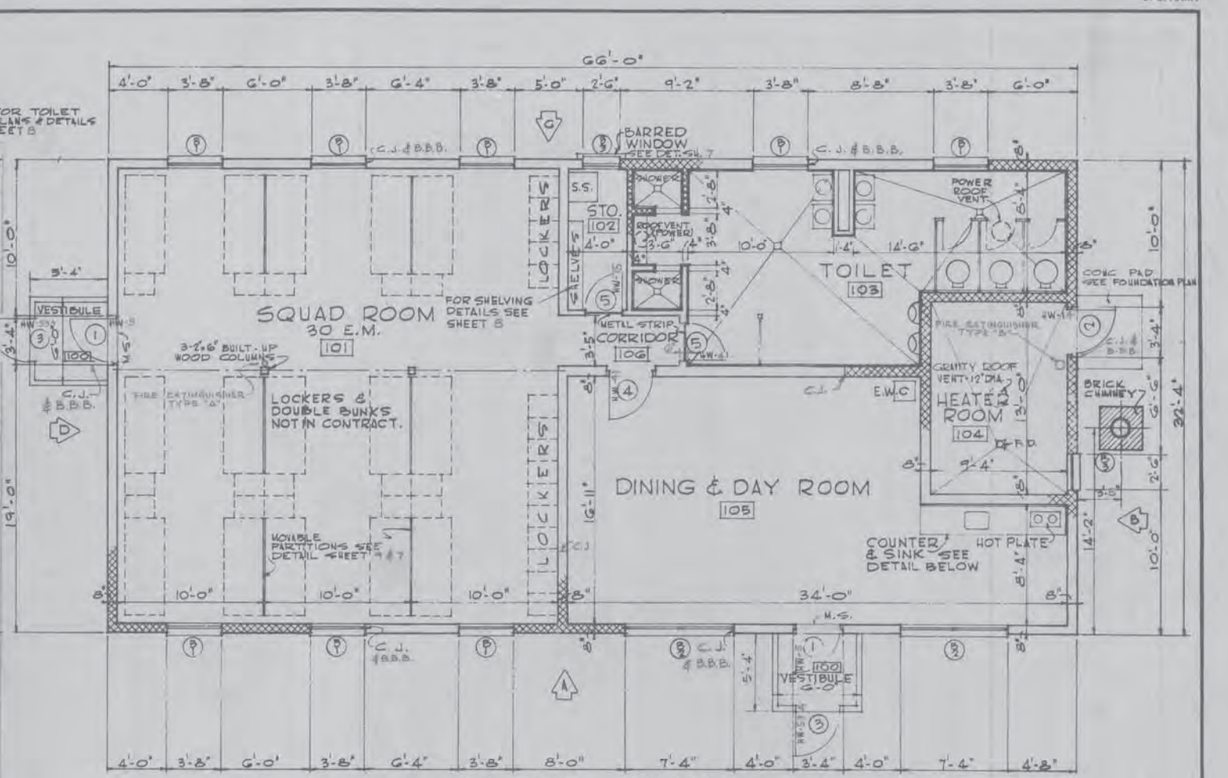
NIKE DUAL CONTROL AREA - 22 E.M.

*NIKE SINGLE CONTROL - LAUNCHING AREA - 24 E.M.

SCALE: 1/4" = 1'-0"

* NOTE: THIS STRUCTURE SHALL NOT BE LOCATED AT LESS THAN THE INHABITED BUILDING DISTANCE FROM LAUNCHERS.

NOTE: FOR TOILET ROOM PLANS & DETAILS SEE SHEET 8



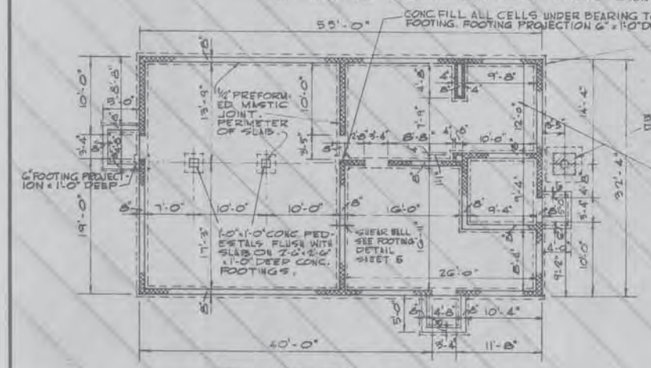
FLOOR · PLAN

NIKE DUAL CONTROL 4 SECTION

30 E. M.

SCALE: 1/4" = 1'-0"

⚠ NOTE: ASPHALT TILE SHALL BE LAID IN STRAIGHT PIPE PATTERN INVERT FROM C COLOR GROUP.



FOUNDATION PLAN

22 & 24 E.M.

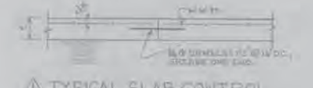
SCALE: 1/8" = 1'-0"

FOOTING LINE - 4" PROJECTION

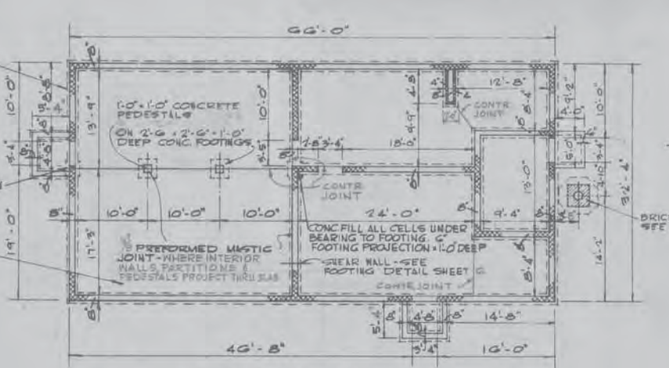
BRICK CHIMNEY - SEE DETAIL SHEET 10

6" FOOTING PROJECTION x 1'-0" DEEP

4" CONCRETE SLAB REINFORCED WITH 6'-0" x 6'-0" 6/6 GA. WELDED WIRE MESH



⚠ TYPICAL SLAB CONTROL JOINT DETAIL

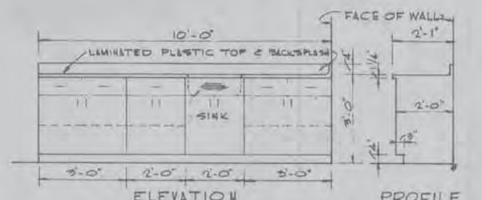


FOUNDATION PLAN

30 E.M.

SCALE: 1/8" = 1'-0"

NOTE: FOR HEATER ROOM ENTRANCE & VESTIBULE SLABS & FOUNDATIONS SEE SHEET 6



COUNTER & SINK DIAGRAM

SCALE: 1/2" = 1'-0"

GRAPHIC SCALES

1/8" = 1'-0"

1/4" = 1'-0"

1/2" = 1'-0"

RECORD DRAWING

INTERIOR ROOM FINISH SCHEDULE

NO.	ROOM TITLE	FLOOR	BASE +0'-0"	BASE 0'-0"	WAINSCOT +3'-0"	WAINSCOT 0'-0"	EXTERIOR WALLS +0'-0"	EXTERIOR WALLS 0'-0"	INTERIOR WALLS	CEILING	REMARKS
100	VESTIBULE	CONCRETE	NONE	NONE	NONE	NONE	CEM. ASB. BD.	CEM. ASB. BD.	NONE	CEM. ASB. BD.	DET. SH. 6
101	SQUAD ROOM	ASPHALT TILE	NONE	WOOD	NONE	CEM. ASB. BD.	MASONRY	½" GYP. BD.	MASONRY	½" GYP. BD.	
102	STORAGE	CONCRETE	NONE	NONE	NONE	NONE	MASONRY	MASONRY	MASONRY	½" GYP. BD.	
103	TOILET	CONCRETE	CEMENT	CEMENT	CEM. PL.	CEM. PL.	MASONRY	CEM. ASB. BD.	MASONRY	CEM. ASB. BD.	DET. SH. 8
104	HEATER	CONCRETE	NONE	NONE	NONE	NONE	MASONRY	MASONRY	MASONRY	½" GYP BD. (1)	BRICK, WIRE
105	DINING & DAY	ASPHALT TILE	NONE	WOOD	NONE	CEM. ASB. BD.	MASONRY	½" GYP. BD.	MASONRY	½" GYP. BD.	
106	CORRIDOR	ASPHALT TILE	NONE	NONE	NONE	NONE	NONE	NONE	MASONRY	½" GYP BD	

PAINT FINISH SCHEDULE

ROOM TITLE	BASE	WAINSCOT	WALLS	CEILING	TRIM
VESTIBULE'S	NONE	NONE	1	1	1
SQUAD ROOM	1	1	1	1	1
STORAGE	2	2	2	2	2
TOILET	2	2	2	2	2
HEATER	NONE	NONE	NONE	NONE	1
DINING & DAY	1	1	1	1	1
CORRIDOR	1	1	1	1	1

OMIT

PAINT FINISH 1 = ONE COAT TINTED PRIMER & 1 COAT INTERIOR FLAT OIL PAINT.

PAINT FINISH 2 = ONE COAT PRIMER, ONE COAT ENAMEL UNDERCOAT, AND ONE COAT SEMI-GLOSS ENAMEL.

REVISED 14 APRIL 1961 BY U. S. ARMY ENGINEER DISTRICT, NEW YORK FOR SPECIAL AAA FACILITIES READY BUILDINGS FORT HANCOCK NEW JERSEY

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
	RECORD WORK AS BUILT (NO CHANGE)	DEC 13 1961	
⚠	ASPHALT TILE PATTERN ADDED	6 JUNE	
⚠	GENERAL REVISIONS	15 MAY 63	

SPECTOR & MONTGOMERY
ARCHITECTS — ENGINEERS
FALLS CHURCH, VIRGINIA

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION - ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: V.B.S.
TRACED BY: CEW
CHECKED BY:
SUBMITTED BY: J. John B. Shuster
APPROVED: [signature]
CHIEF STRUCTURES DIVISION
APPROVED: W. B. Bradner
CHIEF ENGINEERING DIVISION, MIL. CONSTR., U.S.A.
DATE: 18 JUNE 1956
APPROVED FOR
DATE:

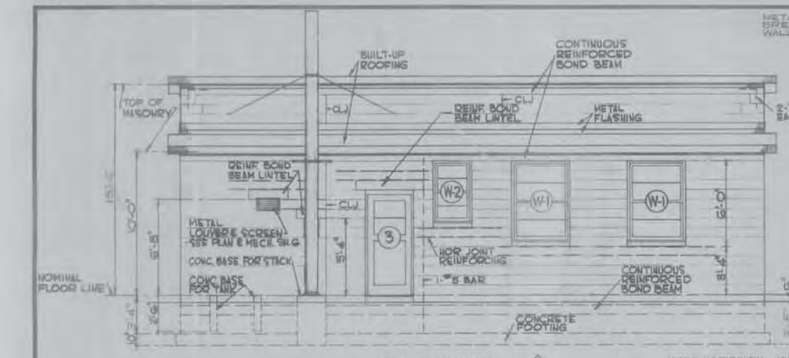
MODIFIED EMERGENCY CONSTRUCTION
SPECIAL AAA
READY BUILDING
PLANS AND SCHEDULES

SCALE AS NOTED
SPEC. NO. SPECIAL AAA
DRAWING NUMBER
30-11-10
SHEET 3

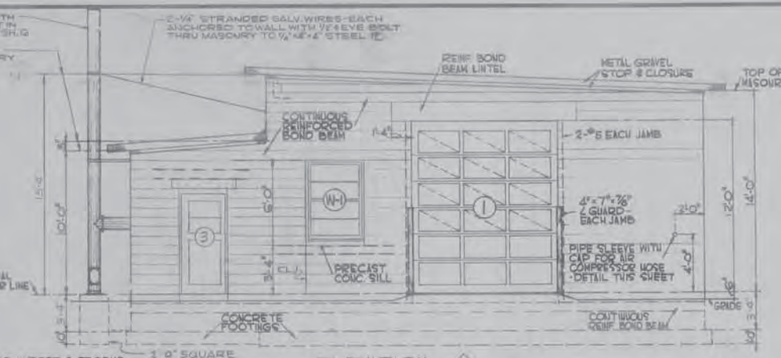
FILE NO. 7620-4778

CORPS OF ENGINEERS

U. S. ARMY

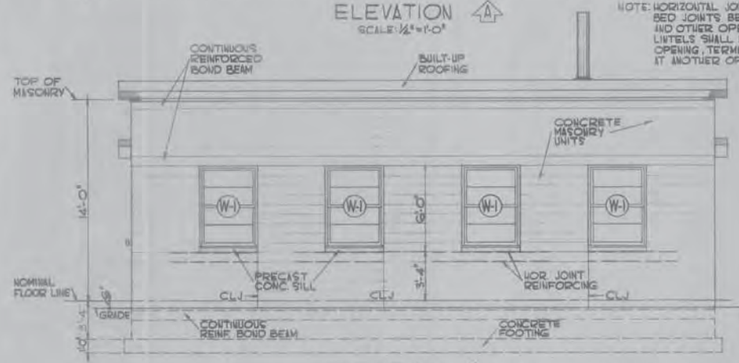


ELEVATION (A)
SCALE: ½"=1'-0"



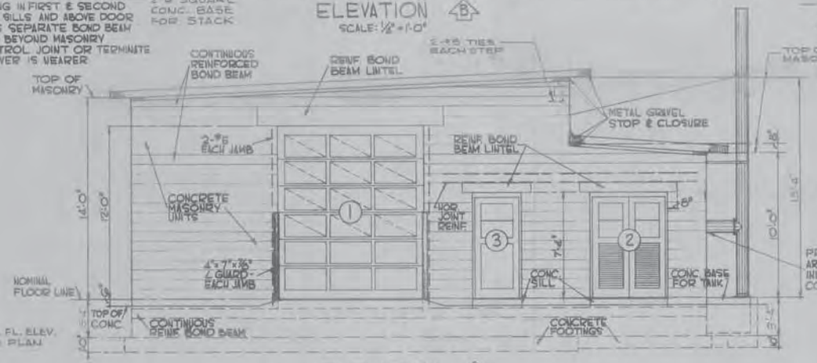
ELEVATION (B)
SCALE: ½"=1'-0"

NOTE: HORIZONTAL JOINT REINFORCING IN FIRST & SECOND BED JOINTS BELOW WINDOW SILLS AND ABOVE DOOR AND OTHER OPENINGS USING SEPARATE BOND BEAM LINTELS SHALL EXTEND 2'-0" BEYOND MASONRY OPENING. TERMINATE AT CONTROL JOINT OR TERMINATE AT ANOTHER OPENING, WHICHEVER IS NEARER.

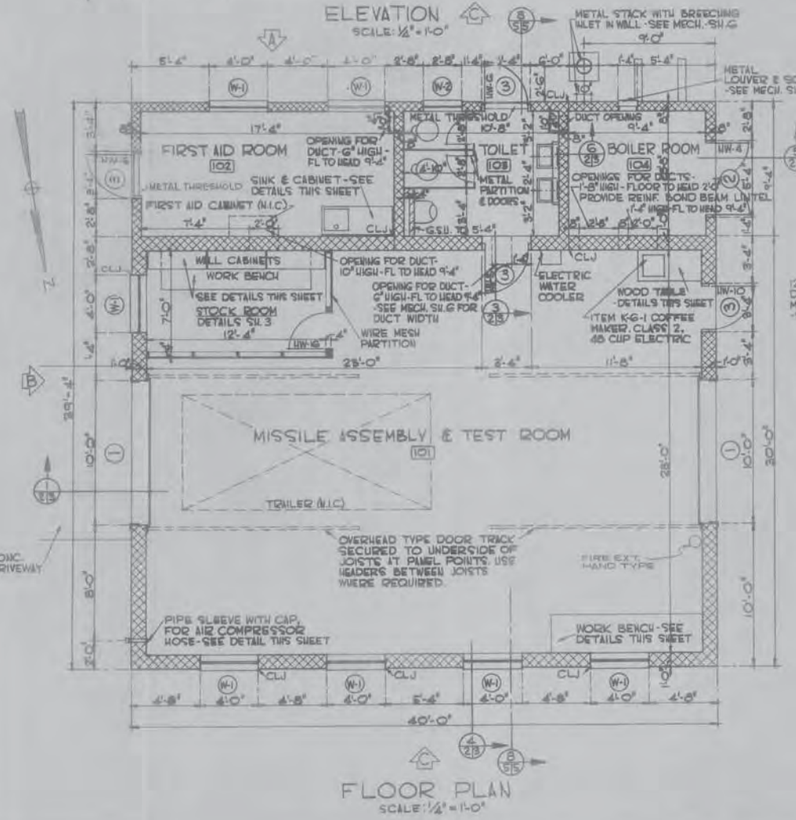


ELEVATION (C)
SCALE: ½"=1'-0"

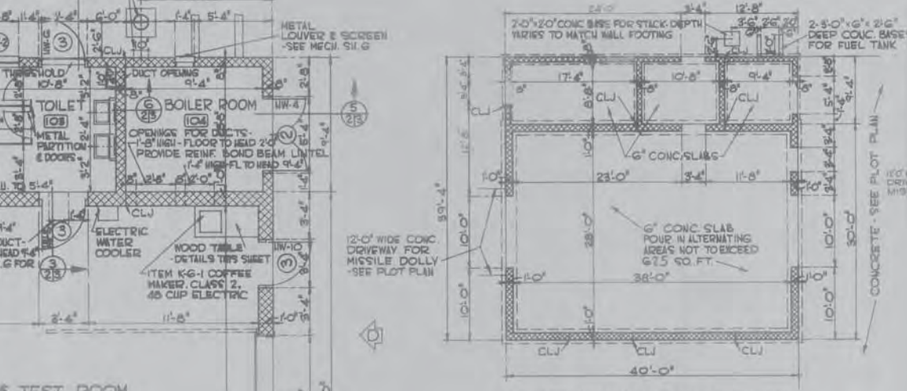
NOTE: FOR FIN. FL. ELEV. SEE SITE PLAN



ELEVATION (D)
SCALE: ½"=1'-0"

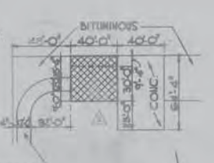


FLOOR PLAN
SCALE: ½"=1'-0"

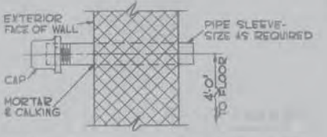


SLAB & FOUNDATION PLAN
SCALE: ⅛"=1'-0"

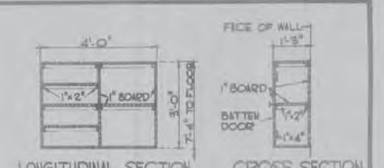
NOTE: ALL CONCRETE SLABS TO BE REINFORCED WITH 6"x6"-6/6 GA. WELDED WIRE MESH
FOOTINGS FOR 12" WALLS TO HAVE 6" PROJECTIONS AND BE 12" DEEP. FOOTINGS FOR 8" WALLS TO HAVE 4" PROJECTIONS AND BE 10" DEEP
FOR STRUCTURAL NOTES & SEISMIC DETAILS, SEE SH. 5.
FOR PERIMETER EXPANSION JOINT - SEE WALL SECTIONS, SH. 5.
FOR CONTROL JOINT DETAILS, SEE SH. 5.



PLOT PLAN
SCALE: 1"=50'

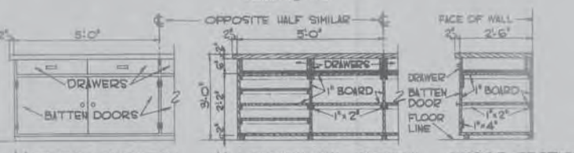


PIPE SLEEVE WITH CAP FOR AIR COMPRESSOR HOSE
NO SCALE



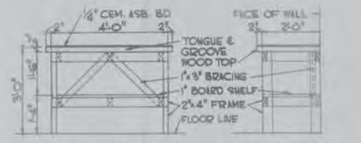
FRONT ELEVATION — LONGITUDINAL SECTION — CROSS SECTION

WALL CABINET
SCALE: ½"=1'-0"



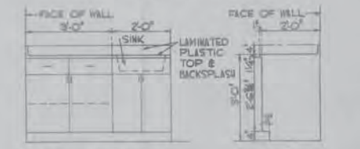
½ FRONT ELEVATION — ½ LONGITUDINAL SECTION — CROSS SECTION

WORK BENCH
SCALE: ½"=1'-0"



FRONT ELEVATION — END ELEVATION

WOOD TABLE
SCALE: ½"=1'-0"



FRONT ELEVATION — PROFILE

SINK & CABINET
SCALE: ½"=1'-0"

⚠ PAINT FINISH SCHEDULE

ROOM	BASE EXCEPT MASONRY	MASONRY BASE	WAINSCOT	WALLS	CEILING	TRIM	REMARKS
M.A. & T. AREA	NONE	1	NONE	1	NONE	1	
STOCK RM.	NONE	NONE	NONE	1	NONE	1	
TOILET RM.	2	NONE	2	2	2	2	
BOILER RM.	NONE	NONE	NONE	NONE	NONE	1	
FIRST AID	2	2	2	2	2	2	

TYPE OF PAINT FINISHES: 1 - ONE COAT TINTED PRIMER & ONE COAT INTERIOR FLAT OIL.
2 - ONE COAT PRIMER, ONE COAT ENAMEL UNDERCOAT AND ONE COAT SEMI-GLOSS ENAMEL.

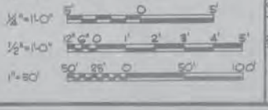
INTERIOR FINISH SCHEDULE

ROOM NO.	ROOM TITLE	FLOOR	BASE	WALLS	INT. WALLS	CEILING	REMARKS
101	ASSEMBLY & TEST	CEMENT	NONE	MASONRY	MASONRY	MASONRY	EXPOSED
102	FIRST AID	ASP. TILE	WOOD	MASONRY	½" GYP BD	MASONRY	½" GYP BD
103	TOILET	CEMENT	NONE	MASONRY	CEM. K.S. BD. 5 SIDES OF STALL	MASONRY	CEM. K.S. BD. 5 SIDES OF STALL - BEHIND URINAL
104	BOILER	CEMENT	NONE	MASONRY	MASONRY	MASONRY	EXPOSED

REVISED 9 SEPT. 1958 BY U.S. ARMY ENGINEER DISTRICT, NEW YORK
JAMES P. O'DONNELL
ARCHITECT ENGINEER
FOR
SPECIAL AAA FACILITIES
MISSILE ASSEMBLY AND TEST BUILDING AND WARHEADING AREA
FORT HANCOCK — NEW JERSEY

RECORD DRAWING
OF SHOP - AS BUILT
Edward G. K., District Engineer

GRAPHIC SCALES



MODULAR MEASURE
SEE SHEET NO. 1

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
FEB 5 X 1958	RECORD WORK AS BUILT		
2	DELETED SPEC. CHANGER PAD FROM PLOT PLAN	4 Oct 58	[illegible]
1	ADDED PAINT FINISH SCHEDULE	6 OCT 58	[illegible]

SPECTOR & MONTGOMERY
ARCHITECTS — ENGINEERS
FALLS CHURCH, VIRGINIA

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
MILITARY CONSTRUCTION — ENGINEERING DIVISION
Washington, D. C.

DRAWN BY: KM
TRACED BY: KM
CHECKED BY: HMM
SUBMITTED BY: Spector & Montgomery
APPROVED: [illegible]
CHIEF, ENGINEERING DIVISION, MIL. CONSTR., U.S.E.E.
APPROVED FOR: [illegible]
DATE: [illegible]

ARMY AIR DEFENSE PROGRAM

MISSILE ASSEMBLY & TEST BUILDING

PLANS, ELEVATIONS AND DETAILS

DATE: 16 AUGUST 1958

SCALE AS NOTED | UNC. NO SPECIAL AAA

DRAWING NUMBER: 35-60-29

SHEET 2

FILE NO. 7620-2991

Appendix B – Request for Archival Documents

The following list of reports and drawings was received from Gateway National Recreation Area as being potentially relevant to the Historic Structures Report. Outlined in red are the reports and drawings that were reviewed.

(00) General Management Plans (Master Plans)

Final Environmental Statement, General Management Plan [Gateway National Recreation Area]
Date: 1979-08
Identifier: 015015
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Harpers Ferry Center - HFC
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.002 c.1-2 [flat box]

General Management Plan, Gateway National Recreation Area, New York / New Jersey
Creator: Adlerstein, Michael
Creator: Roush, Kay
Creator: Turello, David
Date: 1979-08
Identifier: 012022
Holding Institution: Boston Support Office, Planning Division - BOPL
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Harpers Ferry Center - HFC
Holding Institution: Northeast Museum Services Center - NMSC
Holding Institution: Northeast Region Archeology Program - NRAP
Shelf Codes: NMSC: GATE.001 c.1-2 | NRAP: GATE-00-01

General Management Plan Amendment: Development Concept Plan and Interpretive Prospectus: Sandy Hook Unit, Gateway National Recreation Area, New York / New Jersey
Creator: U.S. Department of the Interior, National Park Service, Denver Service Center
Date: 1990-01
Identifier: 401220
Holding Institution: Boston Support Office, Planning Division - BOPL
Holding Institution: Northeast Museum Services Center - NMSC
Holding Institution: Northeast Region Archeology Program - NRAP
Shelf Codes: NMSC: GATE-SH.016 c.1-2 | NRAP: GATE-00-02

A new vision for a great urban park Gateway National Recreation Area draft general management plan environmental impact statement
Creator: U.S. Department of the Interior, National Park Service, Gateway National Recreation Area
Date: 2013-07
Identifier: 408704
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.026

[Draft] General management plan amendment, development concept plan and interpretive prospectus, Sandy Hook Unit, Gateway National Recreation Area
Creator: U.S. Department of the Interior, National Park Service
Date: 1988-10
Identifier: 406594
Holding Institution: Gateway National Recreation Area – GATE

(01) (Cultural) Resources Management Plans

Resources Management Plan, Gateway National Recreation Area

Date: 1981-10
Identifier: 012016
Holding Institution: Harpers Ferry Center - HFC

Analysis of cultural resources for the cultural resources component of the resource management plan [Gateway National Recreation Area]
Date: 1993-12
Identifier: 407625
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.020

Analysis of Cultural Resources for the Cultural Resources Component of the Resource Management Plan [Gateway National Recreation Area]
Date: 1984-06
Identifier: 015672
Holding Institution: Harpers Ferry Center – HFC

(02) Statement for Management

Statement for Management and Environmental Assessment, Gateway National Recreation Area
Creator: U.S. Department of the Interior, National Park Service
Date: 1976-04
Identifier: 010366
Holding Institution: Boston Support Office, Planning Division - BOPL
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Harpers Ferry Center - HFC

(05) Environmental Assessments

Final Environmental Statement, General Management Plan [Gateway National Recreation Area]
Date: 1979-08
Identifier: 015015
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Harpers Ferry Center - HFC
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.002 c.1-2 [flat box]

Environmental Assessment, Alternatives Portion, Gateway National Recreation Area [draft]
Date: 1976-02
Identifier: 013301
Holding Institution: Harpers Ferry Center – HFC

Assessment of Alternatives for Beach Nourishment at Southern Recreation Beaches, Sandy Hook Unit, Gateway National Recreation Area
Creator: Andrea, Joseph J.
Creator: Campbell, Allan B.
Creator: Gares, Paul A.
Creator: Sherman, Douglas J.
Date: 1977-11
Identifier: 401215

Identifier: 403935
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.015

Decisions Paper, Gateway National Recreation Area
Creator: U.S. Department of the Interior, National Park Service
Date: 1978-04
Identifier: 401186
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.004 c.1-2

National Urban Recreation Study, Executive Report
Creator: U.S. Department of the Interior, National Park Service
Date: 1978-02
Identifier: 403939
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: BOHA.004

Visitor services project: Gateway National Recreation Area
Creator: University of Idaho, Cooperative Park Studies Unit
Date: 1991-02
Identifier: 406614
Notes: Vol 2 is appendices
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.021

Draft final report National Parks of New York Harbor Waterborne transportation study [DRAFT]
Creator: Volpe National Transportation Systems Center
Date: 2002-04
Identifier: 406584
Holding Institution: Gateway National Recreation Area – GATE

(20) Historic Resource Studies

Historic Resource Study, Fort Hancock: 1948-1974, Sandy Hook Unit, Gateway National Recreation Area, Monmouth County, New Jersey
Creator: Bearss, Edwin C.
Date: 1982-11
Identifier: 010656
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: NMSC - Chadwyck Microfiche
Holding Institution: NMSC - DSC/TIC Microfiche
Holding Institution: Northeast Museum Services Center - NMSC
Holding Institution: Washington Support Office—Associate Director for Cultural Resources - WASO
Shelf Codes: NMSC: GATE-SH.110 c.1-2

Historic Resource Study, The Sandy Hook Proving Ground, 1874-1919, Sandy Hook Unit, Gateway National Recreation Area, New Jersey

Date: 1997-10
Identifier: 403119
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Olmsted Center for Landscape Preservation - OCLP

(23) Administrative Histories

Establishing the Gateway National Seashore in the States of New York and New Jersey, and for Other Purposes
Date: 1972-09
Identifier: 401227
Notes: 92nd Congress, 2d Session, House of Representatives Report No. 92-1392.
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.010

Administrative history of Gateway National Recreation Area
Creator: Brockington and Associates, Inc.
Creator: Philips, Charles F., Jr.
Date: 2013-10
Identifier: 408404
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE.025

(24) Special History Studies

The Lifesaving Service at Sandy Hook Station, 1845-1915 [Gateway National Recreation Area]
Creator: Bennett, Robert F.
Date: 1976
Identifier: 400094
Holding Institution: Harpers Ferry Center - HFC
Holding Institution: Northeast Museum Services Center – NMSC
Shelf Codes: NMSC: GATE-SH.017

(25) Other History Studies

Fort Hancock and the Sandy Hook Proving Ground Historic District [Gateway National Recreation Area]
Creator: Greenwood, Richard
Creator: Torres-Reyes, Ricardo
Date: c1978
Identifier: 401198
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.001

Men Against the Sea: The Story of the United States Life - Saving Service and the Sandy Hook Life - Saving Stations [Gateway National Recreation Area]
Creator: Hoffman, Tom
Date: 1976-02
Identifier: 012738
Holding Institution: NMSC - Chadwyck Microfiche

Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.109

The Sandy Hook ordnance proving ground: an overview history from 1874 to 1919 [Gateway National Recreation Area]
Creator: Hoffman, Tom
Identifier: 406620
Holding Institution: Gateway National Recreation Area - GATE

Bayside Cultural Resources / Erosion Survey [Gateway National Recreation Area]
Creator: Hoffman, Tom
Creator: Thomas, Mike
Date: 1995
Identifier: 403649
Holding Institution: Northeast Region Archeology Program - NRAP
Shelf Codes: NRAP: GATE-49-17

The changing standard of national significance: how the new environmentalism of the 1960s redefined national significance and led to the creation of Gateway National Recreation Area, the first urban national park
Creator: Kelleher, Michael
Date: 1995
Identifier: 406559
Notes: Author affiliated with New York University, Department of History
Holding Institution: Gateway National Recreation Area – GATE

Highland Beach, New Jersey: a Jersey Shore destination, 1881-1962 [Gateway National Recreation Area]
Creator: McCullough, Andrew
Creator: Rasa, Mary
Date: 2005-12
Identifier: 406626
Holding Institution: Gateway National Recreation Area – GATE

Sandy Hook Atlas [Gateway National Recreation Area]
Creator: Thomas, M.
Date: 1988-05
Identifier: 401218
Notes: Provides location of all structures in unit.
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.010

Summaries of Endicott and Taft Fortifications [Gateway National Recreation Area]
Creator: Williford, G.M.
Identifier: 401228
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.026 [Legal box]

(48) Ethnography Studies

Special study: the 1974 summer season, Gateway National Recreation Area, New York - New Jersey
Creator: U.S. Department of the Interior, National Park Service

Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.120

(63) Cultural Landscape Reports

Vegetation Guidelines for Planting and Maintenance, Sandy Hook Unit, Gateway National Recreation Area
Identifier: 401223
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.024 [flat box]

Cultural landscape report for Sandy Hook Coastal Defense Batteries Gateway National Recreation Area Fort Hancock site history existing conditions analysis and evaluation treatment
Creator: Foulds, H. Eliot
Creator: Layton, Timothy W.
Creator: U.S. Department of the Interior, National Park Service, Olmsted Center for Landscape Preservation
Date: 2010
Identifier: 407973
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.132 c.1-2

Cultural landscape report for Fort Hancock, treatment plan, Gateway National Recreation Area, Sandy Hook Unit
Creator: Foulds, H. Eliot
Creator: Nowak, Lisa
Creator: U.S. Department of the Interior, National Park Service, Olmsted Center for Landscape Preservation
Date: 2006
Identifier: 406625
Holding Institution: Gateway National Recreation Area - GATE
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.133

Historic Landscape Assessment for Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area [draft]
Creator: U.S. Department of the Interior, National Park Service, Olmsted Center for Landscape Preservation
Date: 1994-11
Identifier: 401214
Holding Institution: Northeast Museum Services Center - NMSC
Shelf Codes: NMSC: GATE-SH.003

Cultural Landscape Report for Proving Ground and Wartime Expansion Areas, Sandy Hook Unit, Gateway National Recreation Area
Creator: U.S. Department of the Interior, National Park Service, Olmsted Center for Landscape Preservation
Creator: Williams, Norma E.
Date: 1999-07
Identifier: 403110
Holding Institution: Gateway National Recreation Area - GATE

Catalog #	GATE 8697
Description	YR: 22MAR1954 SHEET OF BLUE/WHITE LINE STABLE: Y TITLE BOX BT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - LAUNCHING AREA - GRADING PLAN.#57 AT BOTTOM LEFT CORNER.LAST REVISION: 05OCT1955.FADED.
Catalog #	GATE 8775
Description	YR: 05OCT1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LAUNCHING AREA/CONTROL AREA - RECORD AS BUILT - TITLE SHEET -"SCHEDULE OF DRAWINGS".
Catalog #	GATE 8776
Description	YR: 05OCT1955 SHEET OF TRACE/PENCIL, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- VICINITY MAP AND GENERAL PLAN.
Catalog #	GATE 8777
Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- VICINITY MAP AND GENERAL PLAN.#21 IN RED PENCIL. NO. 5-I AT LOWER RIGHT EDGE.
Catalog #	GATE 8778
Description	YR: 25SEP05OCT1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- GENERAL PLAN - LAUNCHING AND CONTROL AREA.#21 IN RED PENCIL, LOWER RIGHT CORNER. #6-I LOWER RIGHT EDGE.UPPER RIGHT CORNER IS TORN.
Catalog #	GATE 8779
Description	YR: 05OCT1955 SHEET OF TRACE/PENCIL, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- CONTROL & LAUNCHING AREAS - CENTRAL HEATING SYSTEMS.
Catalog #	GATE 8780

Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- TOPOGRAPHICAL PLAN BETWEEN CONTROL AND LAUNCHING AREAS.#7-I LOWER RIGHT EDGE.
Catalog #	GATE 8781
Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- TOPOGRAPHICAL PLAN BETWEEN CONTROL AND LAUNCHING AREAS.#8-I LOWER RIGHT EDGE
Catalog #	GATE 8782
Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- PROFILE BETWEEN CONTROL AND LAUNCHING AREA.#9-I LOWER RIGHT EDGE.
Catalog #	GATE 8783
Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- CONTROL AREA - CONTROL AREA SITE PLAN.#10-I LOWER RIGHT EDGE.
Catalog #	GATE 8784
Description	YR: 05OCT1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- BATTERY - LAUNCHING AREA TYPE "D" - ROAD PAVING DETAILS.OLD CELLOPHANE TAPE RIGHT EDGE
Catalog #	GATE 8785
Description	YR: 05OCT1955 SHEET 1 OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LATRINE TYPE-"C" - LAUNCHING AND CONTROL AREAS - PLANS,ELEVATIONS & SECTION.OLD CELLOPHANE TAPE ON EDGES.
Catalog #	GATE 8786

Description	YR: 05OCT1955 SHEET 2 OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LATRINE TYPE-"C" - LAUNCHING AND CONTROL AREAS - DETAILS.OLD CELLOPHANE TAPE ON EDGES - TEAR ABOVE & THROUGH TITLE BOX, RIGHT SIDE.

Catalog #	GATE 8787
Description	YR: 05OCT1955 SHEET 3 OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LATRINE TYPE-"C" - LAUNCHING AND CONTROL AREAS- PLUMBING &ELECTRICAL.OLD CELLOPHANE TAPE AT EDGES.

Catalog #	GATE 8788
Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LAUNCHING AREA - LAUNCHING AREA SITE PLAN.

Catalog #	GATE 8789
Description	YR: 05OCT1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LAUNCHING AREA - ACCESS ROAD TO LAUNCHING AREA.

Catalog #	GATE 8790
Description	YR: 23SEP1955 SHEET OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- LAUNCHING AREA - ACCESS ROAD TO LAUNCHING AREA.

Catalog #	GATE 8791
Description	YR: 05OCT1955 SHEET 7 OF VELLUM/INK, STABLE: Y TITLE BOX BT. RT.SUBJECT: NIKE - 1, N.Y. HARBOR DEFENSES, FORT HANCOCK, SANDY HOOK, N.J.-"NIKE" PROJECT- UNDERGROUND MISSILE STORAGE STRUCTURE - TYPE-"B" - PLUMBING &HEATING.

Catalog #	GATE 8881

Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMSMODIFICATION OF EXISTING PLATFORMS - ACQUISITION AND TRACKING RADARLAST REVISION: 03JUL1963.
Catalog #	GATE 8882
Description	YR: AUG1960 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: FORT HANCOCK, N.J. - NIKE SITE CONTROL AREA NO.2TOPOGRAPHY.DATES OF SURVEY: 4, 5, & 6 AUG. 1960 IN TITLE BOX.
Catalog #	GATE 8883
Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS1/2 N.Y. 56 - FORT HANCOCK, N.J. - SUB-SURFACE EXPLORATIONS.
Catalog #	GATE 8885
Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -SITE DETAILS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8886
Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -SITE DETAILS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8889
Description	YR: 10JUN1960 SHEET 1 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTITLE, SCHEDULE OF DRAWINGS, ETC.LAST REVISION: 03JUL1963.
Catalog #	GATE 8890
Description	YR: 10JUN1960 SHEET 1 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTYPE "A" & "B" PLANS & ELEVATIONS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8891
Description	YR: 11SEP1961 SHEET 3 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -FLOOR PLANS & DETAILS FOR MODIFICATION TO EXISTING GENERATOR BLDG. TYPE "A" -ROOF PLAN FOR TYPE "A" & "B".LAST REVISION: 03JUL1963.
Catalog #	GATE 8892
Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -PART FLOOR PLAN AND DETAILS FOR MODIFICATION TO EXISTING GENERATOR BUILDINGTYPE "A" & "B".LAST REVISION: 03JUL1963.
Catalog #	GATE 8893
Description	YR: 10JUN1960 SHEET 1 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTYPE "A" & "B" WALL SECTIONS AND DETAILS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8894
Description	YR: 10JUN1960 SHEET 6 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTYPE "A" & "B" - MISCELLANEOUS DETAILS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8895
Description	YR: 10JUN1960 SHEET 7 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTYPE "A" & "B" - DOOR & WINDOWS - DETAILS & SCHEDULES.LAST REVISION: 03JUL1963.
Catalog #	GATE 8896
Description	YR: 10JUN1960 SHEET 3 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTYPE "A" & "B" - PLUMBING, VENTILATION & GENERATOR FACILITIES.LAST REVISION: 03JUL1963.
Catalog #	GATE 8897

Description	YR: 10JUN1960 SHEET 4 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATIONTYPE "A" & "B" - ELECTRICAL.LAST REVISION: 03JUL1963.

Catalog #	GATE 8898
Description	YR: 11SEP1961 SHEET 7 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -GENERATOR BUILDING MODIFICATION - ELECTRICAL DETAILS (HIPAR).LAST REVISION: 04JUN1962.

Catalog #	GATE 8899
Description	YR: 10JUN1960 SHEET ? OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - DRAWING SCHEDULE, ABBREVIATIONS, NOTES, ETC.LAST REVISION: 03JUL1963.

Catalog #	GATE 8900
Description	YR: 14DEC1961 SHEET 2A OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - PLANS & ELEVATIONS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8901
Description	YR: 14DEC1961 SHEET 3A OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - TRENCH LAYOUT & DETAILS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8902
Description	YR: 10JUN1960 SHEET 4 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - ROOF FRAMING PLAN, LONGITUDINAL SECTIONS & DETAILS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8903
Description	YR: 10JUN1960 SHEET 10 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - WALL SECTIONS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8904
Description	YR: 10JUN1960 SHEET 12 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - PENTHOUSE & TRENCH DET.LAST REVISION: 03JUL1963.
Catalog #	GATE 8905
Description	YR: 10JUN1960 SHEET 14 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - MISCELLANEOUS DETAILS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8906
Description	YR: 10JUN1960 SHEET 15 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - DOOR DETAILS & SCHEDULES.LAST REVISION: 03JUL1963.
Catalog #	GATE 8907
Description	YR: 10JUN1960 SHEET 16 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - WAVEGUIDE SUPPORTS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8908
Description	YR: 10JUN1960 SHEET 17 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - PLUMBING.LAST REVISION: 03JUL1963.
Catalog #	GATE 8909

Description	YR: 14DEC1961 SHEET 18A OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - AIR CONDITIONING.LAST REVISION: 03JUL1963.

Catalog #	GATE 8910
Description	YR: 10JUN1960 SHEET 19 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - GENERATOR BUILDING MODIFICATION -HIPAR BLDG. NON CONSOLIDATED - ELECTRICAL.LAST REVISION: 03JUL1963.

Catalog #	GATE 8911
Description	YR: 10JUN1960 SHEET 1 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -TITLE SCHEDULE OF DRAWINGS, ETC.LAST REVISION: 03JUL1963.

Catalog #	GATE 8912
Description	YR: 10JUN1960 SHEET 2 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -FOUNDATION-CONUS TOWER.LAST REVISION: 03JUL1963.

Catalog #	GATE 8913
Description	YR: 10JUN1960 SHEET 3 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -FOUNDATION OF EXTENDED CONUS TOWER.LAST REVISION: 03JUL1963.

Catalog #	GATE 8914
Description	YR: 10JUN1960 SHEET 4 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -CONUS PLATFORM - PLAN AND DETAILS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8915

Description	YR: 10JUN1960 SHEET 5 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -CONUS PLATFORM - DETAILS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8916
Description	YR: 10JUN1960 SHEET 6 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -EXTENSION - PLAN AND DETAILS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8917
Description	YR: 10JUN1960 SHEET 7 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -EXTENSION DETAILS.LAST REVISION: 03JUL1963.

Catalog #	GATE 8918
Description	YR: 10JUN1960 SHEET 8 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -TRIPOD ERECTION DIAGRAM.LAST REVISION: 03JUL1963.

Catalog #	GATE 8919
Description	YR: 27JUL1960 SHEET 9 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -CONUS PLATFORM - ELECTRICAL CIRCUITS.LAST REVISION: 03JUL1963.
Catalog #	GATE 8920
Description	YR: 27JUL1960 SHEET 10 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -RADOME ERECTION DIAGRAMS - PART 1.LAST REVISION: 03JUL1963.
Catalog #	GATE 8921

Description	YR: 27JUL1960 SHEET 11 OF ? BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: ARMY AIR DEFENSE PROGRAM - MODIFIED EMERGENCY CONSTRUCTION -IMPROVED NIKE-HERCULES SYSTEM - HIGH POWER ACQUISITION RADAR TOWER HIPAR -RADOME ERECTION DIAGRAMS - PART 2.LAST REVISION: 03JUL1963.

Catalog #	GATE 8922
Description	YR: 16JUL1959 SHEET 1 OF 13 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-57214 - SUPPORT RADOME - IMPROVED NIKE HERCULES -GENERAL ARRANGEMENT.LAST REVISION: 20MAR1961.
Catalog #	GATE 8923
Description	YR: 16JUL1959 SHEET 2 OF 13 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-57214 - SUPPORT RADOME - IMPROVED NIKE HERCULES -PLACEMENT OF TRUSSES AND COLUMNS.LAST REVISION: 20MAR1961.
Catalog #	GATE 8924
Description	YR: 16JUL1959 SHEET 3 OF 13 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-57214 - SUPPORT RADOME - IMPROVED NIKE HERCULES -ADDEMBLY OF TRUSSES.LAST REVISION: 20MAR1961.
Catalog #	GATE 8925
Description	YR: 16JUL1959 SHEET 4 OF 13 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-57214 - SUPPORT RADOME - IMPROVED NIKE HERCULES -PLACEMENT OF SUPPORT BEAMS - BAYS 5, 6, 7, 8.LAST REVISION: 20MAR1961.
Catalog #	GATE 8926
Description	YR: 16JUL1959 SHEET 5 OF 13 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-57214 - SUPPORT RADOME - IMPROVED NIKE HERCULES -PLACEMENT OF SUPPORT BEAMS - BAYS 1, 2, 3, 4.LAST REVISION: 20MAR1961.
Catalog #	GATE 8927
Description	YR: 16JUL1959 SHEET 6 OF 13 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-57214 - SUPPORT RADOME - IMPROVED NIKE HERCULES -PLACEMENT OF SUPPORT BEAMS - BAYS 9, 10, 11, 12.LAST REVISION: 20MAR1961.

Catalog #	GATE 8935
Description	YR: 16JUL1959 SHEET 3 OF 5 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59340 - CRANE - PORTABLE FLOOR - IMP NIKE/HERCULES.

Catalog #	GATE 8936
Description	YR: 16JUL1959 SHEET 1 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -GENERAL ARRANGEMENT.LAST REVISION: 20MAR1961.

Catalog #	GATE 8937
Description	YR: 16JUL1959 SHEET 2 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -PLAN VIEW @ TOP OF EXTENSION.LAST REVISION: 20MAR1961.

Catalog #	GATE 8938
Description	YR: 16JUL1959 SHEET 3 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -ELEVATION OF BAYS 3, 4, 5, 6, 7, & 8.LAST REVISION: 20MAR1961.

Catalog #	GATE 8939
Description	YR: 16JUL1959 SHEET 4 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -ELEVATION OF BAYS 1, 2, 9, 10, 11, & 12.LAST REVISION: 20MAR1961.

Catalog #	GATE 8940
Description	YR: 16JUL1959 SHEET 5 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -SECTION C-C @ BOTTOM OF TRUSS.LAST REVISION: 20MAR1961.

Catalog #	GATE 8941
Description	YR: 16JUL1959 SHEET 6 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -SECTION D-D @ INSIDE ELEVATION OF TRUSS.LAST REVISION: 20MAR1961.

Catalog #	GATE 8942
Description	YR: 16JUL1959 SHEET 7 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -SECTIONS E-E & F-F @ BRACING THROUGH TRUSS.LAST REVISION: 20MAR1961.

Catalog #	GATE 8943
Description	YR: 16JUL1959 SHEET 8 OF 8 BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: GS-59067 - EXTENSION - RADOME SUPPORT - IMP NIKE-HERCULES -ADDEMBLY OF ACCESS LADDER IN BAY 4.LAST REVISION: 20MAR1961.

Catalog #	GATE 8944
Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -TITLE SHEET - TABLE OF DRAWINGS.LAST REVISION: 05JUL1966.SMALL RIPS ALONG THE BOTTOM EDGE.

Catalog #	GATE 8945
Description	YR: 11SEP1961 SHEET OF BLACK LINE/VELLUM STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE-HERCULES CONTROL SYSTEMS -SITE PLAN & VICINITY MAP - 1/2 N.Y. 56 C-1 FORT HANCOCK, N.J. (HIPAR).LAST REVISION: 03JUL1966.SMALL PIECE MISSING - BOTTOM RIGHT CORNER.

Catalog #	GATE 8974
Description	YR: 27JAN1960 SHEET OF WHITE/BLACK LINE STABLE: Y TITLE BOX BT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE - HERCULLES CONTROL SYSTEMS -GENERATOR BUILDING MODIFICATION, ELECTRICAL DETAILS - (HIPAR)SOME WATER DAMAGE.

Catalog #	GATE 8978
Description	YR: 01JUN1962 SHEET OF WHITE/BLUE LINE STABLE: Y TITLE BOX BOT.RT.SUBJECT: (FENCE DIVIDING GOVT. & N.J. STATE PARK) LOCATION OF FIRE HYDRANTS -MAP NO. 4.NOTATION IN RED (DEMOLISH) AND YELLOW (RETAIN) SHOWS SPERMACETI COVE AND NIKE SITE.TEAR ALONG CENTER FOLD.

Catalog #	GATE 9041

Description	YR: 22MAR1954 SHEET OF VELLUM/PENCIL STABLE: N TITLE BOX BT.RT.SUBJECT: FORT HANCOCK, N.J. - NEW YORK DEFENSE AREA - "NIKE" PROJECT - CONTROLAREA SITE PLAN.LAST REVISION: 08FEB1960.VERY FRAGILE - SOME SMALL TEARS - CELLOPHANE TAPE REPAIRS.

Catalog #	GATE 9042
Description	YR: 22MAR1954 SHEET OF VELLUM/PENCIL STABLE: N TITLE BOX BT.RT.SUBJECT: FORT HANCOCK, N.J. - NEW YORK DEFENSES - "NIKE" PROJECT - CONTROLAREA - MECHANICAL UTILITY PLAN.LAST REVISION: 21JAN1960.VERY FRAGILE - CELLOPHANE TAPE REPAIRS.

Catalog #	GATE 9043
Description	YR: 22MAR1954 SHEET OF VELLUM/PENCIL STABLE: Y TITLE BOX BT.RT.SUBJECT: FORT HANCOCK, N.J. - NEW YORK DEFENSE AREA - "NIKE" PROJECT - LAUNCHINGAREA - LAUNCHING AREA SITE PLAN.LAST REVISION: 24FEB1960.VERY FRAGILE

Catalog #	GATE 9049
Description	YR: 02DEC1965 SHEET OF WHITE/BLACK LINE STABLE: Y TITLE BOX BT.RT.SUBJECT: FORT HANCOCK, N.J. & NIKE SITES - VEHICLE WASH PLATFORMS.INCLUDES SITE PLAN FOR MOTOR POOL.WAS FOLDED IN TWELVE SECTIONS, LIGHT DAMAGE ALONG FOLDS.

Catalog #	GATE 9147
Description	YR: CIRCA1970'S SHEET OF BROWN/BROWN LINE STABLE: Y TITLE BOX NONE.SUBJECT: FORT HANCOCK, N.J., GATEWAY N.R.A., SANDY HOOK UNIT - BASIC SITE MAPFOR NIKE AREA.

Catalog #	GATE 9205
Description	YR: 22JAN1954 SHEET 1 OF VELLUM/BLACK INK STABLE Y TITLE BOX: BOT.RT.SUBJECT: FORT HANCOCK, N.J., NIKE-1 - ACID STORAGE SHED - PLANS, ELEVATIONS &DETAILS. LAST REVISION: 12NOV1954, RECORD AS BUILT: 05OCT1955.REVISIONS IN PENCIL.SOME TEARS REPAIRED WITH CELLOPHANE TAPE.

Catalog #	GATE 9206

Catalog #	GATE 11030
Description	YR: 15MAR1954 SHEET OF VELLUM/BROWN LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - CONTROL AREA - SITE PLAN.LAST REVISION: 23SEP1956.#222-51 ON REVERSE.BRITTLE - YELLOWED.
Catalog #	GATE 11031
Description	YR: 21JAN1954 SHEET OF VELLUM/BROWN LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - GENERATOR BUILDING - BATTERY -LAUNCHING AREA - PLANS, ELEVATIONS & SECTIONS.LAST REVISION: 22MAR1954.BRITTLE - YELLOWED - REPAIRED WITH TAPE.
Catalog #	GATE 11032
Description	YR: 11SEP1961 SHEET OF VELLUM/BROWN LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE - HERCULES CONTROL SYSTEMS -1/2 N.Y. 56 FORT HANCOCK, N.J. - SUB-SURFACE EXPLORATIONS - VARIOUS SITES(HIPAR) NEW YORK & NEW JERSEY.BRITTLE - YELLOWED.
Catalog #	GATE 11036
Description	YR: AUG1979 SHEET OF PHOTOSTAT STABLE:Y TITLE BOX TOP LEFTSUBJECT: FORT HANCOCK, GATEWAY NRA, SANDY HOOK UNIT - NIKE MISSILE SITE MAP -UPDATED FROM EXISTING MAP OF FORT AREA TO SHOW EXISTING CONDITIONS.
Catalog #	GATE 11038
Description	YR: 22AUG1960 SHEET OF TRACE/PENCIL LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: SPECIAL AAA FACILITIES - IMPROVED NIKE HERCULES CONTROL SYSTEMS.LAST REVISION: 10NOV1960. RECORD AS BUILT: 03OCT1961.(#222-388 ON REVERSE)BRITTLE.
Catalog #	GATE 11039
Description	YR: 22MAR1954 SHEET OF BLUE/WHITE LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - GENERAL PLAN - LAUNCHING ANDCONTROL AREA - VICINITY MAP AT UPPER LEFT. LAST REVISION: 29MAR1954.#222-307 ON REVERSEBRITTLE - FADED - TORN.
Catalog #	GATE 11040

Description	YR: 22JAN1954 SERIES,45 PAGES PHOTOSTAT STABLE:N TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - LAUNCHING AREA, FORT HANCOCK -SCHEDULE OF DRAWINGS - SYMBOLS AND ABBREVIATIONS - REDUCED SIZE REPRODUCTIONBRITTLE - YELLOWED.

Catalog #	GATE 11044
Description	YR: NOT DATE SHEET OF TRACE/PENCIL LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: NIKE MISSILE SITES - METROPOLITAN AREA OF N.Y./N.J..LONG TEAR AT LOWER LEFT.

Catalog #	GATE 11045
Description	YR: 22MAR1954 SHEET OF WHITE/BROWN LINE STABLE:N TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - CONTROL AREA - FORT HANCOCK,NEW JERSEY - CONTROL AREA SITE PLAN - ENTIRE SET HAS THE WORDS "UNDER NOCONDITIONS DETACH SHEETS" LAST REVISION : ILLEGIBLE.BRITTLE - VERY FADED.

Catalog #	GATE 11046
Description	YR: 22MAR1954 SHEET OF WHITE/BROWN LINE STABLE:Y TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - CONTROL AREA -ELECTRICAL DISTRIBUTION PLAN - FORT HANCOCK, NEW JERSEY.LAST REVISION : 21JAN1960. FADED.

Catalog #	GATE 11047
Description	YR: 22MAR1954 SHEET OF WHITE/BROWN LINE STABLE:Y TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - CONTROL AREA -MECHANICAL UTILITY PLAN - FORT HANCOCK, NEW JERSEY.LAST REVISION : 21JAN1960.FADED.

Catalog #	GATE 11048
Description	YR: 22MAR1954 SHEET OF WHITE/BROWN LINE STABLE:Y TITLE BOX BOT.RT.SUBJECT: NEW YORK DEFENSE AREA - "NIKE" PROJECT - CONTROL AREA -LAUNCHING AREA PLAN - FORT HANCOCK, NEW JERSEY.LAST REVISION : 24FEB1960FADED.

Catalog #	GATE 11049

Catalog #	GATE 11286
Description	NIKE/CONTROL AREAWHITE ON BLUE, SHEET 10 OF 45, SCALE: 1 INCH=40 FEETTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/CONTROL AREA/MECHANICAL UTILITY PLAN/FORTHANCOCK NEW JERSEYCONTAINS: DETAILS, NOTESTORN EDGES, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11287
Description	NIKE/REHABILITATED BUILDINGSWHITE ON BLUE, SHEET 11 OF 45, SCALE: MULTIPLETITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/REHABILITATED BUILDINGS/DIAGRAMATIC PLANS/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, DETAILS, PLANS, NOTES, COVERING BUILDINGS 23-25, 27, 56-58, 162, 196TORN & FOLDED EDGES, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11288
Description	NIKE/REHABILITATED BUILDINGSWHITE ON BLUE, SHEET 12 OF 45, SCALE: MULTIPLETITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/REHABILITATED BUILDINGS/BOILER DETAIL/BLD'G NO23/FORT HANCOCK NEW JERSEYCONTAINS: DIAGRAMS, DETAILS, PLANS, ELEVATIONS, SECTIONS, NOTESTORN EDGES, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11289
Description	NIKE/LAUNCHING AREAWHITE ON BLUE, SHEET 13 OF 45, SCALE: MULTIPLETITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/LAUNCHING AREA/ACCESS ROAD/TO LAUNCHING AREA/FORT HANCOCK NEW JERSEYCONTAINS: PLANS, PROFILE, LEGEND, NOTESFOLDED CORNER, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11290
Description	NIKE/LAUNCHING AREAWHITE ON BLUE, SHEET 14 OF 45, SCALE: MULTIPLETITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/LAUNCHING AREA/GRADING PLAN/FORT HANCOCK NEWJERSEYCONTAINS: PROFILES, PLANS, SECTIONS, LEGEND, NOTESTORN EDGES, FOLDED CORNER, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11291
Description	NIKE/LAUNCHING AREAWHITE ON BLUE, SHEET 15 OF 45, SCALE: MULTIPLETITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/LAUNCHING AREA/ELECTRICAL DISTRIBUTION SYSTEM/FORT HANCOCK NEW JERSEYCONTAINS: DIAGRAMS, PLANS, DETAILS, NOTESTORN EDGES, FADED, STAPLE HOLES, YELLOWED

Description	NIKE/LAUNCHING AREAWHITE ON BLUE, SHEET 21 OF 45 (ALSO 3), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/GENERATOR BUILDING/LAUNCHING AREA/ELECTRICAL & MECHANICAL/FORT HANCOCK NEW JERSEYCONTAINS: DIAGRAMS, SCHEDULES, DETAILS, FLOOR PLANS, NOTESTORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11298
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 22 OF 45 (ALSO 1),SCALE: MULTIPLE,CLASSIFIED RESTRICTED,REVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/PLANS/FORT HANCOCK NEW JERSEYCONTAINS: DETAILS, SECTIONS, PLANS, FLOOR PLANS, SCHEDULE OF DRAWINGS, NOTES, ANNOTATIONSTORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED
Catalog #	GATE 11299
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE B WHITE ON BLUE, SHEET 23 OF 45 (ALSO 2), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NY TITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/SECTIONS/FORT HANCOCK NEW JERSEYCONTAINS: DETAILS, SECTIONS, CROSS-SECTIONS, NOTESCORNER RIPPED, TORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11300
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 24 OF 45 (ALSO 3), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/FOUNDATION PLAN/FORT HANCOCK NEW JERSEYCONTAINS: FLOOR & FOUNDATION PLAN, ELEVATIONS, SECTIONS, STRUCTURAL NOTESTORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11301
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 25 OF 45 (ALSO 4), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/FRAMING PLAN/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, ROOF FRAMING PLAN, DETAILS, NOTESTORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11302
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 26 OF 45 (ALSO 5), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/SECTIONS/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, DETAILS, NOTESTORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11303
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 27 OF 45 (ALSO 6), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, DETAILS, NOTESFOLDED CORNER, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11304
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 28 OF 45 (ALSO 7), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/PLUMBING & HEATING/FORT HANCOCK NEW JERSEYCONTAINS: PLANS, ELEVATIONS, SECTIONS, DETAILS, SUMP PUMP SCHEDULE, NOTESFOLDED CORNER, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11305
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 29 OF 45 (ALSO 8),SCALE: MULTIPLE,CLASSIFIED RESTRICTED,REVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/ELECTRICAL/FORT HANCOCK NEW JERSEYCONTAINS: DIAGRAMS, FLOOR PLANS, DETAILS, ROOF PLANS, PANEL SCHEDUL, NOTESFOLDED CORNER, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11306
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 30 OF 45 (ALSO 9), SCALE: 3 INCHES=1 FOOT, RVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/TOP FRAME/ASSEMBLY & DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, END SECTION, PLANS, NOTESFOLDED CORNER, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11307
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE,SHEET 31 OF 45 (ALSO 10),SCALE: MULTIPLE,CLASSIFIED RESTRICTED,REVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/DOOR ASSEMBLY & DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, DETAILS, PLANS, NOTESFOLDED CORNERS, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11308
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 32 OF 45 (ALSO 11), SCALE NOT GIVEN,REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/DOOR OPERATOR &/LOCKING BAR DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: VIEWS, NOTESFOLDED CORNER, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11309
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE,SHEET 33 OF 45 (ALSO 12),SCALE: MULTIPLE,CLASSIFIED RESTRICTED,REVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/PLATFORM/FORT HANCOCK NEW JERSEYCONTAINS: SECTIONS, DETAILS, NOTESWRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11310
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE, SHEET 34 OF 45 (ALSO 13),SCALE: NOT GIVEN,REV BY ARMY ENGINEER SISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/EQUALIZER AND ACCESSORY DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: ELEVATIONS, SECTIONS, CAM SCHEDULE, NOTESWRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11311
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BWHITE ON BLUE,SHEET 35 OF 45(ALSO14),SCALE:1INCH=1FOOT,CLASSIFIED RESTRICTED,REVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-"B"/CYLINDER ASSEMBLY/FORT HANCOCK NEW JERSEYCONTAINS: VIEWS, NOTESTEAR ON BOTTOM EDGE, TORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Catalog #	GATE 11317
Description	NIKE/ACID STORAGE SHEDWHITE ON BLUE, SHEET 41 OF 45 (ALSO 1), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/ACID STORAGE SHED/PLANS, ELEVATION &DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: DETAILS, ELEVATIONS, PLANS, NOTESFOLDED CORNERS, CREASED, TORN EDGES, WRINKLED, FADED, STAPLE HOLES, YELLOWED
Catalog #	GATE 11318
Description	NIKE/CONTROL & LAUNCHING AREASWHITE ON BLUE, SHEET 42 OF 45 (ALSO 1), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/LATRINE (TYPE "C")/LAUNCHING AND/CONTROL AREAS/PLANS, ELEVATIONS & SECTION/FORT HANCOCK NEW JERSEYCONTAINS: DETAILS, SECTIONS, CROSS SECTIONS, ELEVATIONS, PLANS, NOTESTEARS ON BOTTOM & LEFT EDGES, FOLDED CORNERS, WRINKLED, FADED, STAPLE HOLES, YELLOWED
Catalog #	GATE 11319
Description	NIKE/CONTROL & LAUNCHING AREASWHITE ON BLUE, SHEET 43 OF 45 (ALSO 2), SCALE: MULTIPLE, REV BY ARMY ENGINEER DISTRICT, NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/LATRINE (TYPE "C")/LAUNCHING AND/CONTROL AREAS/DETAILS/FORT HANCOCK NEW JERSEYCONTAINS: DETAILS, SECTIONS, ELEVATIONS, SCHEDULE OF WINDOW TYPES, NOTESTORN EDGES, FOLDED CORNERS, WRINKLED, FADED, STAPLE HOLES, YELLOWED
Catalog #	GATE 11320
Description	NIKE/CONTROL & LAUNCHING AREASWHITE ON BLUE, SHEET 44 OF 45 (ALSO 3),SCALE: MULTIPLE,CLASSIFIED RESTRICTED,REVISED IN NYTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/NIKE-1/LATRINE (TYPE "C")/LAUNCHING AND/CONTROL AREAS/PLUMBING & ELECTRICAL/FORT HANCOCK NEW JERSEYCONTAINS: DETAILS, PLANS, CHARTS, DIAGRAMS, NOTESWRINKLED, FADED, STAPLE HOLES, YELLOWED
Catalog #	GATE 11321
Description	NIKE/LAUNCHING AREAWHITE ON BLUE, SHEET 45 OF 45 (& COPY OF IT), SCALE: 1 INCH=40 FEETTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/LAUNCHING AREA/LAUNCHING AREA SITE PLAN/FORTHANCOCK NEW JERSEYCONTAINS: SITE PLAN, LEGEND, NOTESTEARS AT UPPER LEFT, BOTTOM EDGES, FOLDED CORNERS, WRINKLED, FADED, STAPLE HOLES, YELLOWED

Description	NIKE/LAUNCHING AREAPURPLE ON WHITE, SHEET 5 OF 10, SCALE: 1 INCH=50 FEETTITLE: NEW YORK DEFENSE AREA/"NIKE" PROJECT/LAUNCHING AREA/ROADS/VICINITY OF SOUTH AMBOYNEW JERSEYCONTAINS: PLAN, SECTION, DITCH LAYOUT, NOTES, LEGENDTORN EDGES, YELLOWING, FADED, SOME CREASING FROM BEING FOLDED

Catalog #	GATE 11822
Description	NIKE/MISSLE ASSEMBLY & TEST BUILDINGBLACK ON WHITE, SHEET 1, SCALE: MULTIPLETITLE: NIKE-1/MISSLE ASSEMBLY & TEST BLDG./PLANS, ELEVATIONS & SECTIONCONTAINS: PLAN, SECTION, ELEVATIONS, SCHEDULE, PLOT PLAN, NOTESTORN EDGES, REPAIRED WITH TAPE, YELLOWING, SOME CREASING
Catalog #	GATE 11823
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BBLACK ON WHITE, SHEET 6, SCALE: MULTIPLETITLE: NIKE 1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-B/DETAILSCONTAINS: SECTIONS, DETAILS, NOTESTORN EDGES, REPAIRED WITH TAPE, YELLOWING, SOME CREASING
Catalog #	GATE 11824
Description	NIKE/UNDERGROUND MISSILE STORAGE STRUCTURE-TYPE BBLACK ON WHITE, SHEET 1, SCALE: MULTIPLETITLE: NIKE-1/UNDERGROUND MISSILE/STORAGE STRUCTURE-TYPE-B/PLANSCONTAINS: FLOOR PLAN, SECTIONS, PLAN, DETAIL, SCHEDULE OF DRAWINGSTORN EDGES, REPAIRED WITH TAPE, YELLOWING, SOME CREASING

Catalog #	GATE 11825
Description	NIKE-HERCULES SYSTEM, IMPROVED/HIGH POWER ACQUISITION RADAR (HIPAR) BUILDINGPURPLE ON WHITE, SHEET 2, SCALE: 1/4 INCH=1 FOOTTITLE: ARMY AIR DEFENSE PROGRAM/MODIFIED EMERGENCY CONSTRUCTION/IMPROVED NIKE-HERCULESSYSTEM/HIPAR BUILDING/NON CONSOLIDATED/PLANS & ELEVATIONSCONTAINS: SECTIONS, ELEVATIONS, EQUIPMENT SCHEDULETORN EDGES, PUNCH HOLES, YELLOWING, SOME CREASING
Catalog #	GATE 11826

Appendix C – Historic Photographs

All photographs were received from Gateway National Recreation Area as potentially relevant to the Historic Structures Report.



Figure C-1: View looking north towards Warhead Ready Room 450 at the Nike Missile Launching Area, 1974.



Figure C-2: Fiberglass "golfball" domes housing radar equipment, c. 1970.



Figure C-3: Hercules Missile being raised into firing position, c. 1960.

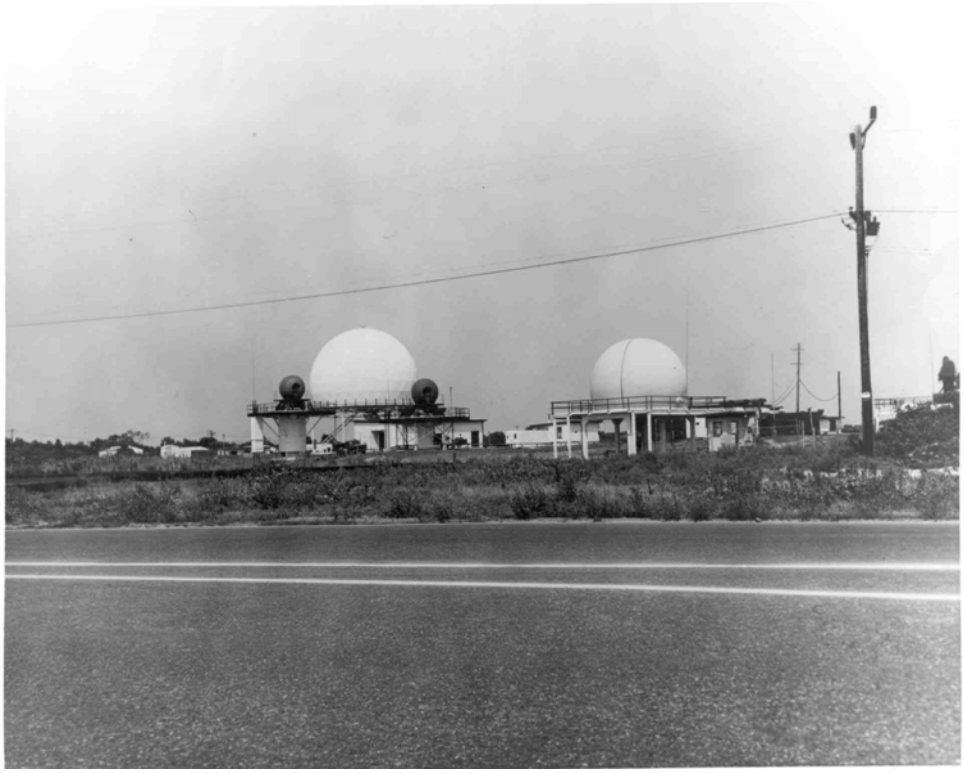


Figure C-4: "Golfball" structures housing the radar equipment at the Radar Tracking Site.



Figure C-5: Nike Hercules Site: Ajax Missile on left and radar complex on top of Battery Kingman in rear left, June 18, 1959.



Figure C-6: View of Radar Tracking Site looking WNW c. 1963-64.



Figure C-7: Soldier sitting on steps outside of radar control trailer for Nike Missiles, 1955.



Figure C-8: Radar control trailers mounted temporarily near battery peck, 1955.



Figure C-9: Lopar radar control trailers mounted temporarily near battery peck, 1955.



Figure C-10: Temporary radar site near battery peck, 1955 (sand dunes in background part of Nike Missile system).



Figure C-11: View of Nike Launch Area from Hartshorne Drive looking east, c. 1968-71.



Figure C-12: View of Radar Tracking Site looking west, c. 1968-71.



Figure C-13: View of Nike IFC Radar Area, c. 1968-71.



Figure C-14: View of Nike IFC Radar Area, c. 1968-71.



Figure C-15: View of Nike IFC Radar Area, c. 1968-71.



Figure C-16: View of Nike IFC Radar Site looking west, c. 1972.



Figure C-17: Nike IFC Radar Site showing Sentry Booth and Radar Antennae, c. 1972.

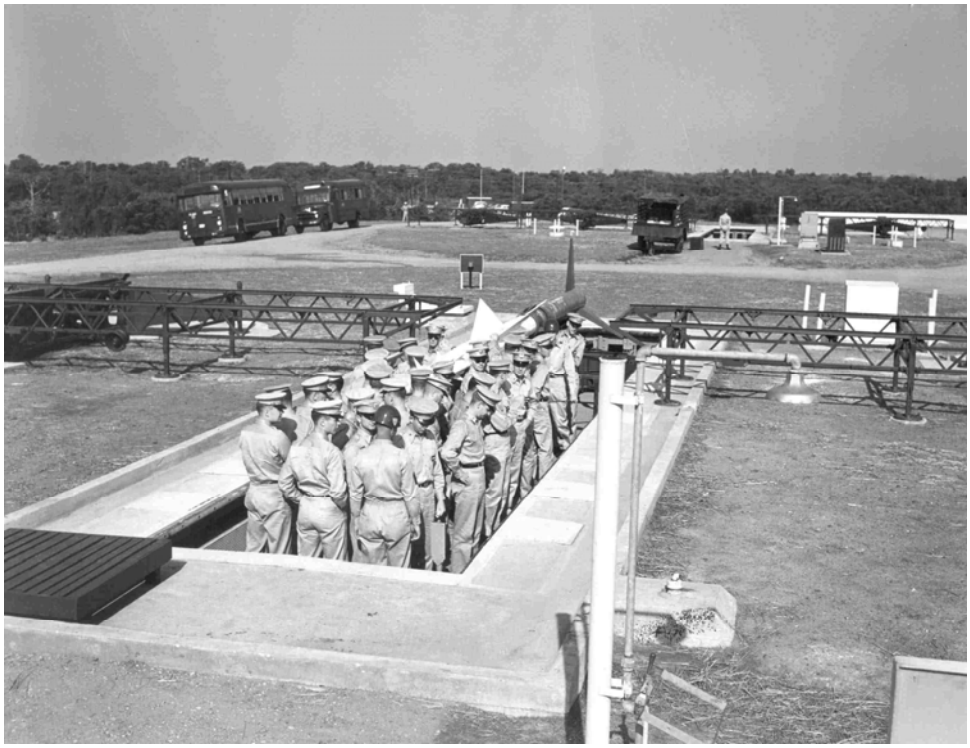


Figure C-18: West Point Cadets standing in elevator of one of the Nike Launch pits, c. 1955.



Figure C-19: West Point Cadets in group near temporary site of lopar radar antennae on dune, c. 1955.



Figure C-20: Radar and trailers mounted on sand dunes at temporary radar installation, 1954.



Figure C-21: Gate and guardhouse at the Nike Launch Site, c. 1968-69.



Figure C-22: Sign in front of Security Control Office, c. 1968-69.



Figure C-23: View of launch magazines facing east, c. 1968-69.



Figure C-24: View looking east towards gate and guard house, c. 1968-69.



Figure C-25: Radar stands in Nike IFC area, c. 1968-69.



Figure C-26: Nike Launch Site during conversion from Ajax to Hercules Missiles, June 18, 1959.



Figure C-27: Nike Launch Site during conversion from Ajax to Hercules Missiles, June 18, 1959.

Appendix D – Existing Building Documentation Photographs

Note: All photographs were taken by John Milner Architects, Inc. in 2015.

RADAR TRACKING SITE



Figure D-1: North elevation of Building 402.



Figure D-2: East elevation of Building 402.



Figure D-3: South elevation of Building 402.



Figure D-4: West elevation of Building 402.



Figure D-5: North elevation of Building 403.



Figure D-6: East elevation of Building 403.



Figure D-7: South elevation of Building 403.



Figure D-8: West elevation of Building 403.



Figure D-9: View of slab 404 (former site of Barracks Building).



Figure D-10: View of slab 405 (former site of Barracks building).



Figure D-11: North elevation of Building 406.



Figure D-12: East elevation of Building 406.



Figure D-13: South elevation of Building 406.



Figure D-14: West elevation of Building 406.



Figure D-15: North elevation of Building 407.



Figure D-16: East elevation of Building 407.



Figure D-17: South elevation of Building 407.



Figure D-18: West elevation of Building 407.



Figure D-19: North elevation of Building 409.



Figure D-20: East elevation of Building 409.



Figure D-21: South elevation of Building 409.



Figure D-22: West elevation of Building 409.



Figure D-23: North elevation of Building 410.



Figure D-24: East elevation of Building 410.



Figure D-25: South elevation of Building 410.



Figure D-26: West elevation of Building 410.



Figure 27: Transformers at Building 410.



Figure D-28: North elevation of Building 411.



Figure D-29: East elevation of Building 411.

Note: South and west elevations not accessible due to severe vegetation.



Figure D-30: North elevation (left side) of Building 413.



Figure D-31: East elevation of Building 413.



Figure D-32: South elevation of Building 413.



Figure D-33: West elevation (right side) of Building 413.



Figure D-34: North elevation of Building 414.



Figure D-35: East elevation of Building 414.



Figure D-36: South elevation of Building 414.



Figure D-37: West elevation of Building 414.



Figure D-38: North elevation of Radar Stand 417.



Figure D-39: East elevation of Radar Stand 417.



Figure D-40: South elevation of Radar Stand 417.



Figure D-41: West elevation of Radar Stand 417.



Figure D-42: North elevation of Radar Stand 418.



Figure D-43: East Elevation of Radar Stand 418.



Figure D-44: South elevation of Radar Stand 418.



Figure D-45: West elevation of Radar Stand 418.



Figure 46: East elevation of Radar Stand 419.



Figure D-47: South elevation of Radar Stand 419.



Figure D-48: North elevation of Radar Stand 420.



Figure D-49: East elevation of Radar Stand 420.



Figure D-50: South Elevation of Radar Stand 420.



Figure D-51: West elevation of Radar Stand 420.



Figure D-52: North elevation of Radar Stand 421.



Figure D-53: East elevation of Radar Stand 421.



Figure D-54: South elevation of Radar Stand 421.



Figure D-55: West elevation of Radar Stand 421.



Figure D-56: North (right side) and east (left side) elevations of Radar Stand 422.



Figure D-57: South elevation of Radar Stand 422.



Figure D-58: West elevation of Radar Stand 422.



Figure D-59: North elevation of Building 423.



Figure D-60: East elevation of Building 423.



Figure D-61: South elevation of Building 423.



Figure D-62: West elevation of Building 423.



Figure D-63: Slab 452 for Equipment and Operations Building.



Figure D-64: North elevation of Building 454.



Figure D-65: East elevation of Building 454.



Figure D-66: South elevation of Building 454.



Figure D-67: West elevation of Building 454.



Figure 68: Former location of Tool Shed 455.



Figure D-69: North Elevation of Radar Stand 467.



Figure D-70: East elevation of Radar Stand 467.



Figure D-71: South elevation of Radar Stand 467.



Figure D-72: West elevation of Radar Stand 467.



Figure D-73: North elevation of Building 468.



Figure D-74: East elevation of Building 468.



Figure D-75: South elevation of Building 468.



Figure D-76: West elevation of Building 468.



Figure D-77: Foundation of HIPAR Tower 469.



Figure D-78: North elevation of Radar Stand 472.



Figure D-79: East elevation of Radar Stand 472.



Figure D-80: South elevation of Radar Stand 472.



Figure D-81: West elevation of Radar Stand 472.



Figure D-82: North elevation of Radar Stand 473.



Figure D-83: East elevation of Radar Stand 473.



Figure D-84: South elevation of Radar Stand 473.



Figure D-85: West elevation of Radar Stand 473.



Figure D-86: North elevation of Phone Booth.



Figure D-87: East elevation of Phone Booth.



Figure D-88: South elevation of Phone Booth.



Figure D-89: West elevation of Phone Booth.

MISSILE LAUNCH SITE



Figure D-90: Entrance to Underground Missile Storage 425.



Figure D-91: Entrance to Underground Missile Storage 425.



Figure D-92: Flooded Underground Missile Storage 425.



Figure D-93: Entrance to Underground Missile Storage 426.



Figure D-94: Interior of Underground Missile Storage 426.



Figure D-95: View of deteriorating interior door of Underground Missile Storage 426.



Figure D-96: Entrance to Underground Missile Storage 428.



Figure D-97: Interior of Underground Missile Storage 428.



Figure D-98: View of deteriorating interior door of Underground Missile Storage 428.



Figure D-99: North elevation of Building 429.



Figure D-100: East elevation of Building 429.



Figure D-101: South elevation of Building 429.



Figure D-102: West elevation of Building 429.



Figure D-103: North elevation for Building 429A.



Figure D-104: East elevation of Building 429A.



Figure D-105: South elevation of Building 429A.



Figure D-106: West elevation of Building 429A.



Figure D-107: North elevation of Building 430.



Figure D-108: East elevation of Building 430.



Figure D-109: South elevation of Building 430.



Figure D-110: West elevation of Building 430.



Figure D-111: North elevation of Building 431.



Figure D-112: East elevation of Building 431.



Figure D-113: South elevation of Building 431.



Figure D-114: West elevation of Building 431.



Figure D-115: North elevation of Building 432.



Figure D-116: East elevation of Building 432.



Figure D-117: South elevation of Building 432.



Figure D-118: West elevation of Building 432.



Figure D-119: North elevation of Building 433.



Figure D-120: East elevation of Building 433.



Figure D-121: South elevation of Building 433.



Figure D-122: West elevation of Building 433.



Figure D-123: North elevation of Building 434.



Figure D-124: East elevation of Building 434.



Figure D-125: South elevation of Building 434.



Figure D-126: West elevation of Building 434.



Figure D-127: North elevation of Building 435.



Figure D-128: East elevation of Building 435.



Figure D-129: South elevation of Building 435.



Figure D-130: West elevation of Building 435.



Figure D-131: North elevation of Building 437.



Figure D-132: East elevation of Building 437.



Figure D-133: South elevation of Building 437.



Figure D-134: West elevation of Building 437.



Figure D-135: North elevation of Building 439.



Figure D-136: East elevation of Building 439.



Figure D-137: South elevation of Building 439.



Figure D-138: West elevation of Building 439.



Figure D-139: North elevation of Building 447.



Figure D-140: East elevation of Building 447.



Figure D-141: South elevation of Building 447.



Figure D-142: West elevation of Building 447.



Figure D-143: Concrete Slab 448.



Figure D-144: North elevation of Building 449.



Figure D-145: East elevation of Building 449.



Figure D-146: South elevation of Building 449.



Figure D-147: West elevation of Building 449.



Figure D-148: North elevation of Building 449A.



Figure D-149: East elevation of Building 449A.



Figure D-150: South elevation of Building 449A.



Figure D-151: West elevation of Building 449A.



Figure D-152: North elevation of Building 449B.



Figure D-153: East elevation of Building 449B.



Figure D-154: South elevation of Building 449B.



Figure D-155: West elevation of Building 449B.



Figure D-156: North elevation of Building 450.



Figure D-157: East elevation of Building 450.



Figure D-158: South elevation of Building 450.



Figure D-159: West elevation of Building 450.



Figure D-160: North elevation of 458.



Figure D-161: East elevation (right side) of 458.



Figure D-162: South elevation of 458.



Figure D-163: West elevation of 458.



Figure D-164: North elevation of Building 458A.



Figure D-165: East elevation of Building 458A.



Figure D-166: South elevation of Building 458A.



Figure D-167: West elevation (left side) of Building 458A.

CONFINED SPACE ENTRY PERMIT

Date Issued 5/27/15
Expires 5/27/15

NOTE IN THE EVENT OF AN EMERGENCY, CALL 911
NOTE IF THE CONDITIONS OR PROCEDURES SPECIFIED ON THIS PERMIT CHANGE. **STOP WORK IMMEDIATELY AND** NOTIFY THE SAFETY OFFICE.

PARTV HAZARD ASSESSMENT (To be filled out by the Entry Supervisor)

Confined space identification number SE SILO

Location of confined space SANDY HOOK, NJ

Description of confined space MISSILE SILO

Description of work to be performed

SURVEY

Materials or chemicals located and /or brought into the confined space (MSDS's) must be posted)

N/A

Equipment located or to be brought into the confined space

GAS METER, TRIPOD, VENTILATION (IF REQUIRED)

CHECK ALL POTENTIAL HAZARDS (Check all inherent and introduced hazards)

Hazardous Atmospheres
- ☐ Flammable
- ☐ Toxic
- ☐ Irritant
- ☐ Corrosive
- ☐ Oxygen -Deficient
- ☐ Oxygen -Enriched
- ☐ Other (List)

Physical Hazards
- ☐ Temperature
- ☐ Chemical Absorption
- ☐ Noise
- ☐ Entrapment
- ☐ Vibration
- ☐ Electrical Equip.
- ☐ Mechanical Equip.
- ☐ Spark-producing operations
- ☐ Spilled Liquids
- ☐ Engulfment
- ☐ Radiation
- ☒ Entry and Exit Limitations

Other Anticipated Hazards (describe below)

PART 2- HAZARD CONTROLS (To be filled out by Entry Supervisor)

☐ Yes ☒ No Is loclout/tagout required?

List isolation points: _____

☒ Yes ☐ No Are GFCI"s required on all electrical power?

☐ Yes ☒ No Is explosion-proof equipment required?

☐ Yes ☒ NO Are barriers required?

☒ Yes ☐ **No Is communication equipment required?**

☒ Yes ☐ No **Is telephone or 2-way radio for summoning rescue available?**

Check required emergency equipment:

- ☐ Fire Extinguisher (type?) _____
- ☐ Emergency Shower / Eyewash
- ☒ Safety Harness
- ☒ Life Line Retrieval Line
- ☒ Tripod and Winch (for 5+ ft. vertical)
- ☐ Other (specify) _____

☐ Yes ☒ **No Are MSDS's for all materials in the confined space (or to be brought into the confined space) attached?**

☒ Yes ☐ **No Have entrants and standby personnel been trained?**

☒ Yes ☐ **No Has the standby person been informed to remain continuously posted outside the confined space?**

Special entry and/or work procedures? FALL ARREST PROCEDURES

List required Personal Protective Equipment HARNESS

PART 3- PERMIT REVIEW

- [x] Yes [ ] No — Has appropriate air monitoring been identified?
- [ ] Yes [x] No — Are respirators required? List types:
- [x] Yes [ ] No — Are hazard controls and PPE appropriate and adequate?
- [x] Yes [ ] No — Has SAO approved the Operating Procedure?
- [x] Yes [ ] No — Is continuous air monitoring required?

Describe any special entry requirements:

Permit Approved: Safety Assurance Office:

Name: William Bickenstaff — Phone: 917-524-5014

Signature: — Date: 5/27/15

PART 4- AIR SAMPLING RESULTS

Air Monitoring Equipment used:

Model	Serial Number	Date Calibrated	User's Name
QRAE II	209303	5/1/15	DERDEYN

Air Monitoring Results (to be conducted at various areas throughout

Date	Time	Location(s)	Oxygen, % (19.5-23.5%)	Combustibles, % LEL (0-10% of LEL)	H2S	CO	Toxic Chemicals
5/27/15	1035	SE SILO	20.9	0	0	0	
	1050	" "	20.9	0	0	0	

Has all required air monitoring been done throughout the confined space? YES — Test done by S.M. DERDEYN

PART 5- LIST ALL AUTHORIZED ENTRANTS AND STANDBY PERSONNEL

(completed by the Entry Supervisor and initiated by Entrants and Standby Personnel)

Entrants	Signature	Standby Personnel	Signature
BRAD ROEDER		S.M. DERDEYN	
ROB KORNELUK			
KARA LIVINAS			
BRIAN WENTZ			

PART 6- CERTIFICATION (Entrants and Standby Personnel shall review the permit and Operating Procedure. After this is done they shall sign the permit next to their names in Part 5.)

I certify that the requirements of this permit have been met.

ENTRY SUPERVISOR Name: S.M. DERDEYN

Signature: — Date: 5/27/15 — Phone: 410-984-4432 — Organization: AERO ENVS

Name:

Signature — Date — Phone — Organization

When confined space entry work is completed send this permit to the Safety Office.

732-872-5900
DISPATCH

CONFINED SPACE ENTRY PERMIT

Date Issued 5/27/15
Expires 5/27/15

NOTE IN THE EVENT OF AN EMERGENCY, CALL 911
NOTE IF THE CONDITIONS OR PROCEDURES SPECIFIED ON THIS PERMIT CHANGE **STOP WORK IMMEDIATELY AND** NOTIFY THE SAFETY OFFICE.

PARTV HAZARD ASSESSMENT (To be filled out by the Entry Supervisor)

Confined space identification number: SW SILO
Location of confined space: SANDY HOOK, NJ

Description of confined space: MISSILE SILO

Description of work to be performed: SURVEY

Materials or chemicals located and /or brought into the confined space (MSDS's) must be posted): N/A

Equipment located or to be brought into the confined space: METER, TRIPOD, VENTILATION (IF REQUIRED)

CHECK ALL POTENTIAL HAZARDS (Check all inherent and introduced hazards)

Hazardous Atmospheres
- [ ] Flammable
- [ ] Toxic
- [ ] Irritant
- [ ] Corrosive
- [ ] Oxygen -Deficient
- [ ] Oxygen -Enriched
- [ ] Other (List)

Physical Hazards
- [ ] Temperature
- [ ] Chemical Absorption
- [ ] Noise
- [ ] Entrapment
- [ ] Vibration
- [ ] Electrical Equip.
- [ ] Mechanical Equip.

- [ ] Spark-producing operations
- [ ] Spilled Liquids
- [ ] Engulfment
- [ ] Radiation
- [x] Entry and Exit Limitations

Other Anticipated Hazards (describe below)

PART 2- HAZARD CONTROLS (To be filled out by Entry Supervisor)

- [ ] Yes [x] No Is loclout/tagout required?
  List isolation points:
- [x] Yes [ ] No Are GFCI"s required on all electrical power?
- [ ] Yes [x] No Is explosion-proof equipment required?
- [ ] Yes [x] NO Are barriers required?
- [x] Yes [ ] **No Is communication equipment required?**
- [x] Yes [ ] No **Is telephone or 2-way radio for summoning rescue available?**

Check required emergency equipment:
- [ ] Fire Extinguisher (type?)
- [ ] Emergency Shower / Eyewash
- [x] Safety Harness
- [x] Life Line Retrieval Line
- [ ] Tripod and Winch (for 5+ ft. vertical)
- [ ] Other (specify)

- [ ] Yes [x] **No Are MSDS's for all materials in the confined space (or to be brought into the confined space) attached?**
- [x] Yes [ ] **No Have entrants and standby personnel been trained?**
- [x] Yes [ ] **No Has the standby person been informed to remain continuously posted outside the confined space?**

Special entry and/or work procedures? FALL ARREST PROCEDURES.

List required Personal Protective Equipment HARNESS

PART 3- PERMIT REVIEW

- [x] Yes [ ] No — Has appropriate air monitoring been identified?
- [ ] Yes [x] No — Are respirators required? List types:
- [x] Yes [ ] No — Are hazard controls and PPE appropriate and adequate?
- [x] Yes [ ] No — Has SAO approved the Operating Procedure?
- [x] Yes [ ] No — Is continuous air monitoring required?

Describe any special entry requirements:

Permit Approved: Safety Assurance Office:

William Bickenbach — Name — 917-524-5106 Phone

Signature — 3/27/15 Date

PART 4- AIR SAMPLING RESULTS

Air Monitoring Equipment used:

Model	Serial Number	Date Calibrated	User's Name
QRAE II	209303	5/1/15	DERDEYN

Air Monitoring Results (to be conducted at various areas throughout)

Date	Time	Location(s)	Oxygen, % (19.5-23.5%)	Combustibles, % LEL (0-10% of LEL)	H2S	CO	Toxic Chemicals
5/27/15	850	SW SILO	20.9	0	0	0	
	915	" "	20.9	0	0	0	
	930	" "	20.9	0	0	0	
	1000	" "	20.9	0	0	0	

Has all required air monitoring been done throughout the confined space? YES Test done by S. DERDEYN

PART 5- LIST ALL AUTHORIZED ENTRANTS AND STANDBY PERSONNEL

(completed by the Entry Supervisor and initiated by Entrants and Standby Personnel)

Entrants	Signature	Standby Personnel	Signature
BRAD ROEDER		S.M. DERDEYN	
ROB KORNELUK			
KARA LITVINAS			
BRIAN WENTZ			

PART 6- CERTIFICATION

(Entrants and Standby Personnel shall review the permit and Operating Procedure. After this is done they shall sign the permit next to their names in Part 5.)

I certify that the requirements of this permit have been met.

ENTRY SUPERVISOR Name: S.M. DERDEYN

Signature — 5/27/15 Date — 410-934-4432 Phone — ARCADIS Organization

Name

Signature — Date — Phone — Organization

When confined space entry work is completed send this permit to the Safety Office.

Appendix F – Class C Construction Cost Estimate

International Consultants, Inc.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

PROJECT INFORMATION

Project:	Nike Missile Launch and Radar Tracking Sites - Radar Site
Park:	Gateway National Recreation Area - Sandy Hook Unit
Park Alpha:	Park Code
PMIS Number:	201658A
Estimate Date:	April 29, 2016
Prepared By:	M Funk/L Johnson
Company:	International Consultants, Inc
Address:	221 Chestnut Street
City, State Zip:	Philadelphia, PA 19106
Phone:	(215) 923-8888

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Rehabailitation of Multiple Buildings/Structures within the Gateway National Recreation Area - Sandy Hook Unit. Estimate is Based on John Milner Architects Project Plans Dated July 31st, 2015, Physical Conditions Narrative Undated, Ultimate Treatment Scope Narrative Undated and Alternatives Scope Narrative Undated, and Received by ICI on April 18th, 2016.

SOURCE OF COST DATA:

Unit Prices used in this estimate come from numerous sources, including previous projects in the North Jersey and surrounding areas, conversations with Suppliers, Contractors, Engineers, and Published Reference Manuals such as RS Means 2016 Building Construction Cost Data, Walker's Building Estimators Reference Book and adjusted for site conditions, size of contract and project and other relevant factors. All unit prices have been adjusted back to a base number, similar to RS Means Data base, and adjusted for location by the factor for Sandy Hook Area. All unit prices include the installing subcontractors markups for overhead and profit.

ESTIMATE ASSUMPTIONS:

All work is assumed to be completed during normal business hours as one project, with appropriate protection of the Public and Park Assets. Wages are based on current first quarter 2016 Davis Bacon wages with adjustments on the summary sheet to Sandy Hook Area. Existing Materials to be reused where appropriate.

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

This estimate is the first estimate for the scope and includes ultimate recommendations and alternatives for the work

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

PROJECT INFORMATION

Project: Nike Missile Launch and Radar Tracking Sites - Radar Site

Park: Gateway National Recreation Area - Sandy Hook Unit
Park Alpha: Park Code
PMIS Number: 201658A
Estimate Date: April 29, 2016

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	8.60%	Long Branch New Jersey Adjustment Factor
Remoteness Factor:	5.00%	Site is remote form most large business districts
Wage Rate Factor:	0.00%	Included
State & Local Taxes:	7.00%	NJ Sales Tax
Design Contingency:	15.00%	Pre Design Estimate
Standard. General Conditions:	15.00%	Standard General Condition for Limited Scope Project
Government General Conditions:	10.00%	Additional General Conditions for Government regulations & requirements
Historic Preservation Factor:	5.00%	Premium for Protection and repairs to historic fabric not in actual scope, and obtaining materials to match adjacent/orginal materials
Contractor Overhead:	7.50%	Contractor Home Office Expenses and overhead, Insurance.
Contractor Profit:	7.50%	Contractors Expected profit for the project.
Bonds and Permits:	1.50%	Performance bonds and permits for the work. Adjusted to 1.5% on Recommendations of M Morelli
Contracting Method Adjustment:	0.00%	To Be Determined
Annual Inflation Escalation Factor:	3.00%	Projected Annual Inflation rate
Time Until Project Midpoint (Months)	12	Number of months from estimate date until the projects midpoint of construction.

OTHER COMMENTS:

N/A

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

PROJECT COST SUMMARY

Project: Nike Missile Launch and Radar Tracking Sites - Radar Site
Park: Gateway National Recreation Area - Sandy Hook Unit
Alpha: Park Code
PMIS: 201658A

Estimate By: M Funk/L Johnson
Date: April 29, 2016

Reviewed By: Reviewer
Date: Review Date

Item No.	Description	Quantity	Unit	Cost/Unit	Ultimate Recommendations Total Base Cost	Ultimate Recommendations Total Marked Up	Alternative Recommendations Total - Base Alternative	Alternative Recommendations Total Marked Up
S	Site Improvements	690,000	SF	$ 0.86	$ 591,389	$ 1,253,364	$ -	$ -
1	Barrack - No. 401	Inaccessible						
2	Barrack - No. 402	1,030	SF	$ 151.55	$ 156,095	$ 330,821	$ 70,050	$ 148,461
3	Barrack - No. 403	1,030	SF	$ 194.52	$ 200,355	$ 424,624	$ 115,815	$ 245,453
4	Barrack Slab - No. 404	1,030	SF	$ 3.50	$ 3,605	$ 7,640	$ -	$ -
5	Barrack Slab - No. 405	1,030	SF	$ 3.50	$ 3,605	$ 7,640	$ -	$ -
6	Latrine - No. 406	695	SF	$ 318.53	$ 221,375	$ 469,173	$ 40,253	$ 85,309
7	Central Heating Plant - No. 407	127	SF	$ 1,025.17	$ 130,197	$ 275,934	$ 11,667	$ 24,727
8	Inter-Connecting Corridor & Control Vans - No. 409	640	SF	$ 470.01	$ 300,804	$ 637,511	$ 236,239	$ 500,674
9	Generator House - No. 410	1,470	SF	$ 161.93	$ 238,033	$ 504,476	$ 173,708	$ 368,148
10	Interconnector Corridor - No. 411	640	SF	$ 90.91	$ 58,185	$ 123,315	$ 129,390	$ 274,224
11	Sentry Box - No. 413	39	SF	$ 1,015.64	$ 39,610	$ 83,948	$ 57,735	$ 122,361
12	Generator House - No. 414	845	SF	$ 63.69	$ 53,815	$ 114,053	$ 150,478	$ 318,916
13	Transformers Pen at 410 & 414	450	SF	$ 15.56	$ 7,000	$ 14,836	$ 5,000	$ 10,597
14	Target Tracking Radar - No. 417	1,190	SF	$ 43.07	$ 51,250	$ 108,617	$ 57,810	$ 122,520
15	Acquisition Radar - No. 418	1,190	SF	$ 44.66	$ 53,150	$ 112,644	$ 55,840	$ 118,345
16	Missile Tracking Radar - No. 419	1,190	SF	$ 43.07	$ 51,250	$ 108,617	$ 54,240	$ 114,954
17	Target Tracking Radar - No. 420	748	SF	$ 54.92	$ 41,083	$ 87,070	$ 36,833	$ 78,062
18	Acquisition Radar - No. 421	1,156	SF	$ 12.00	$ 13,876	$ 29,408	$ 48,676	$ 103,162
19	Missile Tracking Radar - No. 422	1,156	SF	$ 33.20	$ 38,376	$ 81,332	$ 77,676	$ 164,623
20	Sentry Box - No. 423	39	SF	$ 504.85	$ 19,689	$ 41,728	$ 8,474	$ 17,959
21	Slab for Equipment & Operations Bldg - No. 452	248	SF	$ 14.11	$ 3,500	$ 7,418	$ 1,000	$ 2,119
22	Pedestal Radar Tower - No. 453	72	SF	$ 6.94	$ 500	$ 1,060	$ -	$ -
23	Equipment & Operations Bldg - No. 454	375	SF	$ 90.27	$ 33,853	$ 71,746	$ 71,658	$ 151,868
24	Tool Shed - No. 455	80	SF	$ 43.75	$ 3,500	$ 7,418	$ 1,000	$ 2,119
25	Target Ranging Radar - No. 467	815	SF	$ 40.93	$ 33,356	$ 70,694	$ 36,606	$ 77,582
26	HIPAR Building - No. 468	1,690	SF	$ 190.18	$ 321,400	$ 681,161	$ 198,558	$ 420,814
27	HIPAR Tower Foundation - No. 469	1,995	SF	$ 2.51	$ 5,000	$ 10,597	$ 5,000	$ 10,597
28	HIPAR Target Tracking Radar - No. 472	805	SF	$ 35.82	$ 28,839	$ 61,120	$ 33,219	$ 70,402
29	HIPAR Target Tracking Radar - No. 473	1,190	SF	$ 53.28	$ 63,398	$ 134,362	$ 64,708	$ 137,138
						$ -		
	Subtotal Direct Construction Costs				**$2,766,086**	**$ 5,862,324**		
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**			
	Direct Cost Subtotal without GFP				**$2,766,086**			
	Published Location Factor	8.60%			$237,883	*Incl Above*		
	Remoteness Factor	5.00%			$138,304	*Incl Above*		
	Federal Wage Rate Factor	0.00%			$0	*Incl Above*		
	State & Local Taxes	7.00%			$193,626	*Incl Above*		
	Design Contingency	15.00%			$414,913	*Incl Above*		
	Total Direct Construction Costs				**$3,750,813**			
	Standard General Conditions	15.00%			$562,622	*Incl Above*		
	Government General Conditions	10.00%			$375,081	*Incl Above*		
	Historic Preservation Factor	5.00%			$187,541	*Incl Above*		
	Subtotal NET Construction Cost				**$4,876,057**			
	Overhead	7.50%			$365,704	*Incl Above*		
	Profit	7.50%			$365,704	*Incl Above*		
	Estimated NET Construction Cost				**$5,607,465**			
	Bonds & Permits	1.50%			**$84,112**	*Incl Above*		
	Contracting Method Adjustment	0.00%			$0	*Incl Above*		
	Inflation Escalation	12	Months	3.00%	$170,747	*Incl Above*		
	Total Estimated NET Cost of Construction				**$5,862,324**			

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item S	**Site Improvements**	**Total Cost:**	$591,389

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Trim Vegetation Throughout Radar Tracking Site	76667	SY	$ 2.00	$ 153,333	
	Repave Area between Control Area #1 & the Administrative Area	833	SY	$ 65.00	$ 54,167	
	Replace Lighting Fixtures Along Sidewalk, Assume 50' OC	30	EA	$ 6,500.00	$ 195,000	
	Repair Existing Roadways As Required	5556	SY	$ 25.00	$ 138,889	
	Debris Removal	1	LS	$ 50,000.00	$ 50,000	
	SUBTOTAL EXTERIOR	**690000**	**SF**	**$ 0.86**	**$ 591,389**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Site Improvements		**690000**	**SF**	**$ 0.86**	**$ 591,389**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 2	**Barrack - No. 402**	**Total Cost:**	$156,095

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation As Required	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Relocate Building Systems & Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Exterior Walls					
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	600	SF	$ 20.00	$ 12,000	
	Doors					
	Replace & Paint Metal Door Frame at North Elevation, Strip & Repaint Wood Studs on Either Side	1	EA	$ 1,000.00	$ 1,000	
	Replace Door at South Elevation (TME), Restore Trim, Strip & Repaint Wood Studs on Either Side	1	EA	$ 1,400.00	$ 1,400	
	Install Weatherstripping, Replace Hardware at Doors	2	EA	$ 500.00	$ 1,000	
	Windows					
	Remove Vegetation from Window on East Elevation				Included in Overall Cost	
	Replace Missing Wood Sashes, Including Plexiglass at Select Windows	15	SF	$ 125.00	$ 1,875	
	Repair/Scrape/Paint Wood Window Frames	176	LF	$ 25.00	$ 4,400	
	Prep/Paint Exterior Windows	120	SF	$ 10.00	$ 1,200	
	Replace Metal Security Screens at Each Window	120	SF	$ 100.00	$ 12,000	
	Roofing					
	Restore Corrugated Metal Roofing & Flashing	1100	SF	$ 5.00	$ 5,500	
	Replace Bed Molding Board at West Elevation	50	LF	$ 30.00	$ 1,500	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 2 **Barrack - No. 402** **Total Cost:** $156,095

	Flashing & Sheet Metal				
	Replace Metal Downspouts	36	LF	$ 40.00	$ 1,440
	Structural				
	Clean Roof Truss of Corrosion, Paint w/ Rust-Inhibitive Coating	1100	SF	$ 4.00	$ 4,400
	Building Systems				
	Re-establish Electrical Service to Building	1	LS	$ 7,500.00	$ 7,500
	Other				
	Replace Light Fixture at North Elevation (TME)	1	EA	$ 500.00	$ 500
	Remove Plywood at Vent, Replace Vent	1	EA	$ 500.00	$ 500
	SUBTOTAL EXTERIOR	**1030**	**SF**	**$ 60.40**	**$ 62,215**

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					
	Remove Asbestos Particle Board & Insulation at North & South Walls	400	SF	$ 20.00	$ 8,000	
	Cut/Patch Rusted Metal Siding				Included in Exterior Walls	
	Replace Insulation & Particle Board at All Interior Walls	1200	SF	$ 7.50	$ 9,000	
	Ceiling					
	Remove Asbestos Particle Board & Insulation on Ceiling	1100	SF	$ 22.50	$ 24,750	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 2 **Barrack - No. 402** **Total Cost:** $156,095

	Replace Insulation & Particle Board on Ceiling	1100	SF	$ 9.00	$ 9,900
	Flooring				
	Remove Debris, Clean & Paint Concrete Floor	1030	SF	$ 3.00	$ 3,090
	Building Systems				
	Electrical Receptacles As Required for Program	1030	SF	$ 5.00	$ 5,150
	Remove & Replace Interior Lighting Fixtures	1030	SF	$ 8.00	$ 8,240
	Electrical Wiring	1030	SF	$ 10.00	$ 10,300
	Building Heating System Only	1030	SF	$ 15.00	$ 15,450
	SUBTOTAL INTERIOR	**1030**	**SF**	**$ 91.15**	**$ 93,880**

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Barrack - No. 402		**1030**	**SF**	**$ 151.55**	**$ 156,095**	

	Alternative Scope				
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 2,500.00	$ 2,500
	Remove Biological Growth & Clean Soiled Siding	1200	SF	$ 2.00	$ 2,400
	Stabilize & Paint Exterior Doors	2	EA	$ 650.00	$ 1,300
	Repair Exterior Wood Windows, Install Vents for Air Circulation	120	SF	$ 60.00	$ 7,200
	Replace Roofing & Flashing	1030	SF	$ 20.00	$ 20,600
	Remove Remnants of Existing Electrical Wiring	1030	SF	$ 1.00	$ 1,030
	Remove Plasterboard Ceilings	1030	SF	$ 2.00	$ 2,060
	Remove Debris & Vinyl Asbestos Floor Tile & Clean Floor	1030	SF	$ 25.00	$ 25,750

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 2 **Barrack - No. 402** **Total Cost:** $156,095

	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	1030	SF	$	3.00	$	3,090
	Remove HVAC Equipment & Ductwork	1030	SF	$	4.00	$	4,120
	SUBTOTAL ALTERNATIVE	**1030**	**SF**	**$**	**68.01**	**$**	**70,050**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 3	**Barrack - No. 403**	**Total Cost:**	$200,355

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation on Exterior Corrugated Mtl Siding	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Relocate Building Systems & Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Exterior Walls					
	Cut/Patch/Repair Corrugated Metal Siding (Excludes North Elevation), Assume 50%	500	SF	$ 20.00	$ 10,000	
	Doors					
	Restore Door & Frame on South Elevation	1	EA	$ 1,000.00	$ 1,000	
	Install Weatherstripping, Replace Hardware at Doors - Single	1	EA	$ 500.00	$ 500	
	- Double	1	PR	$ 1,000.00	$ 1,000	
	Windows					
	Repair/Strip/Paint Window Sashes & Frames	120	SF	$ 60.00	$ 7,200	
	Replace Metal Security Screens at Each Window	120	SF	$ 100.00	$ 12,000	
	Roofing					
	Restore Corrugated Metal Roofing & Flashing	1100	SF	$ 5.00	$ 5,500	
	Replace Eaves & Roof Edges on all Elevations	145	LF	$ 35.00	$ 5,075	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	36	LF	$ 40.00	$ 1,440	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 3 **Barrack - No. 403** **Total Cost:** $200,355

	Structural					
	Clean Roof Truss of Corrosion, Paint w/ Rust-Inhibitive Coating	1100	SF	$ 4.00	$ 4,400	
	Building Systems					
	Re-establish Electrical Service to Building	1	LS	$ 7,500.00	$ 7,500	
	SUBTOTAL EXTERIOR	**1030**	**SF**	**$ 59.82**	**$ 61,615**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					
	Replace Insulation & Asbestos Particle Board at All Interior Walls	1200	SF	$ 27.50	$ 33,000	
	Replace Damaged Plywood on Interior Partitions, Assume 50%	21	LF	$ 50.00	$ 1,050	
	Ceiling					
	Replace Insulation & Asbestos Particle Board on Ceiling	1100	SF	$ 31.50	$ 34,650	
	Flooring					
	Replace Vinyl Asbestos Tile Floors w/ Laminate Flooring	1030	SF	$ 30.00	$ 30,900	
	Building Systems					
	Electrical Receptacles As Required for Program	1030	SF	$ 5.00	$ 5,150	
	Remove & Replace Interior Lighting Fixtures	1030	SF	$ 8.00	$ 8,240	
	Electrical Wiring	1030	SF	$ 10.00	$ 10,300	
	Building Heating System Only	1030	SF	$ 15.00	$ 15,450	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 3	**Barrack - No. 403**	**Total Cost:**	$200,355

	SUBTOTAL INTERIOR	**1030**	**SF**	**$ 134.70**	**$ 138,740**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Barrack - No. 403		**1030**	**SF**	**$ 194.52**	**$ 200,355**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 2,500.00	$ 2,500	
	Remove Biological Growth & Clean Soiled Siding	1200	SF	$ 2.00	$ 2,400	
	Stabilize & Paint Exterior Doors	3	EA	$ 650.00	$ 1,950	
	Repair Exterior Wood Windows, Install Vents for Air Circulation	120	SF	$ 60.00	$ 7,200	
	Replace Roofing & Flashing	1030	SF	$ 20.00	$ 20,600	
	Remove Remnants of Existing Electrical Wiring	1030	SF	$ 1.00	$ 1,030	
	Remove Asbestos Particle Board & Insulation on Interior Walls	1200	SF	$ 20.00	$ 24,000	
	Remove Asbestos Particle Board & Insulation at Ceilings	1030	SF	$ 22.50	$ 23,175	
	Remove Debris & Vinyl Asbestos Floor Tile & Clean Floor	1030	SF	$ 25.00	$ 25,750	
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	1030	SF	$ 3.00	$ 3,090	
	Remove HVAC Equipment & Ductwork	1030	SF	$ 4.00	$ 4,120	
	SUBTOTAL ALTERNATIVE	**1030**	**SF**	**$ 112.44**	**$ 115,815**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 4	**Barrack Slab - No. 404**	**Total Cost:**	$3,605

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Clean Exposed Steel of Rust, Re-coat w/ Rust Inhibitive	1030	SF	$ 3.50	$ 3,605	
	SUBTOTAL EXTERIOR	**1030**	**SF**	**$ 3.50**	**$ 3,605**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Barrack Slab - No. 404**	**1030**	**SF**	**$ 3.50**	**$ 3,605**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 5	**Barrack Slab - No. 405**	**Total Cost:**	$3,605

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Clean Exposed Steel of Rust, Re-coat w/ Rust Inhibitive	1030	SF	$ 3.50	$ 3,605	
	SUBTOTAL EXTERIOR	**1030**	**SF**	**$ 3.50**	**$ 3,605**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Barrack Slab - No. 405**	**1030**	**SF**	**$ 3.50**	**$ 3,605**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 6	**Latrine - No. 406**	**Total Cost:**	$221,375

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation & Biological Growth on Exterior CMU Wall	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,500.00	$ 1,500	
	Relocate Building Systems & Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Exterior Masonry Walls					
	Repair Exterior CMU Façade As Per Scope of Work	950	SF	$ 10.00	$ 9,500	
	Patch/Repair/Paint CMU Wall As Required	950	SF	$ 2.00	$ 1,900	
	Doors					
	Replace Door & Frame on North Elevation, Single	1	EA	$ 1,850.00	$ 1,850	
	- Replace Interior Screen Door & Frame, Single	1	EA	$ 650.00	$ 650	
	Replace Door & Frame at South Elevation, Double	1	EA	$ 3,600.00	$ 3,600	
	Replace Exterior Door Only on West Elevation, Existing Frame Remains (Includes Replacement Threshold)	1	EA	$ 1,100.00	$ 1,100	
	Windows					
	Restore Steel Window Sashes As Required	30	SF	$ 100.00	$ 3,000	
	Remove & Replace Steel Window Sashes As Required	30	SF	$ 150.00	$ 4,500	
	Mechanically Remove Rust from Mtl Window Frames	96	LF	$ 20.00	$ 1,920	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 6	**Latrine - No. 406**	**Total Cost:**	$221,375

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Roofing					
	Repair Roofing Elements Effected by Roof Flashing Laps, Assume 50%	440	SF	$ 25.00	$ 11,000	
	Remove & Replace Eaves at South Elevation	40	LF	$ 40.00	$ 1,600	
	Remove & Replace Fascia Board at All Elevations	124	LF	$ 40.00	$ 4,960	
	Remove & Replace Soffit at South Elevation & Northeast Corner	50	LF	$ 50.00	$ 2,500	
	Replace Rusted Flashing Throughout the Structure	1	LS	$ 5,000.00	$ 5,000	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	20	LF	$ 40.00	$ 800	
	Structural					
	Repoint CMU Exterior Wall, Assume 25%	238	SF	$ 15.00	$ 3,563	
	Repair Roof Elements Affected by Roof Flashing Laps, Redesign of Roof Flashing			Included in Roofing Above		
	Building Systems					
	Re-establish Electrical, Water & Sanitary Sewer Service to Building	1	LS	$ 25,000.00	$ 25,000	
	SUBTOTAL EXTERIOR	**695**	**SF**	**$ 127.97**	**$ 88,943**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					
	Repair Interior CMU Walls As Per Scope of Work	950	SF	$ 4.00	$ 3,800	
	Remove & Replace Interior Plasterboard Partitions	75	LF	$ 150.00	$ 11,250	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 6 **Latrine - No. 406** **Total Cost:** $221,375

	Replace Tile Walls in Shower Areas	320	SF	$ 17.50	$ 5,600
	Remove & Replace Toilet Partitions	5	EA	$ 1,200.00	$ 6,000
	Ceiling				
	Remove & Replace Plasterboard Ceiling, Paint	695	SF	$ 12.50	$ 8,688
	Flooring				
	Remove Debris, Clean & Paint Concrete Floor	695	SF	$ 3.00	$ 2,085
	Building Systems				
	Electrical Receptacles As Required for Program	695	SF	$ 5.00	$ 3,475
	Building Heating System Only	695	SF	$ 15.00	$ 10,425
	Remove & Replace Plumbing Fixtures - Toilets/Urinals	9	EA	$ 1,500.00	$ 13,500
	- Lavatories	7	EA	$ 1,400.00	$ 9,800
	- Showers - 30" x 42"	1	EA	$ 2,000.00	$ 2,000
	- 78" x 96"	2	EA	$ 2,650.00	$ 5,300
	Remove & Replace Plumbing Piping	19	Fixt	$ 2,000.00	$ 38,000
	Other				
	Remove & Replace Interior Lighting Fixtures	695	SF	$ 8.00	$ 5,560
	Electrical Wiring	695	SF	$ 10.00	$ 6,950
	SUBTOTAL INTERIOR	**695**	**SF**	**$ 190.55**	**$ 132,433**

TOTAL COST - Latrine - No. 406	**695**	**SF**	**$ 318.53**	**$ 221,375**

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 6	**Latrine - No. 406**	**Total Cost:**	$221,375

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	22,562.50	$	22,563
	Stabilize & Paint All Doors	4	EA	$	650.00	$	2,600
	Repair Exterior Steel Windows, Install Vents for Air Circulation	30	SF	$	100.00	$	3,000
	Remove Remnants of Electrical Wiring	695	SF	$	1.00	$	695
	Remove Plasterboard Partitions & Tile Walls	75	LF	$	50.00	$	3,750
	Remove Plasterboard Ceilings	695	SF	$	2.00	$	1,390
	Remove Debris & Clean Concrete Floors	695	SF	$	2.00	$	1,390
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	695	SF	$	3.00	$	2,085
	Remove HVAC Equipment & Ductwork	695	SF	$	4.00	$	2,780
	SUBTOTAL ALTERNATIVE	**695**	**SF**	**$**	**57.92**	**$**	**40,253**

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 7	**Central Heating Plant - No. 407**	**Total Cost:**	$130,197

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation on Exterior Corrugated Mtl Siding	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Exterior Walls					
	Cut/Patch/Repair Corrugated Metal Siding, Assume 10%	44	SF	$ 20.00	$ 880	
	Doors					
	Replace Door Only at South Elevation	1	EA	$ 1,100.00	$ 1,100	
	Windows					
	Restore Exterior Steel Window Sashes	9	SF	$ 100.00	$ 900	
	Mechanically Remove Rust from Mtl Window Frame	12	LF	$ 20.00	$ 240	
	Replace Glass in Window Sash			Included in Restoration Cost Above		
	Structural					
	Clean Corroded Interior Steel Framing & Coat w/ Rust-Inhibitive Paint	570	SF	$ 5.00	$ 2,850	
	Remove & Replace Interior Steel Framing Elements, Assume 25%	143	SF	$ 30.00	$ 4,275	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 7	**Central Heating Plant - No. 407**	**Total Cost:**	$130,197

	Building Systems					
	Re-establish Electrical Service to Building	1	LS	$ 7,500.00	$ 7,500	
	Electrical Receptacles As Required for Program	127	SF	$ 5.00	$ 635	
	Remove & Replace Interior Lighting Fixtures	127	SF	$ 8.00	$ 1,016	
	Electrical Wiring	127	SF	$ 10.00	$ 1,270	
	New Hot Water Boiler to Distribute Heat to Other Bldgs.	1	LS	$ 20,000.00	$ 20,000	
	- Piping Distribution to 3 Bldg (402, 403, 406)	500	LF	$ 175.00	$ 87,500	
	SUBTOTAL EXTERIOR	**127**	**SF**	**$ 1,020.99**	**$ 129,666**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Remove Debris, Clean Concrete Floor	127	SF	$ 3.00	$ 381	
	Repair Minor Rust on Ceiling Light Fixture	1	EA	$ 150.00	$ 150	
	SUBTOTAL INTERIOR	**127**	**SF**	**$ 4.18**	**$ 531**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Central Heating Plant - No. 407		**127**	**SF**	**$ 1,025.17**	**$ 130,197**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 7	**Central Heating Plant - No. 407**	**Total Cost:**	$130,197

	Alternative Scope							
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	9,886.00	$	9,886	
	Repair Exterior Steel Windows, Install Vents for Air Circulation	9	SF	$	85.00	$	765	
	Remove Remnants of Electrical Wiring	127	SF	$	1.00	$	127	
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	127	SF	$	3.00	$	381	
	Remove HVAC Equipment & Ductwork	127	SF	$	4.00	$	508	
	SUBTOTAL ALTERNATIVE	**127**	**SF**	**$**	**91.87**	**$**	**11,667**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 8	**Inter-Connecting Corridor & Control Vans - No. 409**	**Total Cost:**	$300,804

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation As Required	1	LS	$ 1,500.00	$ 1,500	
	Remove Biological Growth & Clean Soiled CMU Façade	1285	SF	$ 2.00	$ 2,570	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1285	SF	$ 10.00	$ 12,850	
	Strip/Repaint CMU Façade at All Elevations	1285	SF	$ 2.00	$ 2,570	
	Doors					
	Restore East Doors (Includes Replacement Threshold/Trim/Hardware)	3	EA	$ 1,000.00	$ 3,000	
	Repair Rusted Lintel, Rotting Door Head, Mild Surface Rust & Bent Louvers at North Door (Includes Replacement Threshold/Trim/Hardware)	1	EA	$ 2,500.00	$ 2,500	
	Replace Rusted Frame, Weathered Sub-Frame & Weathered Replacement Head at West Door	1	EA	$ 1,000.00	$ 1,000	
	Repair Welding & Fasteners of Modules Exhibiting Rust	1	LS	$ 1,000.00	$ 1,000	
	Repair/Prep/Paint Doors & Frames	4	EA	$ 400.00	$ 1,600	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 8 **Inter-Connecting Corridor & Control Vans - No. 409** **Total Cost:** $300,804

	Windows				
	Replace Wood Windows - East Elevation	16	SF	$ 100.00	$ 1,600
	- West Elevation	32	SF	$ 100.00	$ 3,200
	Repair Rusted Wood Louver Window on East Elevation	6	SF	$ 50.00	$ 300
	Repair/Scrape/Paint Wood Window Frames	70	LF	$ 25.00	$ 1,750
	Prep/Paint Exterior Windows	48	SF	$ 10.00	$ 480
	Replace Metal Screens Throughout	48	SF	$ 100.00	$ 4,800
	Roofing				
	Replace Metal Roofing & Flashing	955	SF	$ 20.00	$ 19,100
	Replace Wood Fascia at North Elevation	40	LF	$ 30.00	$ 1,200
	Flashing & Sheet Metal				
	Replace Metal Gutters & Downspouts	82	LF	$ 40.00	$ 3,280
	Structural				
	Level 1 - Repoint Cracks in CMU Walls, Assume 25%	321	SF	$ 15.00	$ 4,819
	- Leveling Compound to Existing Concrete Slab	640	SF	$ 3.00	$ 1,920
	Level 2 - Underpin Existing Foundation Prevent Further Settlement	117	LF	$ 1,250.00	$ 146,250
	Replace Soffit As Required	1	LS	$ 2,500.00	$ 2,500
	Building Systems				
	Restore Electrical Power to the Building	1	LS	$ 7,500.00	$ 7,500
	Other				
	Remove Plywood on West Elevation, Replace Exhaust w/ Modern One	1	LS	$ 2,500.00	$ 2,500

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 8	**Inter-Connecting Corridor & Control Vans - No. 409**	**Total Cost:**	$300,804

SUBTOTAL EXTERIOR	**640**	**SF**	**$ 360.61**	**$ 230,789**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Repair Interior CMU Walls As Per Scope of Work	1285	SF	$ 4.00	$ 5,140	
	Replace Damaged Plasterboard Walls, Assume 50%	414	SF	$ 7.50	$ 3,105	
	Clean/Patch/Paint Interior CMU Walls	1285	SF	$ 3.00	$ 3,855	
	Replace Wood Base	209	LF	$ 20.00	$ 4,180	
	Ceiling					
	Replace Plasterboard Ceiling	330	SF	$ 10.00	$ 3,300	
	Replace Acoustical Ceiling Tiles	265	SF	$ 6.00	$ 1,590	
	Reattach Acoustical Ceiling Tile in Room 101	45	SF	$ 3.00	$ 135	
	Repair Rusted Black Iron Section of Ceiling at Room 105	245	SF	$ 10.00	$ 2,450	
	Flooring					
	Remove Debris, Clean & Paint Concrete Floor	640	SF	$ 3.00	$ 1,920	
	Replace Vinyl Asbestos Tile Floors w/ Laminate Flooring	640	SF	$ 30.00	$ 19,200	
	Doors					
	Replace Interior Doors Only, Existing Frame Remains	2	EA	$ 900.00	$ 1,800	
	Windows					
	Replace Steel Lintel & Concrete Sill at Van in Room 104	8	LF	$ 375.00	$ 3,000	
	Repair Gouges & Rusting Dowels Where Necessary	1	LS	$ 500.00	$ 500	
	Replace Window Trim in Room 103	16	LF	$ 20.00	$ 320	

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LINE ITEM COST SUMMARY

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PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 8 **Inter-Connecting Corridor & Control Vans - No. 409** **Total Cost:** $300,804

	Building Systems					
	Building Heating System, Using Elec Resistance Heaters	640	SF	$ 7.50	$ 4,800	
	Remove & Replace Electrical Receptacles	640	SF	$ 5.00	$ 3,200	
	Remove & Replace Interior Lighting Fixtures	640	SF	$ 8.00	$ 5,120	
	Electrical Wiring	640	SF	$ 10.00	$ 6,400	
	SUBTOTAL INTERIOR	**640**	**SF**	**$ 109.40**	**$ 70,015**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Inter-Connecting Corridor & Control Vans -		**640**	**SF**	**$ 470.01**	**$ 300,804**	

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 203,628.75	$ 203,629	
	Stabilize & Paint All Doors	4	EA	$ 650.00	$ 2,600	
	Replace Exterior Wood Windows, Install Vents for Air Circulation	67	SF	$ 110.00	$ 7,370	
	Remove Remnants of Electrical Distribution Equipment	1	LS	$ 1,000.00	$ 1,000	
	Remove Plasterboard Walls	45	LF	$ 40.00	$ 1,800	
	Remove Plasterboard & Acoustical Ceiling Systems	640	SF	$ 2.00	$ 1,280	
	Remove Debris & Clean Concrete Floors	640	SF	$ 2.00	$ 1,280	
	Remove Vinyl Asbestos Tile	640	SF	$ 20.00	$ 12,800	
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	640	SF	$ 3.00	$ 1,920	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 8	**Inter-Connecting Corridor & Control Vans - No. 409**					**Total Cost:**		$300,804
	Remove HVAC Equipment & Ductwork	640	SF	$	4.00	$	2,560	
	SUBTOTAL ALTERNATIVE	**640**	**SF**	**$**	**369.12**	**$**	**236,239**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 9	**Generator House - No. 410**	**Total Cost:**	$238,033

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation As Required	1	LS	$ 500.00	$ 500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Relocate Building Systems & Other Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1670	SF	$ 10.00	$ 16,700	
	Strip/Repaint CMU Façade at All Elevations	1670	SF	$ 2.00	$ 3,340	
	Doors					
	Repair/Prep/Paint Doors & Frames	11	EA	$ 400.00	$ 4,400	
	Replace Exterior Doors Only, Existing Frame Remains (Includes Replacement Threshold)	11	EA	$ 1,100.00	$ 12,100	
	Windows					
	Replace Exterior Steel Windows - North & East Elevations	57	SF	$ 150.00	$ 8,550	
	Replace Wood Louvered Windows w/ Metal Screens on West Elevation	50	SF	$ 125.00	$ 6,250	
	Replace Louvered Window on South Elevation	6	SF	$ 150.00	$ 900	
	Replace Metal Screens Throughout	113	SF	$ 100.00	$ 11,300	
	Repair/Scrape/Paint Window Frames	160	LF	$ 25.00	$ 4,000	
	Prep/Paint Exterior Windows	113	SF	$ 10.00	$ 1,130	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 9	**Generator House - No. 410**	**Total Cost:**	$238,033

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Roofing					
	Replace Metal Roofing & Flashing	1470	SF	$ 20.00	$ 29,400	
	Replace Missing Vent Covers to Match Original	3	EA	$ 600.00	$ 1,800	
	Replace Rotting Bed Molding Board	195	LF	$ 30.00	$ 5,850	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	50	LF	$ 40.00	$ 2,000	
	Structural					
	Repoint Cracks in CMU Walls, Assume 25%	418	SF	$ 15.00	$ 6,263	
	Rake & Repoint Crack w/ Sealant Joint & Backer Rod				Included in Exterior Walls	
	Replace Heavily Deteriorated Blocks at Rear Dividing Walls, Assume 20%				Included in Exterior Walls	
	Building Systems					
	Restore Electrical Power to the Building	1	LS	$ 7,500.00	$ 7,500	
	SUBTOTAL EXTERIOR	**1470**	**SF**	**$ 85.70**	**$ 125,983**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Replace Deteriorated Asbestos Particleboard Walls	60	LF	$ 350.00	$ 21,000	
	Clean/Patch/Paint Interior CMU Walls	1670	SF	$ 3.00	$ 5,010	
	Replace Wood Base	345	LF	$ 20.00	$ 6,900	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 9 **Generator House - No. 410** **Total Cost:** $238,033

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Ceiling					
	Replace Deteriorated Asbestos Particle Board Ceiling & Vapor Barrier	30	SF	$ 31.50	$ 945	
	Restore Rusted Metal Ceiling	1440	SF	$ 7.50	$ 10,800	
	Flooring					
	Remove Debris, Clean & Paint Concrete Floor	1470	SF	$ 3.00	$ 4,410	
	Restore Rusted Floor Trenches Throughout	172	LF	$ 100.00	$ 17,200	
	Doors					
	Strip & Paint Original Metal Doors	1	EA	$ 250.00	$ 250	
	Restore Original Hardware	1	EA	$ 350.00	$ 350	
	Building Systems					
	Building Heating System, Using Elec Resistance Heaters	1470	SF	$ 7.50	$ 11,025	Alt - Full HVAC
	Electrical Receptacles As Required for Program	1470	SF	$ 5.00	$ 7,350	
	Other					
	Replace Broken Exterior Light Fixture	1	EA	$ 350.00	$ 350	
	Remove & Replace Interior Lighting Fixtures	1470	SF	$ 8.00	$ 11,760	
	Electrical Wiring	1470	SF	$ 10.00	$ 14,700	
	SUBTOTAL INTERIOR	**1470**	**SF**	**$ 76.22**	**$ 112,050**	

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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 9	**Generator House - No. 410**	**Total Cost:**	$238,033

TOTAL COST - Generator House - No. 410	**1470**	**SF**	**$**	**161.93**	**$**	**238,033**	
	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	59,562.50	$	59,563
	Remove Biological Growth & Clean Soiled CMU Façade	1670	SF	$	2.00	$	3,340
	Stabilize & Paint All Doors	11	EA	$	650.00	$	7,150
	Repair Exterior Steel Windows, Install Vents for Air Circulation	160	SF	$	85.00	$	13,600
	Stabilize Metal Downspouts	50	LF	$	15.00	$	750
	Remove Remnants of Electrical Distribution Equipment	1	LS	$	1,000.00	$	1,000
	Remove Interior Asbestos Particle Board Walls	1670	SF	$	20.00	$	33,400
	Remove Asbestos Particle Board Ceilings & Vapor Barrier	1470	SF	$	22.50	$	33,075
	Remove Debris & Clean Concrete Floors	1470	SF	$	2.00	$	2,940
	Repair/Clean Rusted Floor Trenches	172	LF	$	50.00	$	8,600
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	1470	SF	$	3.00	$	4,410
	Remove HVAC Equipment & Ductwork	1470	SF	$	4.00	$	5,880
SUBTOTAL ALTERNATIVE	**1470**	**SF**	**$**	**118.17**	**$**	**173,708**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 10 Interconnector Corridor - No. 411 **Total Cost:** $58,185

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation on Exterior CMU Façade	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1285	SF	$ 5.00	$ 6,425	
	Doors					
	Stabilize & Paint All Doors	4	EA	$ 650.00	$ 2,600	
	Windows					
	Replace Wood Windows, Install Vents for Air Circulation	48	SF	$ 110.00	$ 5,280	
	Roofing					
	Replace Metal Roofing & Flashing	955	SF	$ 20.00	$ 19,100	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	48	LF	$ 40.00	$ 1,920	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**640**	**SF**	**$ 59.10**	**$ 37,825**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 10 Interconnector Corridor - No. 411 **Total Cost:** $58,185

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Remove Plasterboard Walls	45	LF	$ 40.00	$ 1,800	
	Ceiling					
	Remove Plasterboard Ceiling	640	SF	$ 2.00	$ 1,280	
	Flooring					
	Remove Debris & Vinyl Asbestos Tile, Clean Concrete Floor	640	SF	$ 20.00	$ 12,800	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	640	SF	$ 3.00	$ 1,920	
	Remove Deteriorated HVAC Equipment & Ductwork	640	SF	$ 4.00	$ 2,560	
	SUBTOTAL INTERIOR	**640**	**SF**	**$ 31.81**	**$ 20,360**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Interconnector Corridor - No. 411		**640**	**SF**	**$ 90.91**	**$ 58,185**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 10 Interconnector Corridor - No. 411 — **Total Cost:** $58,185

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	22,020.00	$	22,020
	Remove Biological Growth & Clean Soiled CMU Façade	1285	SF	$	2.00	$	2,570
	Repair Exterior CMU Façade As Per Scope of Work	1285	SF	$	10.00	$	12,850
	Replace Exterior Doors & Frames, Prep/Paint	4	EA	$	1,850.00	$	7,400
	- Replace Lintels	4	EA	$	750.00	$	3,000
	Restore Exterior Wood Windows & Frames	48	SF	$	75.00	$	3,600
	Replace Roof Edge Flashing & Soffits	125	LF	$	50.00	$	6,250
	Restore Electrical Power to the Building	1	LS	$	7,500.00	$	7,500
	Repair/Patch & Paint Interior CMU Walls	1285	SF	$	5.00	$	6,425
	Replace Interior Plasterboard Walls	45	LF	$	175.00	$	7,875
	Replace Plasterboard & Acoustical Ceiling Tile System	640	SF	$	10.00	$	6,400
	Remove Debris & Clean Concrete Floors	640	SF	$	2.00	$	1,280
	Replace Vinyl Asbestos Tile w/ Laminate Flooring	640	SF	$	30.00	$	19,200
	Restore Doors & Casings in Room 103	1	EA	$	1,000.00	$	1,000
	Restore Transoms that have Open Joints	1	EA	$	500.00	$	500
	Restore OH Doors in Room 105	2	EA	$	1,000.00	$	2,000
	Building Heating System, Using Elec Resistance Heaters	640	SF	$	7.50	$	4,800
	Remove & Replace Electrical Receptacles	640	SF	$	5.00	$	3,200
	Remove & Replace Interior Lighting Fixtures	640	SF	$	8.00	$	5,120
	Electrical Wiring	640	SF	$	10.00	$	6,400
	SUBTOTAL ALTERNATIVE	**640**	**SF**	**$**	**202.17**	**$**	**129,390**

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 11 Sentry Box - No. 413 **Total Cost:** $39,610

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation on Exterior CMU Façade	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1	LS	$ 1,000.00	$ 1,000	
	Doors					
	Replace Exterior Door & Frame, Paint - Single	1	EA	$ 1,750.00	$ 1,750	
	Windows					
	Repair Exterior Steel Windows, Install Vents for Air Circulation	27	SF	$ 85.00	$ 2,295	
	Roofing					
	Replace Metal Roofing & Flashing	39	SF	$ 35.00	$ 1,365	
	Structural					
	Repoint CMU Façade, Assume 10%	22	SF	$ 25.00	$ 550	
	Remove & Replace Roof Structure in Entirety	1	LS	$ 25,000.00	$ 25,000	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**39**	**SF**	**$ 857.95**	**$ 33,460**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 11 Sentry Box - No. 413 **Total Cost:** $39,610

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Remove Asbestos Plasterboard Walls	220	SF	$ 20.00	$ 4,400	
	Flooring					
	Remove Debris, Clean & Paint Concrete Floor	1	LS	$ 500.00	$ 500	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	1	LS	$ 750.00	$ 750	
	Remove Deteriorated HVAC Equipment & Ductwork	1	LS	$ 500.00	$ 500	
	SUBTOTAL INTERIOR	**39**	**SF**	**$ 157.69**	**$ 6,150**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Sentry Box - No. 413		**39**	**SF**	**$ 1,015.64**	**$ 39,610**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 11 Sentry Box - No. 413		**Total Cost:**	$39,610

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	29,915.00	$	29,915
	Remove Biological Growth & Clean Soiled CMU Walls	220	SF	$	2.00	$	440
	Repair Exterior CMU Façade As Per Scope of Work	220	SF	$	15.00	$	3,300
	Replace Door, Restore Frame, Prep/Paint	1	EA	$	1,600.00	$	1,600
	Restore Exterior Steel Windows	27	SF	$	100.00	$	2,700
	Restore Electrical Power to Building	1	LS	$	7,500.00	$	7,500
	Replace Light Fixture on East Elevation	1	EA	$	350.00	$	350
	Remove Asbestos Particle Board, New Drywall Replacement	220	SF	$	30.00	$	6,600
	Repair/Patch & Paint Interior CMU Walls	220	SF	$	10.00	$	2,200
	Replace Plasterboard Ceiling	39	SF	$	20.00	$	780
	Building Heating System, Using Elec Resistance Heaters	1	LS	$	750.00	$	750
	Remove & Replace Electrical Receptacles	1	LS	$	350.00	$	350
	Remove & Replace Interior Lighting Fixtures	1	LS	$	500.00	$	500
	Electrical Wiring	1	LS	$	750.00	$	750
	SUBTOTAL ALTERNATIVE	**39**	**SF**	**$**	**1,480.38**	**$**	**57,735**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 12 Generator House - No. 414 **Total Cost:** $53,815

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation on Exterior CMU Façade	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	325	SF	$ 5.00	$ 1,625	
	Doors					
	Stabilize & Paint All Doors	11	EA	$ 650.00	$ 7,150	
	Windows					
	Replace Exterior Wood Windows, Install Vents for Air Circulation	80	SF	$ 110.00	$ 8,800	
	Roofing					
	Replace Metal Roofing & Flashing	1189	SF	$ 20.00	$ 23,780	
	Structural					
	Repoint CMU Façade, Assume 10%	111	SF	$ 15.00	$ 1,665	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**845**	**SF**	**$ 52.69**	**$ 44,520**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 12 Generator House - No. 414 **Total Cost:** $53,815

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Ceiling					
	Remove Plasterboard Ceiling	845	SF	$ 2.00	$ 1,690	
	Flooring					
	Remove Debris, Clean Concrete Floor	845	SF	$ 2.00	$ 1,690	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	845	SF	$ 3.00	$ 2,535	
	Remove Deteriorated HVAC Equipment & Ductwork	845	SF	$ 4.00	$ 3,380	
	SUBTOTAL INTERIOR	**845**	**SF**	**$ 11.00**	**$ 9,295**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Generator House - No. 414		**845**	**SF**	**$ 63.69**	**$ 53,815**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 12 Generator House - No. 414		**Total Cost:**	$53,815

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	25,945.00	$	25,945
	Remove Biological Growth & Clean Soiled CMU Façade	325	SF	$	2.00	$	650
	Repair Exterior CMU Façade As Per Scope of Work	325	SF	$	15.00	$	4,875
	Replace Exterior Doors & Frames, Prep/Paint	11	EA	$	1,850.00	$	20,350
	Restore Exterior Wood Windows & Frames	82	SF	$	75.00	$	6,150
	Replace Exterior Louvers	5	SF	$	175.00	$	875
	Replace Wood Bed Moulding on All Elevations	140	LF	$	30.00	$	4,200
	Restore Electrical Power to the Building	1	LS	$	7,500.00	$	7,500
	Replace Interior Plasterboard Walls	45	LF	$	175.00	$	7,875
	Restore Wood Baseboards	90	LF	$	20.00	$	1,800
	Replace Plasterboard & Acoustical Ceiling Tile System	845	SF	$	10.00	$	8,450
	Remove Debris from Metal Trenches in Floor, Replace Missing Trench Covers	47	LF	$	150.00	$	7,050
	Repair Cracks in Concrete Floor, Clean Concrete	845	SF	$	3.00	$	2,535
	Replace Vinyl Asbestos Tile w/ Laminate Flooring	845	SF	$	30.00	$	25,350
	Restore Rotting Interior Window Sills	22	LF	$	50.00	$	1,100
	Building Heating System, Using Elec Resistance Heaters	845	SF	$	7.50	$	6,338
	Remove & Replace Electrical Receptacles	845	SF	$	5.00	$	4,225
	Remove & Replace Interior Lighting Fixtures	845	SF	$	8.00	$	6,760
	Electrical Wiring	845	SF	$	10.00	$	8,450
	SUBTOTAL ALTERNATIVE	**845**	**SF**	**$**	**178.08**	**$**	**150,478**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 13 Transformers Pen at 410 & 414 — **Total Cost:** $7,000

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Exterior Sign/Marker/Photographs	2	EA	$ 3,500.00	$ 7,000	
	SUBTOTAL EXTERIOR	**450**	**SF**	**$ 15.56**	**$ 7,000**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Transformers Pen at 410 & 414		**450**	**SF**	**$ 15.56**	**$ 7,000**	
	Alternative Scope					
	Remove Vegetation & Biological Growth Throughout Area	2	EA	$ 1,000.00	$ 2,000	
	Remove Electrical Distribution Panels, Transformers & Related Equipment	2	EA	$ 1,500.00	$ 3,000	
	SUBTOTAL ALTERNATIVE	**450**	**SF**	**$ 11.11**	**$ 5,000**	
	Alternative Scope #2					
	No Work Scope					
	SUBTOTAL ALTERNATIVE	**450**	**SF**	**$ -**	**$ -**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 14 Target Tracking Radar - No. 417 **Total Cost:** $51,250

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Debris Around Entire Structure	14	EA	$ 100.00	$ 1,400	
	Replace Metal Railing	138	LF	$ 225.00	$ 31,050	
	Structural					
	Remove Concrete Encasement at Steel Column Bases, Assume 10% Reinforcement of Steel Columns, Clean & Coat Steel, Replace Concrete Encasement	8	EA	$ 1,500.00	$ 12,000	
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	748	SF	$ 7.50	$ 5,610	
	Building Systems					
	Remove Remnants of Electrical Distribution Equipment	1190	SF	$ 1.00	$ 1,190	
	SUBTOTAL EXTERIOR	**1190**	**SF**	**$ 43.07**	**$ 51,250**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Target Tracking Radar - No. 417		**1190**	**SF**	**$ 43.07**	**$ 51,250**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 50,060.00	$ 50,060	
	Repair Rusted Metal on Stand, Strip/Paint	1190	SF	$ 5.00	$ 5,950	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 14 Target Tracking Radar - No. 417 **Total Cost:** $51,250

Replace Metal Ladder	12	VLF	$ 150.00	$ 1,800	
SUBTOTAL ALTERNATIVE	**1190**	**SF**	**$ 48.58**	**$ 57,810**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 15 Acquisition Radar - No. 418 **Total Cost:** $53,150

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Debris Around Entire Structure	8	EA	$ 100.00	$ 800	
	Replace Metal Railing	138	LF	$ 225.00	$ 31,050	
	Structural					
	Remove & Replace Concrete Encasement at Steel Column Bases/Reinforce Steel Columns/Clean/Paint Steel Bases w/ Rust-Inhibitive Paint, Approx 3' High	8	EA	$ 1,500.00	$ 12,000	
	Repair Concrete Spalls at Concrete Columns/Clean & Paint Steel w/ Rust-Inhibitive Paint, Approx 8' High	1	EA	$ 2,500.00	$ 2,500	
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	748	SF	$ 7.50	$ 5,610	
	Building Systems					
	Remove Remnants of Electrical Distribution Equipment	1190	SF	$ 1.00	$ 1,190	
	SUBTOTAL EXTERIOR	**1190**	**SF**	**$ 44.66**	**$ 53,150**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Acquisition Radar - No. 418		**1190**	**SF**	**$ 44.66**	**$ 53,150**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 51,960.00	$ 51,960	
	Strip/Paint Metal Stand	1190	SF	$ 2.00	$ 2,380	
	Replace Metal Ladder	10	VLF	$ 150.00	$ 1,500	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 15 Acquisition Radar - No. 418 **Total Cost:** $53,150

SUBTOTAL ALTERNATIVE	**1190**	**SF**	**$ 46.92**	**$ 55,840**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 16 Missile Tracking Radar - No. 419 **Total Cost:** $51,250

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Debris Around Entire Structure	14	EA	$ 100.00	$ 1,400	
	Replace Metal Railing	138	LF	$ 225.00	$ 31,050	
	Structural					
	Remove & Replace Concrete Encasement at Steel Column Bases/Reinforce Steel Columns/Clean/Paint Steel Bases w/ Rust-Inhibitive Paint, Approx 3' High	8	EA	$ 1,500.00	$ 12,000	
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	748	SF	$ 7.50	$ 5,610	
	Building Systems					
	Remove Remnants of Electrical Distribution Equipment	1190	SF	$ 1.00	$ 1,190	
	SUBTOTAL EXTERIOR	**1190**	**SF**	**$ 43.07**	**$ 51,250**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Missile Tracking Radar - No. 419		**1190**	**SF**	**$ 43.07**	**$ 51,250**	

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 50,060.00	$ 50,060	
	Strip/Paint Metal Stand	1190	SF	$ 2.00	$ 2,380	
	Replace Metal Ladder	12	VLF	$ 150.00	$ 1,800	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 16 Missile Tracking Radar - No. 419 **Total Cost:** $51,250

SUBTOTAL ALTERNATIVE	**1190**	**SF**	**$ 45.58**	**$ 54,240**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 17 Target Tracking Radar - No. 420 — **Total Cost:** $41,083

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Biological Growth & Vegetation Surrounding Radar Stands	6	EA	$ 100.00	$ 600	
	Strip & Repaint Stands, 12" x 12" - 10' High	6	EA	$ 250.00	$ 1,500	
	Replace Metal Railing	115	LF	$ 225.00	$ 25,875	
	Replace Missing Metal Ladders	11	VLF	$ 250.00	$ 2,750	
	Structural					
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	748	SF	$ 7.50	$ 5,610	
	Concrete Stands - Repair Concrete Spalls/Re-Coat Exposed Steel/Splice Reinforcement As Required	1	EA	$ 2,500.00	$ 2,500	
	Clean Remaining Corroded Steel & Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1	LS	$ 1,500.00	$ 1,500	
	Building Systems					
	Remove Remnants of Existing Electrical Wiring, Etc	748	SF	$ 1.00	$ 748	
	SUBTOTAL EXTERIOR	**748**	**SF**	**$ 54.92**	**$ 41,083**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Target Tracking Radar - No. 420		**748**	**SF**	**$ 54.92**	**$ 41,083**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 36,833.00	$ 36,833	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 17 Target Tracking Radar - No. 420 — **Total Cost:** $41,083

SUBTOTAL ALTERNATIVE	**748**	**SF**	**$ 49.24**	**$ 36,833**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 18 Acquisition Radar - No. 421 **Total Cost:** $13,876

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Biological Growth & Vegetation Surrounding Radar Stands	8	EA	$ 100.00	$ 800	
	Replace Missing Metal Ladders	9	VLF	$ 250.00	$ 2,250	
	Structural					
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1156	SF	$ 7.50	$ 8,670	
	Clean Remaining Corroded Steel & Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1	LS	$ 1,000.00	$ 1,000	Recently Restored
	Building Systems					
	Remove Remnants of Existing Electrical Wiring, Etc	1156	SF	$ 1.00	$ 1,156	
	SUBTOTAL EXTERIOR	**1156**	**SF**	**$ 12.00**	**$ 13,876**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Acquisition Radar - No. 421		**1156**	**SF**	**$ 12.00**	**$ 13,876**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 11,626.00	$ 11,626	
	Replace Metal Railing	138	LF	$ 225.00	$ 31,050	
	Remove Concrete Encasement at Steel Column Bases, Assume 10% Reinforcement of Steel Columns, Clean & Coat Steel, Replace Concrete Encasement	4	EA	$ 1,500.00	$ 6,000	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 18 Acquisition Radar - No. 421 **Total Cost:** $13,876

SUBTOTAL ALTERNATIVE	**1156**	**SF**	**$ 42.11**	**$ 48,676**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 19 Missile Tracking Radar - No. 422 **Total Cost:** $38,376

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Biological Growth & Vegetation Surrounding Radar Stands	14	EA	$ 100.00	$ 1,400	
	Strip & Repaint Stands, 12" x 12" - 14' High	14	EA	$ 350.00	$ 4,900	
	Replace Missing Metal Ladders	15	VLF	$ 250.00	$ 3,750	
	Structural					
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1156	SF	$ 7.50	$ 8,670	
	Repair Concrete Stands - Concrete Spalls/Re-Coat Exposed Steel/Splice Reinforcement As Required	6	EA	$ 2,500.00	$ 15,000	
	Clean Remaining Corroded Steel & Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1	LS	$ 3,500.00	$ 3,500	
	Building Systems					
	Remove Remnants of Existing Electrical Wiring, Etc	1156	SF	$ 1.00	$ 1,156	
	SUBTOTAL EXTERIOR	**1156**	**SF**	**$ 33.20**	**$ 38,376**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Missile Tracking Radar - No. 422**	**1156**	**SF**	**$ 33.20**	**$ 38,376**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 19 Missile Tracking Radar - No. 422 **Total Cost:** $38,376

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	34,626.00	$	34,626
	Replace Metal Railing	138	LF	$	225.00	$	31,050
	Remove Concrete Encasement at Steel Column Bases, Assume 10% Reinforcement of Steel Columns, Clean & Coat Steel, Replace Concrete Encasement	8	EA	$	1,500.00	$	12,000
	SUBTOTAL ALTERNATIVE	**1156**	**SF**	**$**	**67.19**	**$**	**77,676**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 20 Sentry Box - No. 423 **Total Cost:** $19,689

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Biological Growth on Exterior CMU Façade	220	SF	$ 2.00	$ 440	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1	LS	$ 1,000.00	$ 1,000	
	Stabilize Concrete Slab Where Pulling Away from Building	1	LS	$ 1,500.00	$ 1,500	
	Touch-up Paint on CMU Façade As Required	220	SF	$ 1.00	$ 220	
	Doors					
	Restore East Doors (Includes Replacement Threshold/Trim/Hardware)	1	EA	$ 1,000.00	$ 1,000	
	Windows					
	Replace Broken Glass in Bottom Pane of Top Sash on East Window, 2 SF	1	LS	$ 250.00	$ 250	
	Structural					
	Repair Turn-Down Slab - Repair Cracks, Address Level Changes in Slab	1	LS	$ 1,000.00	$ 1,000	
	Rebuild Turn-Down Slab to Accommodate Existing Grade	1	LS	$ 2,500.00	$ 2,500	
	Regrade Area to Historic Levels	1	LS	$ 1,500.00	$ 1,500	
	Building Systems					
	Restore Electrical Power to the Building	1	LS	$ 7,500.00	$ 7,500	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 20 Sentry Box - No. 423 **Total Cost:** $19,689

SUBTOTAL EXTERIOR	**39**	**SF**	**$ 433.59**	**$ 16,910**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Clean Biological Staining on CMU Walls	220	SF	$ 2.00	$ 440	
	Repair Minor Holes & Penetrations on CMU Walls	220	SF	$ 2.50	$ 550	
	Flooring					
	Clean Biological Staining on Concrete Floor	39	SF	$ 1.00	$ 39	
	Building Systems					
	Building Heating System, Using Elec Resistance Heaters	1	LS	$ 750.00	$ 750	Alt - Full HVAC
	Electrical Receptacles As Required for Program	1	LS	$ 1,000.00	$ 1,000	
	SUBTOTAL INTERIOR	**39**	**SF**	**$ 71.26**	**$ 2,779**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Sentry Box - No. 423		**39**	**SF**	**$ 504.85**	**$ 19,689**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 20 Sentry Box - No. 423 **Total Cost:** $19,689

	Alternative Scope							
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	3,529.00	$	3,529	
	Remove Vegetation As Required	1	LS	$	500.00	$	500	
	Salvage, Catalog & Store Elements of Value	1	LS	$	500.00	$	500	
	Repair Door Near Bottom Rail & Touch-up Paint	1	EA	$	400.00	$	400	
	Repair Exterior Steel Windows & Install Vent for Air Circulation	27	SF	$	85.00	$	2,295	
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	1	LS	$	500.00	$	500	
	Remove HVAC Equipment & Ductwork	1	LS	$	750.00	$	750	
	SUBTOTAL ALTERNATIVE	**39**	**SF**	**$**	**217.28**	**$**	**8,474**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 21 Slab for Equipment & Operations Bldg - No. 452 **Total Cost:** $3,500

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Exterior Sign/Marker/Photographs	1	LS	$ 3,500.00	$ 3,500	Alt - Rebuild
	SUBTOTAL EXTERIOR	**248**	**SF**	**$ 14.11**	**$ 3,500**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Slab for Equipment & Operations Bldg - No		**248**	**SF**	**$ 14.11**	**$ 3,500**	
	Alternative Scope					
	Remove Vegetation & Biological Growth Throughout Slab	1	LS	$ 1,000.00	$ 1,000	
	SUBTOTAL ALTERNATIVE	**248**	**SF**	**$ 4.03**	**$ 1,000**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 22 Pedestal Radar Tower - No. 453 **Total Cost:** $500

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	EXTERIOR					
	Overall					
	Remove Vegetation & Debris Around Entire Structure	1	LS	$ 500.00	$ 500	
	SUBTOTAL EXTERIOR	**72**	**SF**	**$ 6.94**	**$ 500**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Pedestal Radar Tower - No. 453		**72**	**SF**	**$ 6.94**	**$ 500**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 23 Equipment & Operations Bldg - No. 454 **Total Cost:** $33,853

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Debris Around Structure	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Remove Later Addition at West Side	105	SF	$ 35.00	$ 3,675	
	Exterior Walls					
	Repair Interior CMU Walls As Per Scope of Work	1	LS	$ 2,500.00	$ 2,500	
	Doors					
	Stabilize & Paint All Doors	2	EA	$ 650.00	$ 1,300	
	Windows					
	Repair Exterior Wood Windows, Install Vents for Air Circulation	39	SF	$ 60.00	$ 2,340	
	Roofing					
	Replace Metal Roofing & Flashing	480	SF	$ 20.00	$ 9,600	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**375**	**SF**	**$ 55.77**	**$ 20,915**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 23 Equipment & Operations Bldg - No. 454 **Total Cost:** $33,853

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Repair Large Interior Vertical Crack in CMU at South Side & Large Vertical Crack at North Door	1	LS	$ 1,500.00	$ 1,500	
	Repair Holes & Stepped Cracks at Window Heads Throughout	3	EA	$ 250.00	$ 750	
	Ceiling					
	Remove What is Left of Deteriorated Ceiling	375	SF	$ 1.50	$ 563	
	Flooring					
	Remove Debris & Vinyl Asbestos Tile, Clean Concrete Floor	375	SF	$ 20.00	$ 7,500	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	375	SF	$ 3.00	$ 1,125	
	Remove Deteriorated HVAC Equipment & Ductwork	375	SF	$ 4.00	$ 1,500	
	SUBTOTAL INTERIOR	**375**	**SF**	**$ 34.50**	**$ 12,938**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Equipment & Operations Bldg - No. 454		**375**	**SF**	**$ 90.27**	**$ 33,853**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 23	**Equipment & Operations Bldg - No. 454**	**Total Cost:**	$33,853

	Alternative Scope							
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	14,775.00	$	14,775	
	Remove Biological Growth & Clean Soiled CMU Façade	735	SF	$	2.00	$	1,470	
	Repair Exterior CMU Façade As Per Scope of Work	735	SF	$	10.00	$	7,350	
	Replace Exterior Doors & Frames, Prep/Paint	2	EA	$	1,850.00	$	3,700	
	Replace Exterior Wood Windows	39	SF	$	100.00	$	3,900	
	Restore Electrical Power to the Building	1	LS	$	7,500.00	$	7,500	
	Repair/Patch & Paint Interior CMU Walls	735	SF	$	5.00	$	3,675	
	Replace Plasterboard Ceiling	375	SF	$	15.00	$	5,625	
	Remove Debris from Flooring	375	SF	$	1.00	$	375	
	Replace Vinyl Asbestos Tile w/ Laminate Flooring	375	SF	$	30.00	$	11,250	
	Restore Interior Window Trim	3	EA	$	200.00	$	600	
	Building Heating System, Using Elec Resistance Heaters	375	SF	$	7.50	$	2,813	
	Remove & Replace Electrical Receptacles	375	SF	$	5.00	$	1,875	
	Remove & Replace Interior Lighting Fixtures	375	SF	$	8.00	$	3,000	
	Electrical Wiring	375	SF	$	10.00	$	3,750	
	SUBTOTAL ALTERNATIVE	**375**	**SF**	**$**	**191.09**	**$**	**71,658**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 24 Tool Shed - No. 455 **Total Cost:** $3,500

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Exterior Sign/Marker/Photographs	1	LS	$ 3,500.00	$ 3,500	
	SUBTOTAL EXTERIOR	**80**	**SF**	**$ 43.75**	**$ 3,500**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Tool Shed - No. 455		**80**	**SF**	**$ 43.75**	**$ 3,500**	

	Alternative Scope					
	Remove Vegetation & Biological Growth Throughout Slab	1	LS	$ 1,000.00	$ 1,000	
	SUBTOTAL ALTERNATIVE	**80**	**SF**	**$ 12.50**	**$ 1,000**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 25 Target Ranging Radar - No. 467 **Total Cost:** $33,356

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Biological Growth & Vegetation Surrounding Radar Stands	6	EA	$ 100.00	$ 600	
	Strip & Repaint Stands, 12" x 12" - 24' Long	6	EA	$ 600.00	$ 3,600	
	Replace Metal Railing	18	LF	$ 225.00	$ 4,050	
	Replace Missing Metal Ladders	19	VLF	$ 250.00	$ 4,750	
	Structural					
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	815	SF	$ 7.50	$ 6,113	
	Clean Remaining Corroded Steel & Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1	LS	$ 1,000.00	$ 1,000	
	Platform Repair - Clean/Prep/Re-Coat w/ Rust Inhibitive Coating	815	SF	$ 6.50	$ 5,298	
	- Replace Missing Portions of Corrugated Decking, Assume 25%	204	SF	$ 35.00	$ 7,131	
	Building Systems					
	Remove Remnants of Existing Electrical Wiring, Etc	815	SF	$ 1.00	$ 815	
	SUBTOTAL EXTERIOR	**815**	**SF**	**$ 40.93**	**$ 33,356**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Target Ranging Radar - No. 467		**815**	**SF**	**$ 40.93**	**$ 33,356**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 25 Target Ranging Radar - No. 467 **Total Cost:** $33,356

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	28,606.25	$	28,606
	Remove Concrete Encasement at Steel Column Bases, Assume 100% Reinforcement of Steel Columns, Clean & Coat Steel, Replace Concrete Encasement	4	EA	$	2,000.00	$	8,000
	SUBTOTAL ALTERNATIVE	**815**	**SF**	**$**	**44.92**	**$**	**36,606**

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 26 HIPAR Building - No. 468 **Total Cost:** $321,400

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Biological Growth As Required	1	LS	$ 2,500.00	$ 2,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Relocate Building Systems & Other Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	2185	SF	$ 10.00	$ 21,850	
	Strip/Repaint CMU Façade at All Elevations	2185	SF	$ 2.00	$ 4,370	
	Doors					
	Replace Exterior Doors Only at South & West Elevations, Existing Frame Remains (Includes Replacement Threshold)	6	EA	$ 1,100.00	$ 6,600	
	Double	1	PR	$ 2,200.00	$ 2,200	
	Repair/Prep/Paint Doors & Frames	8	EA	$ 400.00	$ 3,200	
	Windows					
	Restore Steel Louvered Windows on North Elevation	27	SF	$ 125.00	$ 3,375	
	Replace Exterior Steel Windows on South Elevation	5	SF	$ 150.00	$ 750	
	Repair/Scrape/Paint Window Frames	46	LF	$ 25.00	$ 1,150	
	Prep/Paint Exterior Windows	32	SF	$ 10.00	$ 320	
	Replace Metal Screens Throughout	32	SF	$ 100.00	$ 3,200	
	Roofing					
	Replace Missing Membrane Roofing & Flashing	1924	SF	$ 15.00	$ 28,860	
	Replace Soffits Throughout	178	LF	$ 25.00	$ 4,450	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 26 HIPAR Building - No. 468 **Total Cost:** $321,400

	Flashing & Sheet Metal				
	Replace Metal Downspouts	26	LF	$ 40.00	$ 1,040
	Structural				
	Repoint Cracks in CMU Walls	2250	SF	$ 15.00	$ 33,750
	Repair Roofing Structure As Required, Assume 50%	962	SF	$ 25.00	$ 24,050
	Building Systems				
	Restore Electrical Power to the Building	1	LS	$ 7,500.00	$ 7,500
	Building Systems				
	Remove Plywood on North Elevation, Replace Exhaust w/ Modern One	1	LS	$ 2,500.00	$ 2,500
	SUBTOTAL EXTERIOR	**1690**	**SF**	**$ 92.41**	**$ 156,165**

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Replace Deteriorated Asbestos Particleboard Walls	50	LF	$ 350.00	$ 17,500	
	Clean/Patch/Paint CMU Walls	2185	SF	$ 3.00	$ 6,555	
	Replace Wood Base	270	LF	$ 20.00	$ 5,400	
	Ceiling					
	Mechanically Remove Rust from Metal Ceiling, Repaint	1690	SF	$ 5.00	$ 8,450	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 26 HIPAR Building - No. 468 **Total Cost:** $321,400

	Flooring				
	Remove Debris, Clean & Paint Concrete Floor	1690	SF	$ 3.00	$ 5,070
	Replace Missing Trench Covers	150	SF	$ 150.00	$ 22,500
	Replace Vinyl Asbestos Tile Floors w/ Laminate Flooring	640	SF	$ 30.00	$ 19,200
	Doors				
	Replace Interior Door & Frame - Single	1	EA	$ 1,600.00	$ 1,600
	Building Systems				
	Replace Toilet/Urinal/Lavatory/Utility Sink	1	LS	$ 6,500.00	$ 6,500
	Replace Electrical Panels & Receptacles As Required for Program	1690	SF	$ 8.50	$ 14,365
	Electrical Wiring	1690	SF	$ 10.00	$ 16,900
	Replace Heating Equipment	1	LS	$ 15,000.00	$ 15,000
	Building Heating System, Using Elec Resistance Heaters	1690	SF	$ 7.50	$ 12,675
	Other				
	Remove & Replace Interior Lighting Fixtures	1690	SF	$ 8.00	$ 13,520
	SUBTOTAL INTERIOR	**1690**	**SF**	**$ 97.77**	**$ 165,235**

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - HIPAR Building - No. 468		**1690**	**SF**	**$ 190.18**	**$ 321,400**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 26 HIPAR Building - No. 468 **Total Cost:** $321,400

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 131,100.00	$	131,100
	Repair Exterior Steel Windows, Install Vents for Air Circulation	32	SF	$ 85.00	$	2,720
	Remove Remnants of Electrical Distribution Equipment	1	LS	$ 1,000.00	$	1,000
	Remove Interior Plasterboard Walls	2185	SF	$ 1.50	$	3,278
	Repair Interior CMU Walls As Required	50	LF	$ 50.00	$	2,500
	Remove Wood Baseboards	1	LS	$ 500.00	$	500
	Repair Rusted Metal Ceiling	1690	SF	$ 5.00	$	8,450
	Remove Debris & Clean Concrete Floor	1690	SF	$ 2.00	$	3,380
	Remove Vinyl Asbestos Tile	1690	SF	$ 20.00	$	33,800
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	1690	SF	$ 3.00	$	5,070
	Remove HVAC Equipment & Ductwork	1690	SF	$ 4.00	$	6,760
SUBTOTAL ALTERNATIVE		**1690**	**SF**	**$ 117.49**	**$**	**198,558**

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 27 HIPAR Tower Foundation - No. 469 **Total Cost:** $5,000

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Heavy Vegetation on Foundation Slab	1	LS	$ 1,500.00	$ 1,500	
	Exterior Sign/Marker/Photographs	1	LS	$ 3,500.00	$ 3,500	
	SUBTOTAL EXTERIOR	**1995**	**SF**	**$ 2.51**	**$ 5,000**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - HIPAR Tower Foundation - No. 469		**1995**	**SF**	**$ 2.51**	**$ 5,000**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 5,000.00	$ 5,000	
	SUBTOTAL ALTERNATIVE	**1995**	**SF**	**$ 2.51**	**$ 5,000**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 2	**HIPAR Target Tracking Radar - No. 472**	**Total Cost:**	$28,839

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Biological Growth & Vegetation Surrounding Radar Stands	6	EA	$ 100.00	$ 600	
	Strip & Repaint Stands, 12" x 12" - 10' High	6	EA	$ 250.00	$ 1,500	
	Replace Missing Metal Ladders	10	VLF	$ 250.00	$ 2,500	
	Prep/Paint Metal Railing	106	LF	$ 20.00	$ 2,120	
	Structural					
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	805	SF	$ 7.50	$ 6,038	
	Clean Remaining Corroded Steel & Re-coat w/ Zinc-Rich Rust Inhibitive Coating	1	LS	$ 1,500.00	$ 1,500	
	Platform Repair - Clean/Prep/Re-Coat w/ Rust Inhibitive Coating	805	SF	$ 6.50	$ 5,233	
	- Replace Missing Portions of Corrugated Decking, Assume 25%	201	SF	$ 35.00	$ 7,044	
	Regrade Area Around Radar Station	1	LS	$ 1,500.00	$ 1,500	
	Building Systems					
	Remove Remnants of Existing Electrical Wiring, Etc	805	SF	$ 1.00	$ 805	
	SUBTOTAL EXTERIOR	**805**	**SF**	**$ 35.82**	**$ 28,839**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 2 **HIPAR Target Tracking Radar - No. 472** **Total Cost:** $28,839

TOTAL COST - HIPAR Target Tracking Radar - No. 472	**805**	**SF**	**$ 35.82**	**$ 28,839**	
Alternative Scope					
Base Bid Scope That Remained in Alternative Scope	1	LS	$ 24,218.75	$ 24,219	
Remove Concrete Encasement at Steel Column Bases, Assume 10% Reinforcement of Steel Columns, Clean & Coat Steel, Replace Concrete Encasement	6	EA	$ 1,500.00	$ 9,000	
SUBTOTAL ALTERNATIVE	**805**	**SF**	**$ 41.27**	**$ 33,219**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 29 HIPAR Target Tracking Radar - No. 473 **Total Cost:** $63,398

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Debris Around Entire Structure	14	EA	$ 100.00	$ 1,400	
	Replace Metal Railing	138	LF	$ 225.00	$ 31,050	
	Structural					
	Clean Underside of Platform, Re-coat w/ Zinc-Rich Rust Inhibitive Coating	748	SF	$ 7.50	$ 5,610	
	Clean All Corroded Steel, Paint w/ Rust-Inhibitive Coating	1	LS	$ 3,500.00	$ 3,500	
	Platform Repair - Clean/Prep/Re-Coat w/ Rust Inhibitive Coating	1190	SF	$ 6.50	$ 7,735	
	- Replace Missing Portions of Corrugated Decking, Assume 25%	298	SF	$ 35.00	$ 10,413	
	Regrade Area around HIPAR Tracking Radar Stand to Reinstate Sufficient Bearing for Foundations	1	LS	$ 2,500.00	$ 2,500	
	Building Systems					
	Remove Remnants of Electrical Distribution Equipment	1190	SF	$ 1.00	$ 1,190	
	SUBTOTAL EXTERIOR	**1190**	**SF**	**$ 53.28**	**$ 63,398**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**HIPAR Target Tracking Radar - No. 473**	**1190**	**SF**	**$ 53.28**	**$ 63,398**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 29 HIPAR Target Tracking Radar - No. 473 **Total Cost:** $63,398

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 62,207.50	$	62,208	
	Repair Concrete Spalls at Concrete Columns/Clean & Paint Steel w/ Rust-Inhibitive Paint, Approx 8' High	1	EA	$ 2,500.00	$	2,500	
	SUBTOTAL ALTERNATIVE	**1190**	**SF**	**$ 54.38**	**$**	**64,708**	

United States Department of the Interior
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Class C Construction Cost Estimate

BASIS OF ESTIMATE

PROJECT INFORMATION

Project:	Nike Missile Launch and Radar Tracking Sites - Missile Site
Park:	Gateway National Recreation Area - Sandy Hook Unit
Park Alpha:	Park Code
PMIS Number:	201658A
Estimate Date:	April 29, 2016
Prepared By:	M Funk/L Johnson
Company:	International Consultants, Inc
Address:	221 Chestnut Street
City, State Zip:	Philadelphia, PA 19106
Phone:	(215) 923-8888

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Rehabailitation of Multiple Buildings/Structures within the Gateway National Recreation Area - Sandy Hook Unit. Estimate is Based on John Milner Architects Project Plans Dated July 31st, 2015, Physical Conditions Narrative Undated, Ultimate Treatment Scope Narrative Undated and Alternatives Scope Narrative Undated, and Received by ICI on April 18th, 2016.

SOURCE OF COST DATA:

Unit Prices used in this estimate come from numerous sources, including previous projects in the North Jersey and surrounding areas, conversations with Suppliers, Contractors, Engineers, and Published Reference Manuals such as RS Means 2016 Building Construction Cost Data, Walker's Building Estimators Reference Book and adjusted for site conditions, size of contract and project and other relevant factors. All unit prices have been adjusted back to a base number, similar to RS Means Data base, and adjusted for location by the factor for Sandy Hook Area. All unit prices include the installing subcontractors markups for overhead and profit.

ESTIMATE ASSUMPTIONS:

All work is assumed to be completed during normal business hours as one project, with appropriate protection of the Public and Park Assets. Wages are based on current first quarter 2016 Davis Bacon wages with adjustments on the summary sheet to Sandy Hook Area. Existing Materials to be reused where appropriate.

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

This estimate is the first estimate for the scope and includes ultimate recommendations and alternatives for the work

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BASIS OF ESTIMATE

PROJECT INFORMATION

Project: Nike Missile Launch and Radar Tracking Sites - Missile Site

Park: Gateway National Recreation Area - Sandy Hook Unit
Park Alpha: Park Code
PMIS Number: 201658A
Estimate Date: April 29, 2016

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	8.60%	Long Branch New Jersey Adjustment Factor
Remoteness Factor:	5.00%	Site is remote form most large business districts
Wage Rate Factor:	0.00%	Included
State & Local Taxes:	7.00%	NJ Sales Tax
Design Contingency:	15.00%	Pre Design Estimate
Standard. General Conditions:	15.00%	Standard General Condition for Limited Scope Project
Government General Conditions:	10.00%	Additional General Conditions for Government regulations & requirements
Historic Preservation Factor:	5.00%	Premium for Protection and repairs to historic fabric not in actual scope, and obtaining materials to match adjacent/orginal materials
Contractor Overhead:	7.50%	Contractor Home Office Expenses and overhead, Insurance.
Contractor Profit:	7.50%	Contractors Expected profit for the project.
Bonds and Permits:	1.50%	Performance bonds and permits for the work. Adjusted to 1.5% on Recommendations of M Morelli
Contracting Method Adjustment:	0.00%	To Be Determined
Annual Inflation Escalation Factor:	3.00%	Projected Annual Inflation rate
Time Until Project Midpoint (Months)	12	Number of months from estimate date until the projects midpoint of construction.

OTHER COMMENTS:

N/A

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PROJECT COST SUMMARY

Project: Nike Missile Launch and Radar Tracking Sites - Missile Site
Park: Gateway National Recreation Area - Sandy Hook Unit
Alpha: Park Code
PMIS: 201658A

Estimate By: M Funk/L Johnson
Date: April 29, 2016

Reviewed By: Reviewer
Date: Review Date

Item No.	Description	Quantity	Unit	Cost/Unit	Ultimate Recommendations Total Base Cost	Ultimate Recommendations Total Marked Up	Alternative Recommendations Total Base Alternative	Alternative Recommendations Total Marked Up
S	Site Improvements	590,000	SF	$ 0.91	$ 539,444	$ 1,143,275	$ -	$ -
1	Underground Missile Storage Structures - No 425	3,840	SF	$ 24.33	$ 93,433	$ 198,019	$ 290,688	$ 616,071
2	Underground Missile Storage Structures - No 426	3,840	SF	$ 24.33	$ 93,433	$ 198,019	$ 290,688	$ 616,071
3	Underground Missile Storage Structures - No 427	3,840	SF	$ 24.33	$ 93,433	$ 198,019	$ 290,688	$ 616,071
4	Underground Missile Storage Structures - No 428	3,840	SF	$ 119.61	$ 459,310	$ 973,442	$ 290,688	$ 616,071
5	Generator Building - No 429	1,167	SF	$ 86.29	$ 100,705	$ 213,430	$ 45,818	$ 97,104
6	Enclosure - No 429A	72	SF	$ 55.56	$ 4,000	$ 8,477	$ 4,300	$ 9,113
7	Barrack - No 430	1,029	SF	$ 82.59	$ 84,986	$ 180,116	$ 154,937	$ 328,366
8	Barrack - No 431	1,029	SF	$ 70.83	$ 72,881	$ 154,461	$ 203,668	$ 431,644
9	Barrack - No 432	1,029	SF	$ 100.61	$ 103,523	$ 219,402	$ 176,370	$ 373,790
10	Barrack - No 433	1,029	SF	$ 181.42	$ 186,677	$ 395,634	$ 278,383	$ 589,993
11	Latrine - No 434	698	SF	$ 64.45	$ 44,988	$ 95,345	$ 114,021	$ 241,650
12	Central Heating Plant - No 435	127	SF	$ 118.11	$ 15,000	$ 31,790	$ 36,698	$ 77,775
13	Ready Building - No 437	2,140	SF	$ 104.65	$ 223,960	$ 474,652	$ 316,368	$ 670,496
14	Sentry Box - No 439	39	SF	$ 408.08	$ 15,915	$ 33,730	$ 26,305	$ 55,750
15	Flammable Materials Storehouse - No 447	54	SF	$ 105.56	$ 5,700	$ 12,080	$ 11,261	$ 23,867
16	Slab - No 448	233	SF	$ -	$ -	$ -	$ 3,500	$ 7,418
17	Missile Assembly & Test Building - No 449	1,575	SF	$ 53.18	$ 83,758	$ 177,512	$ 288,166	$ 610,726
18	Storage - No 449A	120	SF	$ 25.00	$ 3,000	$ 6,358	$ 25,449	$ 53,935
19	Storage - No 449B	82	SF	$ 30.49	$ 2,500	$ 5,298	$ 16,672	$ 35,334
20	Warhead Building - No 450	733	SF	$ 87.95	$ 64,464	$ 136,622	$ 134,288	$ 284,604
21	Slab - No 456	70	SF	$ -	$ -	$ -	$ -	$ -
22	Canine Kennel - No 458	515	SF	$ -	$ -	$ -	$ 25,250	$ 53,514
23	Canine Kennel Support Building - No 458A	152	SF	$ -	$ -	$ -	$ -	$ -
	Subtotal Direct Construction Costs				**$2,291,110**	**$ 4,855,681**		
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**			
				Direct Cost Subtotal without GFP	**$2,291,110**			
	Published Location Factor	8.60%			$197,035	*Incl Above*		
	Remoteness Factor	5.00%			$114,556	*Incl Above*		
	Federal Wage Rate Factor	0.00%			$0	*Incl Above*		
	State & Local Taxes	7.00%			$160,378	*Incl Above*		
	Design Contingency	15.00%			$343,667	*Incl Above*		
	Total Direct Construction Costs				**$3,106,745**			
	Standard General Conditions	15.00%			$466,012	*Incl Above*		
	Government General Conditions	10.00%			$310,675	*Incl Above*		
	Historic Preservation Factor	5.00%			$155,337	*Incl Above*		
	Subtotal NET Construction Cost				**$4,038,769**			
	Overhead	7.50%			$302,908	*Incl Above*		
	Profit	7.50%			$302,908	*Incl Above*		
	Estimated NET Construction Cost				**$4,644,584**			
	Bonds & Permits	1.50%			**$69,669**	*Incl Above*		
	Contracting Method Adjustment	0.00%			$0	*Incl Above*		
	Inflation Escalation	12	Months	3.00%	$141,428	*Incl Above*	0	
	Total Estimated NET Cost of Construction				**$4,855,681**			

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item S	**Site Improvements**	**Total Cost:**	$539,444

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Trim Vegetation Throughout Radar Tracking Site	65556	SY	$ 2.00	$ 131,111	
	Replace Lighting Fixtures Throughout Site	1	LS	$ 200,000.00	$ 200,000	
	Repair Existing Roadways As Required	8333	SY	$ 25.00	$ 208,333	
	SUBTOTAL EXTERIOR	**590000**	**SF**	**$ 0.91**	**$ 539,444**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Site Improvements		**590000**	**SF**	**$ 0.91**	**$ 539,444**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 1	**Underground Missile Storage Structures - No 425**	**Total Cost:**	$93,433

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Overall					
	Remove Water from Underground Missile Storage Areas	1	LS	$ 10,000.00	$ 10,000	
	Document & Salvage Historic Features in Good Condition for Restoration of Underground Missile Storage Area No 428	1	LS	$ 2,500.00	$ 2,500	
	Fill in Underground Missile Storage Area w/ Sand	2023	CY	$ 40.00	$ 80,933	
	SUBTOTAL INTERIOR	**3840**	**SF**	**$ 24.33**	**$ 93,433**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Underground Missile Storage Structures - I**	**3840**	**SF**	**$ 24.33**	**$ 93,433**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 1	**Underground Missile Storage Structures - No 425**	**Total Cost:**	$93,433

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 12,500.00	$	12,500
	Remove Vegetation & Biological Growth Throughout Entire Structure	1	LS	$ 10,000.00	$	10,000
	Stabilize & Paint All Doors	3	EA	$ 650.00	$	1,950
	Remove Perforated Acoustical Wall Panels	1260	SF	$ 2.00	$	2,520
	Remove Perforated Acoustical Ceiling Panels	315	SF	$ 2.50	$	788
	Remove Doors, Frames & Hardware - Single	3	EA	$ 350.00	$	1,050
	Remove Access Hatches	2	EA	$ 1,000.00	$	2,000
	Remove Missile Doors, 9' Wide x 52' Long	1	EA	$ 225,000.00	$	225,000
	Remove Debris & Drain Elevator Pit	1	LS	$ 1,500.00	$	1,500
	Restore Angles on Rusted Elevator Pit Edges	130	LF	$ 50.00	$	6,500
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	3840	SF	$ 3.00	$	11,520
	Remove Deteriorated HVAC Equipment & Ductwork	3840	SF	$ 4.00	$	15,360
	SUBTOTAL ALTERNATIVE	**3840**	**SF**	**$ 75.70**	**$**	**290,688**

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 2	**Underground Missile Storage Structures - No 426**	**Total Cost:**	$93,433

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Overall					
	Remove Water from Underground Missile Storage Areas	1	LS	$ 10,000.00	$ 10,000	
	Document & Salvage Historic Features in Good Condition for Restoration of Underground Missile Storage Area No 428	1	LS	$ 2,500.00	$ 2,500	
	Fill in Underground Missile Storage Area w/ Sand	2023	CY	$ 40.00	$ 80,933	
	SUBTOTAL INTERIOR	**3840**	**SF**	**$ 24.33**	**$ 93,433**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 2	**Underground Missile Storage Structures - No 426**	**Total Cost:**	$93,433

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Underground Missile Storage Structures - I**	**3840**	**SF**	**$ 24.33**	**$ 93,433**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 12,500.00	$ 12,500	
	Remove Vegetation & Biological Growth Throughout Entire Structure	1	LS	$ 10,000.00	$ 10,000	
	Stabilize & Paint All Doors	3	EA	$ 650.00	$ 1,950	
	Remove Perforated Acoustical Wall Panels	1260	SF	$ 2.00	$ 2,520	
	Remove Perforated Acoustical Ceiling Panels	315	SF	$ 2.50	$ 788	
	Remove Doors, Frames & Hardware - Single	3	EA	$ 350.00	$ 1,050	
	Remove Access Hatches	2	EA	$ 1,000.00	$ 2,000	
	Remove Missile Doors, 9' Wide x 52' Long	1	EA	$ 225,000.00	$ 225,000	
	Remove Debris & Drain Elevator Pit	1	LS	$ 1,500.00	$ 1,500	
	Restore Angles on Rusted Elevator Pit Edges	130	LF	$ 50.00	$ 6,500	
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	3840	SF	$ 3.00	$ 11,520	
	Remove Deteriorated HVAC Equipment & Ductwork	3840	SF	$ 4.00	$ 15,360	
	SUBTOTAL ALTERNATIVE	**3840**	**SF**	**$ 75.70**	**$ 290,688**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 3	**Underground Missile Storage Structures - No 427**	**Total Cost:**	$93,433

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Overall					
	Remove Water from Underground Missile Storage Areas	1	LS	$ 10,000.00	$ 10,000	
	Document & Salvage Historic Features in Good Condition for Restoration of Underground Missile Storage Area No 428	1	LS	$ 2,500.00	$ 2,500	
	Fill in Underground Missile Storage Area w/ Sand	2023	CY	$ 40.00	$ 80,933	
	SUBTOTAL INTERIOR	**3840**	**SF**	**$ 24.33**	**$ 93,433**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Underground Missile Storage Structures - I		**3840**	**SF**	**$ 24.33**	**$ 93,433**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 3	**Underground Missile Storage Structures - No 427**	**Total Cost:**	$93,433

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 12,500.00	$	12,500
	Remove Vegetation & Biological Growth Throughout Entire Structure	1	LS	$ 10,000.00	$	10,000
	Stabilize & Paint All Doors	3	EA	$ 650.00	$	1,950
	Remove Perforated Acoustical Wall Panels	1260	SF	$ 2.00	$	2,520
	Remove Perforated Acoustical Ceiling Panels	315	SF	$ 2.50	$	788
	Remove Doors, Frames & Hardware - Single	3	EA	$ 350.00	$	1,050
	Remove Access Hatches	2	EA	$ 1,000.00	$	2,000
	Remove Missile Doors, 9' Wide x 52' Long	1	EA	$ 225,000.00	$	225,000
	Remove Debris & Drain Elevator Pit	1	LS	$ 1,500.00	$	1,500
	Restore Angles on Rusted Elevator Pit Edges	130	LF	$ 50.00	$	6,500
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	3840	SF	$ 3.00	$	11,520
	Remove Deteriorated HVAC Equipment & Ductwork	3840	SF	$ 4.00	$	15,360
	SUBTOTAL ALTERNATIVE	**3840**	**SF**	**$ 75.70**	**$**	**290,688**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 4	**Underground Missile Storage Structures - No 428**	**Total Cost:**	$459,310

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Overall					
	Remove Water from Underground Missile Storage Areas	1	LS	$ 10,000.00	$ 10,000	
	Document & Salvage Historic Features in Good Condition for Restoration of Underground Missile Storage Area No 428	1	LS	$ 2,500.00	$ 2,500	
	Walls					
	Replace Perforated Acoustic Wall Panels	1260	SF	$ 25.00	$ 31,500	
	Ceilings					
	Remove Bird Nest from Ceilings	1	LS	$ 1,500.00	$ 1,500	
	Replace Perforated Acoustical Ceiling Panels, Repair Rusted Metal Framing	315	SF	$ 30.00	$ 9,450	
	Flooring					
	Remove Debris, Clean & Paint Concrete Floor	3840	SF	$ 2.00	$ 7,680	
	Remove Debris, Drain Elevator Pit	1	LS	$ 1,500.00	$ 1,500	
	Doors					
	Replace All Doors, Frames & Hardware	3	EA	$ 1,600.00	$ 4,800	
	Replace Access Hatches, Approx 3' x 4'	3	EA	$ 5,000.00	$ 15,000	
	Replace Missile Doors, 9' Wide x 52' Long	1	EA	$ 225,000.00	$ 225,000	
	Structural					
	Clean Exposed Corroded Steel Reinforcement & Coat w/ Rust-Inhibitive Coating	3840	SF	$ 3.50	$ 13,440	

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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 4 **Underground Missile Storage Structures - No 428** **Total Cost:** $459,310

	Replace Corroded Steel Elements As Required	1	LS	$ 10,000.00	$ 10,000
	Building Systems				
	Re-establish Electrical Service to Building	1	LS	$ 10,000.00	$ 10,000
	Electrical Receptacles As Required for Program	3840	SF	$ 5.00	$ 19,200
	Remove & Replace Interior Lighting Fixtures	3840	SF	$ 8.50	$ 32,640
	Building Heating System Only	3840	SF	$ 15.00	$ 57,600
	Re-establish Active Sump Pumps	1	LS	$ 1,000.00	$ 1,000
	Other				
	Remove Debris from Lift & Restore Angles on Rusted Pit Edges	130	LF	$ 50.00	$ 6,500
	SUBTOTAL INTERIOR	**3840**	**SF**	**$ 119.61**	**$ 459,310**

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Underground Missile Storage Structures - I		**3840**	**SF**	**$ 119.61**	**$ 459,310**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 4	**Underground Missile Storage Structures - No 428**	**Total Cost:**	$459,310

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 12,500.00	$	12,500
	Remove Vegetation & Biological Growth Throughout Entire Structure	1	LS	$ 10,000.00	$	10,000
	Stabilize & Paint All Doors	3	EA	$ 650.00	$	1,950
	Remove Perforated Acoustical Wall Panels	1260	SF	$ 2.00	$	2,520
	Remove Perforated Acoustical Ceiling Panels	315	SF	$ 2.50	$	788
	Remove Doors, Frames & Hardware - Single	3	EA	$ 350.00	$	1,050
	Remove Access Hatches	2	EA	$ 1,000.00	$	2,000
	Remove Missile Doors, 9' Wide x 52' Long	1	EA	$ 225,000.00	$	225,000
	Remove Debris & Drain Elevator Pit	1	LS	$ 1,500.00	$	1,500
	Restore Angles on Rusted Elevator Pit Edges	130	LF	$ 50.00	$	6,500
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	3840	SF	$ 3.00	$	11,520
	Remove Deteriorated HVAC Equipment & Ductwork	3840	SF	$ 4.00	$	15,360
	SUBTOTAL ALTERNATIVE	**3840**	**SF**	**$ 75.70**	**$**	**290,688**

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 5	**Generator Building - No 429**	**Total Cost:**	$100,705

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation at Exterior Corrugated Metal Siding	1	LS	$ 1,500.00	$ 1,500	
	Repair Chain Link Enclosure	40	LF	$ 25.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,500.00	$ 1,500	
	Relocate Building Systems & Other Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Exterior Walls					
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	770	SF	$ 20.00	$ 15,400	
	Doors					
	Replace Exterior Doors & Frames - Double	3	PR	$ 3,600.00	$ 10,800	
	Prep/Paint Doors & Frames	6	EA	$ 150.00	$ 900	
	Windows					
	Replace Exterior Wood Windows on East Elevation	9	SF	$ 100.00	$ 900	
	- South Elevation	35	SF	$ 100.00	$ 3,500	
	Restore Exterior Wood Louvers & Screens on West Elevation	230	SF	$ 75.00	$ 17,250	
	Replace & Reattach Missing Shutters	2	PR	$ 1,250.00	$ 2,500	
	Repair/Scrape/Paint Wood Window Frames	210	LF	$ 30.00	$ 6,300	
	Prep/Paint Exterior Windows & Louvers	274	SF	$ 10.00	$ 2,740	
	Roofing					
	Restore Corrugated Metal Roofing & Flashing	1475	SF	$ 5.00	$ 7,375	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 5 **Generator Building - No 429** **Total Cost:** $100,705

	Flashing & Sheet Metal				
	Replace Metal Downspouts	36	LF	$ 40.00	$ 1,440
	Structural				
	Evaluate Wood Framing at Grade for Deterioration	1	LS	$ 1,500.00	$ 1,500
	Building Systems				
	Re-establish Electrical Service to Building	1	LS	$ 7,500.00	$ 7,500
	SUBTOTAL EXTERIOR	**1167**	**SF**	**$ 73.35**	**$ 85,605**

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					
	Remove Plasterboard Walls	1540	SF	$ 2.00	$ 3,080	
	Ceiling					
	Remove Acoustical Ceilings	1167	SF	$ 1.50	$ 1,751	
	Flooring					
	Remove Debris, Clean Concrete Floor	1167	SF	$ 1.50	$ 1,751	
	Doors					
	Remove Interior Doors	1	EA	$ 150.00	$ 150	
	Windows					
	Remove Window Trim & Glazing in Room 102	1	EA	$ 200.00	$ 200	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 5 **Generator Building - No 429** **Total Cost:** $100,705

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	1167	SF	$ 3.00	$ 3,501	
	Remove Deteriorated HVAC Equipment & Ductwork	1167	SF	$ 4.00	$ 4,668	
	SUBTOTAL INTERIOR	**1167**	**SF**	**$ 12.94**	**$ 15,100**	
TOTAL COST - Generator Building - No 429		**1167**	**SF**	**$ 86.29**	**$ 100,705**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 20,190.00	$ 20,190	
	Stabilize & Paint All Doors	7	EA	$ 650.00	$ 4,550	
	Repair Wood Windows, Install Vents for Air Circulation	44	SF	$ 60.00	$ 2,640	
	Repair Roofing Elements Effected by Roof Flashing Laps, Assume 50%	738	SF	$ 25.00	$ 18,438	
	SUBTOTAL ALTERNATIVE	**3840**	**SF**	**$ 11.93**	**$ 45,818**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 6	**Enclosure - No 429A**	**Total Cost:**	$4,000

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Remove Entire Structure & Adjacent Slab, 12' x 6'	1	LS	$ 2,500.00	$ 2,500	
	Restore Gravel Roadway Where Slab Was Located	1	LS	$ 1,500.00	$ 1,500	
	SUBTOTAL EXTERIOR	**72**	**SF**	**$ 55.56**	**$ 4,000**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Enclosure - No 429A		**72**	**SF**	**$ 55.56**	**$ 4,000**	
	Alternative Scope					
	Remove Vegetation & Biological Growth Throughout Entire Structure	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Repair Minor Cracks in CMU , Remove Abandoned Anchors & Patch	260	SF	$ 5.00	$ 1,300	
	Remove Debris from Concrete Floor	1	LS	$ 250.00	$ 250	
	Remove Electrical Distribution Panels, Transformers, Lighting Fixtures & Related Equipment	1	LS	$ 750.00	$ 750	
	Remove Deteriorated HVAC Equipment & Ductwork	1	LS	$ 500.00	$ 500	
	SUBTOTAL ALTERNATIVE	**72**	**SF**	**$ 59.72**	**$ 4,300**	
	Alternative Scope #2 - Perform No Work					
	No Work	-	LS	$ -	$ -	
	SUBTOTAL ALTERNATIVE	**72**	**SF**	**$ -**	**$ -**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 7	**Barrack - No 430**	**Total Cost:**	$84,986

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation on Exterior Corrugated Mtl Siding	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Exterior Walls					
	Stabilize Corrugated Metal Siding in Places Where Bowing	990	SF	$ 2.50	$ 2,475	
	Doors					
	Stabilize & Paint All Doors	1	EA	$ 650.00	$ 650	
	Windows					
	Repair Wood Windows, Install Vents for Air Circulation	98	SF	$ 60.00	$ 5,880	
	Roofing					
	Repair Gap at Ridge Beam on South Elevation	1	LS	$ 500.00	$ 500	
	Repair & Stabilize Roof As Required	1176	SF	$ 10.00	$ 11,760	
	Structural					
	Clean Truss of Corrosion at Open End of Building 430, Paint w/ Rust Inhibitive Coating	1	LS	$ 1,500.00	$ 1,500	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**1029**	**SF**	**$ 24.55**	**$ 25,265**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 7	**Barrack - No 430**	**Total Cost:**	$84,986

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					
	Remove Interior Asbestos Particle Board & Insulation	1200	SF	$ 20.00	$ 24,000	
	Ceiling					
	Remove Asbestos Particle Board Ceilings	1176	SF	$ 22.50	$ 26,460	
	Flooring					
	Remove Debris, Clean Concrete Floor	1029	SF	$ 2.00	$ 2,058	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	1029	SF	$ 3.00	$ 3,087	
	Remove Deteriorated HVAC Equipment & Ductwork	1029	SF	$ 4.00	$ 4,116	
	SUBTOTAL INTERIOR	**1029**	**SF**	**$ 58.04**	**$ 59,721**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Barrack - No 430		**1029**	**SF**	**$ 82.59**	**$ 84,986**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 7	**Barrack - No 430**	**Total Cost:**	$84,986

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	4,500.00	$	4,500
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	495	SF	$	20.00	$	9,900
	Strip/Paint Corrugated Metal Siding	990	SF	$	2.00	$	1,980
	Restore Door & Frame	1	EA	$	1,250.00	$	1,250
	Close South Elevation w/ Metal Siding, Door & Frame, (2) Exterior Windows	210	SF	$	50.00	$	10,500
	Remove & Replace Exterior Wood Windows	98	SF	$	100.00	$	9,800
	Strip/Paint Windows & Frames	98	SF	$	25.00	$	2,450
	Strip/Paint Metal Roof Trusses	1029	SF	$	5.00	$	5,145
	Replace Damaged Bed Molding Board	140	LF	$	30.00	$	4,200
	Restore Electrical Service to Building	1	LS	$	7,500.00	$	7,500
	Replace Interior Asbestos Particle Board Walls & Insulation	990	SF	$	27.50	$	27,225
	Replace Asbestos Particle Board Ceiling, Strip/Paint Metal Trusses	1029	SF	$	35.00	$	36,015
	Remove Debris, Clean & Paint Concrete Flooring	1029	SF	$	3.00	$	3,087
	Provide Heating to Building, Electric Resistance Heaters	1029	SF	$	7.50	$	7,718
	Remove & Replace Electrical Receptacles	1029	SF	$	5.00	$	5,145
	Remove & Replace Interior Lighting Fixtures	1029	SF	$	8.00	$	8,232
	Electrical Wiring	1029	SF	$	10.00	$	10,290
	SUBTOTAL ALTERNATIVE	**1029**	**SF**	**$**	**150.57**	**$**	**154,937**

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 8	**Barrack - No 431**	**Total Cost:**	$72,881

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation on Exterior Corrugated Mtl Siding	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Doors					
	Repair Existing Doors	3	EA	$ 500.00	$ 1,500	
	Windows					
	Repair Exterior Wood Windows, Install Vents for Air Circulation	98	SF	$ 60.00	$ 5,880	
	Roofing					
	Repair Gap at Ridge Beam on South Elevation	1	LS	$ 500.00	$ 500	
	Reattach Roof Pulling Away at North Elevation	1	LS	$ 1,500.00	$ 1,500	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	32	LF	$ 40.00	$ 1,280	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**1029**	**SF**	**$ 12.79**	**$ 13,160**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 8 **Barrack - No 431** **Total Cost:** $72,881

	Remove Interior Asbestos Particle Board & Insulation	1200	SF	$ 20.00	$ 24,000
	Ceiling				
	Remove Asbestos Particle Board Ceilings	1176	SF	$ 22.50	$ 26,460
	Flooring				
	Remove Debris, Clean Concrete Floor	1029	SF	$ 2.00	$ 2,058
	Building Systems				
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	1029	SF	$ 3.00	$ 3,087
	Remove Deteriorated HVAC Equipment & Ductwork	1029	SF	$ 4.00	$ 4,116
	SUBTOTAL INTERIOR	**1029**	**SF**	**$ 58.04**	**$ 59,721**

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Barrack - No 431		**1029**	**SF**	**$ 70.83**	**$ 72,881**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 8	**Barrack - No 431**	**Total Cost:**	$72,881

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 54,960.00	$	54,960
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	600	SF	$ 20.00	$	12,000
	Strip/Paint Corrugated Metal Siding	1200	SF	$ 2.00	$	2,400
	Replace Door on North Elevation, Restore Frame	1	EA	$ 1,250.00	$	1,250
	Replace Doors & Frames on South Elevation, 12' Opening	1	PR	$ 4,900.00	$	4,900
	Remove & Replace Exterior Wood Windows	112	SF	$ 100.00	$	11,200
	Strip/Paint Windows & Frames	112	SF	$ 25.00	$	2,800
	Replace Damaged Bed Molding Board	140	LF	$ 30.00	$	4,200
	Restore Electrical Service to Building	1	LS	$ 7,500.00	$	7,500
	Replace Interior Asbestos Particle Board Walls & Insulation	1200	SF	$ 27.50	$	33,000
	Replace Asbestos Particle Board Ceiling, Strip/Paint Metal Trusses	1029	SF	$ 35.00	$	36,015
	Remove Debris, Clean Concrete Flooring	1029	SF	$ 2.00	$	2,058
	Provide Heating to Building, Electric Resistance Heaters	1029	SF	$ 7.50	$	7,718
	Remove & Replace Electrical Receptacles	1029	SF	$ 5.00	$	5,145
	Remove & Replace Interior Lighting Fixtures	1029	SF	$ 8.00	$	8,232
	Electrical Wiring	1029	SF	$ 10.00	$	10,290
	SUBTOTAL ALTERNATIVE	**1029**	**SF**	**$ 197.93**	**$**	**203,668**

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 9	**Barrack - No 432**	**Total Cost:**	$103,523

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation on Exterior Corrugated Mtl Siding	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Exterior Walls					
	Stabilize Corrugated Metal Siding in Places Where Bowing	1200	SF	$ 2.50	$ 3,000	
	Doors					
	Stabilize & Paint All Doors	2	EA	$ 650.00	$ 1,300	
	Windows					
	Repair Exterior Wood Windows, Install Vents for Air Circulation	112	SF	$ 60.00	$ 6,720	
	Roofing					
	Repair & Stabilize Roof As Required	1176	SF	$ 10.00	$ 11,760	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**1029**	**SF**	**$ 24.57**	**$ 25,280**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 9 **Barrack - No 432** **Total Cost:** $103,523

	Remove Interior Asbestos Particle Board & Insulation	1200	SF	$ 20.00	$ 24,000	
	Ceiling					
	Remove Asbestos Particle Board Ceilings	1176	SF	$ 22.50	$ 26,460	
	Flooring					
	Remove Debris, Vinyl Asbestos Tile Flooring	1029	SF	$ 20.00	$ 20,580	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	1029	SF	$ 3.00	$ 3,087	
	Remove Deteriorated HVAC Equipment & Ductwork	1029	SF	$ 4.00	$ 4,116	
	SUBTOTAL INTERIOR	**1029**	**SF**	**$ 76.04**	**$ 78,243**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Barrack - No 432**	**1029**	**SF**	**$ 100.61**	**$ 103,523**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 9	**Barrack - No 432**	**Total Cost:**	$103,523

	Alternative Scope							
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	2,500.00	$	2,500	
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	600	SF	$	20.00	$	12,000	
	Strip/Paint Corrugated Metal Siding	1200	SF	$	2.00	$	2,400	
	Restore Door & Frame	2	EA	$	1,250.00	$	2,500	
	Remove & Replace Exterior Wood Windows	112	SF	$	100.00	$	11,200	
	Strip/Paint Windows & Frames	112	SF	$	25.00	$	2,800	
	Replace Damaged Bed Molding Board	140	LF	$	30.00	$	4,200	
	Restore Electrical Service to Building	1	LS	$	7,500.00	$	7,500	
	Replace Interior Asbestos Particle Board Walls & Insulation	1200	SF	$	27.50	$	33,000	
	Replace Asbestos Particle Board Ceiling, Strip/Paint Metal Trusses	1029	SF	$	35.00	$	36,015	
	Replace Vinyl Asbestos Tile w/ Laminate	1029	SF	$	30.00	$	30,870	
	Provide Heating to Building, Electric Resistance Heaters	1029	SF	$	7.50	$	7,718	
	Remove & Replace Electrical Receptacles	1029	SF	$	5.00	$	5,145	
	Remove & Replace Interior Lighting Fixtures	1029	SF	$	8.00	$	8,232	
	Electrical Wiring	1029	SF	$	10.00	$	10,290	
	SUBTOTAL ALTERNATIVE	**1029**	**SF**	**$**	**171.40**	**$**	**176,370**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 10 Barrack - No 433 **Total Cost:** $186,677

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation on Exterior Corrugated Mtl Siding	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Relocate Building Systems & Elements Attached to Exterior Walls	1	LS	$ 3,500.00	$ 3,500	
	Replace Rusted Conduit, Remove Cap over Vent Louver	1	LS	$ 500.00	$ 500	
	Exterior Walls					
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	600	SF	$ 20.00	$ 12,000	
	Reconfigure South Elevation to Match North Elevation	1	LS	$ 3,500.00	$ 3,500	
	Strip & Paint Corrugated Metal Siding	1200	SF	$ 1.50	$ 1,800	
	Doors					
	Replace Door & Frame at North Elevation	1	EA	$ 1,600.00	$ 1,600	
	Windows					
	Restore Exterior Wood Windows As Required	105	SF	$ 75.00	$ 7,875	
	Replace Metal Security Screens at Each Window	112	SF	$ 100.00	$ 11,200	
	Roofing					
	Strip & Paint Corrugated Metal Roofing	1176	SF	$ 2.00	$ 2,352	
	Replace Damaged Bed Molding Board	140	LF	$ 30.00	$ 4,200	
	Building Systems					
	Re-establish Electrical Service to Building	1	LS	$ 7,500.00	$ 7,500	

United States Department of the Interior
National Park Service
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 10 Barrack - No 433 **Total Cost:** $186,677

	SUBTOTAL EXTERIOR	**1029**	**SF**	**$ 56.88**	**$ 58,527**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Walls					
	Remove Interior Asbestos Particle Board & Insulation	1200	SF	$ 20.00	$ 24,000	
	Ceiling					
	Remove Asbestos Particle Board Ceilings	1176	SF	$ 22.50	$ 26,460	
	Strip & Paint Metal Trusses	1029	SF	$ 5.00	$ 5,145	
	Flooring					
	Replace Vinyl Asbestos Tile Floors w/ Laminate Flooring	1029	SF	$ 30.00	$ 30,870	
	Building Systems					
	Electrical Receptacles As Required for Program	1029	SF	$ 5.00	$ 5,145	
	Remove & Replace Interior Lighting Fixtures	1029	SF	$ 8.50	$ 8,747	
	Electrical Wiring	1029	SF	$ 10.00	$ 10,290	
	Building Heating System Only	1029	SF	$ 15.00	$ 15,435	
	Other					
	Salvage Original Heating Pipes from Other Building	1029	SF	$ 2.00	$ 2,058	
	SUBTOTAL INTERIOR	**1029**	**SF**	**$ 124.54**	**$ 128,150**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Barrack - No 433		**1029**	**SF**	**$ 181.42**	**$ 186,677**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 10 Barrack - No 433 **Total Cost:** $186,677

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 148,883.50	$	148,884
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	600	SF	$ 20.00	$	12,000
	Strip/Paint Corrugated Metal Siding	1200	SF	$ 2.00	$	2,400
	Restore Door & Frame	1	EA	$ 1,250.00	$	1,250
	Strip/Paint Windows & Frames	112	SF	$ 25.00	$	2,800
	Restore Electrical Service to Building	1	LS	$ 7,500.00	$	7,500
	Replace Rusted Conduit, Remove Cap over Vent Louver	1	LS	$ 750.00	$	750
	Replace Interior Asbestos Particle Board Walls & Insulation	1200	SF	$ 27.50	$	33,000
	- Strip & Repaint Rusted Rigid Metal Framing	1200	SF	$ 2.00	$	2,400
	Replace Asbestos Particle Board Ceiling, Strip/Paint Metal Trusses	1029	SF	$ 35.00	$	36,015
	Provide Heating to Building, Electric Resistance Heaters	1029	SF	$ 7.50	$	7,718
	Remove & Replace Electrical Receptacles	1029	SF	$ 5.00	$	5,145
	Remove & Replace Interior Lighting Fixtures	1029	SF	$ 8.00	$	8,232
	Electrical Wiring	1029	SF	$ 10.00	$	10,290
	SUBTOTAL ALTERNATIVE	**1029**	**SF**	**$ 270.54**	**$**	**278,383**

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 11 Latrine - No 434 **Total Cost:** $44,988

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation & Biological Growth on Exterior CMU Wall	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Exterior Masonry Walls					
	Repair Stepped Cracks on the East Elevation, Southwest Corner & North Elevation	1	LS	$ 3,500.00	$ 3,500	
	Doors					
	Stabilize & Paint All Doors	4	EA	$ 650.00	$ 2,600	
	Windows					
	Repair Exterior Steel Windows, Install Vents for Air Circulation	72	SF	$ 85.00	$ 6,120	
	Roofing					
	Repair Roofing Elements Effected by Roof Flashing Laps, Assume 50%	440	SF	$ 25.00	$ 11,000	
	Structural					
	Repoint CMU Exterior Wall, Assume 25%	238	SF	$ 15.00	$ 3,563	
	Repair Roof Elements Affected by Roof Flashing Laps, Redesign of Roof Flashing			Included in Roofing Above		
	Building Systems					

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 11 Latrine - No 434 **Total Cost:** $44,988

	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		
	SUBTOTAL EXTERIOR	**698**	**SF**	**$ 41.95**	**$ 29,283**	

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	INTERIOR					
	Ceiling					
	Remove & Replace Plasterboard Ceiling, Paint	698	SF	$ 12.50	$ 8,725	
	Flooring					
	Remove Debris, Clean & Paint Concrete Floor	698	SF	$ 3.00	$ 2,094	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	698	SF	$ 3.00	$ 2,094	
	Remove Deteriorated HVAC Equipment & Ductwork	698	SF	$ 4.00	$ 2,792	
	SUBTOTAL INTERIOR	**698**	**SF**	**$ 22.50**	**$ 15,705**	

TOTAL COST - Latrine - No 434	**698**	**SF**	**$ 64.45**	**$ 44,988**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 11	**Latrine - No 434**	**Total Cost:**	$44,988

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	25,787.50	$	25,788
	Repair Exterior CMU Façade As Per Scope of Work	1040	SF	$	10.00	$	10,400
	Restore Doors & Frames, Replace Missing Screen Doors, Prep/Paint Doors & Frames	4	EA	$	2,500.00	$	10,000
	Strip/Paint Windows & Frames	72	SF	$	25.00	$	1,800
	Replace Missing Ballast in Corners, Deteriorating Flashing at Penetrations	1	LS	$	2,500.00	$	2,500
	Repair Rusted Roof Vents	1	LS	$	1,000.00	$	1,000
	Replace Eaves & Soffits	125	LF	$	50.00	$	6,250
	Restore Electrical Service to Building	1	LS	$	7,500.00	$	7,500
	Patch/Prep/Paint Interior CMU Walls	1040	SF	$	5.00	$	5,200
	Replace Plasterboard Partitions	60	LF	$	150.00	$	9,000
	Clean & Grout Tile Walls in Showers	540	SF	$	5.00	$	2,700
	Replace Toilet Partitions	5	EA	$	1,500.00	$	7,500
	Remove Debris, Clean & Paint Concrete Flooring	698	SF	$	3.00	$	2,094
	Provide Heating to Building, Electric Resistance Heaters	698	SF	$	7.50	$	5,235
	Remove & Replace Electrical Receptacles	698	SF	$	5.00	$	3,490
	Remove & Replace Interior Lighting Fixtures	698	SF	$	8.00	$	5,584
	Electrical Wiring	698	SF	$	10.00	$	6,980
	Restore Shelves on Millwork	1	LS	$	1,000.00	$	1,000
	SUBTOTAL ALTERNATIVE	**698**	**SF**	**$**	**163.35**	**$**	**114,021**

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 12 Central Heating Plant - No 435 **Total Cost:** $15,000

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,500.00	$ 1,500	
	Remove Entire Structure (Excluding Slab), 127 SF	1	LS	$ 3,500.00	$ 3,500	
	Document Mechanical Equipment & Remove	1	LS	$ 10,000.00	$ 10,000	
	SUBTOTAL EXTERIOR	**127**	**SF**	**$ 118.11**	**$ 15,000**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 12 Central Heating Plant - No 435 **Total Cost:** $15,000

TOTAL COST - Central Heating Plant - No 435		**127**	**SF**	**$**	**118.11**	**$**	**15,000**
	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	1,500.00	$	1,500
	Remove Vegetation & Debris	1	LS	$	1,000.00	$	1,000
	Cut/Patch/Repair Corrugated Metal Siding, Assume 50%	155	SF	$	20.00	$	3,100
	Remove & Replace Corrugated Metal Siding at West Side	120	SF	$	30.00	$	3,600
	- Replace Metal Framing	430	SF	$	15.00	$	6,450
	Strip/Paint Corrugated Metal Siding	215	SF	$	2.00	$	430
	Replace Door & Frame, Prep/Paint	1	EA	$	1,850.00	$	1,850
	Replace Exterior Steel Window at West Elevation	10	SF	$	150.00	$	1,500
	Replace Deteriorated Metal Roofing & Flashing	143	SF	$	20.00	$	2,860
	Replace Eaves Overhangs	26	LF	$	30.00	$	780
	Restore Electrical Service to Building	1	LS	$	7,500.00	$	7,500
	Remove Debris & Replace Vent Stack & Armature	1	LS	$	1,000.00	$	1,000
	Remove Debris, Clean Concrete Flooring	127	SF	$	2.00	$	254
	Provide Heating to Building, Electric Resistance Heaters	127	SF	$	7.50	$	953
	Remove & Replace Electrical Receptacles	127	SF	$	5.00	$	635
	Remove & Replace Interior Lighting Fixtures	127	SF	$	8.00	$	1,016
	Electrical Wiring	127	SF	$	10.00	$	1,270
	Restore Shelves on Millwork	1	LS	$	1,000.00	$	1,000
	SUBTOTAL ALTERNATIVE	**127**	**SF**	**$**	**288.96**	**$**	**36,698**

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 13 Ready Building - No 437 **Total Cost:** $223,960

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	Overall					
	Remove Vegetation & Biological Growth on Exterior CMU Wall	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,500.00	$ 1,000	
	Relocate Building Systems & Elements Attached to Exterior Walls	1	LS	$ 2,000.00	$ 3,500	
	Exterior Masonry Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1880	SF	$ 10.00	$ 18,800	
	Doors					
	Stabilize & Paint All Doors	3	EA	$ 650.00	$ 1,950	
	Windows					
	Repair Exterior Steel Windows, Install Vents for Air Circulation	183	SF	$ 85.00	$ 15,555	
	Roofing					
	Remove Biological Growth from Roof	2484	SF	$ 1.00	$ 2,484	
	Replace Sections of Missing Mesh Overhang on North, South & East Elevations	140	LF	$ 15.00	$ 2,100	
	Repair Rusting Metal Roof on South Elevation	54	SF	$ 25.00	$ 1,350	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	27	LF	$ 40.00	$ 1,080	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 13 Ready Building - No 437 **Total Cost:** $223,960

Uniformat II WBS	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Structural					
	Repoint CMU Exterior Wall, Assume 25%	489	SF	$ 15.00	$ 7,331	
	Repair Roofing Elements Effected by Roof Flashing Laps, Assume 50%	1242	SF	$ 25.00	$ 31,050	
	Reinstate Boiler Room Ceiling to Appropriate Fire Rating	140	SF	$ 20.00	$ 2,800	
	Reconstruct Upper Four Feet of Brick Chimney	56	SF	$ 50.00	$ 2,800	
	- Repair Cracks As Required	154	SF	$ 10.00	$ 1,540	
	Replace Upper Six Feet of CMU Chimney	36	SF	$ 40.00	$ 1,440	
	- Repair Internal Terra Cotta Flue As Required	84	SF	$ 75.00	$ 6,300	
	SUBTOTAL EXTERIOR	**2140**	**SF**	**$ 47.93**	**$ 102,580**	
	INTERIOR					
	Walls					
	Repair Drywall Partitions As Required	200	LF	$ 75.00	$ 15,000	
	Repair Interior CMU Cracks around Fenestrations	15	EA	$ 250.00	$ 3,750	
	Ceiling					
	Remove Particle Board Ceilings	2140	SF	$ 22.50	$ 48,150	
	Flooring					
	Remove Debris, Clean & Paint Concrete Floor	360	SF	$ 3.00	$ 1,080	
	Replace Vinyl Asbestos Tile w/ Laminate	1780	SF	$ 30.00	$ 53,400	
	SUBTOTAL INTERIOR	**2140**	**SF**	**$ 56.72**	**$ 121,380**	
	TOTAL COST - Ready Building - No 437	**2140**	**SF**	**$ 104.65**	**$ 223,960**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Radar Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 13	**Ready Building - No 437**	**Total Cost:**	$223,960

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	138,725.25	$	138,725
	Repair Exterior CMU Façade As Per Scope of Work	1880	SF	$	12.50	$	23,500
	Restore Exterior Door, Frame & Hardware, Prep/Paint	2	EA	$	1,250.00	$	2,500
	Replace Exterior Door, Frame & Hardware, Prep/Paint	1	EA	$	1,850.00	$	1,850
	Restore Exterior Steel Windows & Frames	183	SF	$	100.00	$	18,300
	Replace Bed Molding Board	210	LF	$	25.00	$	5,250
	Restore Electrical Service to Building	1	LS	$	7,500.00	$	7,500
	Replace Interior Drywall Partitions	175	LF	$	150.00	$	26,250
	Repair Spalling Concrete in Room 107	1	LS	$	2,500.00	$	2,500
	Prep/Paint Drywall Partitions	3150	SF	$	0.75	$	2,363
	Clean/Patch/Paint Interior CMU Walls	1880	SF	$	2.00	$	3,760
	Replace Particle Board Ceilings, Paint	1880	SF	$	5.00	$	9,400
	Replace Interior Door, Frame & Hardware	5	EA	$	1,500.00	$	7,500
	Strip/Prep/Paint Interior Doors & Frames	5	EA	$	300.00	$	1,500
	Remove Plywood from Windows in Room 107	2	EA	$	100.00	$	200
	Provide Heating to Building, Electric Resistance Heaters	2140	SF	$	7.50	$	16,050
	Remove & Replace Electrical Receptacles	2140	SF	$	5.00	$	10,700
	Remove & Replace Interior Lighting Fixtures	2140	SF	$	8.00	$	17,120
	Electrical Wiring	2140	SF	$	10.00	$	21,400
	SUBTOTAL ALTERNATIVE	**2140**	**SF**	**$**	**147.84**	**$**	**316,368**

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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 14 Sentry Box - No 439 **Total Cost:** $15,915

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Biological Growth on Exterior CMU Façade	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Relocate Building Systems/Elements Attached to Exterior Wall	1	LS	$ 1,000.00	$ 1,000	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	220	SF	$ 10.00	$ 2,200	
	Doors					
	Stabilize & Paint All Doors	1	EA	$ 650.00	$ 650	
	Windows					
	Repair Exterior Steel Windows, Install Vents for Air Circulation	27	SF	$ 85.00	$ 2,295	
	Structural					
	Repoint All Open Joints, Assume 10%	22	SF	$ 15.00	$ 330	
	Repair Roofing Elements Effected by Roof Flashing Laps	1	LS	$ 1,500.00	$ 1,500	
	Repair Turn-Down Slab - Repair Cracks, Address Level Changes in Slab	1	LS	$ 1,000.00	$ 1,000	
	Rebuild Turn-Down Slab to Accommodate Existing Grade	1	LS	$ 2,500.00	$ 2,500	
	Regrade Area to Historic Levels	1	LS	$ 1,500.00	$ 1,500	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 14 Sentry Box - No 439 **Total Cost:** $15,915

SUBTOTAL EXTERIOR	**39**	**SF**	**$ 371.15**	**$ 14,475**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Walls					
	Remove Plasterboard Walls	220	SF	$ 2.00	$ 440	
	Ceilings					
	Remove Deteriorating Plasterboard Ceiling & Paint	1	LS	$ 500.00	$ 500	
	Flooring					
	Remove Debris, Clean Concrete Floor	1	LS	$ 500.00	$ 500	
SUBTOTAL INTERIOR		**39**	**SF**	**$ 36.92**	**$ 1,440**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Sentry Box - No 439		**39**	**SF**	**$ 408.08**	**$ 15,915**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 14 Sentry Box - No 439		**Total Cost:**	$15,915

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	8,330.00	$	8,330
	Repair Exterior CMU Façade As Per Scope of Work	220	SF	$	20.00	$	4,400
	Replace Door & Frame (Currently Missing)	1	EA	$	1,600.00	$	1,600
	Restore Exterior Steel Windows	27	SF	$	100.00	$	2,700
	Replace Soffits & Eaves	45	LF	$	50.00	$	2,250
	Replace Plasterboard Walls	220	SF	$	10.00	$	2,200
	Repair Soffit	1	LS	$	500.00	$	500
	Replace Wood Baseboards	20	LF	$	20.00	$	400
	Replace Plasterboard Ceiling & Paint	39	SF	$	25.00	$	975
	Remove Debris, Clean & Paint Concrete Floor	1	LS	$	400.00	$	400
	Restore Interior Window Stoola	1	EA	$	200.00	$	200
	Building Heating System, Using Elec Resistance Heaters	1	LS	$	750.00	$	750
	Remove & Replace Electrical Receptacles	1	LS	$	350.00	$	350
	Remove & Replace Interior Lighting Fixtures	1	LS	$	500.00	$	500
	Electrical Wiring	1	LS	$	750.00	$	750
SUBTOTAL ALTERNATIVE		**39**	**SF**	**$**	**674.49**	**$**	**26,305**

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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 15 Flammable Materials Storehouse - No 447 **Total Cost:** $5,700

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation at Exterior Corrugated Metal Siding	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Doors					
	Remove Door	1	EA	$ 150.00	$ 150	
	Roofing					
	Replace Damaged Roofing & Structure, Assume 25%	54	SF	$ 75.00	$ 4,050	
	SUBTOTAL EXTERIOR	**54**	**SF**	**$ 105.56**	**$ 5,700**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Inaccessible	54	SF	$ -	$ -	
	SUBTOTAL INTERIOR	**54**	**SF**	**$ -**	**$ -**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Flammable Materials Storehouse - No 447**	**54**	**SF**	**$ 105.56**	**$ 5,700**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 15	**Flammable Materials Storehouse - No 447**	**Total Cost:**	$5,700

	Alternative Scope							
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	1,500.00	$	1,500	
	Repair Exterior CMU Façade As Per Scope of Work	270	SF	$	10.00	$	2,700	
	Restore Door & Frame, Replace Hardware	1	EA	$	1,000.00	$	1,000	
	Replace Deteriorated Metal Roofing	111	SF	$	20.00	$	2,220	
	Replace Mesh Under Roof Overhang	44	LF	$	10.00	$	440	
	Replace Metal & Wood Bed Molding Bed	44	LF	$	30.00	$	1,320	
	Replace Roofing Structure, Assume 25%	28	SF	$	75.00	$	2,081	
	SUBTOTAL ALTERNATIVE	**54**	**SF**	**$**	**208.54**	**$**	**11,261**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 16 Slab - No 448 **Total Cost:** $0

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	No Work Required					
	SUBTOTAL EXTERIOR	**233**	**SF**	**$ -**	**$ -**	
TOTAL COST - Slab - No 448		**233**	**SF**	**$ -**	**$ -**	
	Alternative Scope					
	Exterior Sign/Marker/Photographs	1	LS	$ 3,500.00	$ 3,500	
	SUBTOTAL ALTERNATIVE	**233**	**SF**	**$ 15.02**	**$ 3,500**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 17 Missile Assembly & Test Building - No 449 **Total Cost:** $83,758

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Vegetation & Biological Growth on Exterior CMU Façade	1	LS	$ 1,500.00	$ 1,500	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 1,000.00	$ 1,000	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	2226	SF	$ 10.00	$ 22,260	
	Doors					
	Remove & Store Man Doors, 10' Wide	2	EA	$ 1,500.00	$ 3,000	
	Metal Chain Link-Fence for Security	20	LF	$ 75.00	$ 1,500	
	Windows					
	Repair Exterior Steel Windows, Install Vents for Air Circulation	176	SF	$ 85.00	$ 14,960	
	Flashing & Sheet Metal					
	Replace Metal Downspouts	32	LF	$ 40.00	$ 1,280	
	Structural					
	Repoint All Open Joints, Assume 25%	557	SF	$ 15.00	$ 8,348	
	Evaluate Roof Joists Extensions, Replace As Required	1848	SF	$ 7.50	$ 13,860	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 17	**Missile Assembly & Test Building - No 449**	**Total Cost:**	$83,758

	SUBTOTAL EXTERIOR	**1575**	**SF**	**$ 42.99**	**$ 67,708**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Flooring					
	Remove Debris, Clean Concrete Floor	1575	SF	$ 2.00	$ 3,150	
	Walls					
	Cut Back Wall Finishes up to Three Feet	375	SF	$ 5.00	$ 1,875	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	1575	SF	$ 3.00	$ 4,725	
	Remove Deteriorated HVAC Equipment & Ductwork	1575	SF	$ 4.00	$ 6,300	
	SUBTOTAL INTERIOR	**1575**	**SF**	**$ 10.19**	**$ 16,050**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST -	**Missile Assembly & Test Building - No 449**	**1575**	**SF**	**$ 53.18**	**$ 83,758**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 17 Missile Assembly & Test Building - No 449 **Total Cost:** $83,758

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$	46,967.50	$	46,968
	Strip/Repaint CMU Façade at All Elevations	2226	SF	$	2.00	$	4,452
	Replace OH Doors on East & West Elevations, 10' x 12'	2	EA	$	8,500.00	$	17,000
	Replace Door to Missile Bay on West Elevation, Restore Frame, Prep/Paint Door & Frame	1	EA	$	1,500.00	$	1,500
	Replace Door to Air Handler Bay, Replace Jamb, Prep/Paint Door & Frame	1	EA	$	1,600.00	$	1,600
	Replace Door & Frame on East & South Elevation, Prep/Paint Door & Frame	2	EA	$	1,850.00	$	3,700
	Restore Exterior Steel Windows, Restore Metal Frames, Prep/Paint Window & Frame	160	SF	$	100.00	$	16,000
	Replace Metal Window Screens	160	SF	$	100.00	$	16,000
	Replace Deteriorated Metal Roofing, Assume 50%	924	SF	$	25.00	$	23,100
	Replace Eaves & Soffits	215	LF	$	50.00	$	10,750
	Replace Metal Gutters & Downspouts	116	LF	$	40.00	$	4,640
	Restore Electrical Service to Building	1	LS	$	7,500.00	$	7,500
	Repair Interior CMU Walls, Patch & Paint	2226	SF	$	6.00	$	13,356
	Replace Damaged Plywood Partitions	80	LF	$	150.00	$	12,000
	Replace Rusted Bathroom Partitions	2	EA	$	1,250.00	$	2,500
	Replace Plasterboard Ceiling, Strip/Paint Exposed Roof Trusses	1575	SF	$	15.00	$	23,625
	Remove Vinyl Asbestos Tile, Clean & Paint Concrete Surface	1575	SF	$	22.50	$	35,438
	Building Heating System, Using Elec Resistance Heaters	1575	SF	$	7.50	$	11,813
	Remove & Replace Electrical Receptacles	1575	SF	$	5.00	$	7,875
	Remove & Replace Interior Lighting Fixtures	1575	SF	$	8.00	$	12,600

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 17 Missile Assembly & Test Building - No 449 **Total Cost:** $83,758

	Electrical Wiring	1575	SF	$ 10.00	$ 15,750	
	SUBTOTAL ALTERNATIVE	**1575**	**SF**	**$ 182.96**	**$ 288,166**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 18 Storage - No 449A **Total Cost:** $3,000

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Remove Entire Structure (Excluding Slab)	1	LS	$ 2,500.00	$ 2,500	
	SUBTOTAL EXTERIOR	**120**	**SF**	**$ 25.00**	**$ 3,000**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Storage - No 449A		**120**	**SF**	**$ 25.00**	**$ 3,000**	
	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 500.00	$ 500	
	Repair Exterior CMU Façade As Per Scope of Work	330	SF	$ 10.00	$ 3,300	
	Strip/Repaint CMU Façade at All Elevations	330	SF	$ 2.00	$ 660	
	Replace Missing Door on North Elevation, Replace Trim & Hardware, Prep/Paint	1	EA	$ 1,500.00	$ 1,500	
	Replace Metal Roofing & Flashing	165	SF	$ 20.00	$ 3,300	
	Repoint Exterior CMU Façade, Assume 10%	33	SF	$ 15.00	$ 495	
	Replace Roofing Structure, Assume 25%	41	SF	$ 75.00	$ 3,094	
	Restore Electrical Service to Building	1	LS	$ 7,500.00	$ 7,500	
	Repair Interior CMU Walls, Patch & Paint	330	SF	$ 6.00	$ 1,980	
	Remove Debris, Clean & Paint Concrete Flooring	120	SF	$ 3.00	$ 360	
	Remove & Replace Electrical Receptacles	120	SF	$ 5.00	$ 600	
	Remove & Replace Interior Lighting Fixtures	120	SF	$ 8.00	$ 960	
	Electrical Wiring	120	SF	$ 10.00	$ 1,200	

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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 18 Storage - No 449A **Total Cost:** $3,000

SUBTOTAL ALTERNATIVE	**120**	**SF**	**$ 212.07**	**$ 25,449**

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 19 Storage - No 449B **Total Cost:** $2,500

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Remove Entire Structure (Excluding Slab)	1	LS	$ 2,500.00	$ 2,500	
	SUBTOTAL EXTERIOR	**82**	**SF**	**$ 30.49**	**$ 2,500**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Storage - No 449B		**82**	**SF**	**$ 30.49**	**$ 2,500**	

	Alternative Scope					
	Base Bid Scope That Remained in Alternative Scope	-	LS	$ -	$ -	
	Remove Vegetation & Biological Growth	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Replace Deteriorated Plywood Walls & Paint	260	SF	$ 6.50	$ 1,690	
	Repair Splitting Wood Frame in Southwest Corner	1	LS	$ 350.00	$ 350	
	Replace Door, Frame & Hardware (Door Missing)	1	EA	$ 1,500.00	$ 1,500	
	Replace Metal Roofing & Flashing	100	SF	$ 20.00	$ 2,000	
	Rebuild Roofing Structure	100	SF	$ 75.00	$ 7,500	
	Remove Debris, Clean & Paint Concrete Flooring	82	SF	$ 3.00	$ 246	
	Remove & Replace Electrical Receptacles	82	SF	$ 5.00	$ 410	
	Remove & Replace Interior Lighting Fixtures	82	SF	$ 8.00	$ 656	
	Electrical Wiring	82	SF	$ 10.00	$ 820	
	SUBTOTAL ALTERNATIVE	**82**	**SF**	**$ 203.32**	**$ 16,672**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
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PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 19 Storage - No 449B **Total Cost:** $2,500

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

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Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 20 Warhead Building - No 450 **Total Cost:** $64,464

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**EXTERIOR**					
	Overall					
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Exterior Walls					
	Repair Exterior CMU Façade As Per Scope of Work	1520	SF	$ 10.00	$ 15,200	
	Doors					
	Remove & Store Man Doors	2	EA	$ 1,500.00	$ 3,000	
	Metal Chain Link-Fence for Security	20	LF	$ 75.00	$ 1,500	
	Windows					
	Install Chain Link Screens over Window Openings	136	SF	$ 15.00	$ 2,040	
	Roofing					
	Replace Metal Roofing & Flashing	734	SF	$ 20.00	$ 14,680	
	Flashing & Sheet Metal					
	Replace Metal Gutters & Downspouts	132	LF	$ 40.00	$ 5,280	
	Structural					
	Repoint All Open Joints, Assume 50%	760	SF	$ 15.00	$ 11,400	
	Clean All Steel of Corrosion, Coat w/ Rust-Inhibitive Coating	1	LS	$ 5,000.00	$ 5,000	
	Building Systems					
	Remove Remnants of Original Electrical & HVAC Systems			See Interior Building Systems		

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 20 Warhead Building - No 450 **Total Cost:** $64,464

	SUBTOTAL EXTERIOR	**733**	**SF**	**$ 79.95**	**$ 58,600**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**INTERIOR**					
	Flooring					
	Remove Debris	733	SF	$ 1.00	$ 733	
	Building Systems					
	Remove Deteriorated Electrical Panels, Transformers, Lighting Fixtures, Etc	733	SF	$ 3.00	$ 2,199	
	Remove Deteriorated HVAC Equipment & Ductwork	733	SF	$ 4.00	$ 2,932	
	SUBTOTAL INTERIOR	**733**	**SF**	**$ 8.00**	**$ 5,864**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Warhead Building - No 450		**733**	**SF**	**$ 87.95**	**$ 64,464**	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date
Summary Item 20 Warhead Building - No 450		**Total Cost:**	$64,464

	Alternative Scope						
	Base Bid Scope That Remained in Alternative Scope	1	LS	$ 52,060.00	$	52,060	
	Remove Vegetation & Biological Growth	1	LS	$ 3,500.00	$	3,500	
	Replace OH Doors on East & West Elevations, 10' x 10'	2	EA	$ 7,500.00	$	15,000	
	Replace Door on East Elevation, Restore Frame, Prep/Paint Door & Frame	1	EA	$ 1,500.00	$	1,500	
	Replace Door & Frame on West Elevation, Prep/Paint Door & Frame	1	EA	$ 1,850.00	$	1,850	
	Replace Exterior Metal Windows (All Are Missing)	136	SF	$ 150.00	$	20,400	
	Restore Concrete Window Sills	32	LF	$ 25.00	$	800	
	Restore Electrical Service to Building	1	LS	$ 7,500.00	$	7,500	
	Repair Interior CMU Walls, Patch & Paint	1520	SF	$ 6.00	$	9,120	
	Remove Debris, Clean & Paint Concrete Flooring	733	SF	$ 3.00	$	2,199	
	Remove & Replace Electrical Receptacles	733	SF	$ 5.00	$	3,665	
	Remove & Replace Interior Lighting Fixtures	733	SF	$ 8.00	$	5,864	
	Remove & Replace Exterior Lighting Fixtures	1	LS	$ 3,500.00	$	3,500	
	Electrical Wiring	733	SF	$ 10.00	$	7,330	
	SUBTOTAL ALTERNATIVE	**733**	**SF**	**$ 183.20**	**$**	**134,288**	
	Alternative Scope #2						
	Perform No Work, Leave Site As Is	-	LS	$ -	$	-	
	SUBTOTAL ALTERNATIVE	**733**	**SF**	**$ -**	**$**	**-**	

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LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 21 Slab - No 456 **Total Cost:** $0

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	No Work Required					
	SUBTOTAL EXTERIOR	**70**	**SF**	**$ -**	**$ -**	
TOTAL COST - Slab - No 456		**70**	**SF**	**$ -**	**$ -**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 22 Canine Kennel - No 458 **Total Cost:** $0

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	No Work Required					
	SUBTOTAL EXTERIOR	**515**	**SF**	**$ -**	**$ -**	
TOTAL COST - Canine Kennel - No 458		**515**	**SF**	**$ -**	**$ -**	
	Alternative Scope					
	Remove Vegetation & Debris, Clean Site	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Replace Corrugated Metal Walls, Assume 50%	250	SF	$ 20.00	$ 5,000	
	Replace Chain Link Fence Around Entire Site	150	LF	$ 125.00	$ 18,750	
	SUBTOTAL ALTERNATIVE	**515**	**SF**	**$ 49.03**	**$ 25,250**	

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Nike Missile Launch and Radar Tracking Sites - Missile Site**	**Estimate By:**	M Funk/L Johnson
Park:	**Gateway National Recreation Area - Sandy Hook Unit**	**Date:**	April 29, 2016
Park Alpha:	**Park Code**	**Reviewed By:**	Reviewer
PMIS Number:	**201658A**	**Date:**	Review Date

Summary Item 23 Canine Kennel Support Building - No 458A **Total Cost:** $0

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	EXTERIOR					
	No Work Required					
	SUBTOTAL EXTERIOR	**152**	**SF**	**$ -**	**$ -**	
TOTAL COST - Canine Kennel Support Building - No 458A		**152**	**SF**	**$ -**	**$ -**	
	Alternative Scope					
	Remove Vegetation & Debris, Clean Site	1	LS	$ 1,000.00	$ 1,000	
	Salvage, Catalog & Store Elements of Value	1	LS	$ 500.00	$ 500	
	Replace Corrugated Metal Walls, Assume 50%	250	SF	$ 20.00	$ 5,000	
	Replace Chain Link Fence Around Entire Site	150	LF	$ 125.00	$ 18,750	
	SUBTOTAL ALTERNATIVE	**152**	**SF**	**$ 166.12**	**$ 25,250**	