ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF EMERGENCY GENERATORS BUILDING 13 AND BUILDING 70 SUBSTATION AMMUNITION OPERATIONS DISTRICT HAWTHORNE ARMY DEPOT

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ACRONYMS

AOD	Ammunitions Operation District
AQCR	Air Quality Control Region
AT/FP	Antiterrorism/Force Protection
BFE	Base Flood Elevation
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CAA	Clean Air Act
CFR	Code of Federal Regulations
DoD	Department of Defense
EA	Environmental Assessment
EIS	Environmental Impact Statement
eKW	Electrical Kilowatt
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
HWAD	Hawthorne Army Depot
ICRMP	Integrated Cultural Resources Management Plan
IPAC	Information for Planning and Consultation
KVA	Kilovolt-ampere
LCT	Lahontan cutthroat trout
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Policy Act of 1969
NOI	Notice of Intent

NRHP	National Register of Historic Places
PFAS	Per- And Polyfluoroalkyl Substances
RCRA	Resource Conservation and Recovery Act
SOP	Standard Operating Procedure
SPCC	Spill Prevention, Control, and Countermeasures
TCP	Traditional Cultural Properties
USC	United States Code
USACE	U.S. Army Corps of Engineers
UXO	Unexploded Ordnance
WADF	Western Area Demilitarization Facility

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AMMUNITION OPERATIONS DISTRICT

HAWTHORNE ARMY DEPOT

Approved by:

Army Commander's Representative	Courtney Isom	Courtney Isom 20 Oct 2025

1.0 INTRODUCTION

This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic impacts associated with the replacement of emergency power generators and ancillary equipment in two locations at Hawthorne Army Depot (HWAD) in Hawthorne, Nevada (the Proposed Action). The previously installed generators no longer function, and ancillary equipment has surpassed its useful lifespan. HWAD relies on power provided by local commercial utilities with no alternate sources of power in the event the external sources fail. A source of emergency power is needed to ensure continued safe, flexible, and efficient facilities to meet current and future installation mission requirements.

1.1 LOCATION

The HWAD installation is a 147,236-acre government-owned, contractor-operated installation located adjacent to the community of Hawthorne in Mineral County, Nevada, see Appendix A, Figure 1. The main parcel is about 144,000 acres surrounding Hawthorne, with the remaining about 3,000 acres comprised by the New Bomb Facility located 22 miles to the south. New Bomb is not contiguous to HWAD's primary facilities.

- Ammunitions Operation District (AOD) – is the primary ordnance storage and management area covering about 100,000 acres. The area is subdivided into the North, Central, and South Magazine Areas, the Old Bomb Area, as well as other components.
- Main Base – This area includes administrative buildings, buildings for tenant operations, storage buildings, industrial operations buildings, housing (36 units), and a golf course.
- Mount Grant Area – The Mount Grant area covers about 45,000 acres. Streams in the Mount Grant watershed provide HWAD's potable water, therefore human disturbance in the area is limited.

The Proposed Action includes installation of emergency generators and associated equipment in two locations within the HWAD installation. The first project area would be located in the industrial area of Main Base at Building 13, adjacent to the existing power facilities (see Appendix A, Figure 2). The 500 eKW emergency generator and switchgear proposed at this location would support administrative and industrial buildings, 36 housing units, and a golf course in the Main Base area. The second project area would be located in the AOD Central magazine, within Building 70 Substation (see Appendix A, Figure 3). Three 2,000 – 2,500 eKW emergency generators and associated switchgears proposed at the second location would provide back-up power to the North, Central, and South magazine areas of the AOD (Appendix A, see Figure 4).

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to replace the non-functioning emergency generators and associated equipment which provide energy to the HWAD when grid-based power sources fail. In December 2024, the US Department of Defense (DoD) released DoD Instruction 4715.28 Military Installation Resilience which established policy, assigned responsibilities, and prescribed procedures for ensuring military installation energy resilience. The instructions established a goal of ensuring energy resilience of installations worldwide to be able to perform mission critical tasks without the need for public water or power. The term “energy resilience” means the ability to avoid, prepare for, minimize, adapt to, and recover from anticipated and unanticipated energy disruptions in order to ensure energy availability and reliability sufficient to provide for mission assurance and readiness, including mission essential operations related to readiness, and to execute or rapidly reestablish mission essential requirements (10 USC 101(f)(6)). The Proposed Action is being implemented to ensure energy resilience by providing emergency power generation as explained below.

The Proposed Action is needed to ensure continuity of electrical supply for the installation to provide safe, flexible, and efficient operations to meet current and future installation mission requirements. The loss of electricity prevents the installation from accomplishing its mission. The lack of electricity also poses both safety and security risks for the facility. Security of the resources in the area utilizes electrical monitoring and detection systems which may not function when power systems fail. Power is vital for the maintenance of communications (phone, radio, and computer) on the facility, for both safety and security reasons.

Additionally, the loss of power during disassembly or demilitarization of munitions creates a risk to the staff. Establishing dual emergency back-up generators which can function for 48 hours before refueling provides the installation with a redundant source of electricity for a sufficient timeframe to allow continued functioning and adequate time to plan for refueling in the event it is needed.

1.3 AUTHORITY

In accordance with Federal Register 90 FR 27857 (Federal Register, 2025) and the *Department of Defense National Environmental Policy Act Implementing Procedures* (DoD NEPA Implementing Procedures) published on June 30, 2025 (Department of Defense, 2025), the Army considered applicable federal, state, and local statutes and regulations during analysis of the Proposed Action’s effects on individual, environmental, and social resources.

1.4 PROPOSED ACTION

The Proposed Action entails the removal of inoperable generators, outdated switch gears, and other associated equipment, and replacing them with diesel powered generators, updated switchgears, transformers, feeders, and other associated appurtenances as needed. The Generator Support System Design is presented in Appendix B.

1.5 SCOPE OF ENVIRONMENTAL ANALYSIS

This EA identifies, documents, and evaluates the potential environmental, cultural, and socioeconomic effects of replacement of emergency generators and associated equipment at two locations to support the HWAD installation in the event of a power interruption.

The EA includes an evaluation of the short- and long-term direct, indirect, and cumulative effects of implementing these actions and informs decision makers and the public of the potential environmental consequences of the action along with associated mitigation measures.

Resource areas evaluated in the EA include aesthetics and visual resources, air quality, biological resources, cultural resources, geology and soils, hazardous and toxic materials, land use, noise, socioeconomics, transportation, utilities, and water resources.

1.6 PUBLIC AND AGENCY INVOLVEMENT

The Army invites and strongly encourages public participation in the NEPA process. Consideration of the views of and information from all interested parties promotes open communication and enables better decision-making. The Army specifically urges all agencies, organizations, and members of the public with a potential interest in the Proposed Action to participate in the decision-making process.

Recommendations in the DoD NEPA Implementing Procedures (DoD, 2025) guide opportunities for public participation with respect to this EA and decision-making on the Proposed Action. The Army will make this EA and a draft Finding of No Significant Impact (FONSI) available to the public for 30 days, publishing a notice of completion of the documents in the Mineral County Independent News. Interested parties will be able to review the documents at the Mineral County Public Library and by accessing them on HWAD’s Facebook page and on the internet at https://www.jmc.army.mil/Installations.aspx?id=Hawthorne.

Comments submitted within the 30-day public review period will be made part of the Administrative Record and will be fully considered before a final decision is made to either execute a final FONSI and proceed with implementing the Proposed Action or publish a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS).

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, HWAD would not replace the existing emergency power generators and associated equipment. Without the implementation of the Proposed Action, facilities on the installation would continue to be at risk of shut down if the existing power source or transmission systems are disrupted.

The No Action Alternative would not satisfy the purpose of or need for the Proposed Action; however, this alternative is retained for evaluation in the EA to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required by NEPA § 102(2)(H), 42 USC § 4332(2)(H).

2.2 PROPOSED ACTION

This section discusses the alternatives development process and screening criteria, alternatives evaluated, and alternatives eliminated from further analysis.

NEPA's implementing regulations require all reasonable alternatives be rigorously explored and objectively evaluated. In addition, alternatives eliminated from detailed analysis must be identified and reasons provided for their elimination.

The Army established several objectives and criteria when developing the Proposed Action and assessing alternatives, which included:

- Provide sufficient, reliable emergency power to support continued operation at the two installation districts.
- Ensure 48 hours of continuous power generation at levels required to support continued operations.
- Utilize existing infrastructure (transmission/distribution lines) to the extent feasible to minimize the need for new infrastructure, thus reducing new disturbance and managing cost.
- Promote a safe and secure work environment and maintain antiterrorism/force protection (AT/FP).

The existing facilities and associated structures and infrastructure at the two locations were evaluated for functionality and potential for upgrading or repurposing to achieve the objectives and criteria. The following summary and recommendations were developed and reported in the *Hawthorne Army Depot Generator System for Mission Support Engineering Study to Assess Condition of the Electrical Systems* (Dinter Engineering Co., 2024). Project element dimensions are provided in Table 1.

For the Building 13 site, the existing generator and associated diesel engine are of unknown vintage. The engine appears well-maintained, but it has not run in the recent past and would not meet emissions requirements for new engines presently in effect. The switchgears, breakers, and breaker control system are pre-1970s vintage or of unknown vintage. Each of these components are obsolete or have functioned beyond their useful lifespan. Other components of the system also are obsolete and would require being replaced to ensure reliable functioning.

Building 70 Substation includes a variety of components, including a 5,000kVA transformer, a metal-clad switch gear assembly containing a GE magna blaster circuit breaker, an electronic relay, and a control power transformer within the switchgear. Some of this equipment was manufactured in 1975 or earlier, is obsolete and has exceeded its useful lifespan, and would require extensive modification.

TABLE 1. PROJECT ELEMENT DIMENSIONS

Project Element		Dimensions (Feet)			Area*
	Qty	L	W	H	(Sq Feet)
Building 13					**1,334**
Generator Pad	1	27	19	-	531
Generator	1	19	8	TBD	152
Switchgear Pad	1	21	17	-	357
Switchgear	1	18	12	10	216
Battery Rack and Charger Pad	1		TBD	-	TBD
Battery Rack and Charger	1	TBD	TBD	TBD	TBD
Transformer Pad	1	8	6	-	48
Transformer	1	6	5	7	30
Skid Tanks for Fuel Storage	TBD	TBD	TBD	TBD	TBD
Building 70 Substation					**5,745**
Generator Pad	1	59	52	-	3,068
Generator	3	40	10	TBD	1,200
Pad-mounted Load Banks	3	TBD	TBD	TBD	TBD
Switchgear Pad (15kV)	1	24	14	-	336
Switchgear (15kV)	1	21	11	10	231
Switchgear Pad (4160V)	1	24	14	-	336
Switchgear (4160V)	1	12	11	10	132
Battery Rack and Charger Pad	1	TBD	TBD	-	TBD
Battery Rack and Charger	1	TBD	TBD	TBD	TBD
Transformer Pad	1	8	8	-	64
Transformer	1	6	7	6	42
Skid Tanks for Fuel Storage	TBD	TBD	TBD	TBD	TBD

* Excludes improved roadways/parking and temporary work areas for construction and trenching for conduit.

2.2.1 Preferred Alternative

The Army determined removal of existing, obsolete generators and other components and installation of new diesel-fueled generators and associated components adjacent to the existing buildings and infrastructure would be most effective at achieving energy resilience. Dinter provided recommended configurations and sample equipment specifications for consideration (Dinter Engineering Co., 2024). The Army developed more detailed design documents for potential equipment and configurations. This information is summarized in the sections below and was utilized in the impact evaluation in this document.

Under the Proposed Action HWAD would replace existing backup generators and associated components at Building 13 and Building 70 Substation.

2.2.2 Building 13 Project Area

The existing generator and associated components would be removed prior to installation of the new 500 eKW generator. Adequate room exists on the site to accommodate an installation of this nature. As such, a new generator would be installed adjacent to the existing building. The location of the new generator allows utilization of the existing power distribution lines, roads, developed areas, and fencing. Preliminary site plans and line drawings for the Proposed Action at Building 13 are provided in Appendix C.

2.2.2.1 Removal

Equipment removal entails removal and disposal of the existing generator fuel system, and the battery rack and charger from within Building 13. This includes removing all circuit breakers from the switchgear cabinet, which will remain for alternate uses. An existing transformer and feeder lines connections would be removed and disposed of as well as. Removal of the generator equipment will not require demolition or removal of walls or other structures within Building 13.

2.2.2.2 Equipment

HWAD plans to install the following equipment to replace the removed system at Building 13.

- One 500 eKW/625 KVA diesel-fueled generator in an outdoor assembly in a weatherproof enclosure
- Fuel tanks will be integral to the generator, however, HWAD may install up to three skid tanks with a total 48-hour run time fuel storage capacity. Number, size, and volume of tanks is currently unknown.
- One battery rack and charger
- One 4160C, 1,200A rated generator switchgear with a new 125vDC breaker control system
- One 1,000KVA, 480Y:4160Y step-up transformer

- Feeder Conduit to interconnect with the existing system
- New security fence (Tentative)

2.2.2.3 Construction

Following completion of the existing components removal, site preparation for construction would begin. The project area consists of existing disturbance and various installed surfaces. Site preparation would entail removal of any existing concrete, gravel, or other surfaces in the installation areas of the new equipment. Grading, excavation, and compaction would be required to establish level, solid surfaces for construction of the foundations and pads for placement of the new equipment. Trenching would be required for the installation of the feeder conduit connecting the new equipment to the existing system. Excavation and trenching are expected to go no farther than two feet in depth.

Upon completing the necessary grading and excavation, concrete pads and foundations would be developed. Workers would then install the planned equipment and complete the interconnections to the existing system.

If deemed necessary, workers would install security fencing around the new facilities for security and public safety.

2.2.3 Building 70 Substation Project Area

The existing emergency generator and associated components have been removed from Building 70 Substation, therefore demolition is not required. The three new 2,000 – 2,500 eKW generators and associated facilities would be installed adjacent to the existing substation. The location of the generators allows utilization of the existing power distribution lines, roads, developed areas, and fencing. The Building 70 Substation supports a larger area of the HWAD Installation and therefore requires additional generator capacity when compared to Building 13. Preliminary site plans and line drawings for the Proposed Action at Building 70 Substation are provided in Appendix D.

2.2.3.1 Removal

Removal entails removal and disposal of transformer feeds and preparation of new feeds for connection to the new switchgear. The existing switchgear cabinet will remain in place, but the circuit breakers and other equipment will be removed and disposed.

2.2.3.2 Equipment

HWAD plans to install the following equipment to replace the removed system.

- Up to three 2,000 – 2,500 eKW diesel-fueled generators in an outdoor assembly, each in weatherproof enclosures and with a roof-mounted Load Bank (150kW)
- Up to three pad-mounted 750kW Load Banks

- Fuel tanks are integral to the generators, however HWAD may install up to six skid tanks with a total 48-hour run time fuel storage capacity. Number, size, and volume of tanks is currently unknown.
- One 15KV generator switchgear
- One 4,160V N,S,C switchgear
- One battery rack and charger
- One 1,200KVA, 12KV:4160V step-up transformer
- Distribution and utility feeder conduit to interconnect with the existing system
- Replacement of security fence

2.2.3.3 Construction

Construction for this location would be the same as described for Building 13.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED EVALUATION

Alternatives were analyzed using the process described above. Several build alternatives were considered but not carried forward for consideration for different reasons.

No alternative locations were considered given the Purpose and Need was to utilize the existing power transmission/distribution infrastructure, existing buildings, and existing roadways to ensure cost efficiency and minimize new disturbance.

Various types and sizes of equipment were considered while assessing the energy demands of HWAD at these locations and the objective of providing 48 hours of runtime. The specifications presented above met that objective.

The installation of new equipment within the existing buildings was considered. Given the size of the generators, the size of other components, and fuel tank sizes to hold the volumes required to achieve the operational duration objective, installation of the equipment within the buildings would have required substantial demolition or renovation of potentially historic buildings. Also, significant ventilation would be required to manage the emissions from the generators to maintain a safe indoor environment.

An alternative fuel source, propane, was considered but deemed unfeasible due to cost.

Therefore, consistent with the guidance identified in UFC 2-100-01 sections 3-6.1.3 and 3-6.1.4 and through the aligned and streamlined NEPA alternatives development process in the DoD NEPA Implementing Procedures (DoD, 2025), there is no viable alternative supportive of the purpose and need for the Proposed Action beyond the Preferred Alternative.

3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 RESOURCE AREAS

Per DoD NEPA Implementing Procedures and Army NEPA implementing regulations, the Army may focus their NEPA analysis on resource areas that could be affected by a proposed action and eliminate from detailed study resource areas that would not be significantly affected (90 FR 27857) (Federal Register, 2025). HWAD has reviewed all the resource areas that could potentially be affected by implementing the Proposed Action and, consistent with the regulations, is eliminating from detailed study the following areas, which are discussed further in the following section.

- Air quality
- Human health and safety
- Land use
- Noise
- Socioeconomics
- Traffic and transportation
- Water resources
- Biological resources
- Cultural resources
- Geology and soils
- Aesthetics and visual resources
- Utilities

HWAD carried forward the following resource areas for detailed analysis, which are further evaluated below:

- Hazardous and toxic materials

3.2 RESOURCES NOT CARRIED FORWARD FOR FURTHER ANALYSIS

The following resources were evaluated for impacts based on the implementation of the Preferred Alternative. These resources were not carried forward for further detailed analysis in this EA.

3.2.1 Human Health and Safety

A proposed action would be considered to have a significant impact on human health and safety if it created a potential direct public health hazard or involved the use, production, or disposal of materials that pose a hazard to people in an area.

The Proposed Action does not create a direct public health hazard and does not involve production or disposal of materials that pose a hazard to the public. Prior assessments and evaluations indicate that hazardous materials are not expected to be encountered during renovations. Appropriate measures would be taken to address hazardous materials encountered on a site and the potential human safety risks involved with handling them.

The Proposed Action would involve construction equipment and temporary increases in traffic volume and the number of people on-base. These aspects can increase potential risks to human health and safety but would be abated by implementing best management practices (BMP) for traffic control, safety fencing, exclusion areas, noise control, dust control, hazardous materials exposure (if warranted), and other measures to keep construction workers, base employees, and the public safe. Contractors conducting the work would be required to implement site-specific health and safety plans that outline the measures to be employed for all potential risks at each work site. Additionally, the Spill Prevention, Control, and Countermeasure Plan for the installation will be updated to incorporate the facilities and associated fuel storage in accordance with Army regulations, Environmental Protection Agency (EPA) guidelines, and Nevada Division of Environmental Protection (NDEP) requirements.

The Proposed Action would not adversely impact human health and safety; therefore, this resource was not carried forward for detailed analysis in this EA.

3.2.2 Land Use

A proposed action would be considered to have an impact on land use if it included activities or operations that do not comply with an area’s land use or planning codes and ordinances, or if it altered the current land use of the area.

The Proposed Action would not alter present land use of the area and would have no adverse impacts on land use. The selected locations for replacement of existing power generation and associated equipment are adjacent to the current facilities and were selected in accordance with defined land uses as detailed in the HWAD Real Property Master Plan (HWAD, 2009).

The Proposed Action would occur on federally controlled property managed by DoD and would not occur on withdrawn land. The Proposed Action would not include a real estate action; activity on privately-owned land; increase of acreage or amendment to an existing lease, license or land use permit; require new a lease, license, or easement; and would not involve pesticide usage.

The Proposed Action would not adversely impact land use; therefore, this resource was not carried forward for detailed analysis in this EA.

3.2.3 Noise

A proposed action would adversely impact noise receptors if it generates nuisance noise that exceeds locally established noise level standards or results in new permanent sources of noise, and if it impacts sensitive noise receptors located near the action.

Implementing the Proposed Action would have short-term adverse impacts on surrounding noise receptors during construction, however, it is not anticipated to create long-term adverse impacts as no new permanent sources of noise would be installed. The generators would be housed in sound attenuated enclosures, thus reducing noise impacts; and the generators would be for emergency use during power outages, which is a temporary situation.

The Proposed Action includes removal, installation, and operation of electrical facilities which would require the use of some heavy equipment. This equipment would generate short-term increases in noise. All construction activities would occur within the installation's property boundary and be collocated with other existing noise-compatible activities.

The nearest noise-sensitive receptors are in the town of Hawthorne, approximately 2 miles to the south of Building 70 Substation, and in base housing approximately 0.4 miles west of Building 13. Temporary construction and installation of the generators at each project area is not expected to adversely impact those nearby receptors. Noise generated during construction and installation, and from use of the generators during power outages would be temporary.

Although the effects of construction-related noise would be negligible, the Army would implement appropriate BMPs to further reduce any realized noise effects, including limiting use of heavy equipment during normal weekday business hours, maintaining heavy equipment mufflers, and establishing adequate personal hearing protection standards for construction personnel to limit noise exposure during operations.

The Proposed Action would result in short-term negligible adverse impacts to noise receptors. Long-term adverse impacts were not identified for noise receptors; therefore, this resource was not carried forward for detailed analysis in this EA.

3.2.4 Socioeconomics

3.2.4.1 Socioeconomics

A proposed action would have adverse impacts on socioeconomics, environmental justice, or the protection of children if it would cause changes in the population or employment level of local or regional populations, cause disruption of community businesses and create an economic hardship for surrounding communities; cause disequilibrium in the housing market or accessibility of community services; cause disproportionately high and adverse human health or environmental effects on low-income or minority populations; or cause disproportionate risks to children that result from environmental health or safety risks.

The Proposed Action would not be expected to cause changes in the population as no new military or civilian personnel would be stationed at the installation as part of the Proposed Action. The Proposed Action would not adversely impact socioeconomics, environmental justice, or the protection of children. It would have short-term negligible beneficial impacts on the regional economy from minor construction expenditures for purchasing project materials and supplies, hiring of laborers in construction-related industries, wages earned by those workers, and expenditure of their wages for goods and services in the local community. Such economic benefits would be short term because of the temporary nature of construction projects and would be expected to have a negligible beneficial effect on the regional economy.

The Proposed Action would result in short-term negligible beneficial effects on socioeconomic resources; therefore, this resource was not carried forward for detailed analysis in this EA.

3.2.4.2 Disproportionate Effects on Children

A proposed Action would have adverse impacts on children if it would cause disproportionate risks to children that result from environmental health or safety risks.

The Proposed Action would not be expected to result in disproportionate adverse human health or environmental effects or safety risks on low-income or minority populations or children. Children can be on-base at HWAD as residents or visitors, and only in the administrative/housing area of the installation. The safety of children on the installation is ensured by the Army's standard safety measures, including restricting access to construction sites and other unsafe areas (such as the AOD) and requiring adult supervision.

The Proposed Action would not result in disproportionate effects on children; therefore, this resource was not carried forward for detailed analysis in this EA.

3.2.5 Traffic and Transportation

A proposed action would be considered to have adverse impact on traffic or the transportation system if it would increase traffic on the installation or local roads to the point at which they could not accommodate the additional vehicles; would cause a road not to comply with local, state, or federal laws and regulations; or would create a substantial risk to human health or the environment.

The Proposed Action would not increase aircraft traffic associated with training, would not involve the development of new roads, would not impact existing roads, and would not utilize unimproved roads. Traffic levels resulting from implementing the Proposed Action would not be expected to increase substantially or degrade the level of service on roadways at HWAD nor on surrounding off base roads.

The delivery of construction equipment or generators may result in short-term adverse impacts on traffic and the transportation system due to the increase in construction-related vehicles and equipment present. The Proposed Action would take place within the HWAD property boundaries, so road closures or detours off-post would not be expected. Standard operating procedures (SOP) for construction activities (e.g., vehicles equipped with backing alarms, two-way radios, and “Slow-Moving Vehicle” signs when appropriate) would be followed during construction to minimize conflicts with on-base traffic.

The Proposed Action would result in minimal short-term adverse impacts to traffic and transportation. Long-term adverse impacts were not identified for traffic and transportation resources; therefore, this resource was not carried forward for detailed analysis in this EA.

3.2.6 Water Resources

3.2.6.1 Hydrology and Surface Water

A proposed action would have adverse impacts on hydrology and surface water if it would result in changes in currents, the course or direction of water movements; would result in degraded surface water quality; would result in discharge into surface waters; or would result in significant alterations to surface water.

Surface water bodies cover about 7% of HWAD, which is located almost entirely in the Walker Lake watershed (HWAD, 2018). A small portion of the western HWAD on Mount Grant is in the East Walker watershed (HWAD, 2009). Surface water generally flows from west to east along the topographic gradient at Mount Grant. Within the valley, surface water generally flows north toward Walker Lake, which is on Nevada’s 303(d) list of impaired waters because it exceeds the State standards for heavy metals and trace elements and has impaired conditions for aquatic life. Building 13 and Building 70 Substation are located approximately 3 and 5 miles east of Mount Grant, respectively, within the Walker Lake watershed.

Multiple ephemeral or intermittent streams which carry water temporarily after rain events can be found on Mount Grant and magazine areas. Building 70 Substation is located in the central magazine area, which uses dikes and ditches to control surface water flows during rain events.

Three perennial streams are located on Mount Grant to the west and upstream of the Proposed Action: Cottonwood Creek, Dutch Creek, and Cat Creek (HWAD, 2018). The nearest springs are located over 5 miles west of Building 13 in the Mount Grant portion of HWAD. HWAD limits access to the Mount Grant area to minimize potential for surface water contamination.

Short-term minor adverse impacts on surface water may occur if sediment and pollutants from construction activities reach surface water through runoff. The Army or its contractor would be required to obtain a construction stormwater permit and to implement stormwater runoff controls to minimize any adverse impacts to surface water and to control postconstruction stormwater runoff to preconstruction levels. As a result, short-term adverse impacts to surface water are unlikely.

The Proposed Action would not adversely impact hydrology of the area in the Walker Lake watershed or have long-term adverse impacts on surface water resources or a 303(d) impaired water source; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.6.2 Groundwater

A proposed action would have adverse impacts on groundwater if it would result in groundwater contamination or degrade the quality of groundwater or would impact groundwater supply.

The Draft Geotechnical Investigation (Construction Materials Engineers, Inc., 2025) reported that no groundwater was encountered during subsurface exploration to a depth of 10 feet at both Building 13 and Building 70 Substation. The Proposed Action would not utilize groundwater, and construction activities will not be to a depth encountering groundwater, therefore the Proposed Action would not impact groundwater quantities.

The area of the Proposed Action is drained via overland flow, and significant storm events may result in surface flows and subsurface seepage (Construction Materials Engineers, Inc., 2025). Short-term minor adverse effects on groundwater quality may occur if sediment and pollutants from construction activities reach groundwater through seepage. The Army or its contractor would be required to obtain a construction stormwater permit and to implement stormwater runoff controls to minimize any adverse impacts to groundwater and to control postconstruction stormwater runoff to preconstruction levels. As a result, short-term adverse impacts to groundwater are unlikely.

The Proposed Action would not adversely impact groundwater quantity or quality; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.6.3 Floodplains

A proposed action would have adverse impacts on floodplains if it would result in alteration, destruction, or significant effects to floodplains.

The Federal Emergency Management Agency (FEMA) maps Building 13 within Special Flood Hazard Areas – Zone A (area without Base Flood Elevation [BFE]); and Building 70 Substation maps within Other Areas – Zone D (area of undetermined flood hazard) (FEMA, 2025). Zone A is described by FEMA as areas with an annual probability of flooding of 1% or greater and subject to 100-year flood, while Zone D is described as areas with possible but undetermined flood hazards.

The portion of the Proposed Action occurring at Building 13 would occur within a special flood hazard area and floodplain as mapped by FEMA. However, the actions proposed would occur within previously disturbed locations at HWAD and would not result in alterations to floodplains.

The Proposed Action would not adversely impact floodplains; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.6.4 Wetlands

A proposed action would have adverse impacts on wetland resources if it would result in alteration, destruction, or significant effects to wetlands.

Approximately 8 percent of HWAD's total acreage area is wetlands, with wetlands primarily located adjacent to streams and springs on Mount Grant, at the edge of Walker Lake, and in intermittent streambeds in the South Magazine Area (HWAD, 2018). No wetlands are present in the immediate vicinity of Building 13 or Building 70 Substation where the Proposed Action will occur, therefore the Proposed Action would not impact wetland habitat.

If impacts to wetlands are anticipated, HWAD would consult with the U.S. Army Corps of Engineers (USACE) before conducting the work to ensure compliance with the Clean Water Act Section 404.

The Proposed Action would not adversely impact wetlands; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.7 Biological Resources

3.2.7.1 Vegetation

A proposed action would have adverse impacts on vegetation if it involved the alteration of native plant community composition or loss of habitat for or take of state or federally threatened or endangered plant species.

Southwest Regional Geographical Analysis Program (2005) mapped ecological units and cover types within the Building 13 and Building 70 Substation areas. Building 13 was mapped and confirmed to be within Disturbed, Non-Specific cover type, with sparse vegetation consisting of weeds scattered across gravel surfaces (Construction Materials Engineers, Inc., 2025). Building 70 Substation was mapped as Intermountain Basins Mixed Salt Desert Scrub ecological unit (HWAD, 2018). However, the vegetation of the Building 70 Substation footprint was observed with sparse weeds scattered across primarily bare surfaces of gravel and concrete (Construction Materials Engineers, Inc., 2025)in a previously disturbed area.

Non-native weed species have been documented at HWAD, including Russian thistle along roadways and broadleaf weeds around warehouses and office buildings (HWAD, 2018). HWAD actively manages vegetation in developed areas along roads, railways, sidewalks, buildings, fire hydrants, landscaped areas, and other infrastructure to limit the spread of weeds. No federally listed threatened or endangered plant species have been identified at HWAD, although one ESA candidate species, whitebark pine, occurs on Mount Grant approximately 4 miles west of HWAD (HWAD, 2018). Whitebark pine is found on steep slopes in subalpine and alpine habitats, therefore it is not likely to occur near or be affected by the Proposed Action. No state-listed critically endangered plant species have been observed within HWAD (HWAD, 2018).

(HWAD, 2018) (HWAD, 2018)The Proposed Action would not adversely alter diversity or composition of native plant species communities or adversely affect federally, or state protected plant species or habitat; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.7.2 Fish

A proposed action would have adverse impacts on fish if it resulted in destruction, alteration, degradation, or significant changes in fish habitat or resulted in harm or death of fish species.

Aquatic fauna is limited to the Mount Grant area of HWAD. Fish are present but limited in Walker Lake because of the lake's high concentration of total dissolved solids. The Nevada Department of Wildlife (NDOW) has not stocked Walker Lake with fish since 2009 because of the poor water quality conditions and will not stock it until water quality improves. Lahontan cutthroat trout (LCT), a federally Threatened fish species, does not occur in Walker Lake because of the extremely high total dissolved solids (HWAD, 2018). Suitable habitat for LCT is present within riverine features of Mount Grant, approximately 3 miles west of Building 13 (LCT Management Oversight Group, 2019) and over 5 miles west of Building 70 Substation. Other fish species, tui chub and tiger trout, are found in Rose Creek Reservoir, located approximately 5.8 miles northwest of Building 13 (HWAD, 2018) and over 7 miles from Building 70 Substation. LCT, tui chub, and tiger trout may occur within the Walker River Basin watershed. The Proposed Action is within the Walker River Basin but would not impact aquatic fauna in the watershed.

The Proposed Action does not occur within or near riparian areas where fish are known to occur and is not likely to adversely impact fish species; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.7.3 Wildlife

A proposed action would have adverse impacts on wildlife if it resulted in the in destruction, alteration, degradation or significant changes in wildlife habitat or resulted in harm or death of wildlife species.

Multiple studies from various organizations have inventoried wildlife species at HWAD. Appendix B of the HWAD Integrated Natural Resource Management Plan (INRMP) (2018) contains a full list of wildlife species identified at HWAD.

Nevada listed Game species have potential to occur within HWAD boundaries but are unlikely to occur within or near the Proposed Action due to the nature of disturbance and human presence at those locations (HWAD, 2018).

All bat species are listed as State Protected under Nevada Administrative Code 503. Bat species known to occur at HWAD are listed in Appendix B of the INRMP. Bat species have potential to roost in structures near the Proposed Action. Pre-construction surveys would be conducted to locate roosting locations. If present, roosting locations would be avoided during construction of the Proposed Action.

Migratory birds are federally protected under the Migratory Bird Treaty Act (MBTA). Several bird species have been identified at HWAD, including migratory bird and raptor species. Appendix B of the INRMP (HWAD, 2018) contains a full list of identified species. Pre-construction surveys would be conducted to identify potential migratory bird nests within the area of the Proposed Action. If present, nests would be avoided during construction of the Proposed Action until the nests are no longer active.

Bald eagles and golden eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) and the MBTA. The area of the Proposed Action does not contain suitable nesting habitat for either bald or golden eagles, therefore these species are not likely to occur within the area of the Proposed Action. If warranted, pre-construction surveys would be conducted to identify potential bald and golden eagle nests within the area of the Proposed Action.

The Proposed Action would not result in destruction, alteration, degradation, or significant changes in wildlife habitat and would not result in harm or death of wildlife species; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.7.4 Rare, Threatened, and Endangered Species

A proposed action would have adverse impacts on rare, threatened, or endangered species if it resulted in the destruction, alteration, degradation, or significant changes in threatened or endangered species’ habitat or resulted in harm or death of those species.

A USFWS Information for Planning and Consultation (IPaC) report was generated to identify the potential presence of federally threatened, endangered species under the ESA (United States Fish and Wildlife Service, 2025). Table 2 provides the ESA-listed species potentially present surrounding the areas of Building 13 and Building 70 Substation and the potential for their presence to occur.

The monarch butterfly is a proposed threatened insect species identified as potentially occurring near Building 13 and Building 70 Substation. This species has the potential to pass through the area surrounding the Proposed Action, particularly if milkweed species are present. If warranted, pre-construction surveys would be conducted to inventory milkweed within and adjacent to the area of the Proposed Action. Milkweed identified before the breeding season may be removed if no eggs or larvae are observed. If milkweed species are present during the breeding season, they would be investigated for the presence of eggs or larvae. If eggs or larvae are present, activities around the plant may be restricted until the larvae have pupated and left the area.

TABLE 2. FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES NEAR BUILDING 13 AND BUILDING 70 SUBSTATION

Common name	Scientific name	Status	Potential for Occurrence
Monarch butterfly	*Danaus plexippus*	Proposed Threatened	Potential to occur if milkweed species are present.
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Not likely to occur. Riparian and dense forested habitat not present.

Source: USFWS 2025.

The yellow-billed cuckoo is a threatened bird species identified as potentially occurring near Building 13 and Building 70 Substation. This yellow-billed cuckoo is a riparian-obligate species that occurs in dense forested areas that are 20 hectares or more with cottonwood and willows. This species is not likely to occur within HWAD or near the Proposed Action due to lack of suitable habitat (HWAD, 2018) .

The Bi-State Distinct Population Segment of the greater sage-grouse (*Centrocercus urophasianus*) is proposed as a threatened species (88 FR 25613 25616). This species' Distinct Population Segment was not identified in the IPaC report as potentially present in the project area. Critical Habitat was proposed in 2012 for the Bi-State Distinct Population Segment over eight miles southwest of the project area (Federal Register, 2013). Intact landscapes of sagebrush, a major component of sage-grouse habitat, are absent from the area of the Proposed Action. Therefore, the species is not likely to occur near the Proposed Action.

The Proposed Action would not adversely affect the threatened or endangered species discussed. The Proposed Action would not result in destruction, alteration, degradation or significant changes in rare, threatened or endangered species' habitat and would not result in harm or death of those species; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.8 Cultural Resources

Significant impacts to cultural resources would occur if an alternative might alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the National Register of Historic Places (NRHP). Alterations include anything that diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Significant impacts can include those that are immediately caused by the undertaking, may occur later in time, or that are cumulative.

Significant impacts to historic properties include any of the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features in its setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and/or
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Cultural resources at HWAD are managed under an Integrated Cultural Resources Management Plan (ICRMP), the most recent of which was updated in October 2019 (HWAD, 2019). According to the 2019 ICRMP, HWAD is comprised of 2,646 historic architectural resources that are considered contributing elements to the historical significance of the NRHP-Eligible Hawthorne Naval Ammunition Depot (HNAD) Historic District. Contributing resources to the HNAD Historic District include 539 buildings, 2,072 HWAD structures, 28 sites, and 7 objects. HWAD is treated as a historic district, although formal designation of the HNAD Historic District has not been determined (HWAD, 2019). The boundaries of the HNAD Historic District encompass HWAD's current legal boundaries (147,236 acres).

In 2016, Pan-American Consultants Inc. (Pan-American) completed an architectural survey at HWAD in support of a re-evaluation of the 1989 National Register Historic District nomination for the HNAD Historic District. The survey included an evaluation of all standing structures built up to 1977 for eligibility for listing on the NRHP and their potential to contribute to the proposed HNAD Historic District.

Architectural resources identified by Pan-American in the vicinity of the Building 13 project area include:

- Building 13; Boiler Plant, constructed in 1929;
- Building 37, Marine Barracks, constructed in 1941;
- Building 47, Work Shop and Canteen #1, constructed in 1943;
- Building 395, Ready Magazine, constructed in 1942;

- Building 396, TTL Enlisted Barracks, constructed in 1973;
- Structure A669, Cooling Tower, constructed in 1943; and
- Building 671, Recreation Center, constructed in 1973.

Architectural resources identified by Pan-American in the vicinity of Building 70 Substation include:

- Building 192, General Purpose Storage Shed, constructed in 1958;
- Building 522, Storage Shed, constructed in 1943; and
- Building 525 Quonset Hut, constructed in 1943.

The existing substation was not recorded or evaluated by Pan-American.

No prehistoric or historic archaeological resources have been identified within the two project areas.

No traditional cultural properties (TCP) and/or sacred sites have been formally identified at HWAD; however, no systematic inventories of TCPs and/or sacred sites have been undertaken.

The Proposed Action includes the construction of new facilities that will impact the setting of the architectural resources identified by Pan-American; however, per the ICRMP, these activities will be conducted in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties.

Standard Operating Procedure 1 (SOP1) in the most current ICRMP (HWAD 2019) outlines the steps to be taken for proposed actions that include the maintenance, repair, renovation, and new construction of grounds, infrastructure, and buildings. Per SOP 1, until HWAD formally consults with the SHPO on NRHP eligibility for the HNAD Historic District, all HWAD buildings and structures will be treated as NRHP-eligible and all maintenance, repairs, and alterations proposed must be undertaken in conformance with the Secretary of the Interior's Standards (36 CFR Part 67).

Construction activities will be conducted in accordance with the ICRMP’s SOPs for when discoveries of cultural materials are made inadvertently or when potential impacts to the settings of archaeological properties are identified. Mitigation measures and the SOPs would ensure that effects on those properties are short term and less than significant.

As such, no significant impacts to cultural resources are expected as a result of the Proposed Action, and this resource was not carried forward for detailed analysis in the EA.

3.2.9 Geology and Soils

A proposed action would have adverse impacts on geology and soil if it affected unique geologic features, caused substantial changes in topography over a large area, or resulted in soil erosion that could not be managed with BMPs or reduced to below significant levels with mitigation measures.

3.2.9.1 Geology

HWAD is located in the Great Basin section of the Basin and Range physiographic province (INRMP). Building 13 is within the Main Base, and Building 70 Substation is in the eastern half of the Depot property within the Central Magazine. Both locations of the Proposed Action area are fairly developed and disturbed.

3.2.9.2 Soils

Building 13 is located on Inmo Fan Remnants on quaternary-age young alluvial fan deposits, described as poorly sorted deposits of boulders, cobbles, gravel, sand, and silt (Construction Materials Engineers, Inc., 2025). Building 70 Substation is located on Patna Lake Plains on quaternary-age historic lacustrine deposits, described as well-sorted, well-rounded sand and recessional littoral deposits of medium sand to sandy silt.

The Proposed Action areas are not within a Solid Waste Management Unit site (HWAD, 2023).

No unexploded ordnance (UXO) are present in the area of the Proposed Action. UXO may be present in Walker Lake and on land along its southern shore (INRMP), approximately 4.9 miles northwest of Building 13 and 5.6 miles northwest of Building 70 Substation.

The location of the Proposed Action is not on an active or inactive firing range. Land use restrictions or conflicts with the Depot’s SWMY’s Master Plan Map were not identified.

Existing recognized environmental conditions or associated documents were not identified.

The Proposed Action would result in short-term minor adverse impacts to geology and soils during ground disturbing activities at the Proposed Action area. The level of ground disturbance during the implementation of the Proposed Action would be minimal and would not result in long-term disruptions or displacements of soils and would not create permanent change in topography. Construction of the Proposed Action would not result in long-term increase in wind or water erosion; erosion would be mitigated by implementing applicable BMPs in accordance with a National Pollutant Discharge Elimination System permit and Storm Water Pollution Prevention Plan, as required.

The Proposed Action would result in short-term minor adverse impacts to geology and soil resources. No long-term adverse impacts were identified for this resource; therefore, these resources were not carried forward for detailed analysis in the EA.

3.2.10 Aesthetics and Visual Resources

A proposed action would have adverse impacts to visual resources if it resulted in degradation of the natural and man-made features that give a particular “landscape” (visible features of an area of land) or “viewshed” (view on an area from a vantage point) its character and aesthetic quality.

The viewshed around HWAD consists of open range in the Walker Lake Valley, containing low-profile military storage, residential, and light-industrial areas dominated by views of Mount Grant and the Wassuk Mountain Range to the west, Walker Lake to the north, and the Gillis Mountain Range to the east. The Proposed Action would result in no negligible alterations to the areas viewshed, as the Proposed Action would occur within an industrial developed area and installations of generators and associated equipment would not result in changes to landscape or viewshed. The structures installed would be within the height and of similar nature with the existing facilities.

The Proposed Action would not adversely impact aesthetics and visual resources; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.11 Utilities

A proposed action would result in adverse impacts on utilities if it were to interrupt the functioning of the specific utilities to a degree or duration that would impede functioning of the installation or jeopardize the health or safety of the personnel or general public.

3.2.11.1 Electricity

Electricity at HWAD is purchased from the NV Energy; however, the infrastructure used to distribute electricity within HWAD is owned by the U.S. Army. Electrical service to HWAD depends on two substations, the Hawthorne Substation and the Ryan Canyon Substation (HWAD, 2009). Electricity has been augmented by the use of emergency generators.

The Proposed Action involves replacing aged and inoperable emergency generation systems with efficient modern systems. Through coordination and design review with NV Energy, implementation of the Proposed Action would not negatively affect the existing electrical services provided by NV Energy. Construction of the Proposed Action may result in temporary power disruptions until the generators at each location are fully installed. The Proposed Action would have long-term beneficial impacts to electricity resources at HWAD, as the emergency generators would augment the NV Energy system.

The Proposed Action would result in short-term minor adverse impacts on electricity resources; however, would result in long-term beneficial impacts electricity resources; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.11.2 Heating

Steam or liquefied petroleum gas is used for heating needs at HWAD. Steam heat is provided by oil-fired boilers and hot-air furnaces, which supply heat to the Main Base and magazine areas.

The Proposed Action would not affect the ability of the heating systems to provide heat to the facilities on the installation. The construction of the emergency generators would ensure these facilities retain the electricity needed to operate the facilities in a safe manner despite outages from public sources.

The Proposed Action would result in long-term minor beneficial impacts on heating resources; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.11.3 Stormwater Systems

The stormwater infrastructure at HWAD consists of dikes and ditches that control flows during intense local thunderstorms. Because of the arid environment, the existing dikes and ditches are adequate to protect installation property (HWAD, 2009).

The Proposed Action would not result in a need for new or alteration of existing stormwater systems. No impact to stormwater systems was identified; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.11.4 Potable Water Systems

Approximately 90 percent of the water used at HWAD is supplied by surface water and groundwater from a watershed collection system that delivers water to Black Beauty and Station reservoirs near Mount Grant (HWAD, 2018). Water is captured in a series of basins and reservoirs on Mount Grant's major creeks, treated, and distributed via the depot's drinking water infrastructure. HWAD limits access to the Mount Grant area to minimize potential for surface water contamination. Groundwater within the central part of the Walker Lake watershed basin is used as a potable water source only as needed to augment surface water sources on Mount Grant, as groundwater in the basin is generally a poor source of potable water due to high heavy metal content.

The Proposed Action would not result in a need for new or alteration of existing potable water systems. No impact to potable water systems was identified; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.11.5 Wastewater Systems

The Main Base at HWAD connects to the Mineral County wastewater system. HWAD wastewater empties into the county wastewater treatment system via 8- to 15-inch pipelines installed by the Army in the early 2000s. HWAD pays Mineral County for sewage treatment services. Septic tanks and leach fields are used for domestic wastewater treatment in the magazine areas at HWAD. Mineral County leases a sewer treatment plant with U.S. Army-owned lined treatment holding ponds in the Western Area Demilitarization Facility (WADF) and the WADF is tied into the sewer system (HWAD, 2009).

The Proposed Action would not result in a need for new or alteration of existing wastewater systems. No impact to wastewater systems was identified; therefore, this resource was not carried forward for detailed analysis in the EA.

3.2.12 Air Quality

The Proposed Action would have a significant impact on air quality if emissions associated with construction or operation of the project would alter the attainment status of the area within which the project resides.

The Proposed Action would have minimal negative impacts on air quality in both the short and long term. Federal regulations designate Air Quality Control Regions (AQCR) in violation of the National Ambient Air Quality Standards (NAAQS) as “nonattainment areas” and AQCRs with levels below the NAAQS as “attainment areas.” HWAD is located in Mineral County, which is located within the Nevada Intrastate Air Quality Control Region 147 (40 CFR § 81.276). This region has been designated by the U.S. Environmental Protection Agency (EPA) as being in full attainment for all criteria pollutants regulated under the NAAQS established for Nevada (40 CFR § 81.329) (Environmental Protection Agency, 2025).

The CAA requires that federal agencies do not adopt, approve, or fund activities that are inconsistent with state air quality goals as set forth in an approved State Implementation Plan. The General Conformity Rule (40 CFR Part 93) provides the framework for demonstrating compliance with the Clean Air Act (CAA) requirements. This rule was established with NEPA in mind, and acknowledges that actions of this scale, occurring within an EPA-designated attainment area, are expected to result in negligible effects on air quality.

Considering the attainment status of all criteria pollutants – the airshed is in attainment for each – and the Proposed Action location, no conformity determination is required as the General Conformity Rule does not apply. However, the Army reviewed potential emissions from the Proposed Action, including limited use of Tier II and Tier III emissions certified emergency generators, and found them to be minimal and below regulatory thresholds.

The Proposed Action would require the addition of generator sets for backup emergency power. Currently, two types of generators have been proposed: one CAT C15 generator set, rated at 500 ekW (625 kVA) electrical power output with EPA Tier III certification, and three CAT 3516C generator sets, each rated at 2,500 eKW (3,125 KVA) electrical power output with an EPA Tier II certification for stationary emergency use only. These ratings reflect the generators’ electrical output (real power); the actual engine input (mechanical power) will be higher to account for energy loss.

The CAT C15 includes a 1,024-gallon fuel tank and provides a run time of approximately 28 hours at full load. Each CAT 3516C generator includes a 4,210-gallon fuel tank and can operate for up to 24 hours at full load. As emergency standby units, their operation for non-emergency reasons will not exceed the 100-hour annual limit by EPA and defined under 40 CFR 60.4211(f). Given their limited usage, Tier-certified emissions for emergency use, and compliance with federal emergency generator regulations, these units are not expected to result in significant air quality impacts to local or regional air quality. Any additional stationary sources of emissions identified going forward would be subject to all applicable local, state, and federal permitting requirements.

During the permitting process, however, (1) the actual equipment, controls, or operating limitations of new sources of air emissions would be selected to reduce emissions below the major modification threshold, and (2) the permitting process would ensure that the NAAQS are not exceeded. This would ensure the Proposed Action would not interfere with the ability of the state to maintain air quality in accordance with the NAAQS. This permitting approach is inherent to federal and state air regulations and leads to a forced preservation of clean air in attainment regions. Therefore, regardless of the ultimate permitting scenario, air quality effects would be less than significant. In addition, the NDEP air quality regulations and rules outline other non-permitting requirements, such as controlling fugitive dust and open burning. Anyone responsible for any operation, process, handling, transportation, or storage activity that could result in fugitive dust would take reasonable precautions to prevent the dust from becoming airborne. Reasonable precautions might include using water to control dust from road grading or land clearing. The projects would proceed in full compliance with current NDEP requirements with compliant practices and/or products. The effects of the Proposed Action on air quality would be negligible; therefore, the air quality resource area was not carried forward for detailed analysis in this EA.

3.3 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

3.3.1 Hazardous and Toxic Materials

3.3.1.1 Affected Environment

This section defines hazardous materials and discusses management and disposal of hazardous and toxic materials and waste as well as environmental restoration at HWAD.

Hazardous Materials

Hazardous materials are any item or chemical which can cause harm to people, plants, or animals when exposed by a release into the environment. Examples of hazardous materials that may be associated with the Proposed Action include, but are not limited to: diesel fuel, dielectric oil, lubricants, coolants, and lead-acid batteries.

Storage and Handling Areas

Prior to removal of equipment at Building 13, diesel fuel may be found in the existing generator fuel system, dielectric oil may be found in the existing transformer, and lead-acid batteries may be found in the existing battery rack. There are no existing hazardous materials expected at Building 70 Substation. Any materials found and removed will undergo a hazardous waste determination. Based on the results of the determination, they will be recycled or disposed of in accordance with applicable state and federal regulations.

After construction, hazardous materials will be stored and handled within and around the equipment associated with the Proposed Action at both Building 13 and Building 70 Substation. Diesel fuel will be stored within the proposed skid tanks and utilized within the generators. The generators will also contain small amounts of lubricants, coolants, and lead-acid batteries that will require periodic maintenance. The transformers will contain dielectric oil. The battery racks will house lead-acid batteries.

HWAD's Spill Prevention, Control, and Countermeasures (SPCC) Plan is expected to be amended and approved prior to installation and construction to include the new diesel generators, fuel storage skids, and transformers. However, in accordance with Title 40 Code of Federal Regulations (40CFR) Part 112.5, the SPCC must and will be amended and approved no longer than 6 months from completion of construction. HWAD will continue to operate and respond to spills in accordance with the SPCC Plan following the Proposed Action. Existing petroleum storage tanks in the Proposed Action project areas and throughout HWAD will continue to comply with HWAD's SPCC and the installation Stormwater Pollution Prevention Plan (SWPPP).

Solid and Hazardous Waste Management

Disposal of hazardous and toxic waste is conducted in accordance with HWAD RCRA permits. Waste generated from the removal of existing systems at Building 13 and Building 70 Substation will undergo a hazardous waste determination. Based on the results of the determination, they will be recycled or disposed of in accordance with applicable state and federal regulations.

The Proposed Action areas are not within a HWAD Solid Waste Management Unit site (HWAD, 2023). The locations of the Proposed Action are also not on an active or inactive firing range. There are no land use restrictions or conflicts with HWAD's SWMU's Master Plan. Additionally, no unexploded ordnance (UXO) are present in the areas of the Proposed Action. UXO may be present in Walker Lake and on land along its southern shore (INRMP), approximately 4.9 miles northwest of Building 13 and 5.6 miles northwest of Building 70 Substation.

Site Contamination and Cleanup

The Proposed Action involves the removal of an existing generator fuel system, battery rack, and transformer at Building 70 Substation. The equipment will be drained of all fluids prior to removal and the immediate area shall be inspected for any signs of leaks or spills. Any oil spills shall be cleaned and reported in accordance with HWAD's SPCC Plan. If the Proposed Action disturbs more than one acre, HWAD shall prepare a Construction SWPPP to prevent the offsite discharge of hazardous materials, debris, and erosion that may be associated with the removal and construction activities associated with the Proposed Action.

The SPCC Plan is expected to be amended and approved prior to construction, but no later than 6 months following construction as allowed by 40 CFR Part 112.5, to include the new diesel generators, fuel storage skids, and transformers. HWAD will continue to operate and respond to spills in accordance with the SPCC Plan following the Proposed Action.

3.3.1.2 Environmental Consequences

Significance criteria

A proposed action would have adverse impacts on hazardous materials if it involved a potential release into the environment that can cause harm to people, plants, or animals. The exposure risk may be assessed on the amount of hazardous materials present, the likelihood of a release, proximity to sensitive environment, and implementation of mitigation measures.

No Action Alternative

Under the No Action Alternative, minimal environmental consequences would be expected as the existing equipment is not functional. The likelihood of spills is expected to be minimal due to decreased hazardous material handling. However, lack of maintenance and deterioration of aging equipment would increase the potential for leaks and a release of hazardous materials to the environment. HWAD personnel perform monthly visual inspections of all aboveground storage tanks and transformers to confirm the integrity of the equipment in accordance with the SPCC Plan.

Preferred Alternative

The removal and construction activities with the Proposed Action will result in a short-term increase of hazardous materials handling associated with the draining and removal of the existing generator, transformer, and fuel storage tanks and the installation and filling of the new generators, transformers, and fuel storage tanks. HWAD will manage removal and construction activities in accordance with local, state, and federal regulations and in accordance with established installation SOPs. Any solid, hazardous, or toxic wastes such as used oil and old batteries will be properly disposed of at authorized disposal facilities in accordance with HWAD RCRA permits and state and federal regulations. Any spills of hazardous materials will be immediately cleaned up in accordance with the Construction SWPPP (if applicable) and SPCC Plan.

The Proposed Action will result in a net increase in oil storage capacity at the facility. However, the SPCC Plan will be amended to include the new generator, fuel storage tanks, and transformers. HWAD will continue to operate, maintain, and respond to leaks and spills under the amended SPCC Plan. Environmental consequences under the Proposed Action are expected to be minimal.

3.4 CUMULATIVE EFFECTS

Cumulative effects are changes to “the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” Cumulative effects can result from individually minor but collectively substantial actions taken over a period of time. Per the DoD NEPA Implementing Procedures (90 FR 27857), the “DoD may, but is not required to by NEPA to analyze environmental effects from other projects separate in time, or separate in place, or that fall outside of DoD’s regulatory authority, or that would have to be initiated by a third party.”

The following sections provide an evaluation of cumulative effects of the Proposed Project on the environment.

3.4.1 Human Health and Safety

No significant cumulative effects on human health and safety would be expected. The Proposed Action and proposed projects at HWAD are not anticipated to impact human health and safety as a result of construction or implementation of proposed projects at HWAD.

3.4.2 Land Use

No significant cumulative effects on land use would be expected. The Proposed Action and proposed projects at HWAD are not anticipated to alter current land use of the area.

3.4.3 Noise

No significant cumulative effects on noise receptors would be expected. The Proposed Action and proposed projects at HWAD would be expected to have minimal short-term adverse impacts to noise receptors, but would not create long term generation of noise, and impacts would occur during construction activities.

3.4.4 Socioeconomics

Beneficial cumulative effects on socioeconomics would be expected. The Proposed Action in combination with the proposed projects at HWAD would be expected to have short-term and long-term beneficial effects on the regional economy.

3.4.5 Traffic and Transportation

No significant cumulative effects on traffic and transportation would be expected. The Proposed Action and proposed projects at HWAD would be expected to have minimal short-term adverse impacts to traffic and transportation during construction activities. However, cumulative effects would be less than significant.

3.4.6 Water Resources

No significant cumulative effects on water resources would be expected. The Proposed Action and proposed projects at HWAD with construction activity would require BMPs for stormwater runoff. No proposed projects would affect floodplains or wetlands.

3.4.7 Biological Resources

No significant cumulative effects on biological resources would be expected. The Proposed Action avoids previously undisturbed native habitat and therefore would not alter native vegetation. The Proposed Action would not adversely affect federal or state protected species' habitat. The Proposed Action would not adversely impact fish or involve take of any threatened or endangered species.

3.4.8 Cultural Resources

No significant cumulative effects on cultural resources would be expected. No prehistoric or historic archaeological resources have been identified within the two project areas. No TCPs and/or sacred sites have been formally identified at HWAD.

The Proposed Action includes the construction of new facilities that will impact the setting of the architectural resources identified by Pan-American; however, per the ICRMP, these activities will be conducted in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

3.4.9 Geology and Soils

No significant cumulative effects on geology and soils would be expected. The Proposed Action in combination with the proposed projects at HWAD would be expected to have short-term minor adverse effects on soils from construction activity. However, NDEP permits and stormwater management plans would be required; therefore, cumulative effects would be less than significant.

3.4.10 Aesthetics and Visual Resources

No significant cumulative effects on aesthetics and visual resources would be expected. The proposed projects would be developed in accordance with the HWAD IPS, to maintain visual character on and around the installation.

3.4.11 Utilities

Beneficial cumulative effects on utility resources would be expected. The Proposed Action in combination with the proposed projects at HWAD would be expected to have short- and long-term beneficial effects as infrastructure would be supplemented and upgraded.

3.4.12 Air Quality

No significant cumulative effects on air quality would be expected. HWAD is located in an attainment basin and air quality standards are currently being met. The project will require HWAD to revise its existing Class I Air Quality Operating permit and continue to comply with all current state and federal air quality regulations. These emissions have been evaluated in the context of the region’s existing air quality conditions and found to be not significant. The project’s scope and compliance with federal generator use restrictions ensure that it will not contribute largely to cumulative air quality impacts in the area. Emissions from HWAD and this Proposed Action will not contribute to deterioration of air quality, and NAAQS (National and Nevada) will continue to be met.

3.4.13 Hazardous and Toxic Materials

No significant cumulative effects on hazardous and toxic materials would be expected. The Proposed Action will increase the net capacity of hazardous and toxic materials. However, the handling, maintenance, and spill response conducted in accordance with the amended SPCC Plan is expected to mitigate any increased environmental release risks.

3.5 MITIGATION

Site selection and engineering design features were incorporated during development of the Proposed Action to reduce or minimize potential adverse environmental effects. Mitigation measures are used to further avoid, reduce, or compensate for adverse effects. The Proposed Action is not expected to cause substantial impacts, therefore mitigation measures are not applicable for this project.

4.0 CONCLUSIONS

This EA evaluates the potential effects on the natural and human environments from the proposal to replace the emergency generators at the HWAD Main Base. The EA examines a Preferred Alternative and a No Action Alternative.

This EA evaluates potential effects on aesthetics and visual resources, air quality, biological resources, cultural resources, geology and soils, hazardous and toxic materials, human health and safety, land use, noise, socioeconomics (including environmental justice and protection of children), traffic and transportation, utilities, and water resources.

Under the Preferred Alternative, short-term and/or long-term negligible-to-minor adverse effects on air quality, geology and soils, hazardous and toxic materials, noise, traffic and transportation, and utilities, would be expected from removal of existing equipment and generator replacement. Short-term minor beneficial effects on the local economy would be expected from construction and renovation expenditures and employment. Long-term minor beneficial effects on utilities from augmentation of the current electricity system would be expected. No effects would be expected on aesthetics and visual, biological, human health and safety, land use, and water resources.

Mitigation actions would be used to reduce, avoid, or compensate for significant adverse effects. Site selection and engineering design incorporated into the Proposed Action reduce or minimize potential adverse environmental effects. Substantial environmental impacts are not expected from the Proposed Action, therefore mitigation measures are not applicable for this project.

Table 3 summarizes the predicted effects from the Preferred Alternative and the No Action Alternative for each resource area evaluated. Implementing the Preferred Alternative would have negligible to minor impacts on air quality, hazardous materials, traffic and transportation, and noise. Implementing the preferred alternative would have no effect on aesthetics and visual, biological, cultural, human health and safety, land use, and water resources.

The Preferred Alternative would not be expected to result in significant adverse effects on any of the evaluated resources areas.

TABLE 3. SUMMARY OF POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES

Resource area	Preferred Alternative	No Action Alternative
Aesthetics and Visual	No effect	No effect
Air Quality	Short- and long-term negligible adverse	No effect
Biological	No effect	No effect
Cultural	No effect	No effect
Geology and Soils	Short-term minor adverse	No effect
Hazardous and Toxic Materials	Short-term minor adverse and long-term minor beneficial	Long-term minor adverse
Human Health and Safety	No effect	No effect

Resource area	Preferred Alternative	No Action Alternative
Land Use	No effect	No effect
Noise	Short-term negligible adverse	No effect
Socioeconomics	Short-term negligible beneficial	No effect
Traffic and Transportation	Short-term negligible adverse	No effect
Utilities	Short-term minor adverse and long-term beneficial	Long-term minor adverse
Water	No effect	No effect

REFERENCES

Construction Materials Engineers, Inc. (2025). *Draft Geotechnical Investigation Hawthorne Army Depot Generator System Project.*

Department of Defense. (2025, June 30). Department of Defense National Environmental Policy Act Implementing Procedures. Retrieved from https://www.denix.osd.mil/nepa/denix-files/sites/55/2025/06/DoD-NEPA-Procedures-FINAL.pdf

Dinter Engineering Co. (2024). *Hawthorne Army Depot Hawthorne, NV Generator System for Mission Support Engineering Study to Assess Condition of the Electrical Systems.*

Environmental Protection Agency. (2025). *Nevada Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants.* Retrieved April 2025, from https://www3.epa.gov/airquality/greenbook/anayo_nv.html

Federal Emergency Management Agency. (2025). *National Flood Hazard Layer FIRMette 32021C0995C.*

Federal Register. (2013, October 28). 78 FR 64328. Document Number 2013-24304. Page Numbers 64328-64355. *Department of the Interior. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Bi-State Distinct Population Segment of Greater Sage-Grouse.* Retrieved from https://www.govinfo.gov/content/pkg/FR-2013-10-28/pdf/2013-24305.pdf#page=1

Federal Register. (2025, June 30). 90 FR 27857. Document Number 2025-12094. Page 27857. *Department of Defense. Department of Defense Implementation of the National Environmental Policy Act.* Retrieved from https://www.federalregister.gov/documents/2025/06/30/2025-12094/department-of-defense-implementation-of-the-national-environmental-policy-act

Hawthorne Army Depot. (2009). *Real Property Master Plan Hawthorne Army Depot.*

Hawthorne Army Depot. (2018, December). *Integrated Natural Resources Management Plan 2019-2023.*

Hawthorne Army Depot. (2019). *Integrated Cultural Resource Management Plan 2019-2024.*

Hawthorne Army Depot. (2023). *Environmental Assessment for Implementation of Master Planning Actions at the Ammunition Operations District.*

Lahontan Cutthroat Trout Management Oversight Group. (2019). *Updated Goals and Objectives for the Conservation of Lahontan Cutthroat Trout (Oncorhynchus clarkii henshawi).*

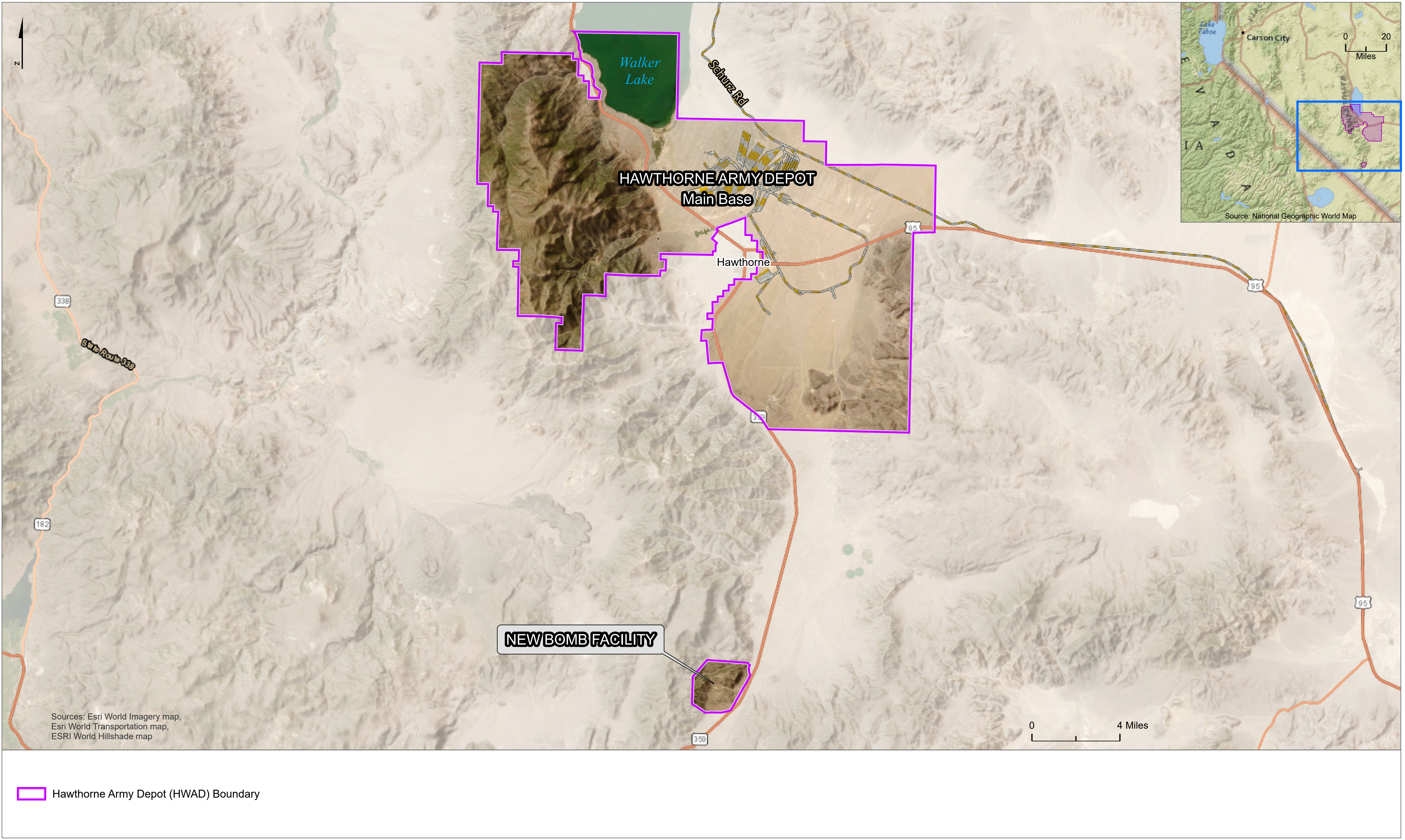
United States Fish and Wildlife Service. (2025). Information for Planning and Consultation. Retrieved from https://ipac.ecosphere.fws.gov/

United States Geological Survey. (2005). *Southwest Regional Geographical Analysis Program.*

APPENDICES

APPENDIX A

Maps and Figures



Sources: Esri World Imagery map,
Esri World Transportation map,
ESRI World Hillshade map

Source: National Geographic World Map

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Figure 1. HWAD Location and Vicinity

Environmental Assessment for Replacement of Emergency Generators
Hawthorne, Nevada

amentum

August 11, 2025

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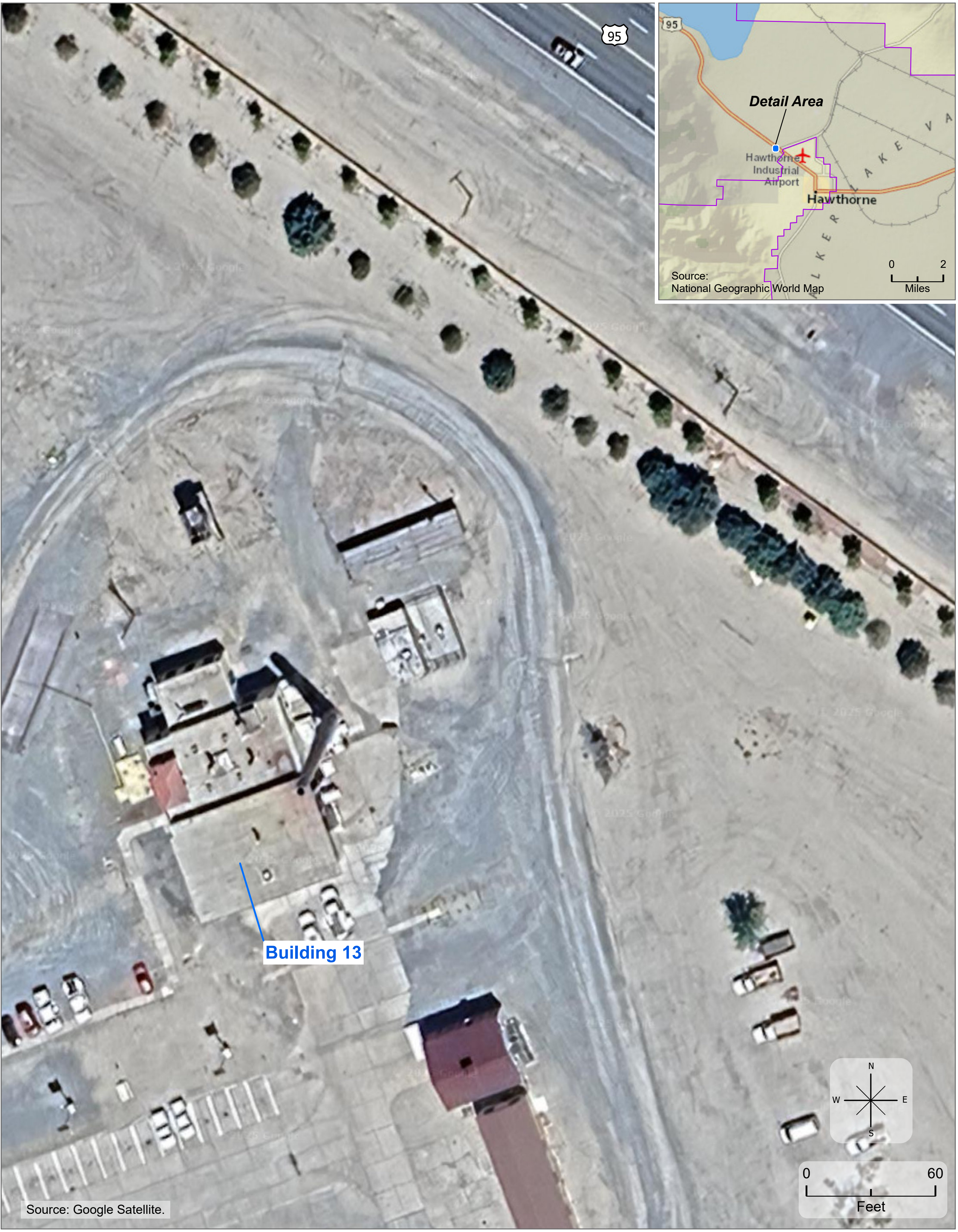


Source: Google Satellite.

Figure 2. Building 13

Environmental Assessment for Replacement of Emergency Generators
Hawthorne, Nevada

amentum

August 11, 2025

2025-08-11 N:\2022\20220002_DYNCORP_USACE_HWAD_EMI_Graphics\-1_GIS\Proj\Miscel\Miscel.aprx B-70 ERRG azhuk

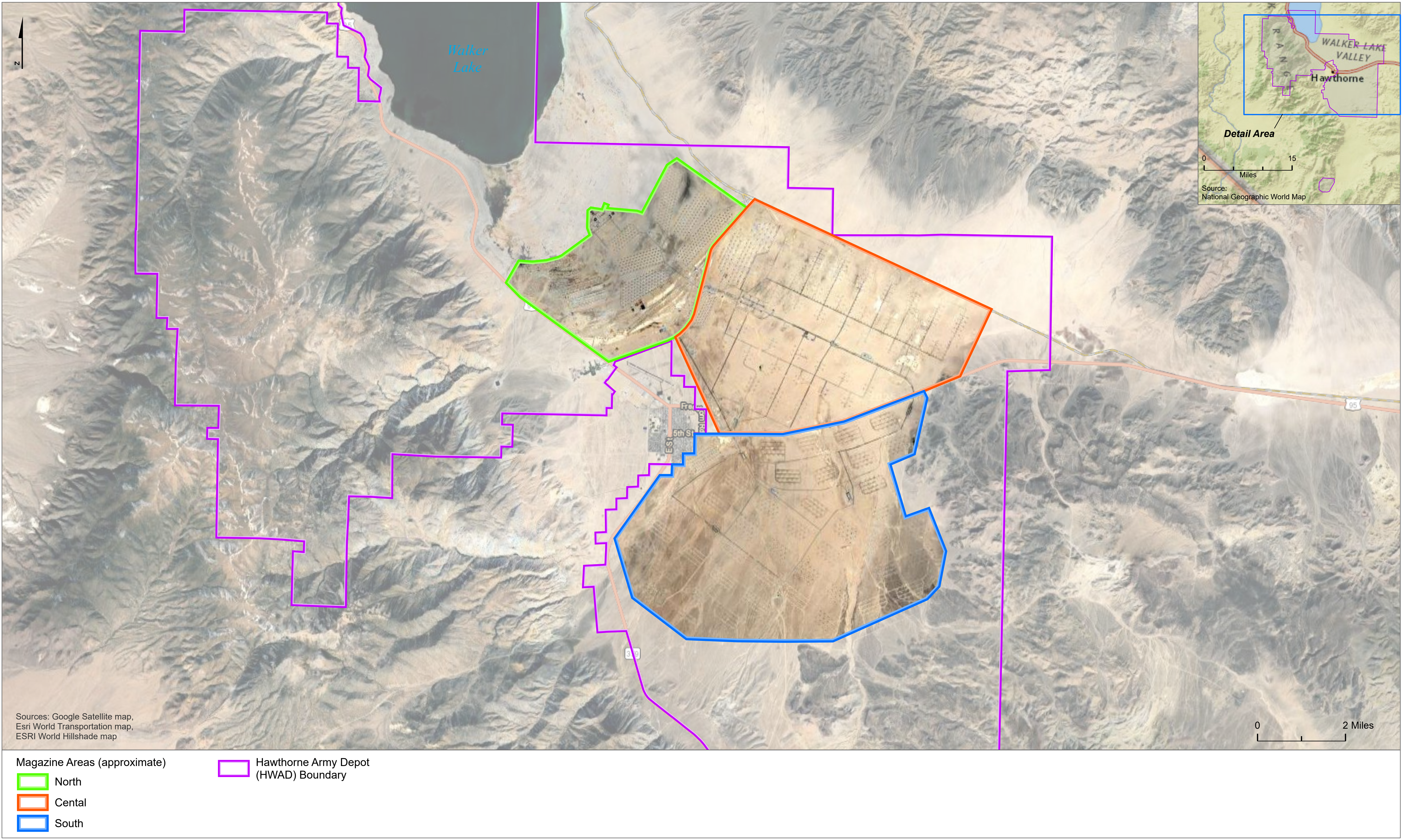
Source: National Geographic World Map

Source: Google Satellite.

Figure 3. Building 70 Substation

Environmental Assessment for Replacement of Emergency Generators
Hawthorne, Nevada

August 11, 2025



Source:
National Geographic World Map

Sources: Google Satellite map,
Esri World Transportation map,
ESRI World Hillshade map

2025-09-11 N:\2022\20220002_DYNCORP_USACE_HWAD_EMI\I_Graphics\I-1_GIS\Proj\Miscel\Miscel.aprx Ammo_OD ERRG azhuk

Figure 4. HWAD Ammunition Operations District

Environmental Assessment for Replacement of Emergency Generators
Hawthorne, Nevada

amentum

September 11, 2025

APPENDIX B

Generator Support System Design

GENERATOR SUPPORT SYSTEM DESIGN

RFP No. HWAD-2023-0009
Hawthorne Army Depot
Hawthorne, NV

PROJECT TEAM

OWNER:

HAWTHORNE ARMY DEPOT
1 S MAINE AVE
HAWTHORNE , NEVADA 89415
PH.: (775) 945-7019

CONTRACTOR:

AMENTUM
1 S MAINE AVE
HAWTHORNE , NEVADA 89415
HAWTHORNE ARMY DEPOT (HWAD)
PH.: (719) 307-3786

ELECTRICAL ENGINEER :

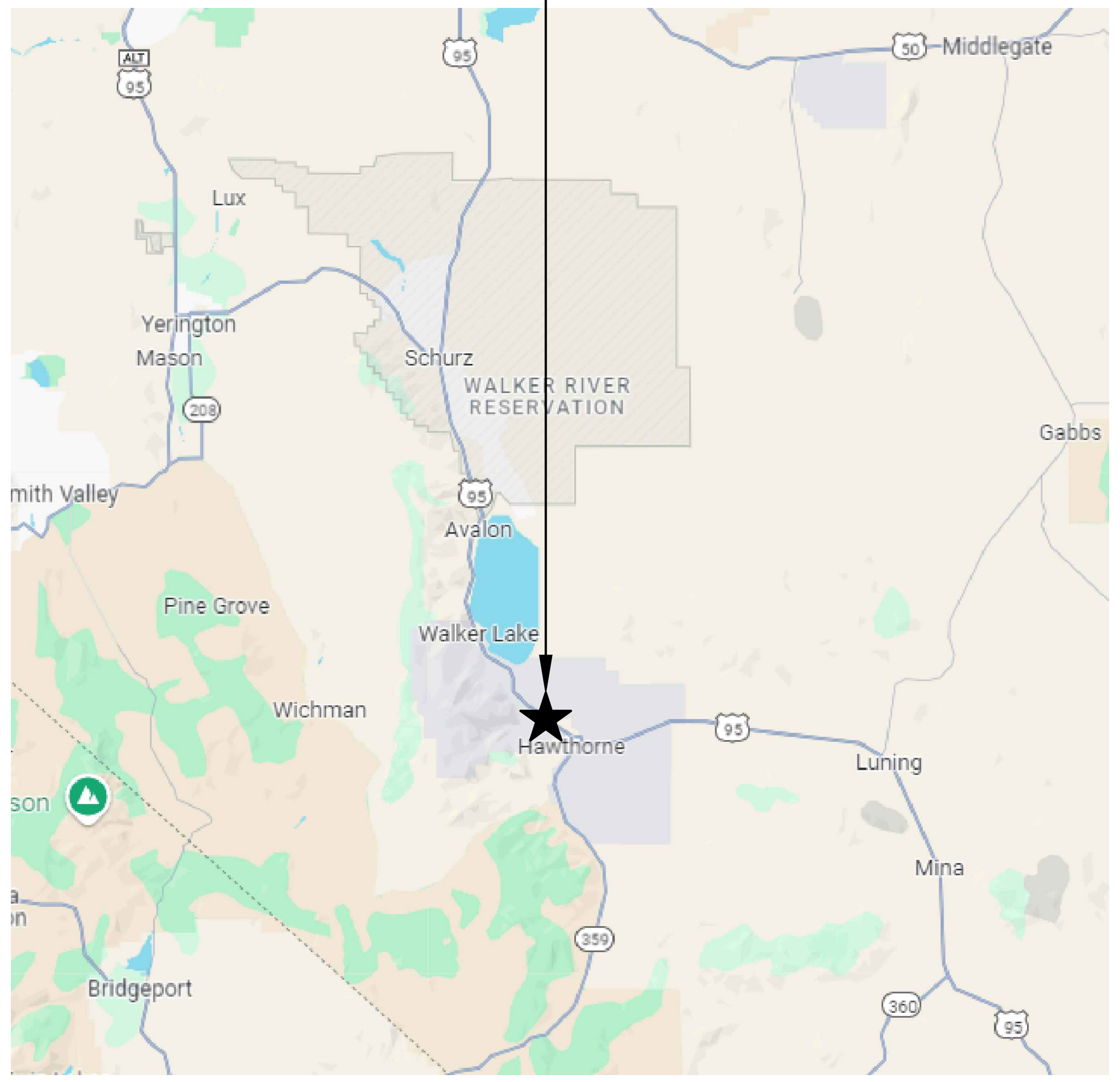
DINTER ENGINEERING
385 GENTRY WAY
RENO, NV 89502
PH: 775.826.4044
DINTER PROJECT # J-4833

SHEET INDEX

DRAWING NUMBER	SHEET NUMBER	NAVFAC NUMBER	SHEET TITLE
			GENERAL
G-001	1	-	TITLE SHEET
G-002	2	-	GENERAL SCOPE OF WORK
			STRUCTURAL
S-001	3	-	STRUCTURAL NOTES, SURVEY NOTES
S-002	4	-	STATEMENT OF SPECIAL INSPECTIONS
S-003	5	-	STANDARD DETAILS
S-101	6	-	SITE PLAN: BUILDING 13
S-102	7	-	SITE PLAN: DEMIL SUBSTATION BUILDING 70
S-501	8	-	DETAILS 500kW GENERATOR SET
S-502	9	-	DETAILS 2000kW GENERATOR SET
S-503	10	-	DETAILS
S-504	11	-	DETAILS
S-505	12	-	DETAILS
			ELECTRICAL
E-001	13	-	ELECTRICAL SYMBOLS, NOTES & ABBREVIATIONS
E-101	14	-	BUILDING 13 DEMO SITE PLAN
E-102	15	-	DEMIL SUBSTATION DEMO SITE PLAN
E-201	16	-	BUILDING 13 NEW SITE PLAN
E-202	17	-	DEMIL SUBSTATION NEW SITE PLAN
E-301	18	-	BUILDING 13 DEMO SINGLE-LINE DIAGRAM
E-302	19	-	BUILDING 13 NEW SINGLE-LINE DIAGRAM
E-303	20	-	DEMIL SUBSTATION DEMO SINGLE-LINE DIAGRAM
E-304	21	-	DEMIL SUBSTATION NEW SINGLE-LINE DIAGRAM
E-305	22	-	BUILDING 13 NEW SWITCHGEAR ELEVATIONS
E-306	23	-	DEMIL SUBSTATION NEW SWITCHGEAR ELEVATIONS
E-307	24	-	TRANSFORMER DETAILS

PROJECT LOCATION

PROJECT LOCATION:
Hawthorne Army Depot
Hawthorne , Nevada



PROJECT LOCATION

NORTH

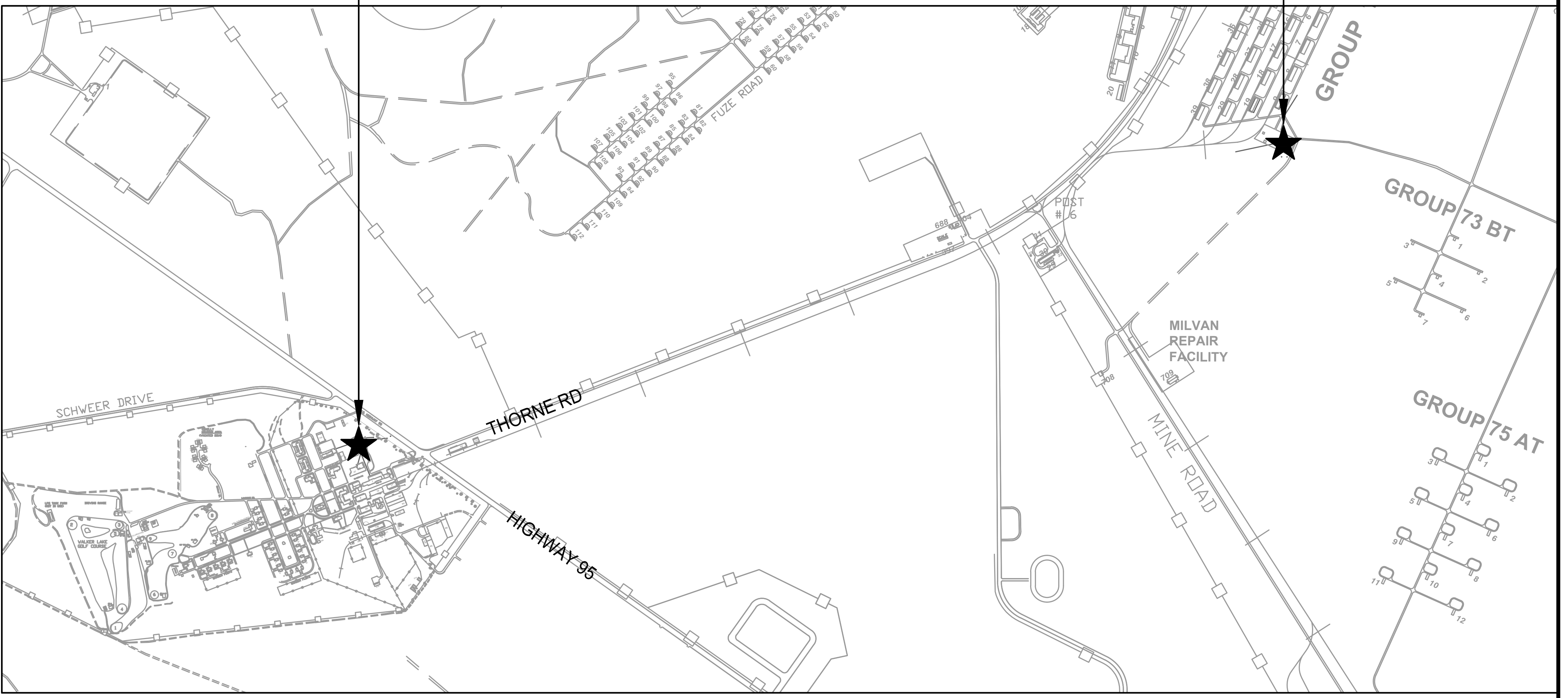
UNDERGROUND WORK

FOR UNDERGROUND WORK, CONTRACTOR WILL UTILITZE DIG PERMIT PER NAVFAC STANDARDS.

VICINITY MAP

PROJECT SITE:
Building 13

PROJECT SITE:
DeMil Substation
Building 70



VICINITY MAP

NORTH

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

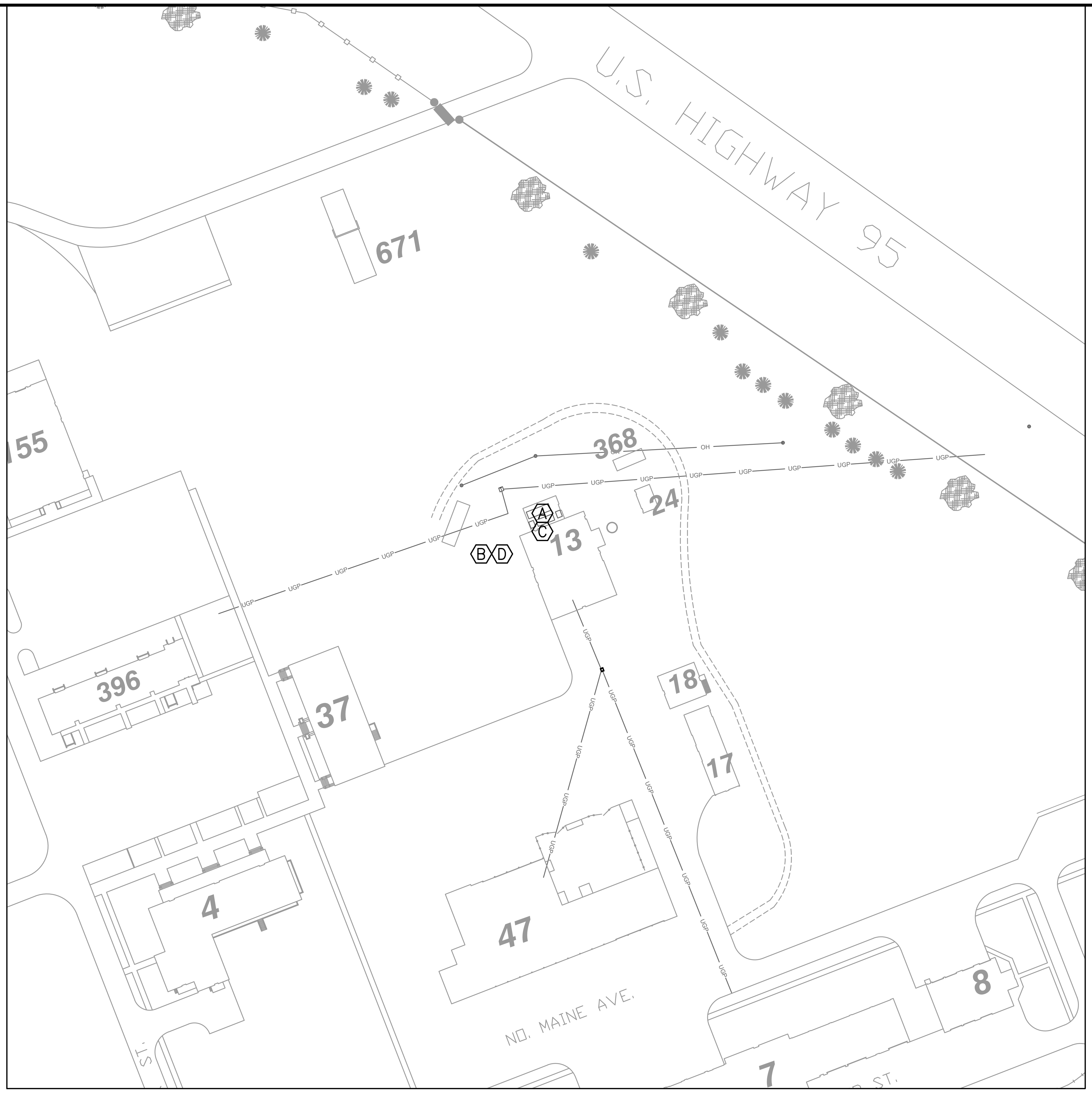
APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT

TITLE SHEET

DRAWING NUMBER G-001
SCALE: NTS
FILE: LOCATION LOCATIONS
SHEET 1 OF 24

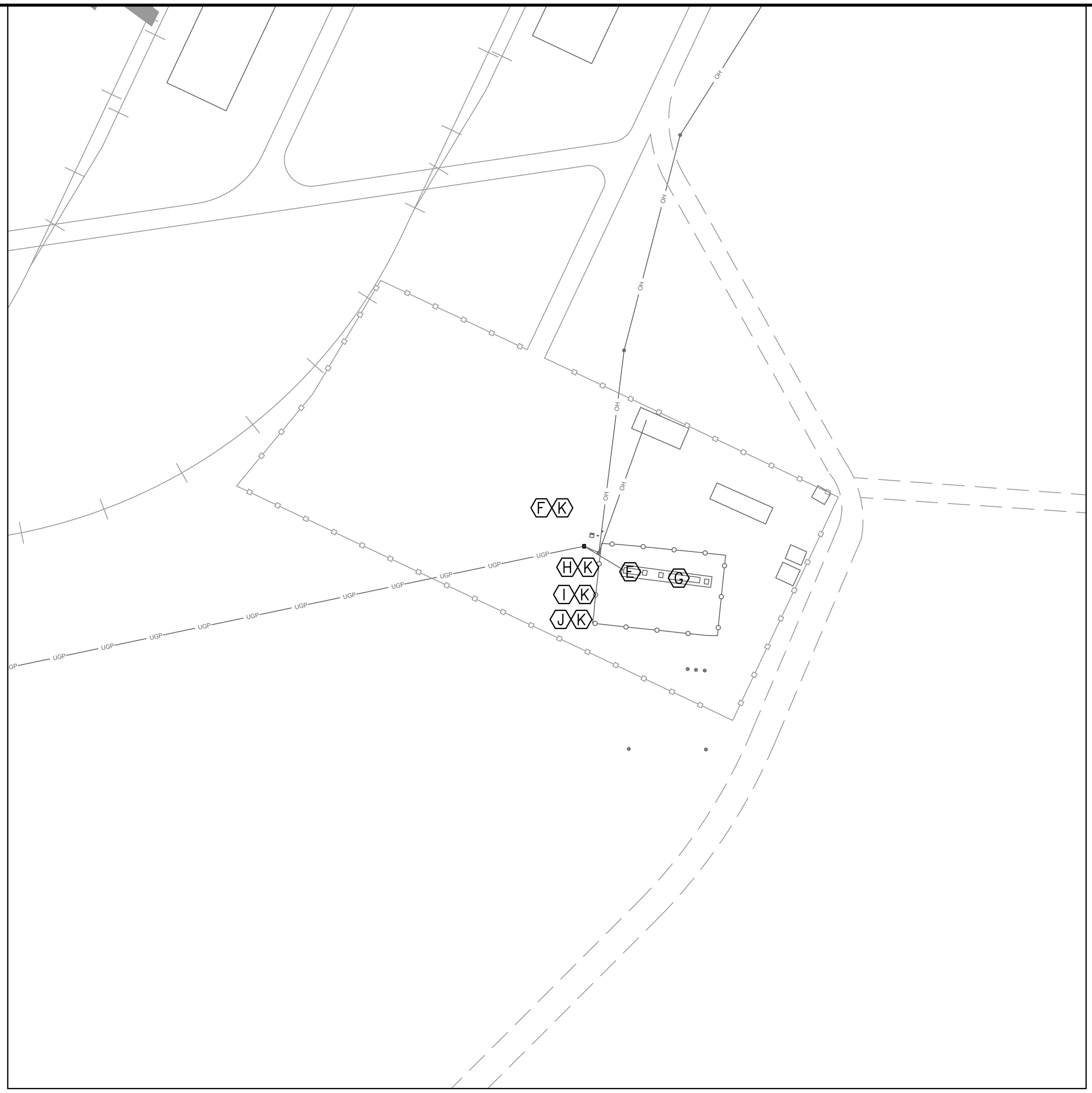


BUILDING 13
GENERAL SCOPE OF WORK

A
G-002
SCALE: 1" = 80'

NORTH

0 40' 80' 160'
SCALE: 1"=80'-0"



DEMIL SUBSTATION (BUILDING 70)
GENERAL SCOPE OF WORK

B
G-002
SCALE: 1" = 80'

NORTH

0 40' 80' 160'
SCALE: 1"=80'-0"

SCOPE OF WORK AT BUILDING 13

- Ⓐ REMOVE GENERATOR AND APPURTENANCES, REMOVE BREAKERS, BUSSING, RELAYS, ETC. FROM METAL CLAD SWITCHGEAR.
- Ⓑ ADD NEW GENERATOR AND CONTROLS WITH N3R ENCLOSURE AND FUEL TANK AND APPURTENANCES; ADD MEDIUM-VOLTAGE WALK-IN SWITCHGEAR TO REPLACE EXISTING.
- Ⓒ SPLICE EXISTING CIRCUITS TO NEW MEDIUM-VOLTAGE SWITCHGEAR IN EXISTING CABINET.
- Ⓓ ADD FENCING AROUND NEW OUTDOOR EQUIPMENT.

SCOPE OF WORK AT DEMIL SUBSTATION (BUILDING 70)

- Ⓔ REMOVE EXISTING 15kV BREAKER AND SPLICE FEEDER TO BUS AND CONNECT TO NEW GENERATOR SWITCHGEAR.
- Ⓕ PROVIDE, INSTALL, AND COMMISSION (3) 2000kVA, 12kV GENERATORS IN N3R ENCLOSURES WITH FUEL TANKS AND PARALLELING CONTROLS. PROVIDE NEW OUTDOOR SWITCHGEAR WITH BREAKER SWITCHING CONTROLS.
- Ⓖ REMOVE BREAKERS, BUSSING, RELAYS, AND APPURTENANCES, ETC. FROM EXISTING NORTH, SOUTH, CENTRAL METAL CLAD SWITCHGEAR BUT LEAVE CABINET FOR USE AS A SPLICE POINT.
- Ⓗ ADD NEW 15KV GENERATOR SWITCHGEAR.
- Ⓘ ADD NEW 15KV:4160KV TRANSFORMER TO FEED NEW NORTH, SOUTH, CENTRAL SWITCHGEAR.
- Ⓙ ADD NEW 4160KV SWITCHGEAR TO REFEED NORTH, SOUTH, CENTRAL LOADS.
- Ⓚ ADD FENCING AROUND NEW OUTDOOR EQUIPMENT.

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
GENERAL
SCOPE OF WORK

DRAWING NUMBER G-002
SCALE: NTS
FILE: LOCATION LOCATIONS
SHEET 2 OF 24

STRUCTURAL GENERAL NOTES

1. DESIGN CRITERIA

1.1 DESIGN, MATERIALS, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS OF UFC 3-301-01.
1.2 OTHER CODES AND STANDARDS SHALL BE THE MOST CURRENT ADOPTED EDITION AS OF THE DATE OF THESE DRAWINGS.

1.3 SNOW LOADS: (MINERAL COUNTY)

RISK CATEGORY:	IV		(UFC TABLE 2-2)
SNOW LOAD IMPORTANCE FACTOR, Is:	1.2		
GROUND SNOW LOAD, Pg:	10	PSF	(ELEV: 4160')

1.4 WIND DESIGN: (ASCE 7)

RISK CATEGORY:	IV		(UFC TABLE 2-2)
BASIC WIND SPEED, Vult:	110	MPH	
NOMINAL WIND SPEED, Vasd:	85	MPH	
WIND EXPOSURE:	C		
INTERNAL PRESSURE COEFFICIENT:	±0.0		
VELOCITY PRESSURE AT MEAN HEIGHT:	30.8	PSF	(MWFRS)

1.5 SEISMIC DESIGN: (ASCE 7)

RISK CATEGORY:	IV		(UFC TABLE 2-2)
SEISMIC IMPORTANCE FACTOR, Ie:	1.5		(UFC TABLE 2-2)
MAPPED SPECTRAL ACCELERATION, Ss:	1.43	g	
S1:	0.49	g	
SITE CLASS:	D		
SPECTRAL RESPONSE COEFFICIENT, Sds:	0.95	g	
Sd1:	0.59	g	
SEISMIC DESIGN CATEGORY:	D		

NON-STRUCTURAL COMPONENT SEISMIC LOADING: SWITCHGEAR

COMPONENT IMPORTANCE FACTOR, Ip:	1.5
COMPONENT AMPLIFICATION FACTOR, ap:	2.5
RESPONSE MODIFICATION FACTOR, Rp:	6.0
SEISMIC DESIGN FORCE, Fp:	0.27

NON-STRUCTURAL COMPONENT SEISMIC LOADING: GENERATORS & TRANSFORMERS

COMPONENT IMPORTANCE FACTOR, Ip:	1.5
COMPONENT AMPLIFICATION FACTOR, ap:	1.0
RESPONSE MODIFICATION FACTOR, Rp:	2.5
SEISMIC DESIGN FORCE, Fp:	0.27

2. FOUNDATIONS

2.1 GEOTECHNICAL INFORMATION: REFER TO THE PROJECT GEOTECHNICAL INVESTIGATION FOR CONDITIONS AND RECOMMENDATIONS FOR THIS SITE:

PREPARED BY: CONSTRUCTION MATERIALS ENGINEERS, INC
TITLED: HAWTHORNE ARMY DEPOT GENERATOR SYSTEM PROJECT
DATED: JANUARY 3, 2025
FILE: 3674

2.2 THIS REPORT IS INCORPORATED BY REFERENCE AS PART OF THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING AND IMPLEMENTING THE RECOMMENDATIONS FOUND IN THE REPORT AND DURING ON-SITE OBSERVATION BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION.

2.3 FOUNDATION DESIGN PARAMETERS: PER GEOTECHNICAL INVESTIGATION:

BUILDING 13

ALLOWABLE FOUNDATION PRESSURE:	2500	PSF	(DL + LL)
	3300	PSF	(SEISMIC)
LATERAL BEARING (PASSIVE):	300	PSF	
ACTIVE EARTH PRESSURE:	35	PSF	
LATERAL SLIDING:	0.45		

BUILDING 70

ALLOWABLE FOUNDATION PRESSURE:	1000	PSF	(DL + LL)
	1300	PSF	(SEISMIC)
LATERAL BEARING (PASSIVE):	270	PSF	
ACTIVE EARTH PRESSURE:	38	PSF	
LATERAL SLIDING:	0.42		

2.4 GENERAL SITE CLEARING SHALL INCLUDE THE REMOVAL OF ALL SURFACE DEBRIS, RUBBLE, AND VEGETATION AND ORGANICS AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
2.5 PROVIDE OVER-EXCAVATION AS RECOMMENDED IN THE PROJECT GEOTECHNICAL REPORT. OVER-EXCAVATION SHALL CONSIST OF 4' MINIMUM OF COMPACTED STRUCTURAL FILL BELOW BOTTOM OF FOOTING OR THE DEPTH OF FILL AS APPROVED BY THE GEOTECHNICAL ENGINEER. AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER, CONTRACTOR MAY UTILIZE A GEOSYNTHETIC (MIRAFI RS580i OR APPROVED EQ) FOR BASE COURSE REINFORCEMENT TO REDUCE THE REQUIRED DEPTH OF OVER-EXCAVATION.
2.6 SCARIFY THE SOILS EXPOSED TO EXCAVATION TO A DEPTH OF 8" AND RE-COMPACT TO 90% MAXIMUM DRY DENSITY (ASTM D-1557, METHOD C). WATER OR DRY MATERIALS AS NECESSARY TO OBTAIN PROPER MOISTURE CONTENT AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
2.7 TRENCHING MAY BE USED FOR FOOTINGS ONLY WHERE THE SOIL IS FIRM AND STABLE, THE CONCRETE WILL NOT BE EXPOSED, AND IT DOES NOT CONFLICT WITH THE GEOTECHNICAL REPORT. CONCRETE SURFACES WITHIN 6" OF FINISHED GRADE ARE CONSIDERED EXPOSED. WHERE TRENCHING IS USED, EXCAVATION SHALL BE 2" WIDER THAN SPECIFIED ON PLANS.
2.8 PLACE ALL FOOTINGS ON APPROVED SOIL (UNDISTURBED NATURAL SOILS OR COMPACTED ENGINEERED FILL). FILL HOLES DUE TO REMOVAL OF LARGE ROCKS OR OVER-EXCAVATION WITH CONCRETE.
2.9 FOOTING EXCAVATIONS SHALL BE NEAT AND TRUE, WITH ALL LOOSE MATERIAL AND STANDING WATER REMOVED BEFORE FOOTING CONCRETE IS PLACED.
2.10 ALL EXCAVATIONS, FORMS AND REINFORCING SHALL BE INSPECTED 61 CELS PRIOR TO PLACING CONCRETE.ALL EXCAVATIONS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO FORMING FOOTINGS AND PLACING CONCRETE.
2.11 PLACE ALL LOOSE SOIL AND FILL, INCLUDING BACKFILL BEHIND WALLS IN 8" MAXIMUM LIFTS AND UNIFORMLY COMPACT TO AT LEAST 90% MAXIMUM DENSITY PER ASTM D1557.

3. CAST-IN-PLACE CONCRETE

3.1 CONCRETE MATERIALS AND CONSTRUCTION SHALL COMPLY WITH UFC 3-301-01, SECTION 2-7, IBC CHAPTER 19, ACI 318, AND ACI 301.
3.2 CONTRACTOR SHALL SUBMIT ALL MIX DESIGNS FOR REVIEW AND APPROVAL.

3.3 CONCRETE PROPERTIES AND COMPOSITION (ASTM C94):

PROPERTY	CLASS A	CLASS B
28-DAY f'c (1)	4500 PSI	3000 PSI
W/C	0.45	0.55
UNIT WT (2)	145 PCF	145 PCF
AIR (+/-) (3)	6%	NAE
SLUMP (MAX) (4)	4"	6"
SHRINKAGE (5)	NR	NR
CEMENT (6)	TYPE II	TYPE II
FIBER REINF (7)	1.5 LB PCY	NR

NOTES:
(1) SPECIAL INSPECTION IS REQUIRED FOR GENERATOR, TRANSFORMER, AND SWITCHGEAR PADS. SPECIAL INSPECTION IS NOT REQUIRED FOR NONSTRUCTURAL CONCRETE SLABS SUPPORTED ON GRADE (IBC 1705.3)
(2) NORMAL WEIGHT AGGREGATE PER ASTM C33
(3) AIR CONTENT PER ASTM C138, C173, OR C231 - NON-AIR-ENTRAINED (NAE) NOT TO EXCEED 3%
(4) SLUMPS ARE FOR UNPLASTICIZED CONCRETE. LARGER SLUMPS MAY BE ATTAINED THROUGH THE USE OF SUPERPLASTICIZER.
(5) SHRINKAGE AT 28 DAYS (IN/IN) PER ASTM C157. (NR = NO REQUIREMENT)
(6) CEMENT PER ASTM C150, C595, C1157 AS APPROPRIATE. FLY ASH AND POZZOLAN CONFORM WITH ASTM C618.
(7) SYNTHETIC MICRO FIBERS (ASTM C1116) 1/2 - 3/4" LONG, MINIMUM RATE INDICATED, RATE PER MANUFACTURERS WRITTEN INSTRUCTIONS.

CLASS A: FOUNDATIONS AND EQUIPMENT PADS
CLASS B: CONCRETE ENCASED CONDUIT/COMMUNICATION

3.4 ADMIXTURES SHALL COMPLY WITH: AIR ENTRAINMENT WITH ASTM C260, WATER REDUCING WITH ASTM C494, CORROSION INHIBITING WITH ASTM C1582.
3.5 MIXING WATER SHALL BE PER ASTM C1602.
3.6 HOT WEATHER CONCRETE OPERATIONS SHALL BE IN ACCORDANCE WITH ACI 305R. COLD WEATHER CONCRETE OPERATIONS SHALL BE IN ACCORDANCE WITH ACI 306R.
3.7 APPROVAL MUST BE OBTAINED PRIOR TO PLACING CONCRETE FOR ANY OPENINGS, SLEEVES, OR OTHER ATTACHMENTS NOT SHOWN ON DRAWINGS.
3.8 PROVIDE CHAMFER OR RADIUS EDGE ON ALL EXPOSED CORNERS OF CONCRETE
3.9 ROUGHEN THE EXISTING CONCRETE SURFACE AT THE INTERFACE OF CONSTRUCTION JOINTS TO AN AMPLITUDE OF (+/-) 1/4" PRIOR TO PLACING NEW CONCRETE. THOROUGHLY WET THE INTERFACE SURFACE AND REMOVE AND STANDING WATER.
3.10 FORMS SHALL CONFORM TO ACI 347 AND SHALL BE PROPERLY CONSTRUCTED TO CONCRETE SURFACES AS SHOWN ON THE DRAWINGS, SUFFICIENT TIGHT TO PREVENT LEAKAGE, SUFFICIENTLY STRONG, AND BRACED TO MAINTAIN SHAPE AND ALIGNMENT.
3.11 FORMS AND SHORING SHALL NOT BE REMOVED UNTIL THE CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO WITHSTAND ALL LOADS TO BE IMPOSED WITHOUT EXCESS STRESS, CREEP OR DEFLECTION.
3.11 SLEEVES IN CONCRETE SHALL BE SPACED WITH ONE SLEEVE DIAMETER (2" MIN) CLEAR DISTANCE BETWEEN ADJACENT SLEEVES. SLEEVES SHALL NOT TOUCH REBAR. SLEEVES GREATER THAN 12" IN DIAMETER SHALL BE REVIEWED BY THE ENGINEER FOR APPROVAL AND MAY REQUIRE ADDITIONAL TRIM REINFORCEMENT.
3.12 PROTECT FRESHLY DEPOSITED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE HOT OR COLD TEMPERATURES FOR A MINIMUM (7) DAYS.

4. CONCRETE REINFORCEMENT

4.1 REINFORCEMENT SHALL CONFORM TO ACI 318, SECTION 3.5 AND ASTM A615, GRADE 60 (#4 AND LARGER).
4.2 CONCRETE REINFORCEMENT DETAILS INCLUDING BAR SUPPORTS AND PLACING SHALL CONFORM TO ACI 315 AND THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE." HOOKS SHALL BE PER ACI 318, SECTION 25.3 UNLESS DETAILED OTHERWISE.
4.3 PROVIDE THE FOLLOWING COVER ON REINFORCEMENT UNLESS NOTED OTHERWISE IN DRAWINGS. COVER SHALL BE TO FACE OF BAR.

CAST-IN-PLACE CONCRETE	MINIMUM CONCRETE COVER
CAST AGAINST AND EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER	
#5 AND SMALLER	1 1/2"
CLEAR TO TOP FOR REINFORCEMENT IN SLAB-ON-GRADE	1 1/2"

4.4 PROVIDE LAP SPLICES, AND DEVELOPMENT OF STANDARD HOOKS AS SPECIFIED IN ACI 318, CHAPTER 25. MAKE LAP SPLICES ONLY AT LOCATIONS SHOWN ON DRAWINGS, AS INDICATED IN THESE NOTES, OR AS APPROVED BY THE ENGINEER.
4.5 LAP SPLICE ALL BARS A MINIMUM OF 40 BAR DIAMETERS UNLESS OTHERWISE NOTED. STAGGER LAP SPLICES A MINIMUM OF 24 INCHES.
4.6 SECURELY TIE ALL REINFORCEMENT PRIOR TO PLACING CONCRETE INCLUDING LAP SPLICES. TIES SHALL BE SUFFICIENT TO MAINTAIN THEIR EXACT POSITION THROUGHOUT THE PLACEMENT OF CONCRETE.
4.7 SUBMIT SHOP DRAWINGS OF REINFORCEMENT LAYOUTS AND DETAILS FOR REVIEW PRIOR TO FABRICATION. SHOW ALL PROPOSED SPLICE LOCATIONS, FABRICATE FROM APPROVED DRAWINGS ONLY.
4.8 BEND REINFORCING STEEL IN ACCORDANCE WITH ACI 301, SECTION 3.3.2.8. #3, #4, & #5 BARS MAY BE BENT COLD THE FIRST TIME PROVIDED TEMPERATURE OF BAR IS ABOVE 32F. FOR OTHER BAR SIZES PREHEAT REINFORCING BARS PRIOR TO BENDING.

5. ANCHORS TO CONCRETE

6.1 THE CONTRACTOR SHALL INSTALL ANCHOR RODS OF THE SIZE, MINIMUM EMBEDMENT, MINIMUM PROJECTION, AND PLAN LOCATIONS AS INDICATED ON THESE DRAWINGS IN ACCORDANCE WITH AISC CONSTRUCTION TOLERANCES.
6.2 ANCHOR RODS SHALL BE ASTM F1554, GRADE 36 GALVANIZED WITH ASTM A563 GRADE C NUTS.
6.3 REINFORCEMENT WELDED TO EMBEDMENT PLATES SHALL BE ASTM A706, GRADE 60. HOT-DIP GALVANIZE ALL INSERTS AND PLATES EMBEDDED IN CONCRETE AND CMU AFTER FABRICATION.
6.4 POST-INSTALLED ADHESIVE ANCHORS AND REINFORCING STEEL IN CONCRETE SHALL BE INSTALLED USING SIMPSON SET-XP (ESR-2508) PER THE MANUFACTURERS WRITTEN INSTRUCTION USING ASTM F1554, GRADE 36 THREADED ROD AND ASTM A563 GRADE A NUTS.
6.5 CONCRETE SCREW ANCHORS SHALL BE SIMPSON TITEN HD (ESR-2713/IAPMO EQ 0493) INSTALLED PER THE MANUFACTURERS WRITTEN INSTRUCTION.
6.6 CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK-BOLT TZ (ICC ESR-1917) INSTALLED PER THE MANUFACTURERS WRITTEN INSTRUCTION. ANCHORS INSTALLED OUTSIDE SHALL BE 304 STAINLESS STEEL. INSTALLATION TORQUE FOR EXPANSION ANCHORS SHALL BE 110 FT-LBF FOR 3/4" DIAMETER AND 60 FT-LBF TORQUE FOR 5/8" DIAMETER.
6.7 POST-INSTALLED ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT THE TIME OF ANCHOR INSTALLATION PER SECTION 17.1.2 OF ACI 318.
6.8 EXPANSION ANCHORS AND SCREW ANCHORS SHALL NOT BE INSTALLED IN CONCRETE UNTIL IT ATTAINS THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH BUT NOT LESS THAN 7 DAYS.
6.9 MINIMUM EMBEDMENT FOR POST-INSTALLED EPOXY ANCHORS SHALL BE AS INDICATED ON THE PLANS BUT IN NO CASE LESS THEN SPECIFIED BY THE MANUFACTURER FOR THE DIAMETER.
6.10 CLEAN ALL NUTS, WASHERS, AND BOLTS FROM CONTAMINANTS PRIOR TO INSTALLATION.
6.11 FASTENERS FOR ATTACHING OF MECHANICAL DUCTS AND EQUIPMENT, PIPING, AND ELECTRICAL CONDUIT TO THE UNDERSIDE OF NON-COMPOSITE CONCRETE DECK SLAB (BUILDING B63) SHALL BE HILTI STANDARD NAIL X-C (ICC ESR-1663) INSTALLED PER THE MANUFACTURERS INSTRUCTIONS.

6. STEEL CONSTRUCTION

9.1 STRUCTURAL STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO IBC CHAPTER 22, AISC 360, AISC 341 AND AISC 303.
9.2 PROVIDE SHOP DRAWINGS INCLUDING DETAILS FOR CUTS, HOLES AND WELDS FOR ALL FABRICATED PARTS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS BASED OFF THE EXISTING CONDITIONS FOR ALL FABRICATED PARTS.
9.3 PLATES, CHANNELS ("C") AND ANGLES ("L") SHALL BE ASTM A36, UNO.
9.4 BASE PLATES FOR COLUMNS SHALL BE ASTM A572, GR 50.
9.5 WIDE FLANGES ("W") SHALL BE ASTM A992.
9.6 STRUCTURAL TUBING ("HSS"), SHALL BE ASTM A500, GR C (FY=50 KSI)
9.7 STEEL PIPE SHALL BE ASTM A53, GRADE B (FY = 35 KSI).
9.8 WELDING SHALL CONFORM TO AWS D1.4. CERTIFIED WELDERS SHALL PERFORM ALL WELDING. WELDING OF VERTICAL AND HORIZONTAL BRACES AND CONNECTIONS SHALL CONFORM TO AWS D1.8.
9.10 USE LOW-HYDROGEN E70XX ELECTRODES WITH A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LB AT O°F.
9.11 ALL WELDS SHALL BE PRE-QUALIFIED AND SHALL BE PERFORMED IN STRICT CONFORMANCE WITH AN APPROVED WRITTEN WELD PROCEDURE SPECIFICATION (WPS) PER AWS D1.4. CONTRACTOR TO PROVIDE ENGINEER OF RECORD WELDING PROCEDURES TO BE REVIEWED AND APPROVED PRIOR TO BEGINNING ANY WELDING.

9.12 THRU-BOLTS SHALL BE ASTM A307 GRADE A. PROVIDE HARDENED WASHERS (ASTM F436) UNDER THE HEAD OF ALL BOLTS AND HEX NUTS (ASTM A563-A). BOLT HOLES SHALL COMPLY WITH RCSC SECTION 3.3. USE STANDARD HOLES UNLESS DETAILED OTHERWISE. HOLES MAY BE DRILLED, PUNCHED, OR THERMALLY-CUT. MANUAL THERMAL CUT HOLES ARE NOT PERMITTED.
9.13 HIGH-STRENGTH BOLTS SHALL BE ASTM F3125 GRADE A325 WITH ASTM A563 GRADE C HEAVY-HEX UTS.
9.14 ALL BOLTS, NUTS, AND WASHERS SHALL BE APPROPRIATELY GRADE MARKED.
9.15 ALL STRUCTURAL STEEL SHALL BE SHOP PRIMED. ALL SURFACES TO RECEIVE SHOP PRIMER SHALL BE CLEANED OF LOOSE RUST, LOOSE MILL SCALE, AND OTHER FOREIGN MATERIALS PER SSPC-SP2 SPECIFICATIONS.
9.16 EXTERIOR/EXPOSED STRUCTURAL STEEL SHALL BE SHOP PRIMED (SHERWIN WILLIAMS PRO INDUSTRIAL PRO-CRYL OR EQUIVALENT) AND PAINTED (SHERWIN WILLIAMS PRO INDUSTRIAL SEMI-GLOSS ACRYLIC) TO THE GREATEST EXTENT POSSIBLE. AFTER INSTALLATION, CONTRACTOR SHALL FIELD PAINT ALL WELDED CONNECTIONS AND TOUCH-UP ANY DAMAGED COATING. CONTRACTOR TO PROVIDE PAINT SUBMITTAL FOR REVIEW AND APPROVAL
9.17 EXTERIOR HANDRAILS/GUARDRAILS SHALL BE POWDER COATED TO MATCH (SHERWIN WILLIAMS RUSTIC RED (SW 7593 INTERIOR/EXTERIOR LATEX, SHEEN: SEMI-GLOSS, BASE: ULTRADEEP).
9.18 USE NON-METALLIC, NON-SHRINK GROUT CONFORMING TO ASTM C1107, GRADE A, B OR C UNDER BASE PLATES WHERE INDICATED ON PLANS. NON-SHRINK GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 8000 PSI. INSTALL IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS. GROUT SHALL BE DELIVERED TO THE JOB SITE IN DRY, PRE-MIXED FACTORY PACKAGING REQUIRING ONLY THE ADDITION OF WATER. SURFACES TO RECEIVE GROUT SHALL BE FREE OF DIRT, OIL, GREASE, OR OTHER DELETERIOUS SUBSTANCES THAT MAY INHIBIT BOND. CONCRETE SURFACES SHALL BE ROUGH AND SATURATED PONDED) WITH CLEAN WATER FOR A MINIMUM OF 4 HOURS PRIOR TO GROUTING. PLACE GROUT TO ENSURE FULL BEARING CONTACT AND CURE FOR A MINIMUM OF 8 HOURS WITH WET RAGS.

7. COLD-FORMED STEEL

11.1 COLD-FORMED STEEL LIGHT-FRAMED CONSTRUCTION SHALL COMPLY WITH IBC CHAPTER 22, AISI S100.
11.2 USE COLD-FORMED STUDS, JOISTS AND TRACK FORMED FROM STEEL WITH A MINIMUM YIELD STRESS OF 33 KSI (ASTM A1003, GRADE 33, TYPE H) FOR 18-GAUGE OR LIGHTER THICKNESS AND 50 KSI (ATM A1003, GRADE 50, TYPE H) FOR 16-GAUGE AND HEAVIER.
11.3 CUT FRAMING COMPONENTS SQUARELY OR AT AN ANGLE TO FIT TIGHT AGAINST ABUTTING MEMBERS. HOLD FIRMLY IN POSITION UNTIL PROPERLY FASTENED.
11.4 STEEL STUDS, JOIST AND TRACK SHALL CONFORM TO ICC-ES REPORT ESR-3064P AND THE STEEL STUD MANUFACTURERS ASSOCIATIONS (SSMA) "PRODUCT TECHNICAL INFORMATION".

THE FOLLOWING NOMENCLATURE IS USED IN THE STRUCTURAL DRAWINGS:

DDD X WWW - TT

WHERE	"DDD"	MEMBER DEPTH GIVEN IN 1/100 INCH (EX: 600 = 6")
	"X"	STYLE (S = STUD, T = TRACK)
	"WWW"	FLANGE WIDTH GIVEN IN 1/100 INCH (EX: 162 = 1.625")
	"TT"	MIL THICKNESS (EX: 0.054 = 54 MILS)

STEEL PURLINS: Z-SECTIONS WITH LIPS, SHALL BE PER ANSI S100, TABLE II-9

11.5 WELDING OF STEEL STRUCTURAL MEMBER CONNECTIONS SHALL BE DONE USING FILLET, PLUG, BUTT OR SEAM WELDS WITH A MINIMUM 3/32 INCH AWS TYPE 6013 WELDING ROD.
11.6 PROVIDE WELDED OR SCREWED SPLICES FOR ALL CONTINUOUS TRACKS.
11.7 PROVIDE MATCHING GAUGE STUD TRACK AND STUDS, UON.
11.8 COLD-FORMED STEEL FOR FLASHING AND MISCELLANEOUS FABRICATIONS SHALL BE FROM ASTM A653, GRADE 50
11.9 ALL POWER-ACTUATED FASTENERS FOR ANCHORAGE OF COLD-FORMED TRACK AND STUDS SHALL BE APPROVED FOR SEISMIC LOADING.
11.10 STRUCTURAL FASTENERS FOR ATTACHMENT OF COLD-FORMED STEEL FRAMING SHALL BE ITW BUILDEX (ESR-1976) OF THE SIZE AND TYPE INDICATED ON THESE PLANS OR APPROVED EQ. FASTENERS SHALL BE WEATHER RESISTANT (CLIMASEAL OR APPROVED EQ).
11.12 INSTALLATION OF TEKS SHALL PERPENDICULAR TO THE WORK SURFACE USING A SCREW DRIVING TOOL. INSTALLATION SPEED SHALL NOT EXCEED 2500 RPM. FOR 1/4" & TEKS5 FASTENERS THE MAXIMUM INSTALLATION SPEED SHALL BE 1800 RPM. THE SCREW MUST PENETRATE THROUGH THE SUPPORTING STEEL WITH A MINIMUM OF (3) THREADS PROTRUDING.

SURVEY NOTES:

SITE DATA INCLUDING ELEVATIONS AND UTILITIES BASED ON THE SITE SURVEY BY BATTLE BORN VENTURES LLC CONDUCTED ON NOVEMBER 25, 2024

BASIS OF BEARING AND COORDINATES:
NORTH AMERICAN DATUM OF 1983/2011 (NAD 83/11), NEVADA STATE PLANE WEST ZONE. AS DETERMINED WITH REAL TIME KINEMATIC (RTK) GPS OBSERVATIONS, OBSERVED ON NOVEMBER 20, 2024, USING TRIMBLE R10 RECEIVER WITH CORRECTIONS RECIEVED FROM TRIMBLE R8 BASE STATION OCCUPYING NATIONAL GEODETIC SURVEY CONTROL POINT "W 2". ALL DIMENSIONS AND COORDINATES SHOWN ARE U.S. SURVEY FOOT GRID DISTANCES

"W 2" STATE PLANE GRID, NV WEST ZONE GRID.
N – 14507766.378'
E - 2610721.611'

BASIS OF ELEVATION:
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS DETERMINED WITH REAL TIME KINEMATIC (RTK) GPS OBSERVATIONS, OBSERVED ON NOVEMBER 20, 2024, USING TRIMBLE R10 RECEIVER WITH CORRECTION FROM A TRIMBLE R10 BASE STATION OCCUPYING GEODETIC SURVEY CONTROL POINT "W 2". ELEVATIONS WERE REDUCED USING THE GEOID 18 MODEL PROVIDED BY THE NATIONAL GEODETIC SURVEY.

"W 2"
ELEV.- 4157.348' (NAVD 88)

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
STRUCTURAL NOTES
SURVEY NOTES

DRAWING NUMBER S-001
SCALE: 1"=1'
FILE:
SHEET 3 OF 24

STATMENT OF SPECIAL INSPECTIONS

1. WHERE REQUIRED BY THE PROVISIONS OF IBC SECTION 1705, THE SERVICES OF A SPECIAL INSPECTOR OF RECORD SHALL BE RETAINED BY THE CONTRACTOR AS A THIRD PARTY QUALITY ASSURANCE AGENT. PROVIDE SPECIAL INSPECTIONS IN COMPLIANCE WITH IBC 1704 BY AN APPROVED SPECIAL INSPECTOR.

   THE FOLLOWING ITEMS SHALL BE INSPECTED IN ACCORDANCE WITH THE APPROPRIATE SECTION IN THE IBC. THE INSPECTION AGENCY SHALL PROVIDE COPIES OF INSPECTION REPORTS DIRECTLY TO THE ENGINEER. ANY CONSTRUCTION THAT FAILS TO COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.

2. INSPECTION DEFINITIONS:

   PERFORM: PERFORM THESE TASKS FOR EACH WELD, FASTENER OR BOLTED CONNECTION, AND NOTED VERIFICATION

   OBSERVE: OBSERVE THESE ITEMS RANDOMLY DURING THE COURSE OF EACH WORK DAY TO INSURE THAT APPLICABLE REQUIREMENTS ARE BEING MET. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS AT CONTRACTOR'S RISK.

   DOCUMENT: DOCUMENT, WITH A REPORT, THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

   CONTINUOUS: CONSTANT MONITORING OF IDENTIFIED TASKS BY A SPECIAL INSPECTOR OVER THE DURATION OF PERFORMANCE OF SAID TASKS.

3. CONCRETE CONSTRUCTION, IBC 1705.3:

ITEM		INSPECTION TYPE	REFERENCE/REMARKS
3.1	INSPECTION OF REINFORCING STEEL, PLACEMENT AND FORMWORK	OBSERVE	PRIOR TO PLACING CONCRETE VERIFY TYPE, GRADE, SIZE, SPACING, AND LAP LENGTHS INCLUDING VERTICAL REINFORCING STEEL FOR MASONRY WALLS
3.2	INSPECTION OF CAST IN PLACE ANCHORS	OBSERVE	EMBEDMENT, SPACING, EDGE DISTANCE
3.3	POST-INSTALLED, HORIZONTALLY ORIENTED ADHESIVE ANCHORS IN HARDENED CONCRETE MEMBERS	OBSERVE	INSPECT PER APPROVED ICC-ES REPORT
	POST-INSTALLED, VERTICALLY OR UPWARDLY INCLINED ANCHORS OR REINFORCING BAR RESISTING SUSTAINED TENSION LOADS	CONTINUOUS	INSPECT PER APPROVED ICC-ES REPORT
3.4	SPECIAL INSPECTION FOR ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY POWER SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D	OBSERVE	IBC SECTION 1705.12.6
3.5	VERIFY USE OF REQUIRED MIX DESIGN	OBSERVE	
3.6	SAMPLE FRESH CONCRETE AND FABRICATE SPECIMENS FOR COMPRESSIVE STRENGTH TESTING	CONTINUOUS	EACH DAY AND EVERY 100 CUBIC YARDS FOR EACH TYPE OF CONCRETE PLACED CAST(4) SPECIMENS/CYLINDERS
	COMPRESSIVE STRENGTH TESTING		TEST (1) SPECIMEN AT (7) DAYS; (2) SPECIMENS AT (28) DAYS; HOLD (1) SPECIMEN FOR TESTING AT (56) DAYS, IF NECESSARY
	PERFORM SLUMP AND AIR CONTENT TEST AND DETERMINE TEMPERATURE OF CONCRETE		
3.7	INSPECT CONCRETE FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	
3.8	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUE(S)	OBSERVE	INSPECT CURING AND HOT WEATHER PROTECTION PROCEDURES (WHEN APPLICABLE)
3.9	DOCUMENT ACCEPTANCE OF CONCRETE AND ANCHORS	DOCUMENT	

4. GEOTECHNICAL - REQUIRED VERIFICATION AND INSPECTION OF SOILS: IBC 1705.6

ITEM		INSPECTION TYPE	REFERENCE/REMARKS
4.1	MATERIALS BELOW SHALL FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	OBSERVE	
4.2	EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	OBSERVE	
4.3	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	OBSERVE	
4.4	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS	
4.5	PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	OBSERVE	DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS IN THE APPROVED GEOTECHNICAL REPORT.

5. STRUCTURAL OBSERVATION: IBC 1704.6.1

   STRUCTURAL OBSERVATION IS REQUIRED BY THE SER, THE SITES ARE CLASSIFIED AS RISK CATEGORY IV

APPLICABLE CODE LIST:

ABA 2015	ARCHITECTURAL BARRIERS ACT STANDARDS (2015)	
ACI 301-16	SPECIFICATIONS FOR STRUCTURAL CONCRETE	
ACI 318-19	BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE	
IBC 2021	INTERNATIONAL BUILDING CODE	
MFMA-4	METAL FRAMING MANUFACTURERS ASSOCIATION - STANDARDS PUBLICATION	
UFC 1-200-01	DOD BUILDING CODE, WITH CHANGE 1	(10-01-2020)
UFC 3-201-01	CIVIL ENGINEERING, WITH CHANGE 5	(04-01-2021)
UFC 3-220-01	GEOTECHNICAL ENGINEERING, WITH CHANGE 1	(11-030-2021)
UFC 3-301-01	STRUCTURAL ENGINEERING, WITH CHANGE 1	(10-01-2019)
USACE EM385-1-1	SAFETY AND HEALTH REQUIREMENTS MANUAL	(11-30-2014)

CODES AND STANDARDS ABBREVIATIONS

ABA	ARCHITECTURAL BARRIERS ACT
ACI	AMERICAN CONCRETE INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
UES	UNIFORM EVALUATION SERVICES
UFC	UNITED FACILITY CRITERIA
UFGS	UNITED FACILITIES GUIDE SPECIFICATIONS
UL	UNDERWRITERS LABORATORIES

STRUCTURAL ABREVIATIONS

&	AND
@	AT
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPD	APPROVED
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATR	ALL THREAD ROD
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BO	BOTTOM OF
BOT	BOTTOM
BRG	BEARING
CBC	CALIFORNIA BUILDING CODE
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONN	CONNECTION
CONT	CONTINUOUS
CTR	CENTER
DBL	DOUBLE
DTL	DETAIL
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
(E)	EXISTING
EA	EACH
EF	EACH FACE
ELEV	ELEVATION
EOR	ENGINEER OF RECORD
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
EXT	EXTERIOR
FLR	FLOOR
FS	FAR SIDE
FT	FOOT
GA	GAUGE
GALV	GALVANIZED
HORIZ	HORIZONTAL
IN	INCH
INT	INTERIOR
LBF	POUNDS (FORCE)
MAX	MAXIMUM
MFG	MANUFACTURED
MIN	MINIMUM
MPH	MILE PER HOUR
MTL	METAL
(N)	NEW
N/A	NOT APPLICABLE
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OF	OUTSIDE FACE
OH	OPPOSITE HAND
OPNG	OPENING
OWSJ	OPEN WEB STEEL JOIST
PAF	POWDER ACTUATED FASTENER
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REQ	REQUIRED
SCHD	SCHEDULE
SECT	SECTION
SER	STRUCTURAL ENGINEER OF RECORD
SIM	SIMILAR
SPECS	SPECIFICATIONS
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
T&B	TOP AND BOTTOM
THRD	THREADED
TOS	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W/	WITH
WF	WIDE FLANGE
W/O	WITHOUT

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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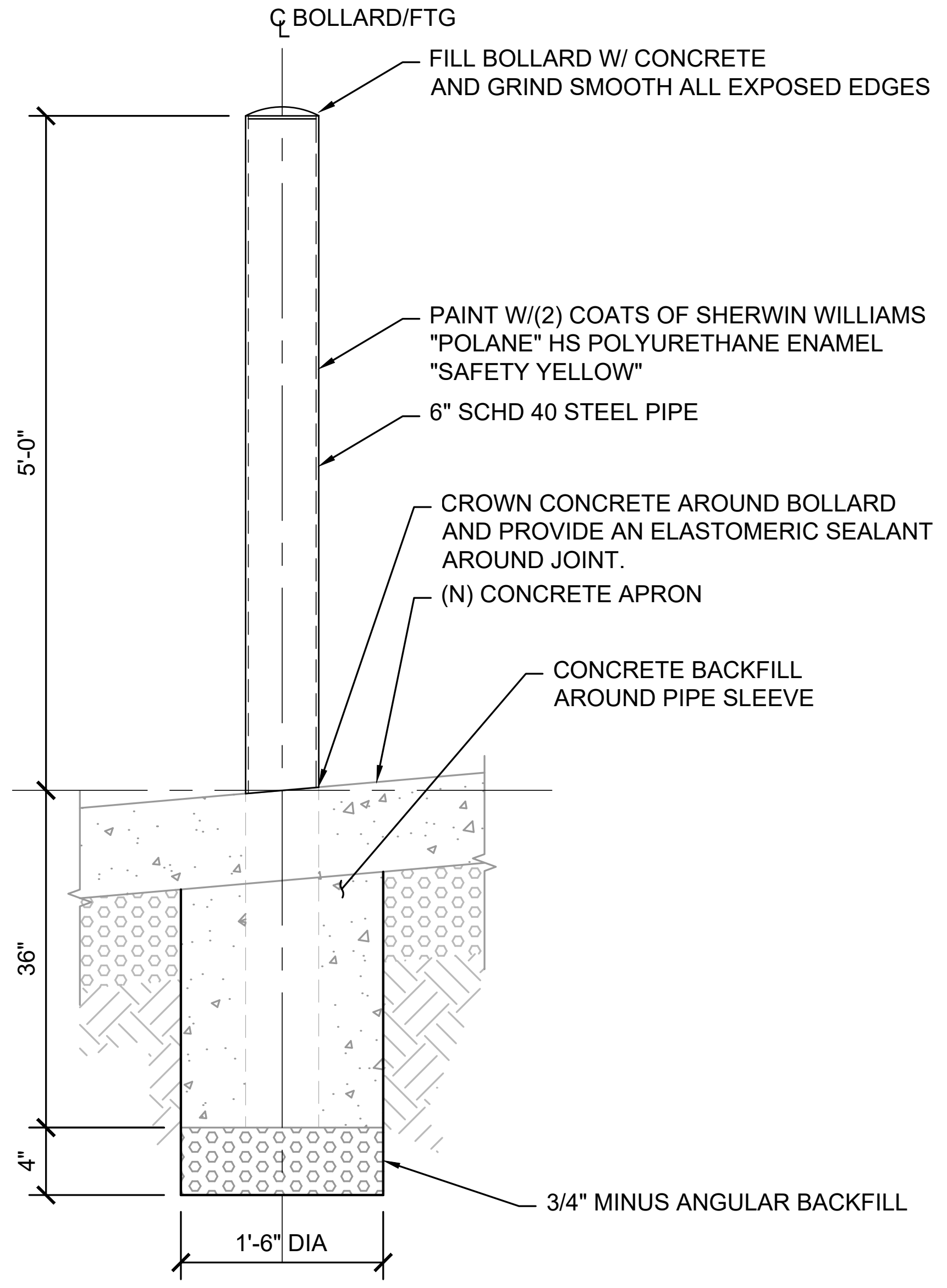
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT GENERATOR SYSTEM SUPPORT STATEMENT OF SPECIAL INSPECTIONS

DRAWING NUMBER S-002
SCALE: 1"=1'
FILE:
SHEET 4 OF 24

BOLLARD NOTES
1. LOCATE ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATING BOLLARD FOOTING. NOTIFY LLNS SUBCONTRACT TECHNICAL REPRESENTATIVE (STR) WHO WILL COORDINATE WITH ENGINEER OF RECORD IF UNDERGROUND UTILITIES ARE WITHIN 18" OF BOLLARD FOOTING.
2. LOCATE BOLLARDS 4' CLEAR MINIMUM FROM EQUIPMENT - VERIFY MAINTENANCE CLEARANCES PER EQUIPMENT MANUFACTURER

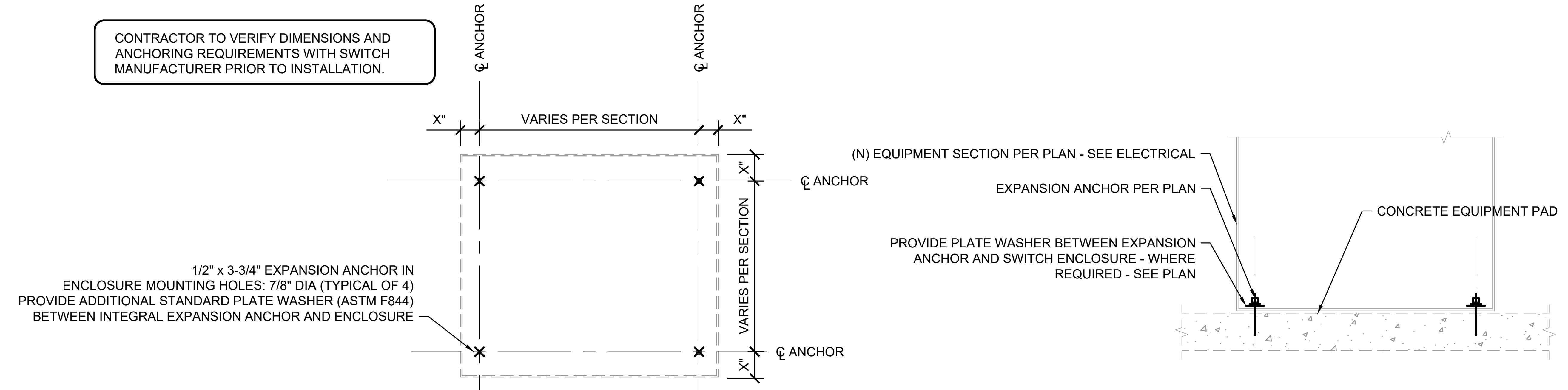


STANDARD - TRAFFIC AND EQUIPMENT BOLLARD

102 S-003

NO SCALE

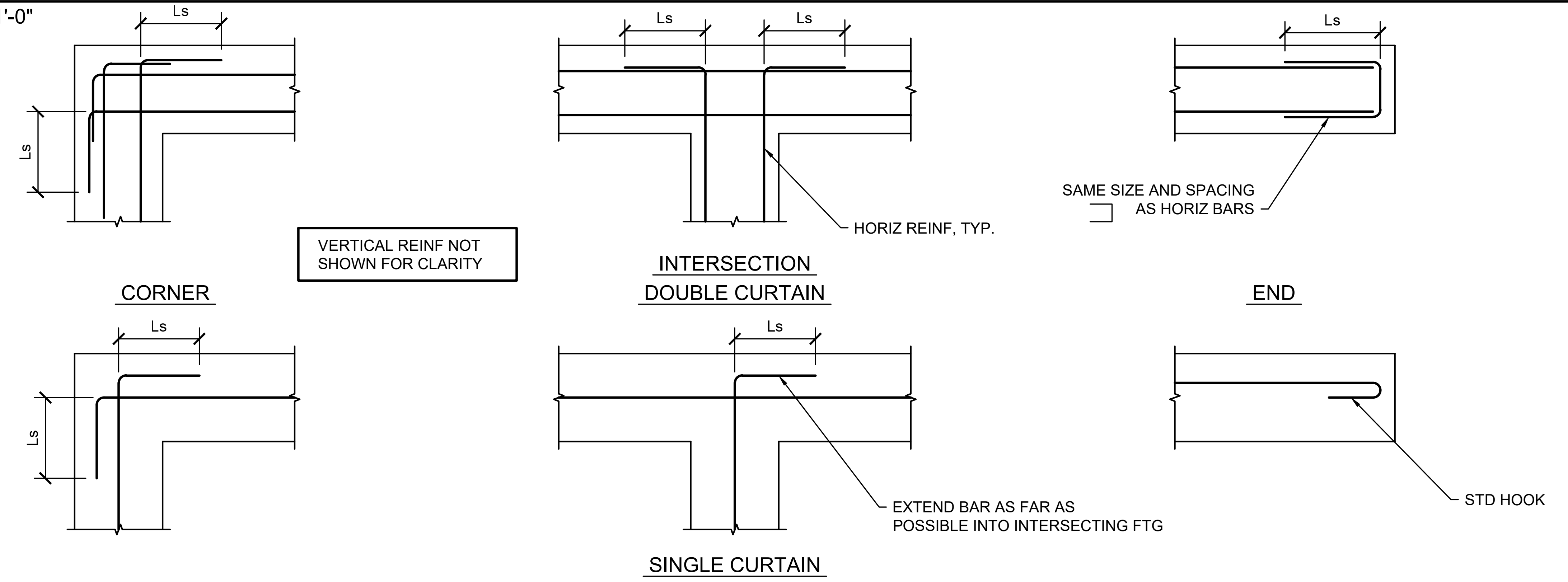
CONTRACTOR TO VERIFY DIMENSIONS AND ANCHORING REQUIREMENTS WITH SWITCH MANUFACTURER PRIOR TO INSTALLATION.



TYPICAL SWITCHGEAR ANCHORAGE

105 S-003

SCALE: 3/4" = 1'-0"



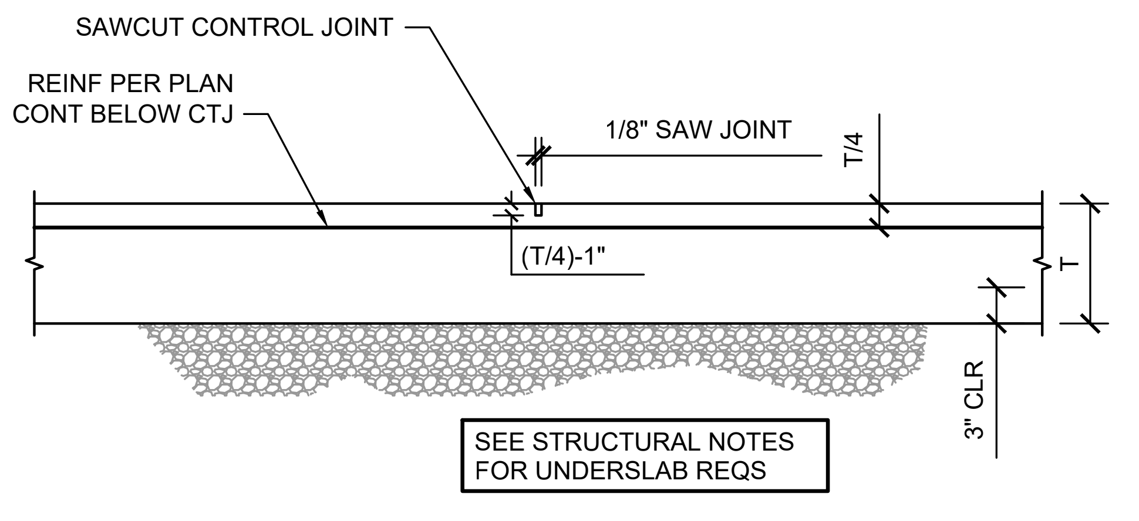
STANDARD - TYPICAL FOOTING CORNER, INTERSECTION AND END REINFORCING (PLAN VIEWS)

104 S-003

NO SCALE

BAR INTERSECTIONS SHOWN APPLY TO ALL SINGLE AND DOUBLE CURTAIN INTERSECTIONS

NOTES:
1. SAWCUT JOINTS AFTER FINISHING AND PRIOR TO CURING. JOINTS SHALL BE SAWCUT AS SOON AS CONCRETE IS SUFFICIENTLY HARD TO RESIST TEARING AND RAVELING AND BEFORE RANDOM CRACKING OCCURS, BUT NO LATER THAN 12 HOURS AFTER CONCRETE HAS BEEN PLACED.
2. SAWCUT CONTROL JOINTS AT RIGHT ANGLES TO EDGE OF SLAB.
3. AFTER 7 DAYS, THOROUGHLY CLEAN ALL JOINTS IN EQUIPMENT SLABS AND FILL WITH WEATHER RESISTANT POLYURETHANE JOINT SEALENT (ASTM C-920, TYPE S)



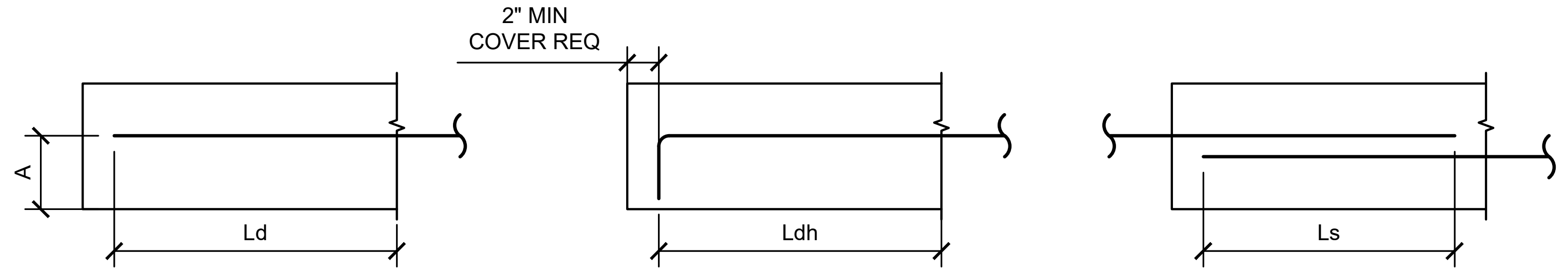
STANDARD - TYPICAL EQUIPMENT PAD JOINTS

101 S-003

NO SCALE

NOTES:
1. DEVELOPMENT LENGTH, (Ld) SHALL BE CALCULATED PER ACI 318 AS REQUIRED.
2. CLASS "B" SPLICES, (Ls) SHALL BE TYP, UNO.
3. TOP BARS ARE ALL BARS WHERE "A" IS GREATER THAN 12.
4. ALL WALL HORIZ BARS ARE TOP BARS.
5. MULTIPLY Ldh BY 1.4 WHERE 2" COVER IS NOT MAINTAINED
6. MULTIPLY VALUES BY 1.3 FOR LW CONC.
7. STAGGER ADJACENT LAP SPLICES THE GREATER OF 3'-0" OR Ls.
8. SUBMIT SHOP DRAWINGS FOR REVIEW SHOWING ALL HOOKS, BENDS, LAPS, PRIOR TO FABRICATION.
9. SPLICES OTHER THAN SHOWN IN THIS SCHEDULE REQUIRE WRITTEN APPROVAL FROM ENGINEER PRIOR TO PLACING CONCRETE.

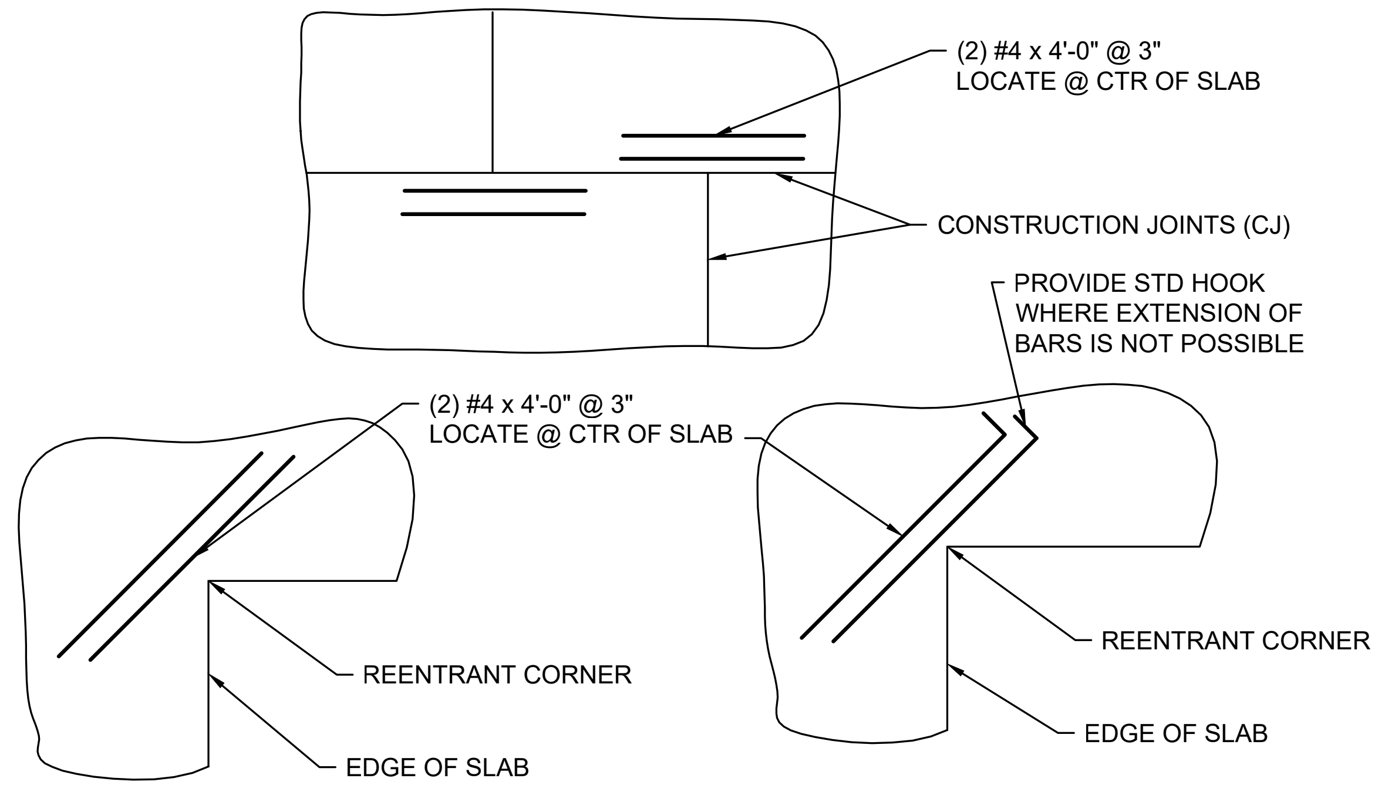
CONCRETE		3000 PSI			4000 PSI		
BAR	POSITION	Ldh	Ld	Ls	Ldh	Ld	Ls
	TOP		29"	37"		25"	32"
4	OTHER	11"	22"	29"	10"	19"	25"
	TOP		36"	47"		31"	40"
5	OTHER	14"	28"	36"	12"	24"	31"



STANDARD - TYPICAL REINFORCING BAR LAP SCHEDULE AND NOTES

103 S-003

NO SCALE



STANDARD - ADDITIONAL SOG REINFORCEMENT

100 S-003

NO SCALE

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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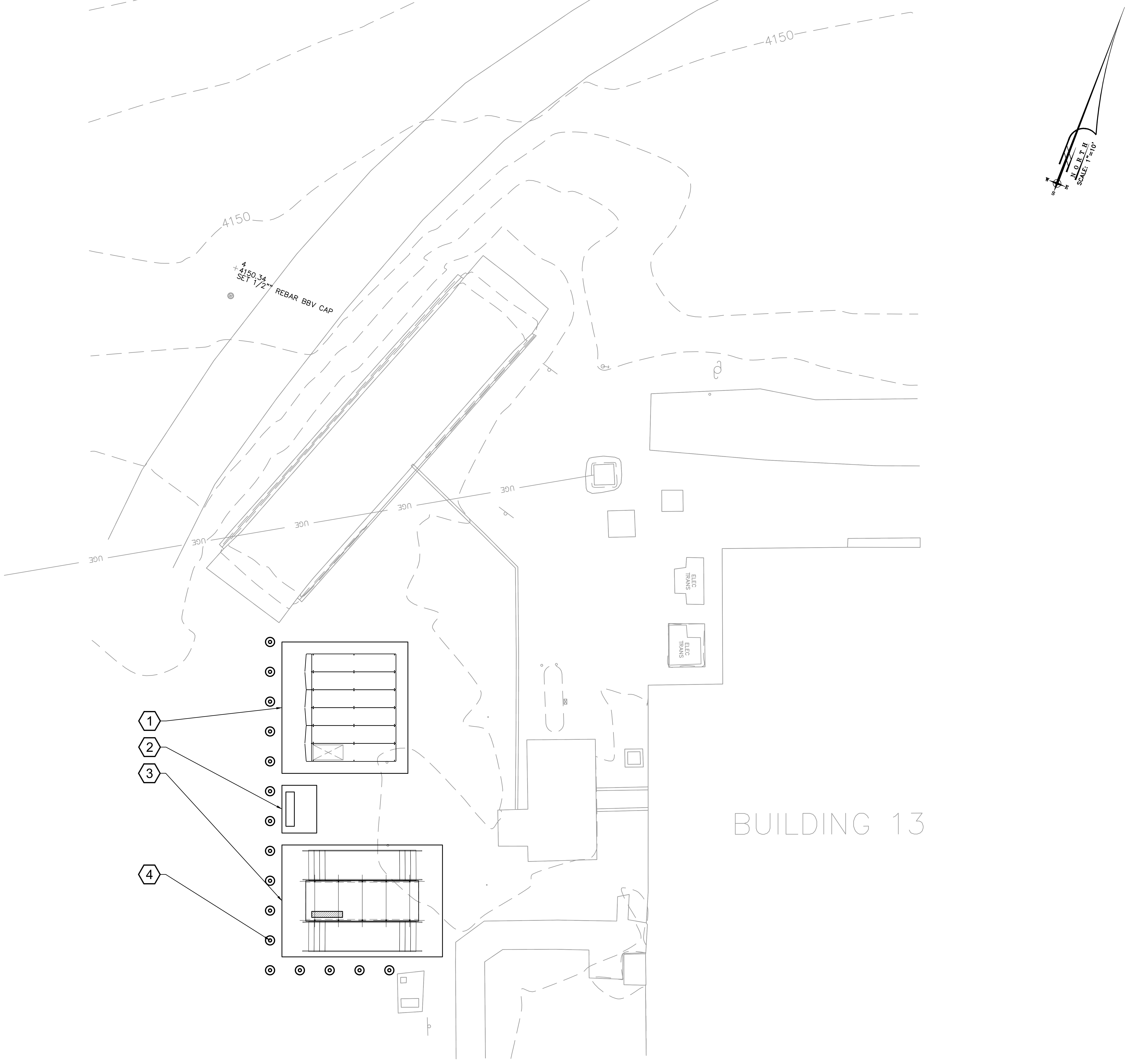
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

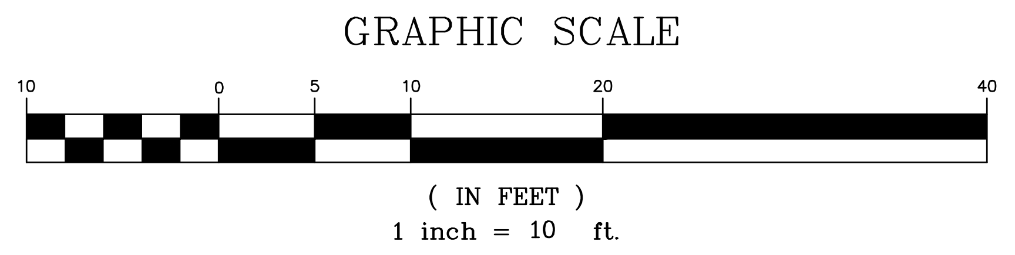
HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
STANDARD DETAILS

DRAWING NUMBER S-003
SCALE: 1"=1'
FILE:
SHEET 5 OF 24



STRUCTURAL SITE PLAN: BUILDING 13

SCALE: 1" = 10'



GENERAL SHEET NOTES

PLAN NOTES:

1. REFER TO ELECTRICAL DRAWINGS FOR CONDUITS, CIRCUITING, AND GROUNDING REQUIREMENTS.
2. REFER TO MECHANICAL DRAWINGS FOR PIPING TYPE, CONNECTIONS, AND FITTINGS.
3. SUBCONTRACTOR TO COORDINATE LOCATION AND ALIGNMENT OF PROPOSED UTILITIES AND IMPROVEMENTS WITH (E) UTILITIES TO REMAIN. ALIGNMENTS ARE SHOWN FOR REFERENCE ONLY AND MAY REQUIRE FIELD MODIFICATION TO AVOID (E) UTILITIES AND OR CONSTRAINTS. SUBCONTRACTOR TO COORDINATE WITH ENGINEER PRIOR TO MODIFYING ALIGNMENTS.
4. SOIL MATERIALS FOR BACKFILL AND FILL TO BE FREE OF CLAY CLODS, ROCK, OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS WASTE, AND OTHER DELETERIOUS MATERIALS.
5. ALL IMPORT FILL MATERIALS TO BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE.
6. ALL NON HAZARDOUS REMOVED SOILS AND CONSTRUCTION MATERIALS TO BE LEGALLY DISPOSED BY SUBCONTRACTOR.
7. ALL STOCKPILED SOILS TO BE COVERED OR OTHERWISE STABILIZED TO CONTROL AND LIMIT WINDBLOWN DUST AND STORM WATER RUNOFF.

SHEET KEY NOTES

#	
1	(N) GENERATOR SWITCHGEAR, 4160KV - SEE DETAIL 300/S-503
2	(N) 1000kVA TRANSFORMER - SEE 400/S-505
3	(N) 500kW GENERATOR - SEE 200/S-501
4	(N) EQUIPMENT BOLLARD PER 103/S-003, SPACE AT 5' OC MAX

LEGEND

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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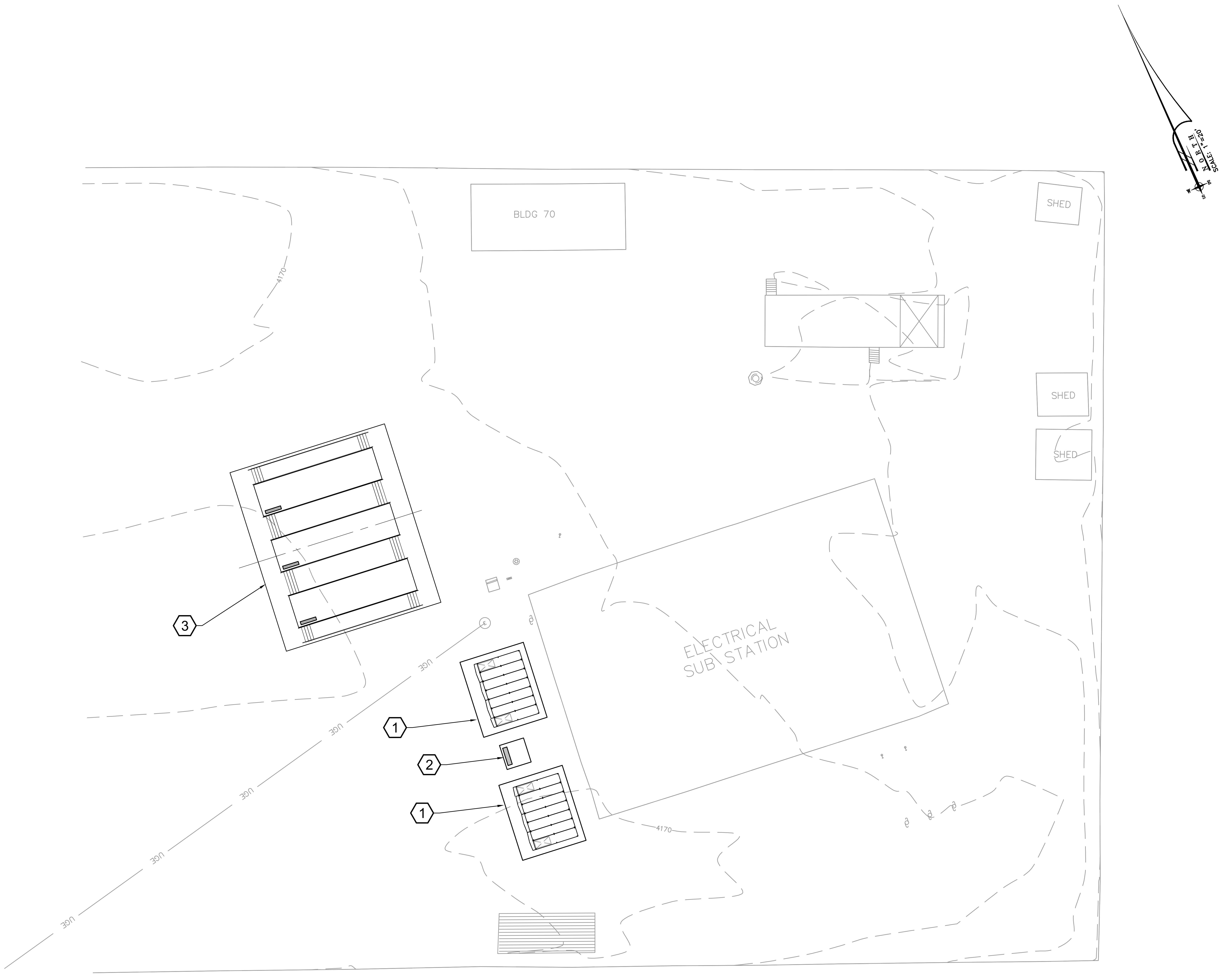
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

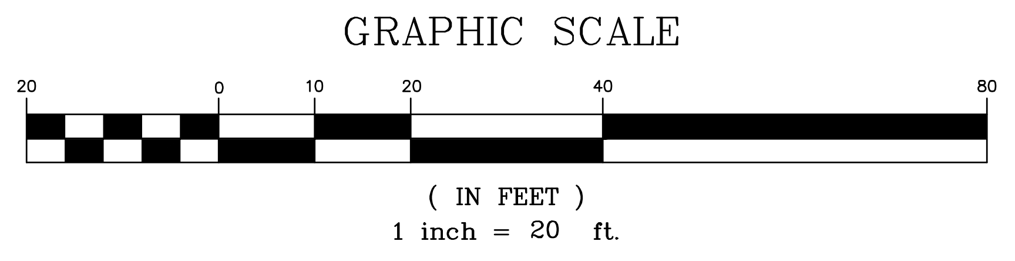
HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
SITE PLAN: BUILDING 13

DRAWING NUMBER S-101
SCALE: 1"=1'
FILE:
SHEET 6 OF 24



STRUCTURAL SITE PLAN: DEMIL SUBSTATION, BUILDING 70

SCALE: 1" = 20'



GENERAL SHEET NOTES

PLAN NOTES:

1. REFER TO ELECTRICAL DRAWINGS FOR CONDUITS, CIRCUITING, AND GROUNDING REQUIREMENTS.
2. REFER TO MECHANICAL DRAWINGS FOR PIPING TYPE, CONNECTIONS, AND FITTINGS.
3. SUBCONTRACTOR TO COORDINATE LOCATION AND ALIGNMENT OF PROPOSED UTILITIES AND IMPROVEMENTS WITH (E) UTILITIES TO REMAIN. ALIGNMENTS ARE SHOWN FOR REFERENCE ONLY AND MAY REQUIRE FIELD MODIFICATION TO AVOID (E) UTILITIES AND OR CONSTRAINTS. SUBCONTRACTOR TO COORDINATE WITH ENGINEER PRIOR TO MODIFYING ALIGNMENTS.
4. SOIL MATERIALS FOR BACKFILL AND FILL TO BE FREE OF CLAY CLODS, ROCK, OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS WASTE, AND OTHER DELETERIOUS MATERIALS.
5. ALL IMPORT FILL MATERIALS TO BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE.
6. ALL NON HAZARDOUS REMOVED SOILS AND CONSTRUCTION MATERIALS TO BE LEGALLY DISPOSED BY SUBCONTRACTOR.
7. ALL STOCKPILED SOILS TO BE COVERED OR OTHERWISE STABILIZED TO CONTROL AND LIMIT WINDBLOWN DUST AND STORM WATER RUNOFF.

SHEET KEY NOTES

1 (N) GENERATOR SWITCHGEAR, 4160KV - SEE DETAIL 301/S-504 (TYPICAL OF 2)

2 (N) 1500kVA TRANSFORMER - SEE 400/S-505

3 (N) EQUIPMENT PAD FOR (3) 2000kW GENERATORS - SEE 201/S-502

LEGEND

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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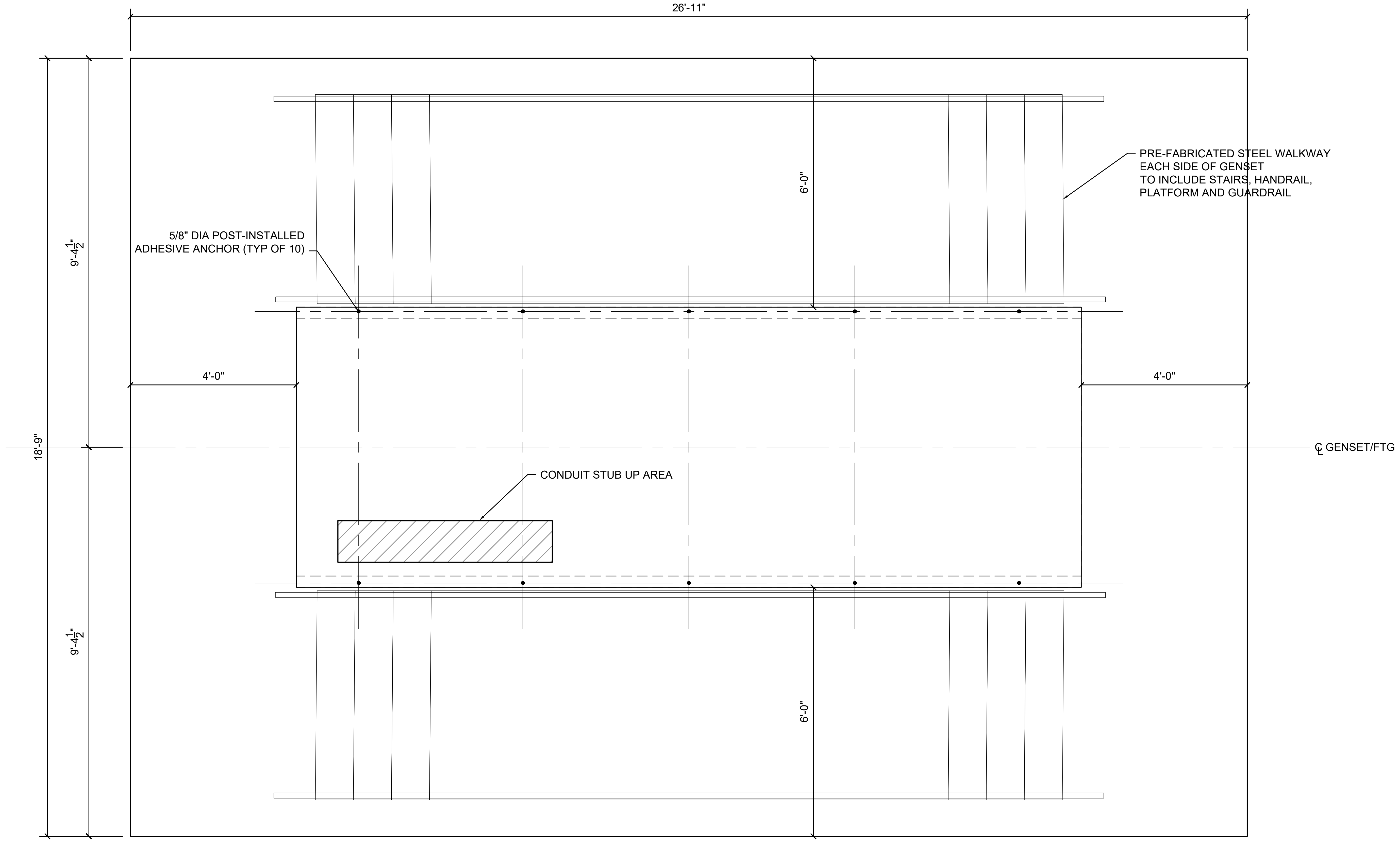
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
SITE PLAN: DEMIL SUBSTATION
BUILDING 70

DRAWING NUMBER S-102
SCALE: 1"=1'
FILE:
SHEET 7 OF 24



EQUIPMENT PAD - 500kW GENERATOR SET
SCALE: 1/2" = 1'-0"
200
S-501

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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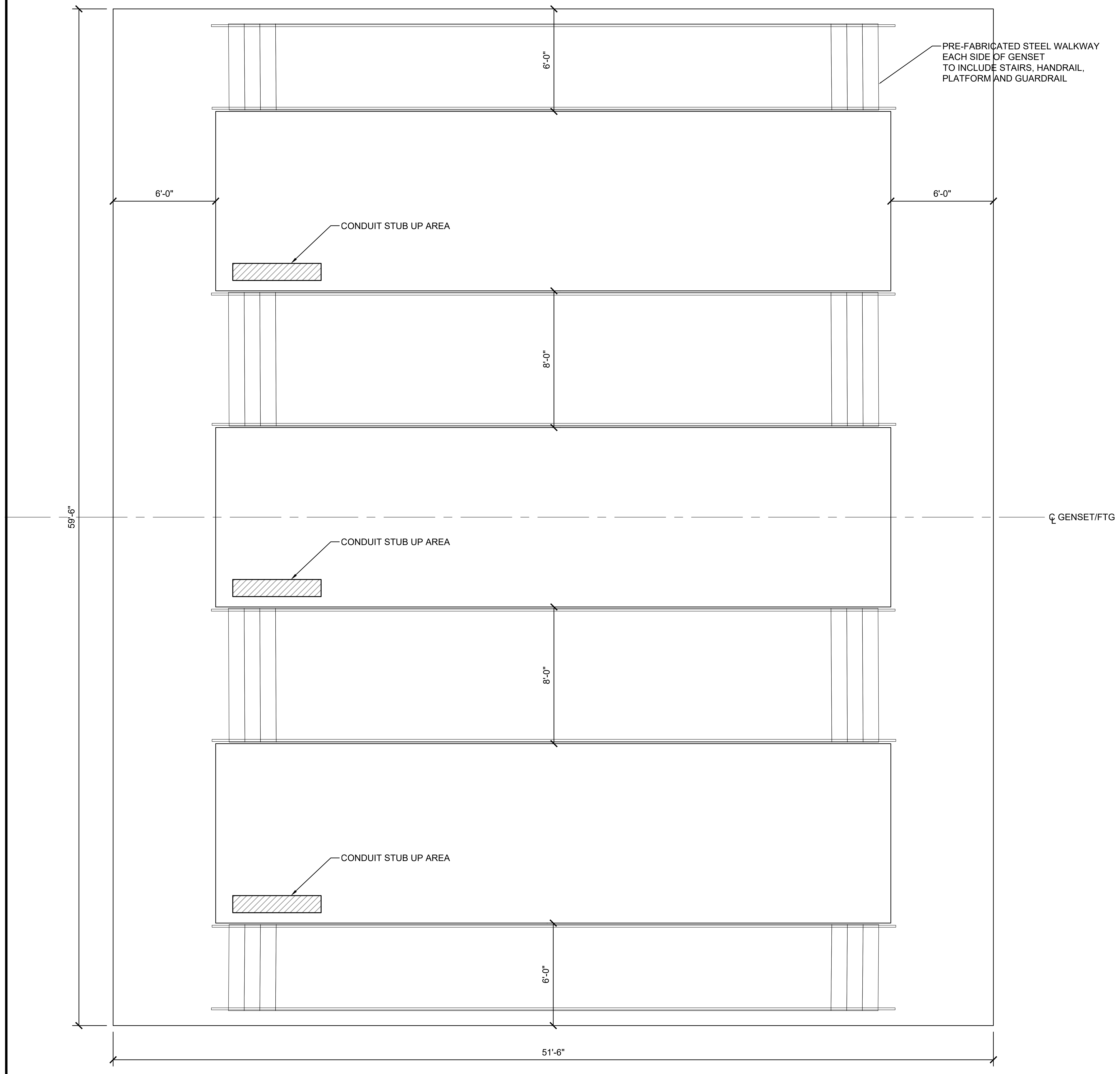
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT DETAILS
500kW GENERATOR SET

DRAWING NUMBER S-501
SCALE: 1"=1'
FILE:
SHEET 8 OF 24



EQUIPMENT PAD - 2000kW GENERATOR SET
SCALE: 1/4" = 1'-0"

210
S-502

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

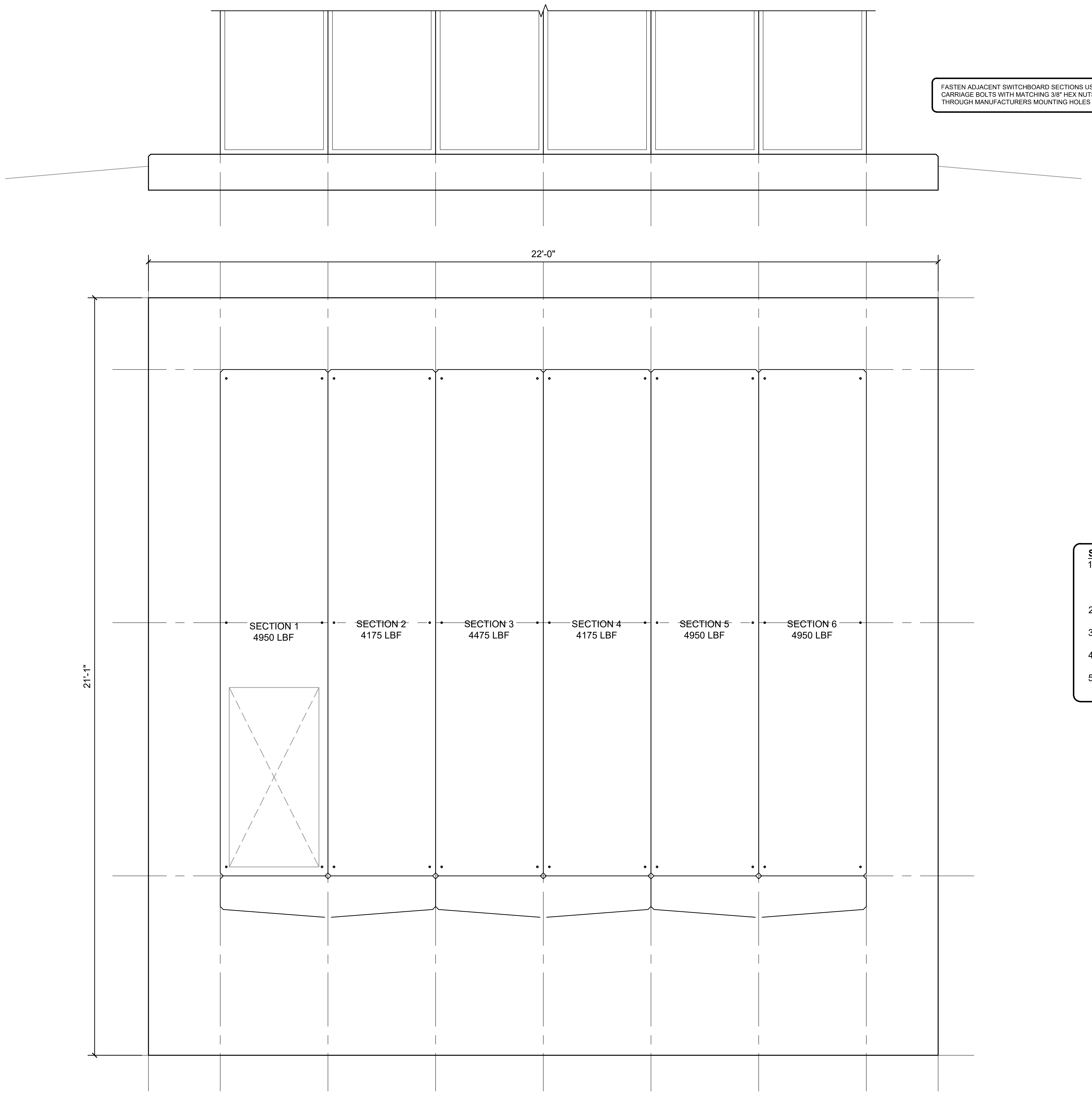
APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

amentum
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DETAILS
2000 kW GENERATOR SET

DRAWING NUMBER S-502
SCALE: 1"=1'
FILE:
SHEET 9 OF 24



FASTEN ADJACENT SWITCHBOARD SECTIONS USING MANUFACTURER PROVIDED 3/8" x 1" CARRIAGE BOLTS WITH MATCHING 3/8" HEX NUTS WITH CAPTIVE BELLEVILLE-TYPE WASHERS THROUGH MANUFACTURERS MOUNTING HOLES (6 BOLTS MIN PER ADJACENT SECTIONS)

SWITCHBOARD ANCHORAGE NOTES:

1. CONTRACTOR SHALL INSPECT THE SITE FOR ANY EXISTING ITEMS THAT MAY INTERFERE WITH THE PROPOSED IMPROVEMENTS AND PROMPTLY REPORT ANY DISCREPANCIES FOUND AMONG THESE DRAWINGS AND SPECIFICATIONS TO THE STRUCTURAL ENGINEER OF RECORD. DISCREPANCIES SHALL BE CORRECTED IN WRITING.
2. REFER TO THE ELECTRICAL DRAWINGS FOR SWITCHBOARD REQUIREMENTS INCLUDING GROUNDING. STRUCTURAL DRAWINGS LIMITED TO FOUNDATIONS AND ANCHORAGES.
3. LOCATE (N) POST-INSTALLED ANCHORS AS INDICATED ON THESE PLANS. PROVIDE MINIMUM EDGE DISTANCE BETWEEN ANCHOR AND NEAREST EDGE OF CONCRETE.
4. AFTER REMOVAL OF (E) SWITCHBOARDS AND ANCHORS, FILL HOLES IN (E) CONCRETE WITH NON-SHRINK, NON-METALLIC GROUT.
5. (E) CONCRETE EQUIPMENT PAD DIMENSIONS BASED ON PRELIMINARY FIELD MEASUREMENTS AND DENOTED WITH ±, CONTRACTOR TO FIELD VERIFY DIMENSIONS.

GENERATOR SWITCHGEAR B13: 4160KV FOUNDATION

SCALE: 1/2" = 1'-0"

300
S-503

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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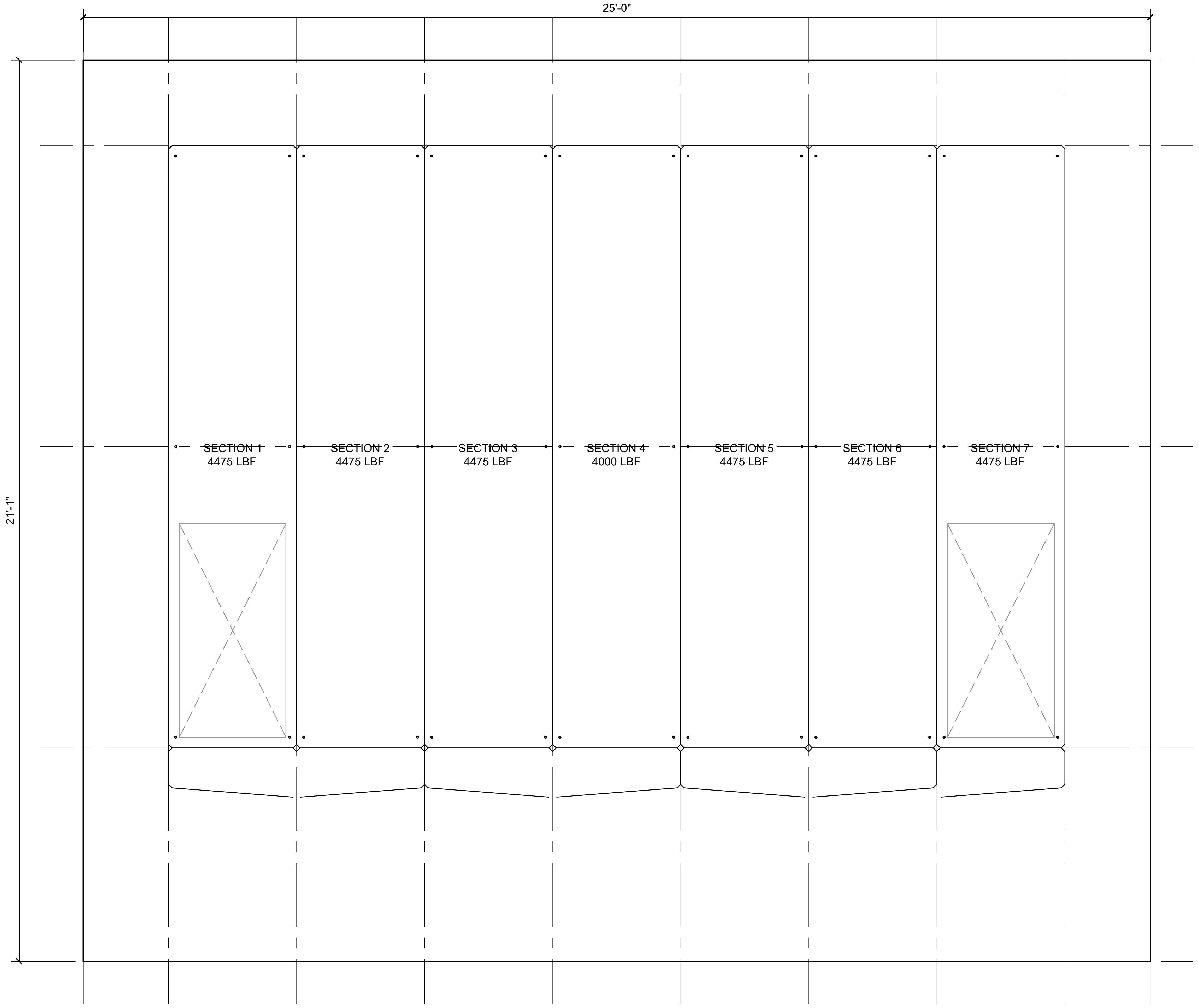
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DETAILS

DRAWING NUMBER S-503
SCALE: 1"=1'
FILE:
SHEET 10 OF 24



GENERATOR SWITCHGEAR B70: 4160KV FOUNDATION
SCALE: 1/2" = 1'-0"

301
S-504

SWITCHBOARD ANCHORAGE NOTES:

1. CONTRACTOR SHALL INSPECT THE SITE FOR ANY EXISTING ITEMS THAT MAY INTERFERE WITH THE PROPOSED IMPROVEMENTS AND PROMPTLY REPORT ANY DISCREPANCIES FOUND AMONG THESE DRAWINGS AND SPECIFICATIONS TO THE STRUCTURAL ENGINEER OF RECORD. DISCREPANCIES SHALL BE CORRECTED IN WRITING.
2. REFER TO THE ELECTRICAL DRAWINGS FOR SWITCHBOARD REQUIREMENTS INCLUDING GROUNDING. STRUCTURAL DRAWINGS LIMITED TO FOUNDATIONS AND ANCHORAGES.
3. LOCATE (N) POST-INSTALLED ANCHORS AS INDICATED ON THESE PLANS. PROVIDE MINIMUM EDGE DISTANCE BETWEEN ANCHOR AND NEAREST EDGE OF CONCRETE.
4. AFTER REMOVAL OF (E) SWITCHBOARDS AND ANCHORS, FILL HOLES IN (E) CONCRETE WITH NON-SHRINK, NON-METALLIC GROUT.
5. (E) CONCRETE EQUIPMENT PAD DIMENSIONS BASED ON PRELIMINARY FIELD MEASUREMENTS AND DENOTED WITH ±, CONTRACTOR TO FIELD VERIFY DIMENSIONS.

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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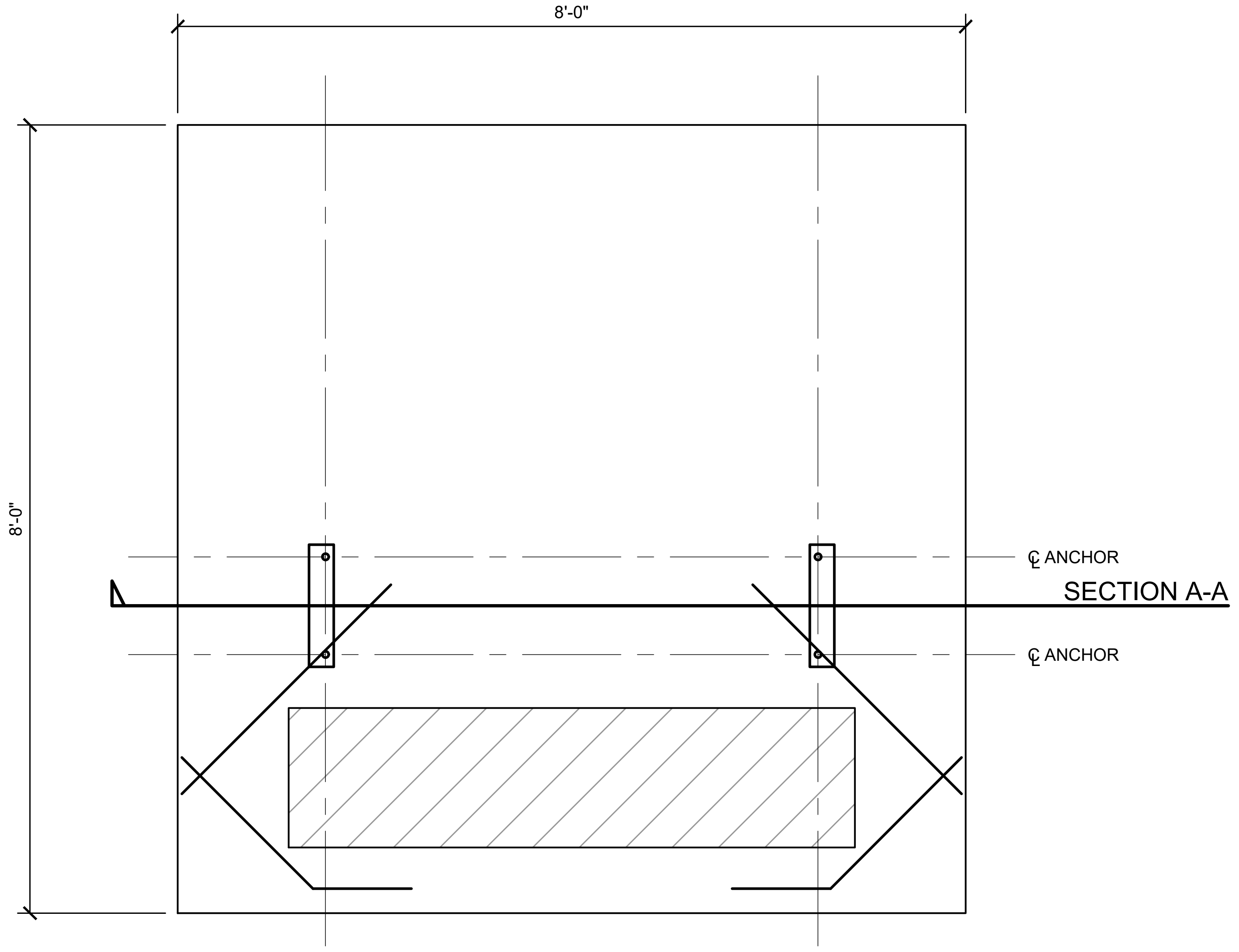
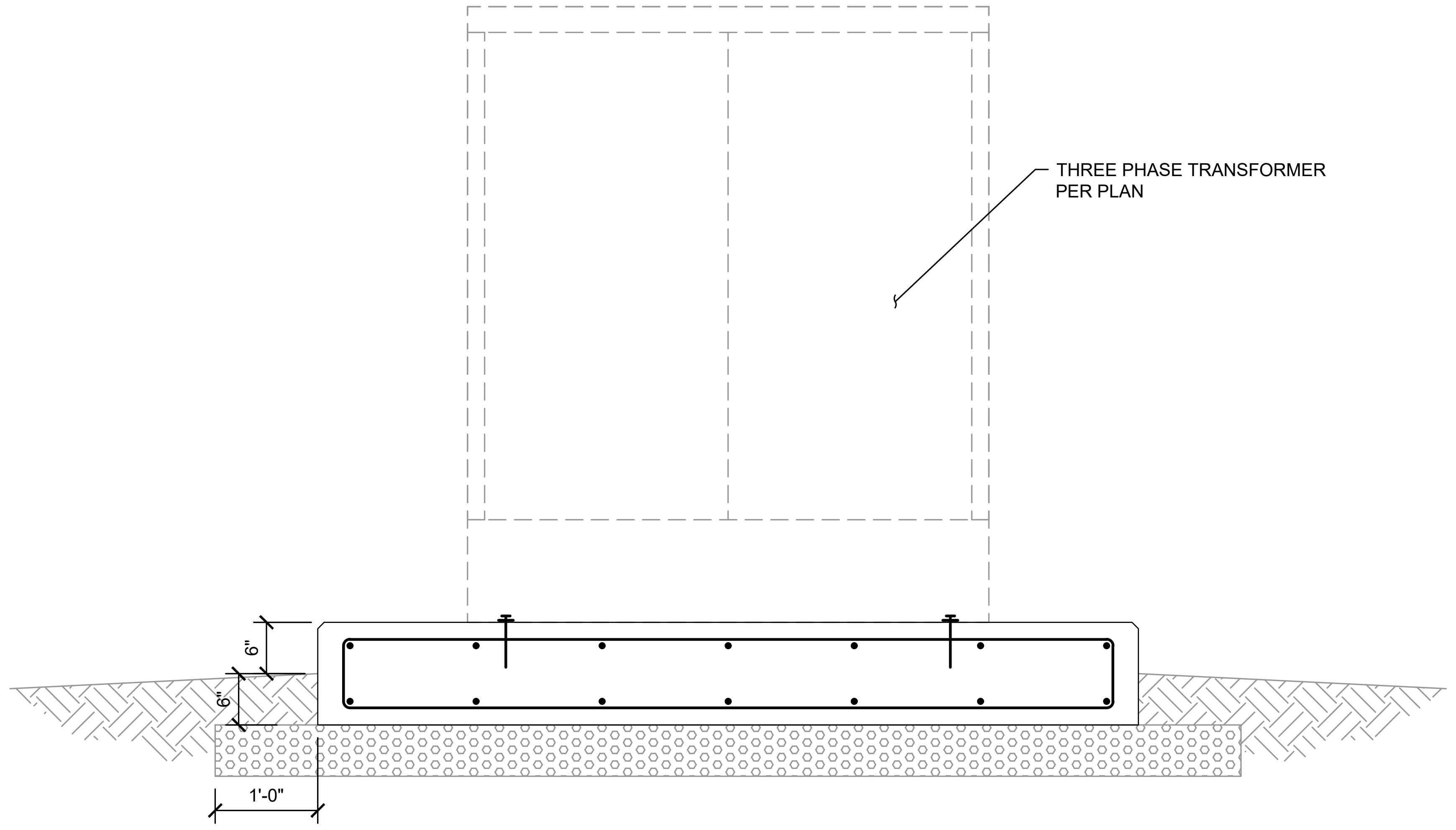
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT DETAILS

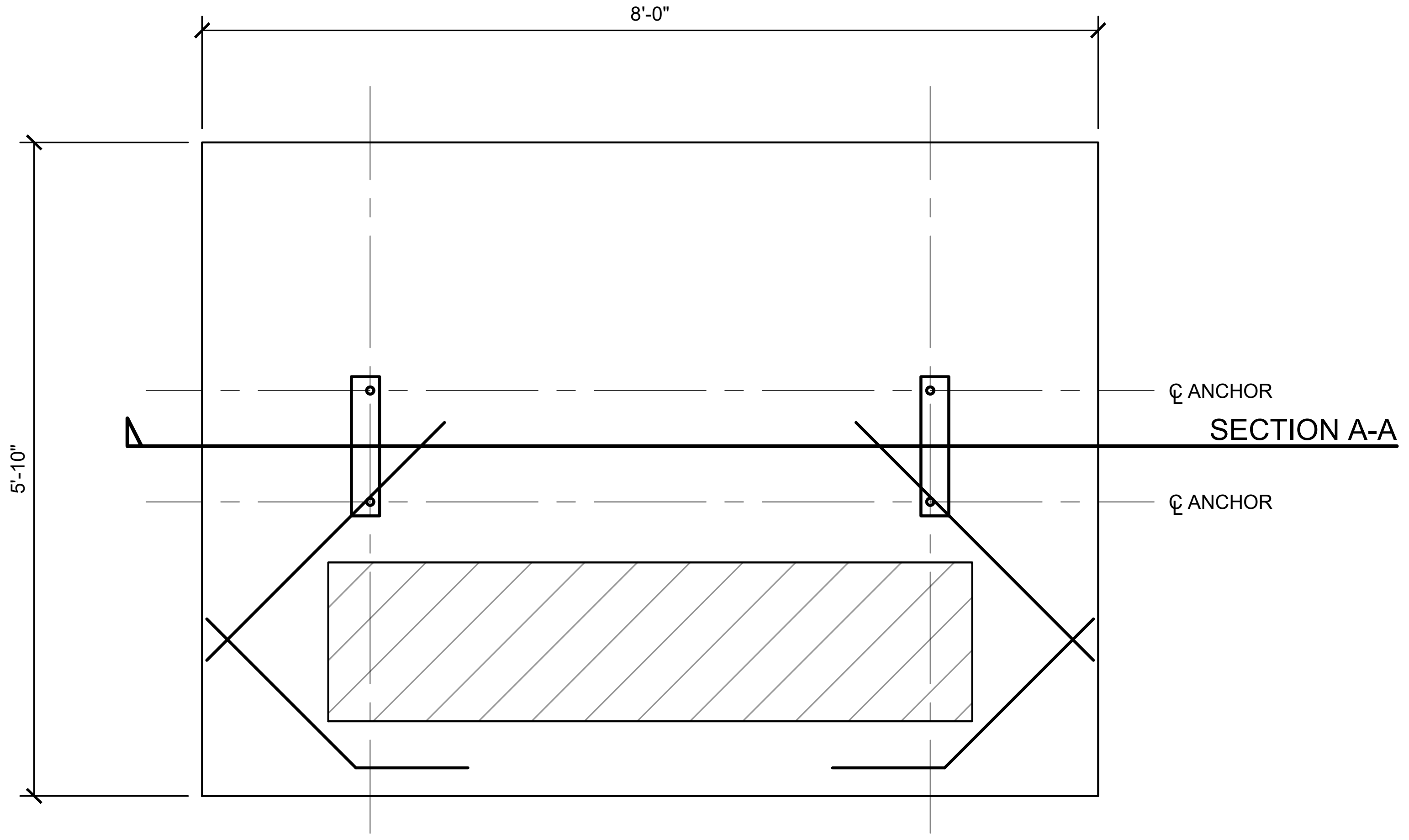
DRAWING NUMBER S-504
SCALE: 1"=1'
FILE:
SHEET 11 OF 24



ANCHOR/FOUNDATION PLAN - 1500kVA TRANSFORMER



SECTION A-A: ANCHOR/FOUNDATION PLAN - TRANSFORMER



ANCHOR/FOUNDATION PLAN - 1000kVA TRANSFORMER

TRANSFORMER FOUNDATION

SCALE: 3/4" = 1'-0"

400
S-505

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TJL	
DRAFTSPERSON	DFT	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT DETAILS

DRAWING NUMBER	S-505	
SCALE: 1"=1'	FILE:	SHEET 12 OF 24

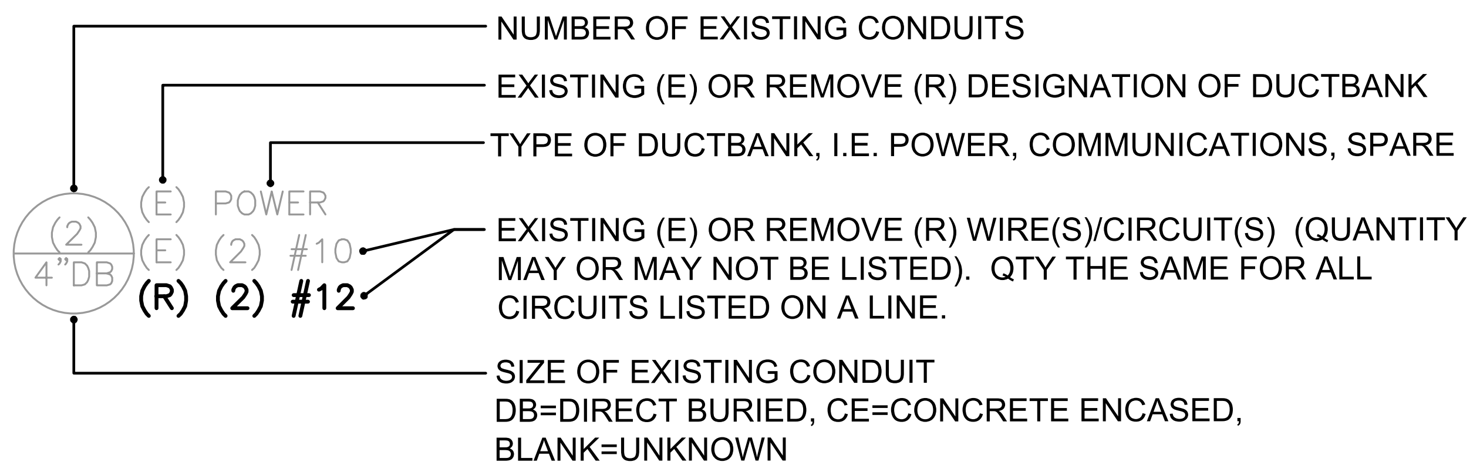
ELECTRICAL SYMBOL LIST

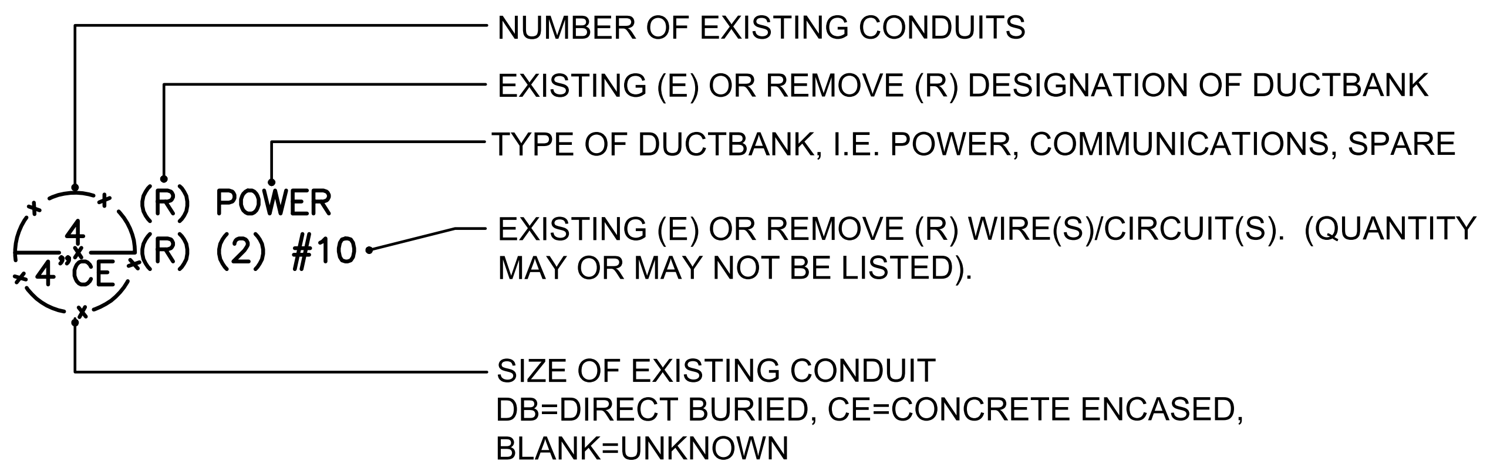
GENERAL SYMBOLS

⊠	ELECTRICAL VAULT/MANHOLE
▭	ELECTRICAL PULLBOX
⊘	POWER POLE
—— UGP —— UGP ——	EXISTING UNDERGROUND POWER
—— OH ——	EXISTING OVERHEAD POWER LINE
- - - - - - - - - - - -	NEW UNDERGROUND CONDUIT
- - - - - - - - - - - -	NEW UNDERGROUND DUCTBANK
◇1	SHEET NOTE
2 / E-301	DETAIL NUMBER DESIGNATION SHEET DETAIL APPEARS ON
2/E-301	DETAIL OR SECTION REFERENCES IN NOTES

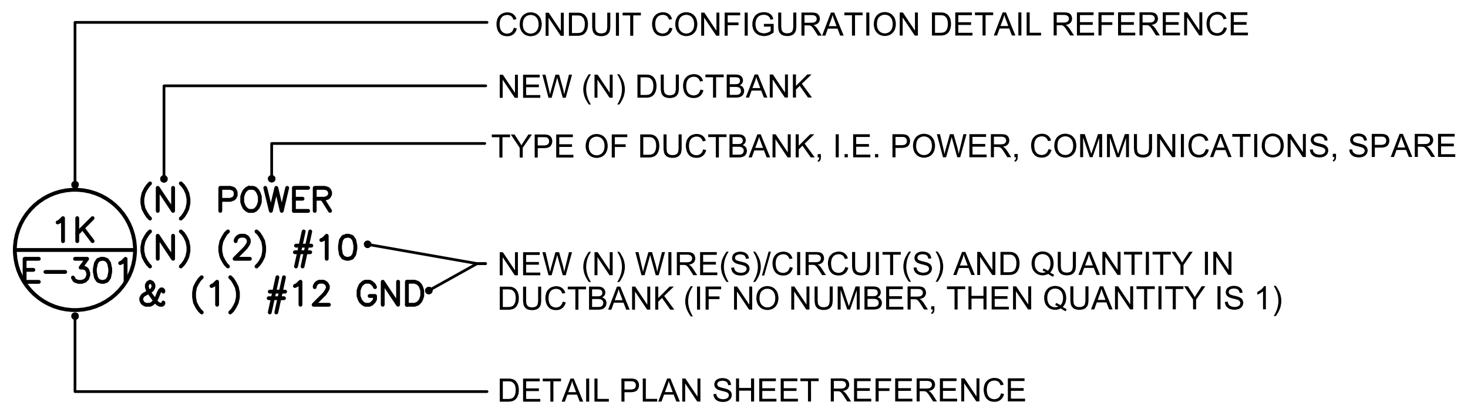
DUCTBANKS:

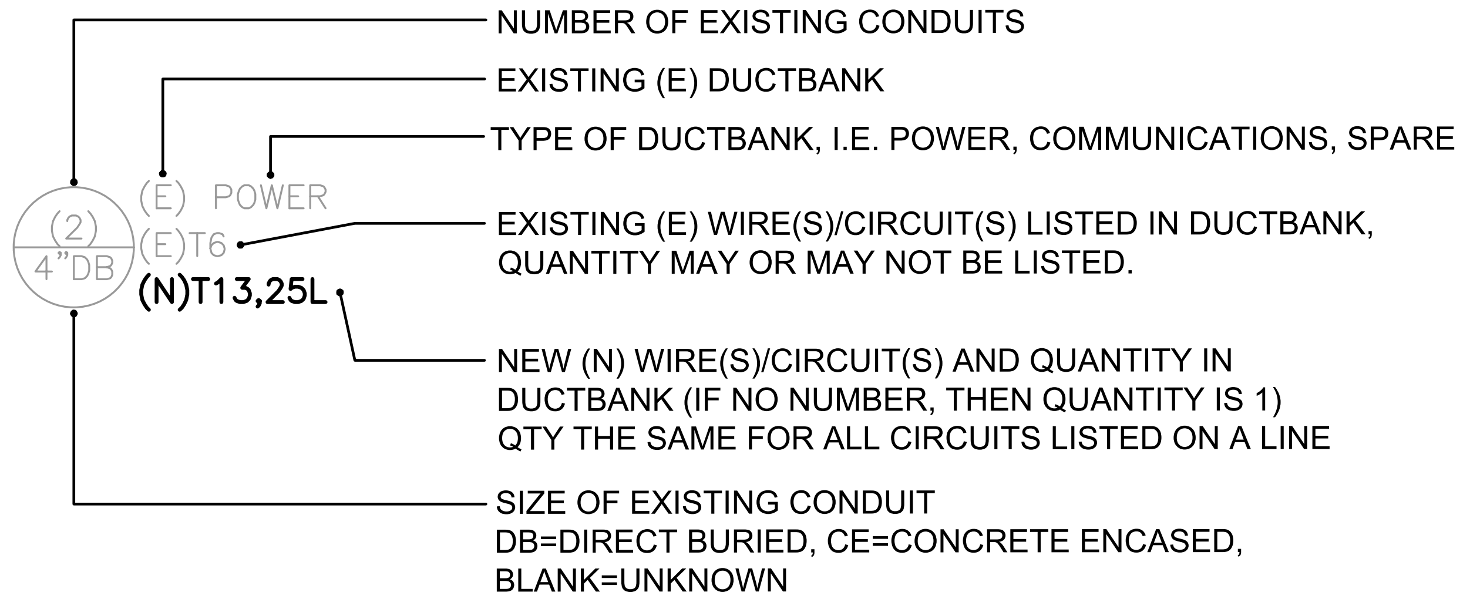
ON DEMOLITION PLANS:





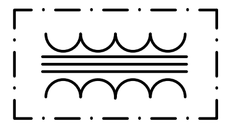
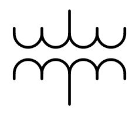
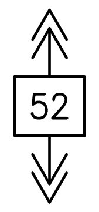
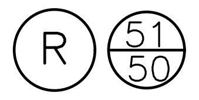
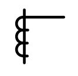
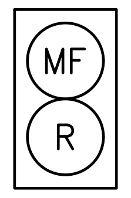
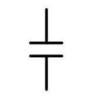
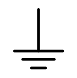
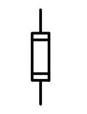
ON NEW PLANS:





ELECTRICAL SYMBOL LIST (CONT'D)

SCHEMATIC AND SINGLE LINE DIAGRAM SYMBOLS

	TRANSFORMER
	TRANSFORMER
Ⓖ	GENERATOR
 52	MEDIUM-VOLTAGE CIRCUIT BREAKER
 R 51/50	RELAY WITH ANSI DESIGNATIONS AS NOTED
	CURRENT TRANSFORMER
 MF R	MULTI-FUNCTION RELAY
	LIGHTNING ARRESTOR
	GROUNDING ELECTRODE
	FUSE, SIZE AND TYPE AS NOTED
CP	CONTROL POWER PANEL
—x—x—x—	DEMO/REMOVE
————	EXISTING
━━━━	NEW

ABBREVIATIONS

1PH	SINGLE-PHASE
1P	SINGLE POLE
3PH	THREE-PHASE
3W	THREE-WIRE
4W	FOUR-WIRE
A OR AMP	AMPERE
AMI	ADVANCED METERING INFRASTRUCTURE
BC	BARE COPPER
BLDG	BUILDING
BRKR	BREAKER
C	CONDUIT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CLSM	CONTROLLED LOW STRENGTH MATERIAL (FLOWABLE FILL)
CU	COPPER
DDC	DIRECT DIGITAL CONTROL
DEMO	DEMOLITION
DISC	DISCONNECT
DISTR PNL	DISTRIBUTION PANEL
DN	DOWN
DWG	DRAWING
(E)	EXISTING
EHH	ELECTRICAL HAND HOLE
EMER	EMERGENCY
ENCL	ENCLOSURE
FT	FEET OR FOOT
G OR GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HIGH POWER
HT	HEIGHT
J-BOX	JUNCTION BOX
KAIC	THOUSAND AMPS INTERRUPTING CAPACITY
KV	KILOVOLT
KVA	KILOVOLT AMPERE
kW	KILOWATT
LHH	LIGHTING HAND HOLE
LP	LOW POWER
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MSB	MAIN SWITCHBOARD
(N)	NEW
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N OR NEUT	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NS	NO SCALE
NTS	NOT TO SCALE
P	POLE
PH	PHASE
PNL	PANEL
PWR	POWER
(RR)	REMOVE AND RELOCATE
(R)	REMOVE
REQD	REQUIRED
SHT	SHEET
SPEC	SPECIFICATION
SURF	SURFACE
T	TRANSFORMER
TYP.	TYPICAL
U.G.	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UTIL	UTILITY
V	VOLT
VA	VOLT AMPERE
VOLT	VOLTAGE
W	WATT
WP	WEATHERPROOF
XFER	TRANSFER

ELECTRICAL GENERAL NOTES

1. FURNISH LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC. REQUIRED FOR A COMPLETE WORKING ELECTRICAL SYSTEM.
2. ELECTRICAL WORK SHALL COMPLY WITH APPLICABLE STATE, COUNTY AND LOCAL CODES AND ORDINANCES, AND COMPLIANCE WITH THE U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL (EM-385-1-1)(2014), AS WELL AS ALL CURRENT STANDARDS, CODES AND PRACTICES AS REQUIRED BY NATIONAL ELECTRICAL CODE (NEC)(2023), UNIFIED FACILITIES CRITERIA (UFC), NEMA, ANSI, NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES AND STANDARDS, INTERNATIONAL BUILDING CODE (IBC)(2018), UL, IEEE, INTERNATIONAL ENERGY CONSERVATION CODE (IECC)(2021), INTELLIGENCE COMMUNITY DIRECTIVE (ICD) 705 VERSION 1.5, OSHA REGULATIONS, AND U.S. NAVY STANDARDS.
3. EQUIPMENT, MATERIALS AND WORK SHOWN ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING OR NOTED OTHERWISE ON OTHER SHEETS.
4. PULL ROPES: PROVIDE 12 GA PULL WIRE OR PROVIDE NYLON EQUIVALENT IN INTERIOR EMPTY CONDUIT RUNS. PROVIDE 1/4" DIA NYLON PULL ROPE IN EACH EMPTY EXTERIOR CONDUIT OR DUCT.
5. APPEARANCE AND WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND STANDARDS.
6. CONDUIT/CONDUCTOR RUNS SHOWN ARE DIAGRAMMATICAL ONLY. THE BEST FINAL CONDUIT ROUTING SHALL BE AS DETERMINED BY THE ELECTRICAL CONTRACTOR AT TIME OF CONSTRUCTION AND ACCURATELY LOCATED ON THE ON-SITE RECORD DRAWINGS.
7. COMPLY WITH SPECIFICATIONS.

ELECTRICAL DEMOLITION GENERAL NOTES

1. THESE PLANS DO NOT PURPORT TO SHOW ALL EXISTING CONDITIONS. ANY OUTLETS, CIRCUITING AND/OR DEVICES THAT CONFLICT WITH WORK BEING PERFORMED DURING THE COURSE OF THIS PROJECT SHALL BE RELOCATED/REROUTED OR REMOVED ENTIRELY AS DICTATED BY OWNER.
2. EXISTING EQUIPMENT REMOVED DURING THE COURSE OF THIS PROJECT SHALL BE OFFERED TO OWNER FOR SALVAGE. EQUIPMENT SELECTED SHALL BE TURNED OVER TO OWNER ON PROJECT SITE. REMAINING EQUIPMENT BECOMES THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM PROJECT SITE.
3. DEMOLITION AND MODIFICATION OF EXISTING DISTRIBUTION SYSTEMS SHALL BE PERFORMED AS FOLLOWS:
    - A. EXISTING WIRING TO BE REMOVED SHALL BE REMOVED BACK TO ITS SOURCE. CONDUITS MAY BE ABANDONED IN PLACE IF THEY ARE IN CONCEALED LOCATION AND DO NOT CONFLICT WITH ANY NEW WORK. REMOVE EXISTING WIRING FROM ABANDONED RACEWAYS.
    - B. REMOVAL OF EXISTING ELECTRICAL DISTRIBUTION SYSTEM SHALL INCLUDE EQUIPMENT, ASSOCIATED WIRING, INCLUDING (BUT NOT LIMITED TO) CONDUCTORS, CABLES, EXPOSED CONDUIT, SURFACE RACEWAYS, BOXES, FITTINGS, ETC. (BACK TO EQUIPMENT SOURCE.)

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
ELECTRICAL SYMBOLS, NOTES & ABBREVIATIONS

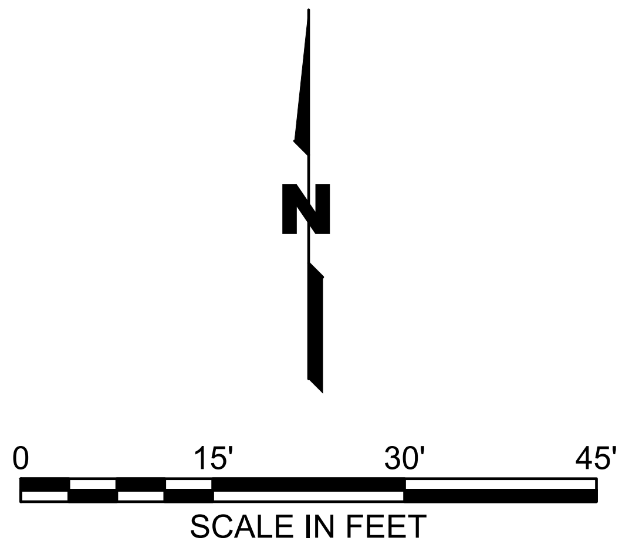
DRAWING NUMBER E-001
SCALE: NTS
FILE: LOCATION LOCATIONS
SHEET 13 OF 24

KEYED DEMO NOTES:

1. REMOVE EXISTING GENERATOR AND ALL ASSOCIATED COMPONENTS INCLUDING THE FUEL SYSTEM.
2. DISCONNECT EXISTING DOWNSTREAM FEEDS AND PREP FOR CONNECTION TO NEW SWITCHGEAR. REFER TO E-201 FOR MORE INFORMATION.
3. IN EXISTING SWITCHGEAR CABINET, REMOVE ALL CIRCUIT BREAKERS AND APPURTENANCES. CABINET IS TO REMAIN TO BE USED AS SPLICE BOX. REFER TO E-201 FOR MORE INFORMATION.
4. REMOVE EXISTING FEEDER BACK TO SOURCE. REFER TO E-201 FOR NEW FEEDER.

GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-301 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.



REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
BUILDING 13
DEMO SITE PLAN

DRAWING NUMBER E-101
SCALE: 1"=15'
FILE: LOCATION LOCATIONS
SHEET 14 OF 24

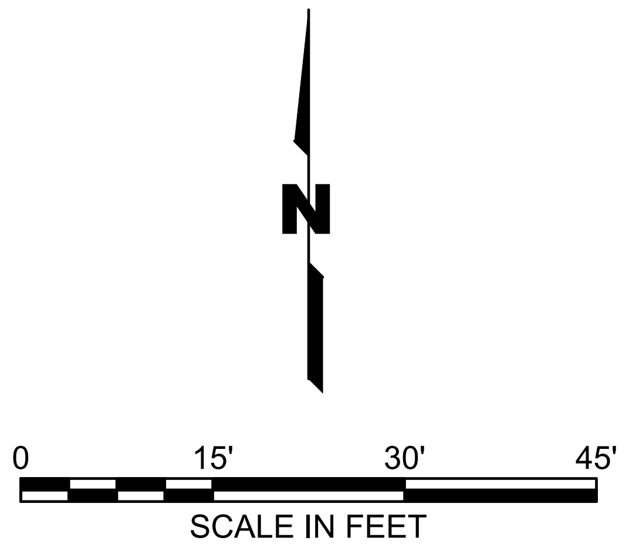
KEYED DEMO NOTES:

1. DISCONNECT EXISTING TRANSFORMER FEEDS AND PREP FOR CONNECTION TO NEW SWITCHGEAR. REFER TO E-202 FOR MORE INFORMATION.

2. IN EXISTING SWITCHGEAR CABINET, REMOVE ALL CIRCUIT BREAKERS AND APPURTENANCES. CABINET IS TO REMAIN TO BE USED AS SPLICE BOX. REFER TO E-202 FOR MORE INFORMATION.

GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-303 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.



REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DEMIL SUBSTATION
DEMO SITE PLAN

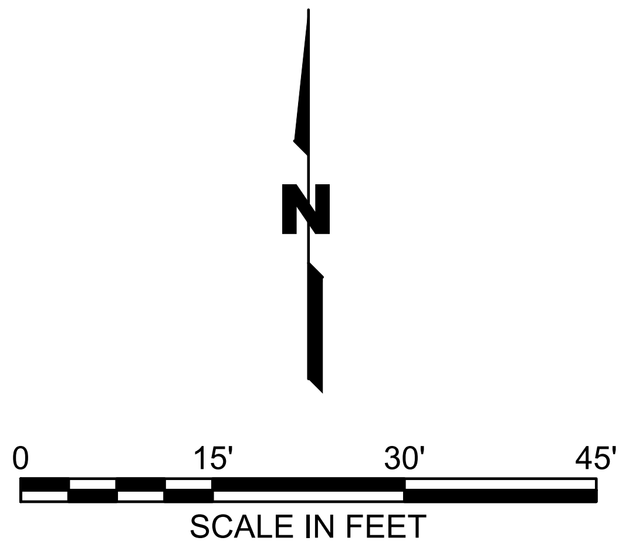
DRAWING NUMBER E-102
SCALE: 1"=15'
FILE: LOCATION LOCATIONS
SHEET 15 OF 24

KEYED NEW NOTES:

1. PROPOSED LOCATION OF NEW SWITCHGEAR.
2. PROPOSED LOCATION OF NEW TRANSFORMER.
3. PROPOSED LOCATION OF NEW GENERATOR.
4. PROPOSED CONDUIT ROUTING FOR NEW EQUIPMENT.

GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-302 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.



REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
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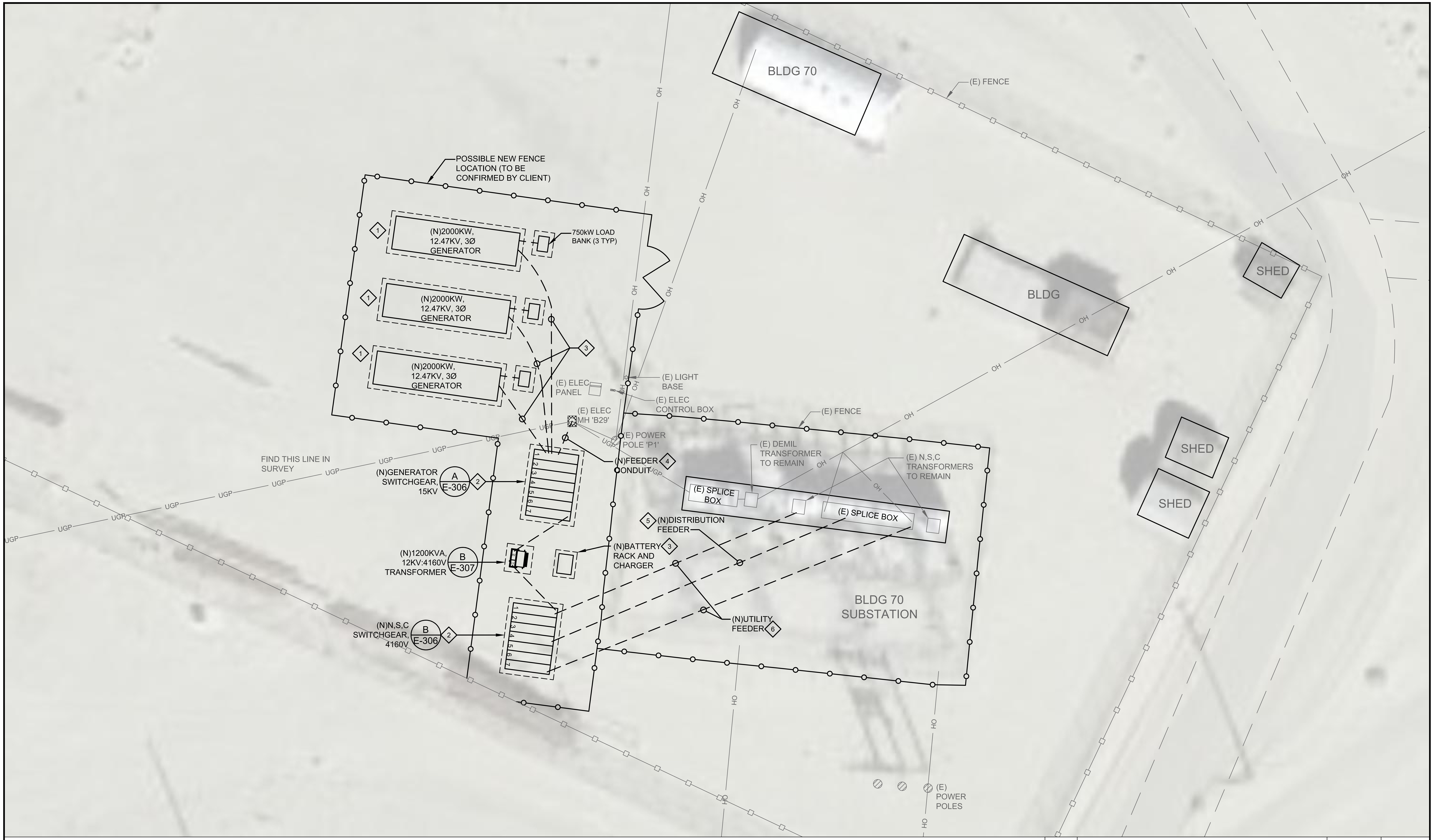
HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
BUILDING 13
NEW SITE PLAN

DRAWING NUMBER E-201
SCALE: 1"=15'
FILE: LOCATION LOCATIONS
SHEET 16 OF 24



KEYED NEW NOTES:

1. PROPOSED LOCATION OF NEW 2000KW GENERATOR.
2. PROPOSED LOCATIONS OF NEW SWITCHGEARS AND ASSOCIATED BATTERY RACK AND CHARGER.
3. PROPOSED CONDUIT ROUTING FROM NEW SWITCHGEAR TO NEW GENERATORS.
4. PROPOSED CONDUIT ROUTING TO REFEED EXISTING U.G. VAULT.
5. PROPOSED DOWNSTREAM CONDUITS TO REFEED EXISTING LOAD.
6. PROPOSED PRIMARY CONDUITS TO RECONNECT EXISTING UTILITY TRANSFORMERS.

GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-304 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.

N

0 15' 30' 45'
SCALE IN FEET

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
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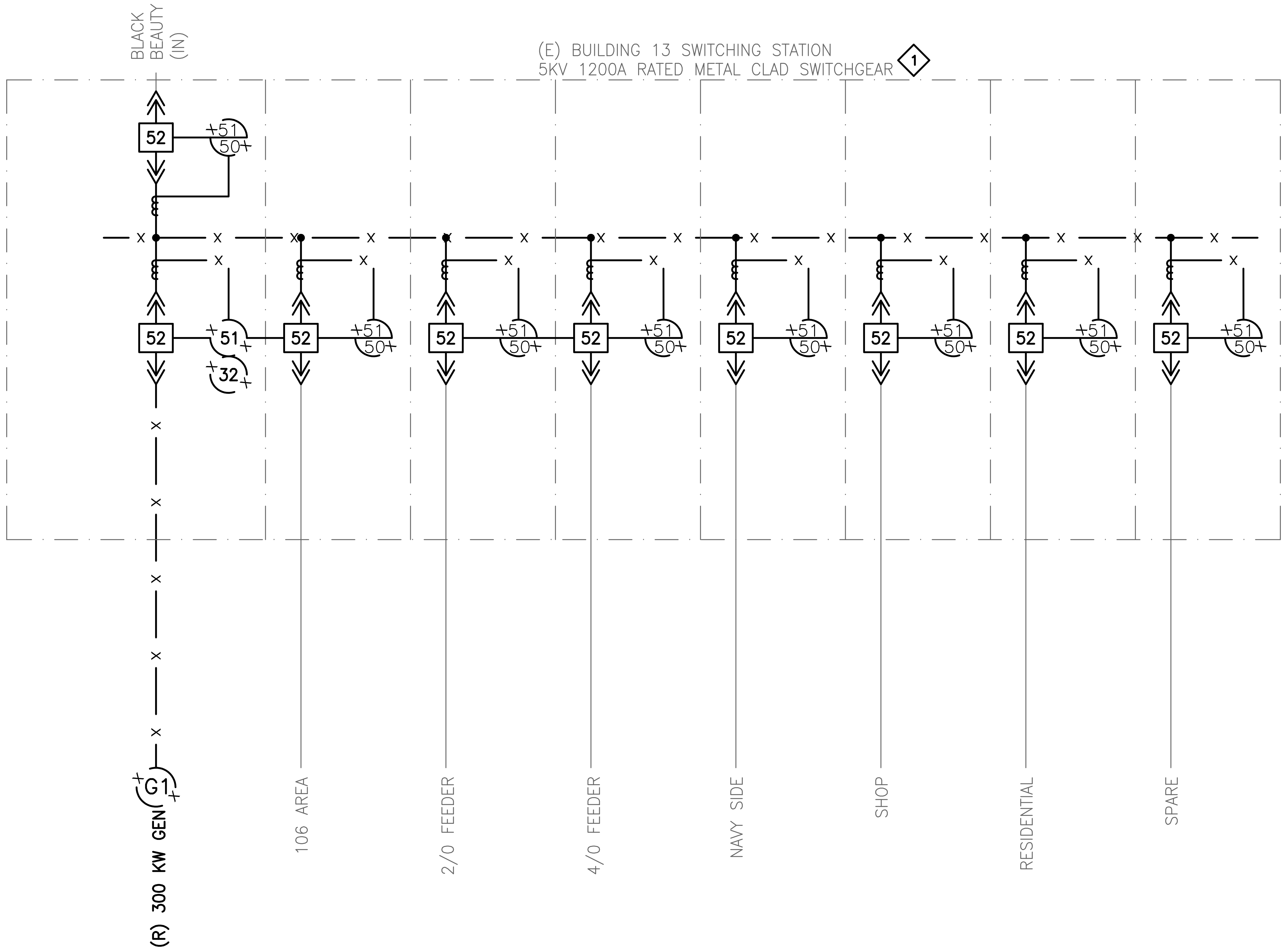
HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DEMIL SUBSTATION
NEW SITE PLAN

DRAWING NUMBER E-202
SCALE: 1"=15'
FILE: LOCATION LOCATIONS
SHEET 17 OF 24



A
E-301

BUILDING 13
SINGLE-LINE DIAGRAM - DEMO

SCALE: NTS

CONSTRUCTION SEQUENCE:

1. INSTALL AND TEST ALL NEW EQUIPMENT (NEW SWITCHBOARDS, TRANSFORMERS, GENERATORS).
2. PULL IN FEEDERS BETWEEN BUILDING AND NEW SWITCHBOARDS.
3. ONE CIRCUIT AT A TIME, DEENERGIZE AND REMOVE BREAKERS, SPLICE LOAD CONDUCTORS TO THE NEW SWITCHBOARD, THEN REENERGIZE LOADS ONE AT A TIME TO MINIMIZE OUTAGES.
4. IN SWITCHBOARD CABINETS, REMOVE ANY CONTROL IMPLEMENTS AND OTHER UNNECESSARY HARDWARE AND DISPOSE OF IT.

ABBREVIATIONS:

(E)	EXISTING TO REMAIN
(F)	FUTURE
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
O.H.	OVERHEAD
(R)	EXISTING TO BE REMOVED
TBD	TO BE DETERMINED
U.G.	UNDERGROUND

KEYED NOTES:

◇1 SEE CONSTRUCTION SEQUENCE NOTES 3 AND 4 FOR REMOVAL OF HARDWARE INSIDE SWITCHGEAR CABINET.

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
BUILDING 13 DEMO
SINGLE-LINE DIAGRAM

DRAWING NUMBER E-301
SCALE: 1"=1' FILE: LOCATION LOCATIONS SHEET 18 OF 24

CONSTRUCTION SEQUENCE:

1. INSTALL AND TEST ALL NEW EQUIPMENT (NEW SWITCHBOARDS, TRANSFORMERS, GENERATORS).
2. PULL IN FEEDERS BETWEEN BUILDING AND NEW SWITCHBOARDS.
3. ONE CIRCUIT AT A TIME, DEENERGIZE AND REMOVE BREAKERS, SPLICE LOAD CONDUCTORS TO THE NEW SWITCHBOARD, THEN REENERGIZE LOADS ONE AT A TIME TO MINIMIZE OUTAGES.
4. IN SWITCHBOARD CABINETS, REMOVE ANY CONTROL IMPLEMENTS AND OTHER UNNECESSARY HARDWARE AND DISPOSE OF IT.

ABBREVIATIONS:

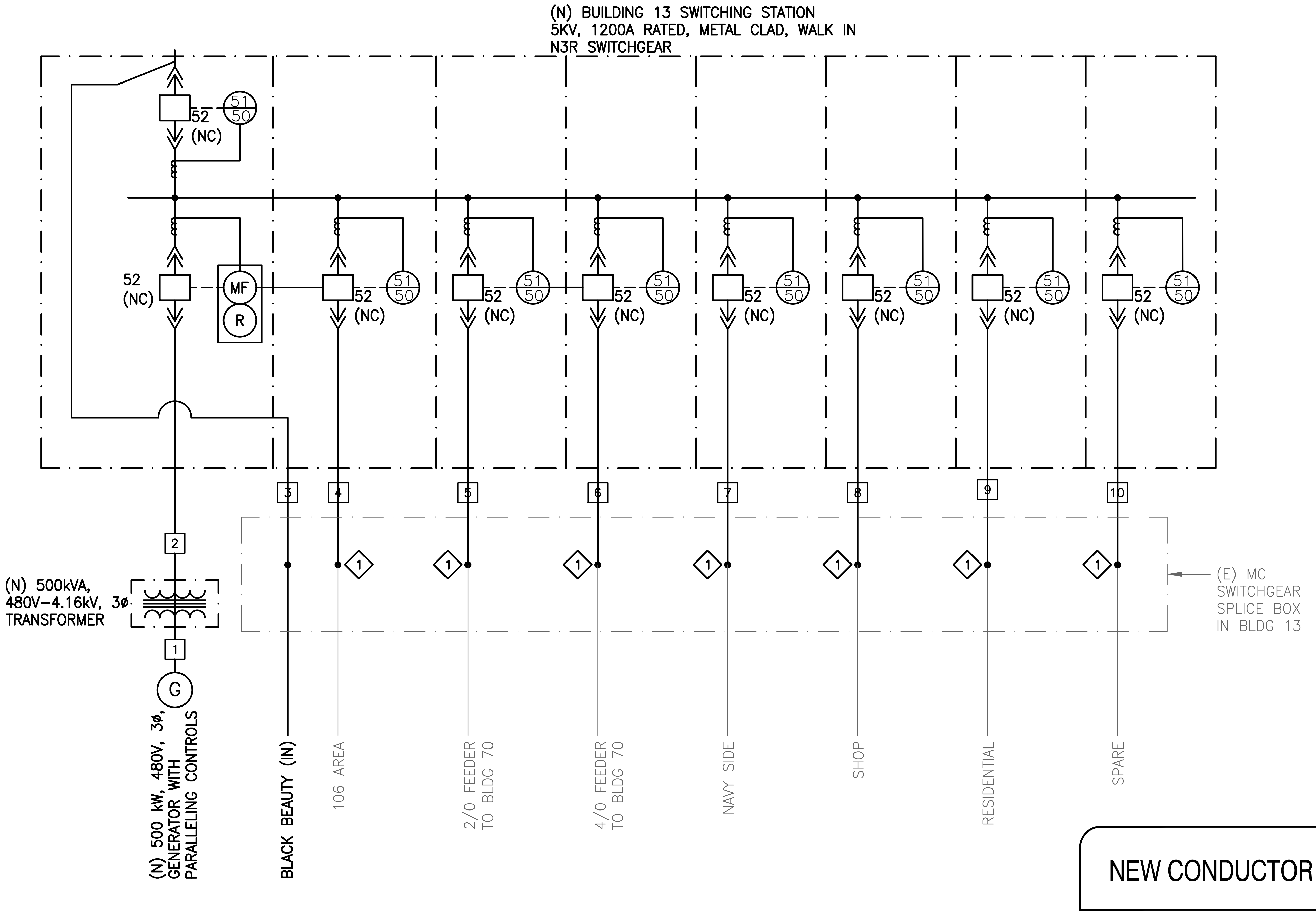
(E)	EXISTING TO REMAIN
(F)	FUTURE
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
O.H.	OVERHEAD
(R)	EXISTING TO BE REMOVED
TBD	TO BE DETERMINED
U.G.	UNDERGROUND

SEQUENCE OF OPERATIONS:

1. GENERATOR CONTROLLER SHALL MONITOR NORMAL SOURCE VOLTAGE AT THE BUILDING 13 SWITCHGEAR. UPON NORMAL SOURCE FAILURE THE CONTROLLER SHALL START THE GENERATOR. THE GENERATOR START SIGNAL SHALL BE ADJUSTABLE 0–10 MINUTES.
2. UPON NORMAL SOURCE FAILURE AND VERIFICATION THAT THE GENERATOR HAS STARTED, THE CONTROLLER SHALL SEND A SIGNAL TO OPEN THE NORMAL SOURCE CIRCUIT BREAKER.
3. AFTER GENERATOR IS UP TO SPEED, THE CONTROLLER SHALL CLOSE THE GENERATOR CIRCUIT BREAKER.
4. THE GENERATOR WILL ASSUME LOAD AND CONTROLLER SHALL MONITOR GENERATOR PERFORMANCE AND SOUND ANY ALARMS THAT MAY BE DETECTED.
5. GENERATOR ALARMS SHALL MEET NFPA 110 AS A MINIMUM AND REPORT VIA THE CONTROLLER AT THE GENERATOR CONTROL CUBICAL AND AT A REMOTE MONITOR.
6. IF ALARMS ARE DETECTED, THE GENERATOR BREAKER IN THE SCE SWITCHGEAR SHALL OPEN AND THE GENERATOR STOP SIGNAL SHALL BE ACTIVATED WITH NO COOL DOWN SEQUENCE.
7. IF NO ALARMS ARE DETECTED, GENERATOR SHALL CARRY LOAD UNTIL COMMANDED TO STOP.
8. ONCE THE GENERATOR CONTROLLER DETECTS RETURN OF NORMAL SOURCE POWER, THE CONTROLLER SHALL SYNCRONIZE THE GENERATOR TO THE NORMAL SOURCE AND CLOSE THE MAIN BREAKER, PARALLELLING THE GENERATOR AND THE NORMAL SOURCE.
9. ONCE PARALLELED, A SIGNAL SHALL BE SENT TO OPEN THE GENERATOR BREAKER, AND STOP THE GENERATOR. THERE SHALL BE TWO TIMERS FOR THIS ACTION. THE FIRST WILL MONITOR THE UTILITY VOLTAGE FOR A PERIOD OF 0 –5 MINUTES ADJUSTABLE, TO ALLOW UTILITY TO STABILIZE PRIOR TO TRANSFERRING POWER AND STOPPING GENERATOR. THE SECOND TIMER WILL RUN THE GENERATOR FOR A "COOL DOWN" PERIOD, 0–10 MINUTES ADJUSTABLE. PRIOR TO SHUTTING THE GENERATOR OFF.

KEYED NOTES:

◇1 SPLICE (E) LOAD CONDUCTORS TO (N) LOAD CONDUCTORS FROM (N) SWITCHGEAR IN (E) SWITCHGEAR SPLICE BOX (SEE E-201).



A
E-302

BUILDING 13
SINGLE-LINE DIAGRAM - NEW

SCALE: NTS

NEW CONDUCTOR SCHEDULE

SYM	DESCRIPTION
1	3 SETS (4)#4/0 IN 3" PVC
2	5KV CABLE, (1)#1/0 3" PVC
3	5KV CABLE, (3)#4/0 IN 4" PVC TO BE CONFIRMED
4	5KV CABLE, (4)#4 IN 2" PVC
5	5KV CABLE, (3)#2/0 IN 4" PVC
6	5KV CABLE, (3)#4/0 IN 4" PVC
7	5KV CABLE, (3)#4/0 IN 4" PVC
8	5KV CABLE, (3)#2/0 IN 4" PVC
9	5KV CABLE, (3)#2/0 IN 4" PVC
10	5KV CABLE, (3)#1/0 IN 4" PVC

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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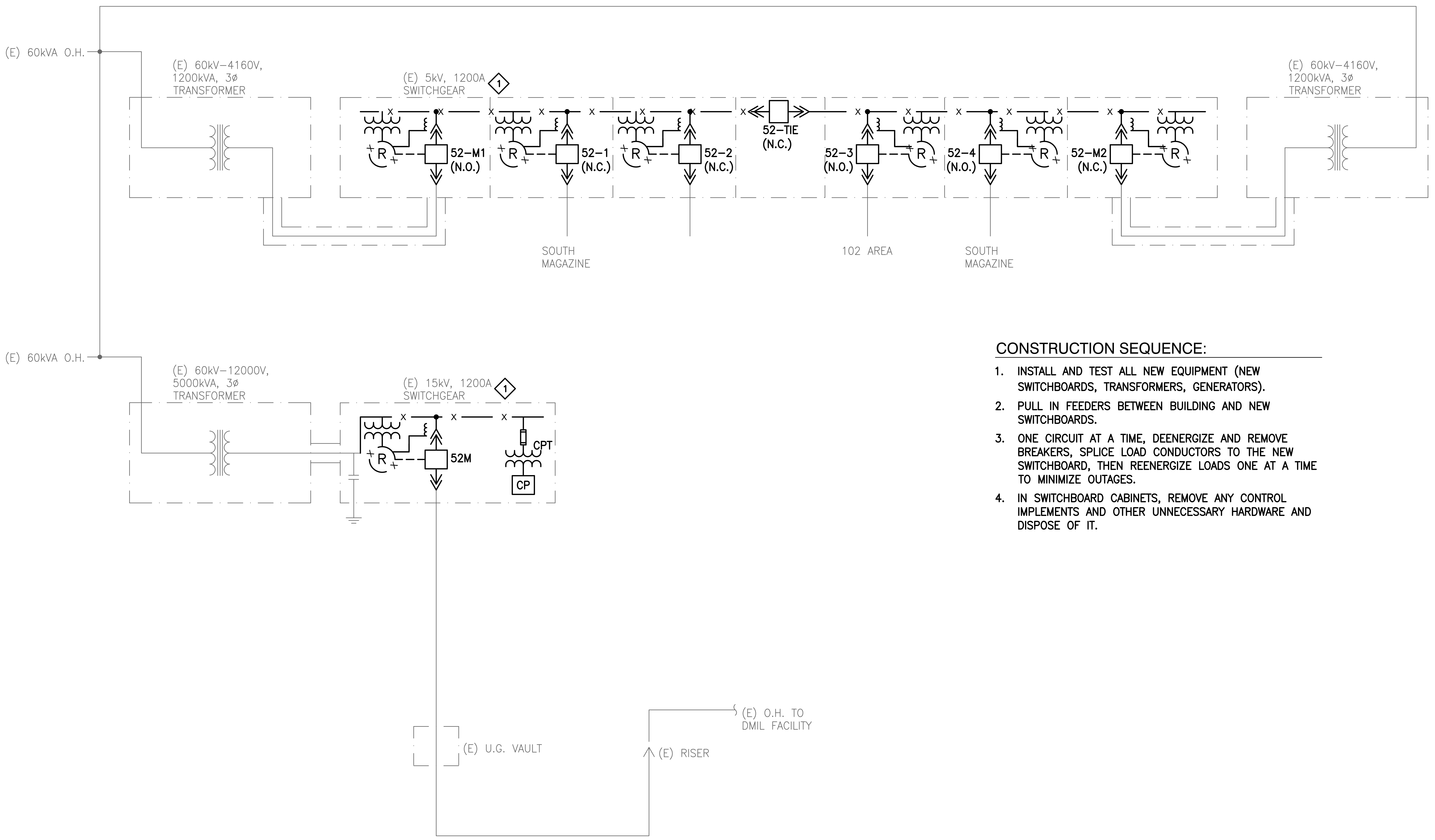
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
BUILDING 13 NEW
SINGLE-LINE DIAGRAM

DRAWING NUMBER E-302
SCALE: 1"=1'
FILE: LOCATION LOCATIONS
SHEET 19 OF 24



A
E-303

DMIL SUBSTATION
SINGLE-LINE DIAGRAM - DEMO

SCALE: NTS

CONSTRUCTION SEQUENCE:

1. INSTALL AND TEST ALL NEW EQUIPMENT (NEW SWITCHBOARDS, TRANSFORMERS, GENERATORS).
2. PULL IN FEEDERS BETWEEN BUILDING AND NEW SWITCHBOARDS.
3. ONE CIRCUIT AT A TIME, DEENERGIZE AND REMOVE BREAKERS, SPLICE LOAD CONDUCTORS TO THE NEW SWITCHBOARD, THEN REENERGIZE LOADS ONE AT A TIME TO MINIMIZE OUTAGES.
4. IN SWITCHBOARD CABINETS, REMOVE ANY CONTROL IMPLEMENTS AND OTHER UNNECESSARY HARDWARE AND DISPOSE OF IT.

ABBREVIATIONS:

(E)	EXISTING TO REMAIN
(F)	FUTURE
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
O.H.	OVERHEAD
(R)	EXISTING TO BE REMOVED
TBD	TO BE DETERMINED
U.G.	UNDERGROUND

KEYED NOTES:

1 SEE CONSTRUCTION SEQUENCE NOTES 3 AND 4 FOR REMOVAL OF HARDWARE INSIDE SWITCHGEAR CABINET.

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
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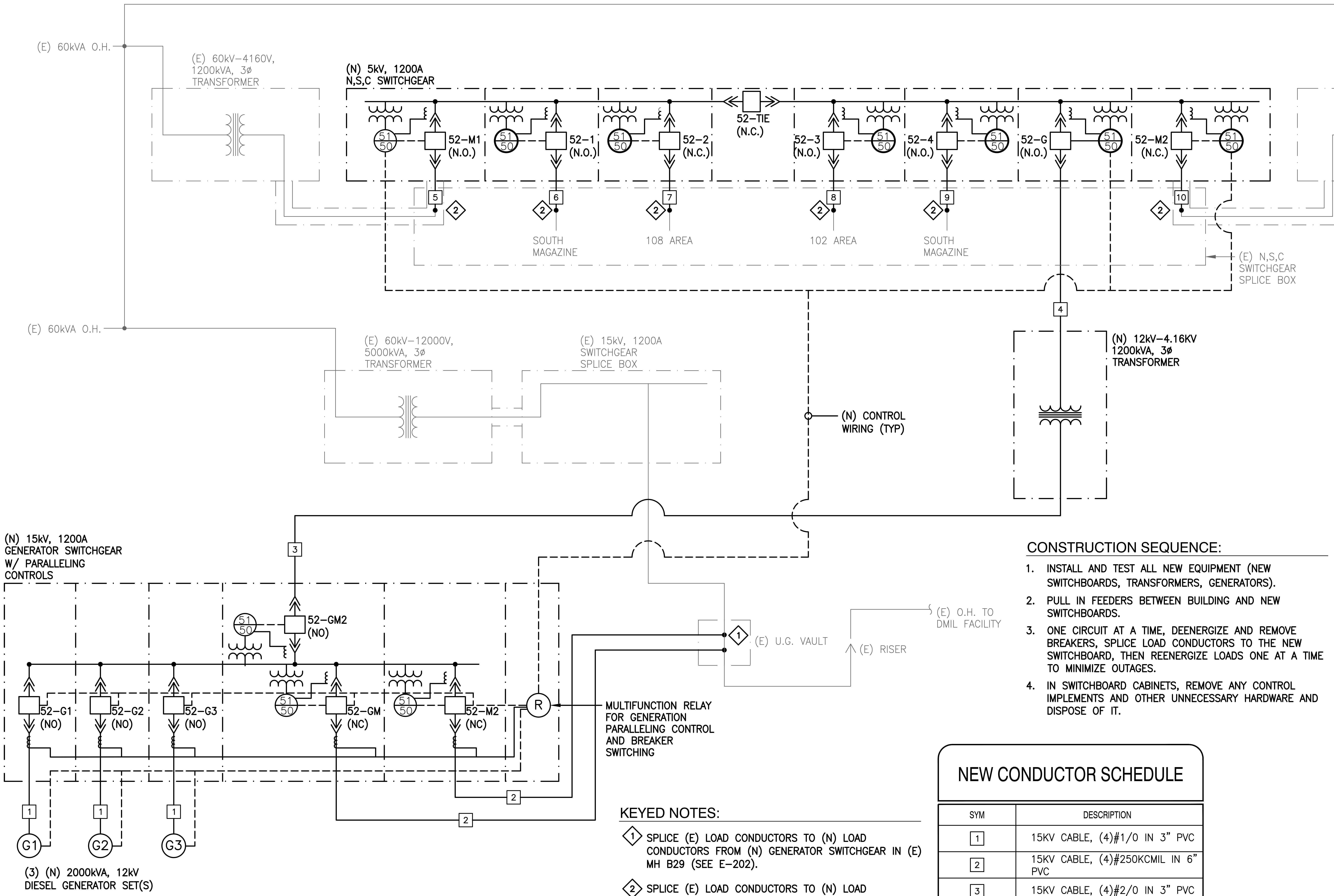
HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DMIL SUBSTATION DEMO
SINGLE-LINE DIAGRAM

DRAWING NUMBER E-303
SCALE: 1"=1'
FILE: LOCATION LOCATIONS
SHEET 20 OF 24



CONSTRUCTION SEQUENCE:

1. INSTALL AND TEST ALL NEW EQUIPMENT (NEW SWITCHBOARDS, TRANSFORMERS, GENERATORS).
2. PULL IN FEEDERS BETWEEN BUILDING AND NEW SWITCHBOARDS.
3. ONE CIRCUIT AT A TIME, DEENERGIZE AND REMOVE BREAKERS, SPLICE LOAD CONDUCTORS TO THE NEW SWITCHBOARD, THEN REENERGIZE LOADS ONE AT A TIME TO MINIMIZE OUTAGES.
4. IN SWITCHBOARD CABINETS, REMOVE ANY CONTROL IMPLEMENTS AND OTHER UNNECESSARY HARDWARE AND DISPOSE OF IT.

DMIL SUBSTATION SINGLE-LINE DIAGRAM - NEW

A
E-304

SCALE: NTS

KEYED NOTES:

1. SPLICE (E) LOAD CONDUCTORS TO (N) LOAD CONDUCTORS FROM (N) GENERATOR SWITCHGEAR IN (E) MH B29 (SEE E-202).
2. SPLICE (E) LOAD CONDUCTORS TO (N) LOAD CONDUCTORS FROM (N) N,S,C SWITCHGEAR IN (E) SWITCHGEAR SPLICE BOX (SEE E-202).

ABBREVIATIONS:

(E)	EXISTING TO REMAIN
(F)	FUTURE
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
O.H.	OVERHEAD
(R)	EXISTING TO BE REMOVED
TBD	TO BE DETERMINED
U.G.	UNDERGROUND

NEW CONDUCTOR SCHEDULE

SYM	DESCRIPTION
1	15KV CABLE, (4)#1/0 IN 3" PVC
2	15KV CABLE, (4)#250KCMIL IN 6" PVC
3	15KV CABLE, (4)#2/0 IN 3" PVC
4	5KV CABLE, (4)#4/0 IN 4" PVC
5	5KV CABLE, (4)#4/0 IN 4" PVC
6	5KV CABLE, (3)#4/0 IN 4" PVC, SOUTH MAGAZINE (NOT IN SERVICE)
7	5KV CABLE, (3)#4/0 IN 4" PVC
8	5KV CABLE, (3)#2/0 IN 3" PVC
9	5KV CABLE, (3)#4/0 IN 4" PVC
10	5KV CABLE, (4)#4/0 IN 4" PVC

SEQUENCE OF OPERATIONS:

1. GENERATOR CONTROLLER SHALL MONITOR FOR VOLTAGE AT THE DEMIL SWITCHGEAR AND AT THE SWITCHGEAR FEEDING THE NORTH SOUTH AND CENTRAL MAGAZINE AREAS. LOSS OF POWER AT EITHER SWITCHGEAR MAY CALL FOR GENERATOR START. UPON INITIATION THE CONTROLLER SHALL START THE GENERATORS. THE GENERATOR START SIGNAL SHALL BE ADJUSTABLE 0–10 MINUTES.
   A. LOSS OF POWER AT THE NORTH, SOUTH, CENTRAL SWITCHGEAR WILL RESULT IN A SWITCH TO THE ALTERNATE TRANSFORMER.

      IF POWER AT THE ALTERNATE TRANSFORMER IS AVAILABLE 52–M2 WILL OPEN AND 52–M3 WILL CLOSE RESULTING IN RESTORED SERVICE TO LOADS. IF POWER AT THE ALTERNATE TRANSFORMER IS UNAVAILABLE, A GENERATOR START WILL BE INTITIATED. INITIALLY ALL THREE GENERATOR SETS WILL START AND SYNCHRONIZE.

      UPON VERIFICATION THAT THE GENERATORS ARE RUNNING AND SYNCHRONIZED, 52–M1, 52–M2 AND 52–M3 WILL OPEN. 52–G1, 52–G2 AND 52–G3 WILL CLOSE TO THE BUS AND THEN 52–GM1 AND 52–GM2 WILL CLOSE RESULTING IN RESTORATION OF SERVICE TO THE LOADS.

      ONCE SERVICE IS RESTORED AND STABLE THE GENERATOR CONTROLLER WILL EVALUATE THE AMOUNT OF LOAD AND DROP GENERATOR SETS OFF THE BUS SO AS TO ACCOMMODATE THE LOAD EFFICIENTLY.
   B. LOSS OF POWER AT THE DEMIL SWITCHGEAR WILL INITIATE A GENERATE START AS DESCRIBED ABOVE; HOWEVER, IF NORMAL POWER IS AVAILABLE AT THE NORTH, SOUTH, CENTRAL MAGAZINE SWITCHGEAR, BREAKER 52–GM2 WILL REMAIN OPEN AND 52–M2 OR 52–M3 WILL REMAIN CLOSED, ALLOWING SERVICE TO THE NORTH, SOUTH, AND CENTRAL MAGAZINE AREAS FROM THE NORMAL OR ALTERNATE NORMAL SOURCE.
2. ONCE THE GENERATOR CONTROLLER DETECTS RETURN OF NORMAL POWER AT THE DEMIL AND NORTH SOUTH CENTRAL MAGAZINE SWITCHGEAR, THE CONTROLLER SHALL SYNCRONIZE THE GENERATORS TO THE NORMAL SOURCE. ONCE SYNCRONIZED THECONTROLLER SHALL CLOSE 52–M1 AND 52–M2 OR M3, AND THEN OPEN 52–GM1 AND 52–GM2, 52–G1, G2 AND G3.

   ONCE THE NORMAL SOURCE HAS VERIFIED THE CONTROLLER SHALL INITIATE SHUTDOWN OF GENERATORS. THERE SHALL BE TWO TIMERS FOR THIS ACTION. THE FIRST WILL MONITOR THE UTILITY VOLTAGE FOR A PERIOD OF 0 –5 MINUTES ADJUSTABLE, TO ALLOW NORMAL SOURCE TO STABILIZE PRIOR TO TRANSFERRING POWER AND STOPPING GENERATOR. THE SECOND TIMER WILL RUN THE GENERATOR FOR A "COOL DOWN" PERIOD, 0–10 MINUTES ADJUSTABLE. PRIOR TO SHUTTING THE GENERATOR OFF.

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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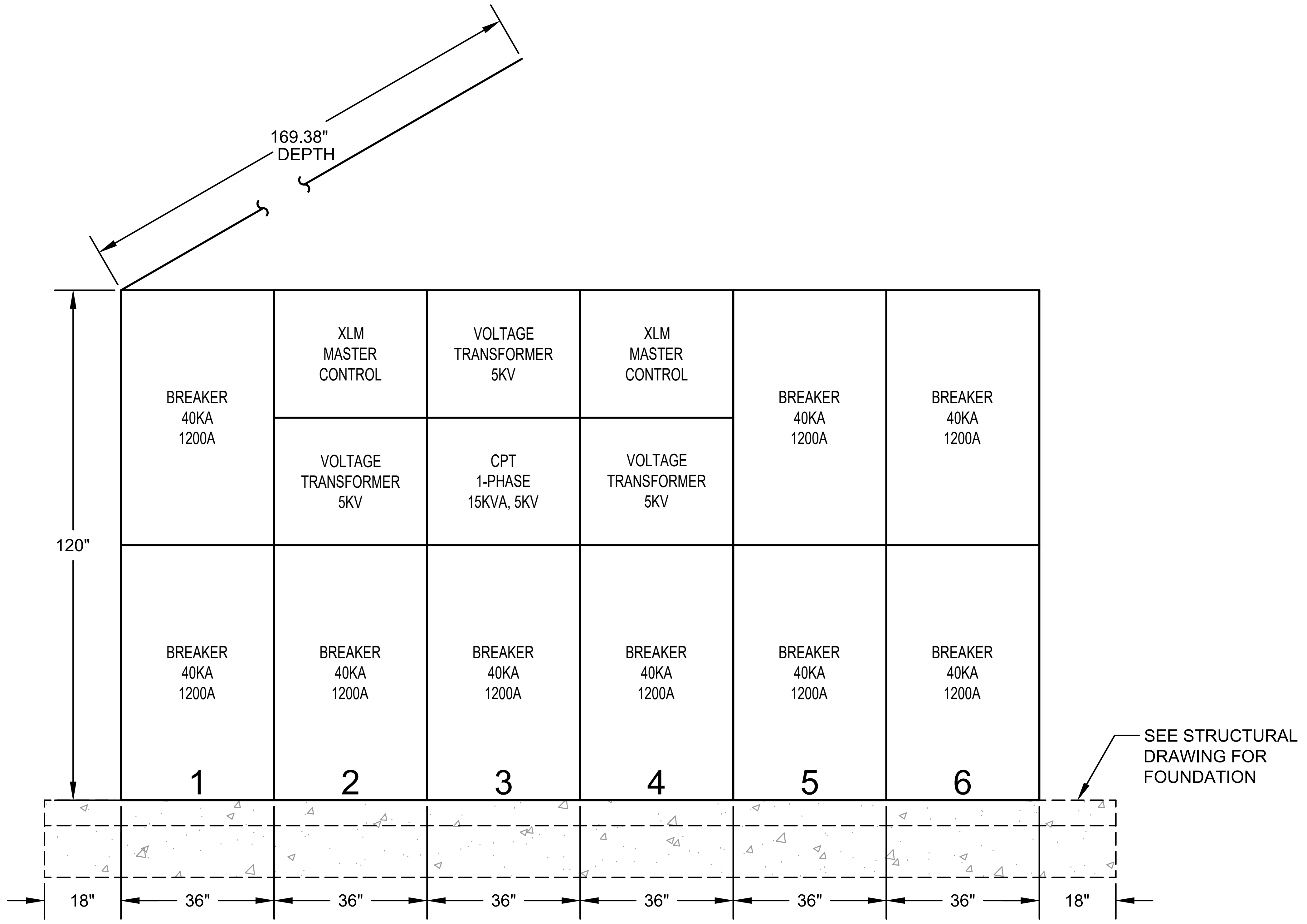
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DMIL SUBSTATION NEW
SINGLE-LINE DIAGRAM

DRAWING NUMBER E-304
SCALE: 1"=1'
FILE: LOCATION LOCATIONS
SHEET 21 OF 24



ELEVATION

A
E-305

BUILDING 13 -
NEW 4160KV GENERATOR SWITCHGEAR

SCALE: NTS

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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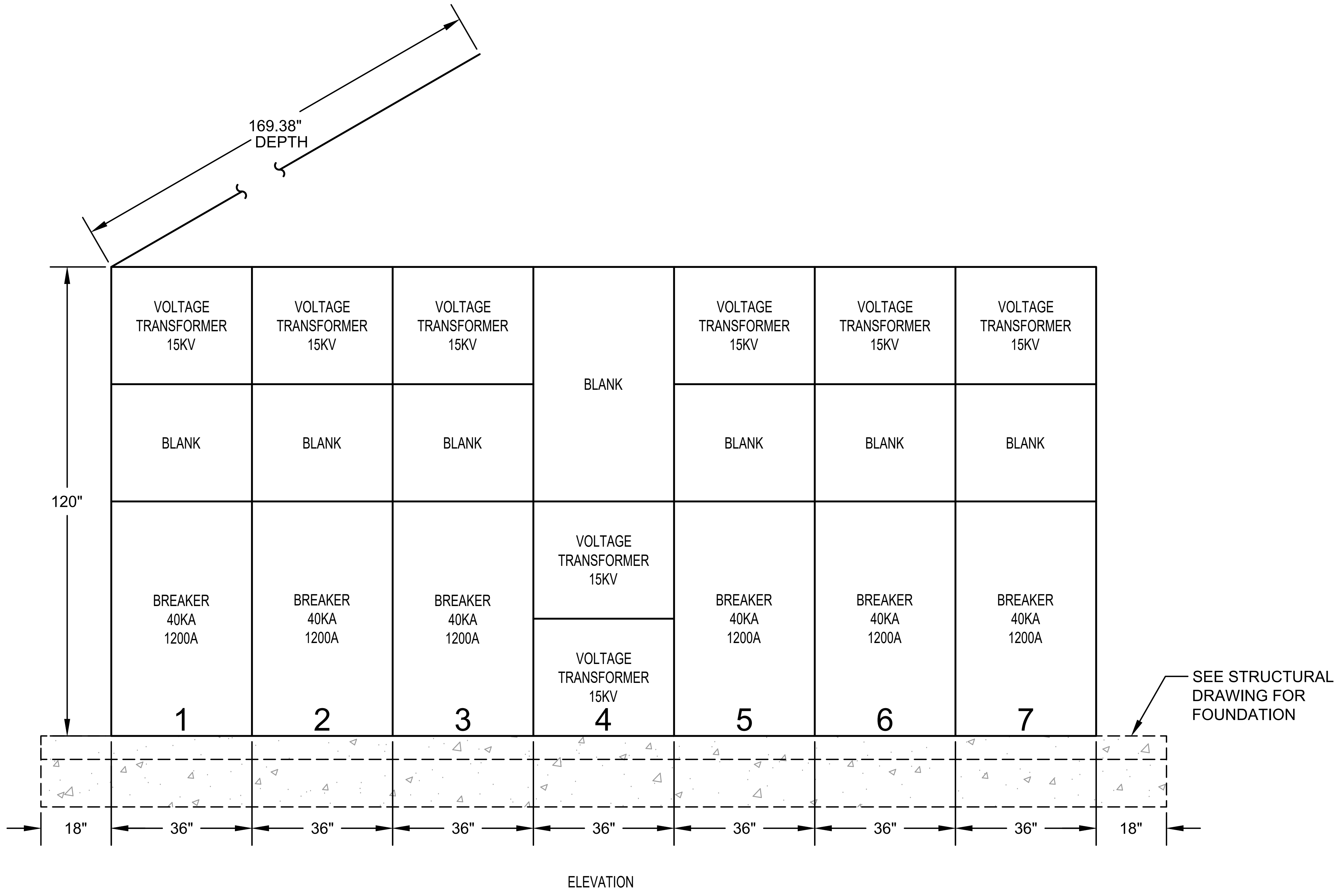
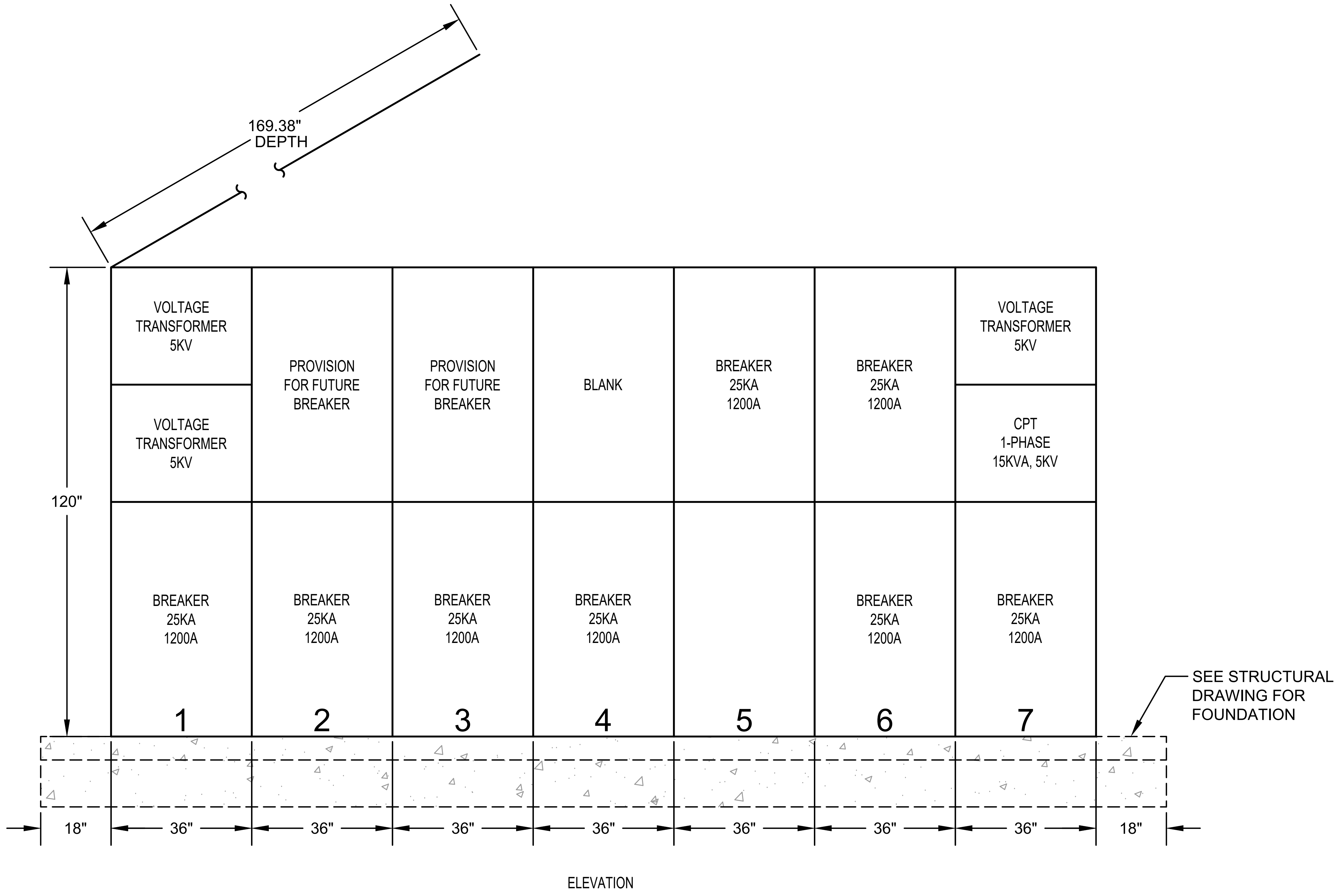
CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DMIL SUBSTATION NEW
SINGLE-LINE DIAGRAM

DRAWING NUMBER E-305
SCALE: 1"=1'
FILE: LOCATION LOCATIONS
SHEET 22 OF 24





A
E-306

DMIL SUBSTATION -
NEW 15KV GENERATOR SWITCHGEAR

SCALE: NTS

B
E-306

DMIL SUBSTATION - NEW NORTH, SOUTH,
CENTRAL (N,S,C) 4160V SWITCHGEAR

SCALE: NTS

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS

MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
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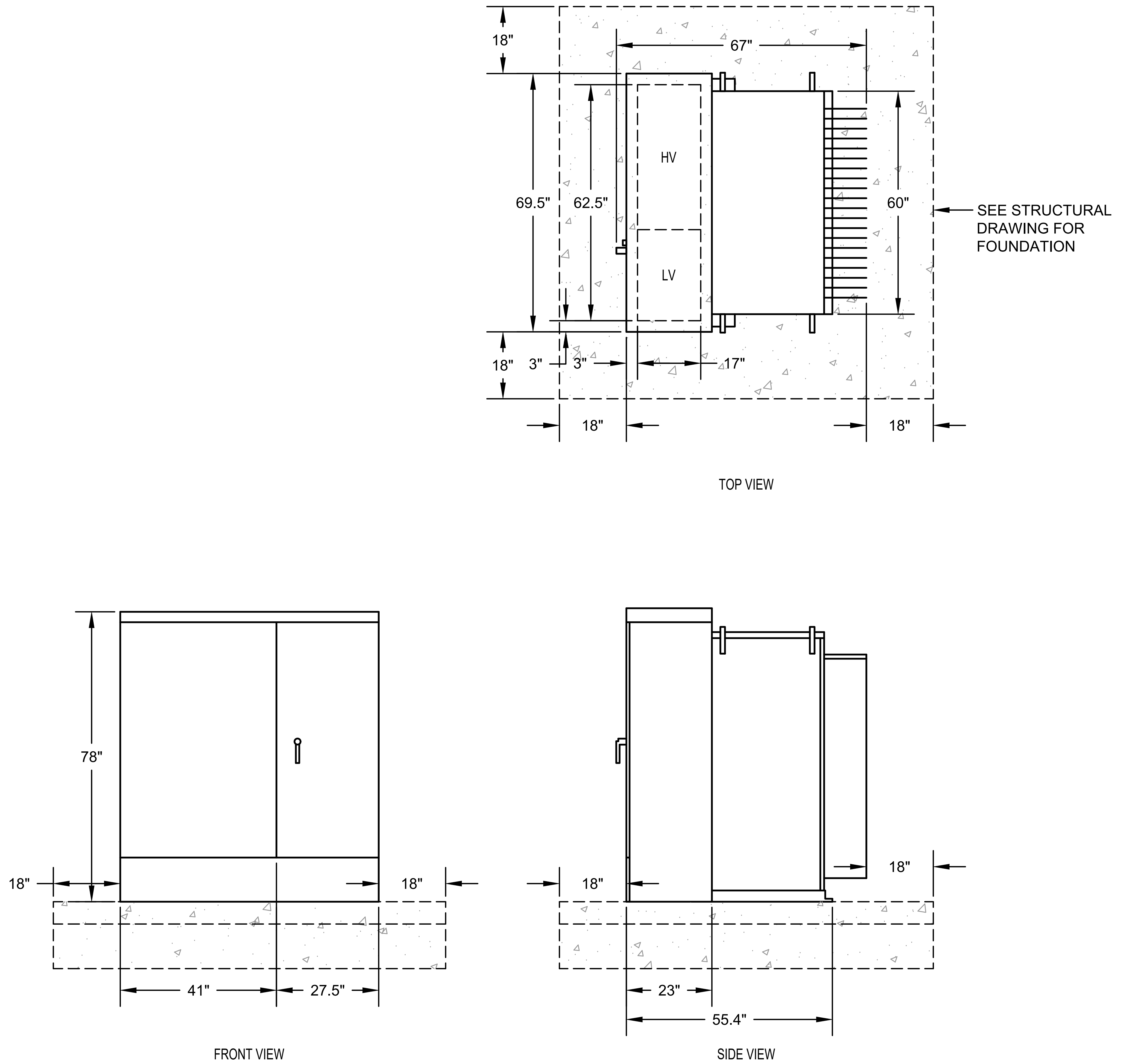
HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT
DMIL SUBSTATION NEW
SINGLE-LINE DIAGRAM

DRAWING NUMBER E-306
SCALE: 1"=1'
FILE: LOCATION LOCATIONS
SHEET 23 OF 24



TOP VIEW

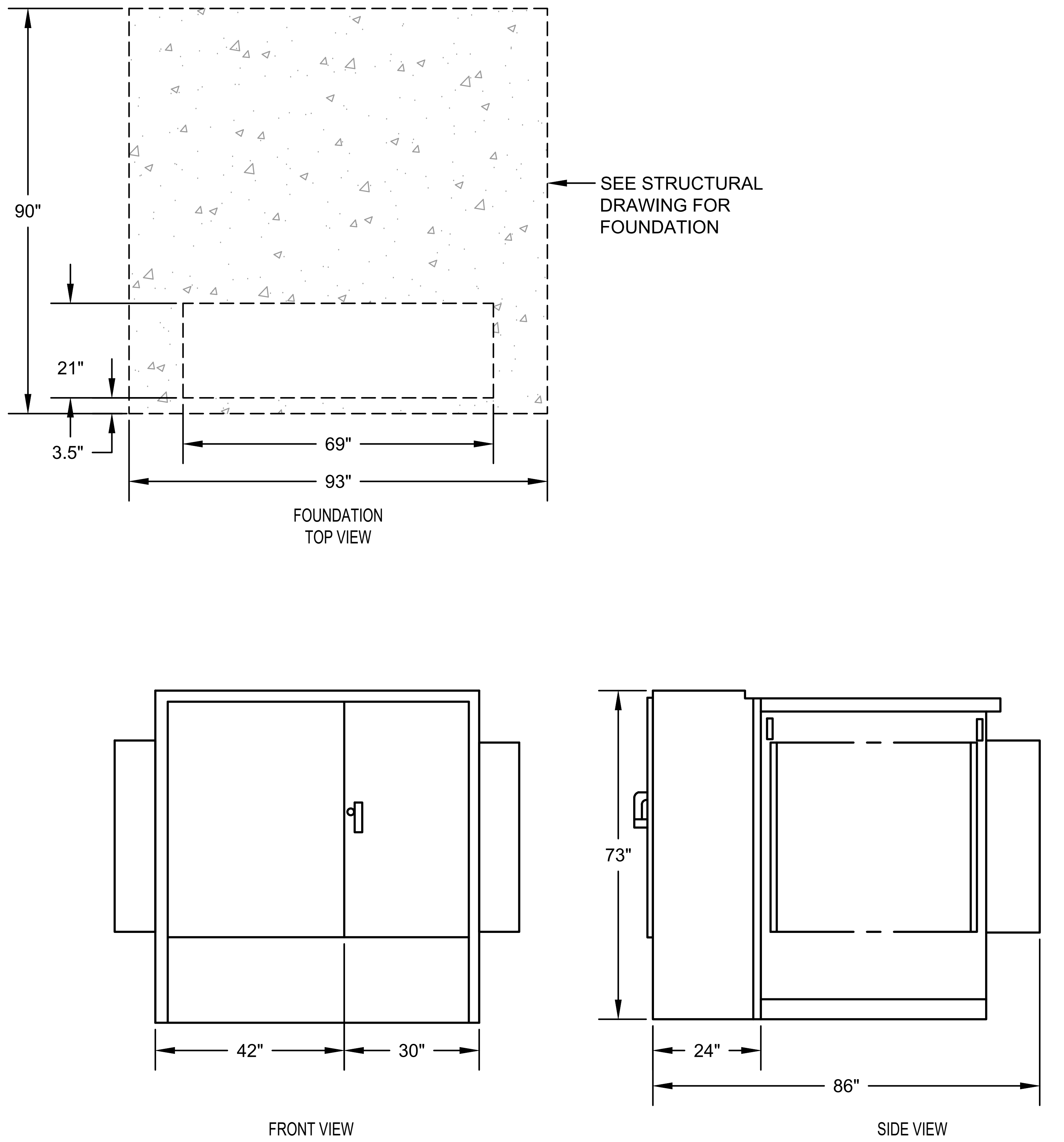
FRONT VIEW

SIDE VIEW

A
E-307

BUILDING 13 - NEW 1000KVA TRANSFORMER

SCALE: NTS



FOUNDATION TOP VIEW

FRONT VIEW

SIDE VIEW

B
E-307

DMIL SUBSTATION - NEW 1200KVA TRANSFORMER FOR N,S,C

SCALE: NTS

REV. NO.	DESCRIPTION	APPROVAL	DATE

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	TAP	
DRAFTSPERSON	TLF	
SECURITY		
FIRE INSP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		
MGR. PMO		

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CONTRACTOR / OPERATOR HAWTHORNE ARMY DEPOT
9 SO. MAINE HAWTHORNE, NV. 89415-0015

HAWTHORNE ARMY DEPOT
GENERATOR SYSTEM SUPPORT

TRANSFORMER DETAILS

DRAWING NUMBER E-307
SCALE: 1"=1'
FILE: LOCATION LOCATIONS
SHEET 24 OF 24

APPENDIX C

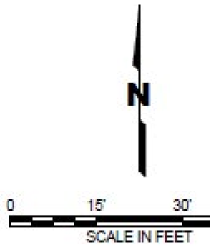
Building 13 Preliminary Site Plans Drawings

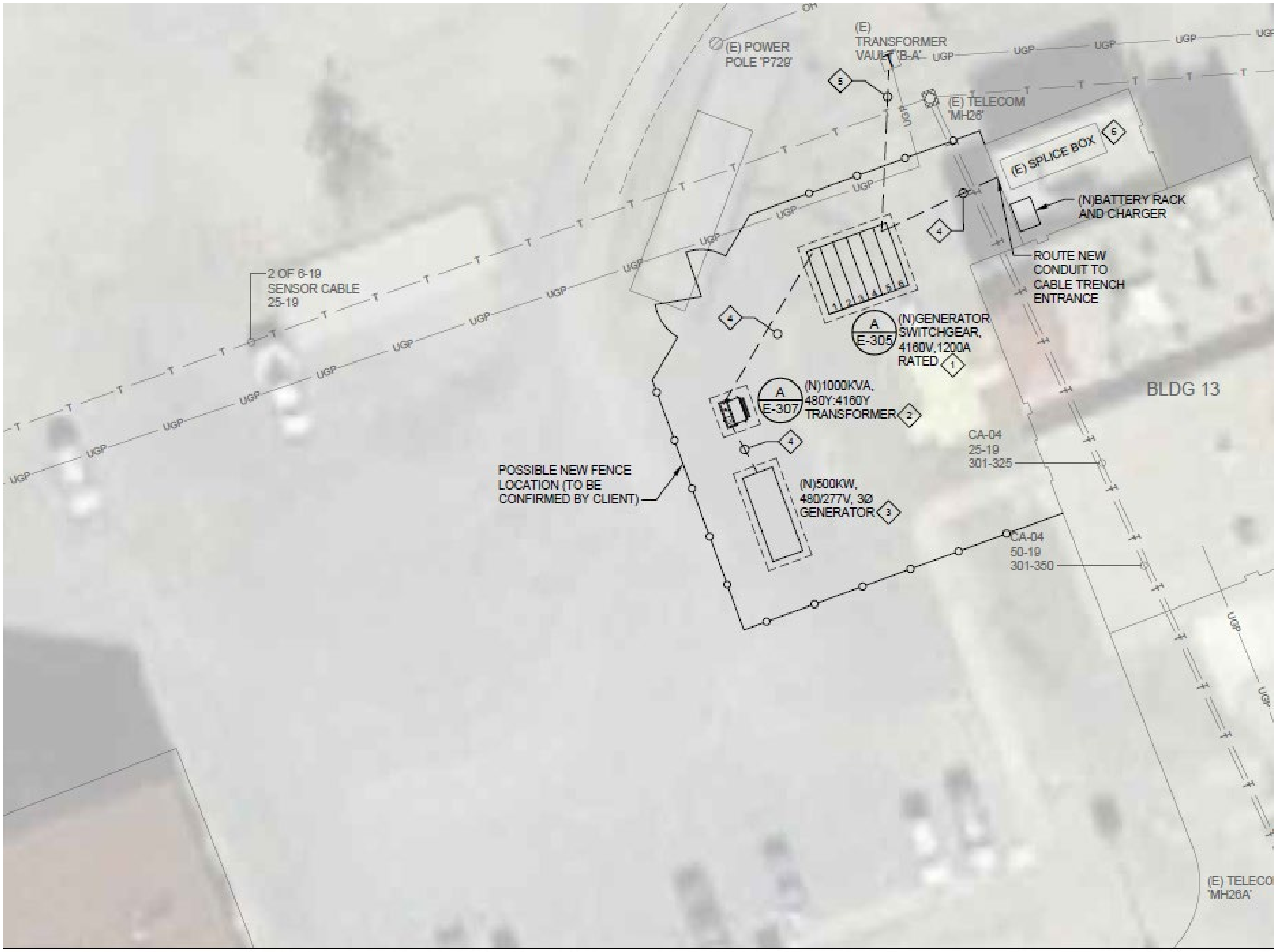
KEYED DEMO NOTES:

1. REMOVE EXISTING GENERATOR AND ALL ASSOCIATED COMPONENTS INCLUDING THE FUEL SYSTEM.
2. DISCONNECT EXISTING DOWNSTREAM FEEDS AND PREP FOR CONNECTION TO NEW SWITCHGEAR. REFER TO E-201 FOR MORE INFORMATION.
3. IN EXISTING SWITCHGEAR CABINET, REMOVE ALL CIRCUIT BREAKERS AND APPURTENANCES. CABINET IS TO REMAIN TO BE USED AS SPLICE BOX. REFER TO E-201 FOR MORE INFORMATION.
4. REMOVE EXISTING FEEDER BACK TO SOURCE. REFER TO E-201 FOR NEW FEEDER.

GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-301 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.



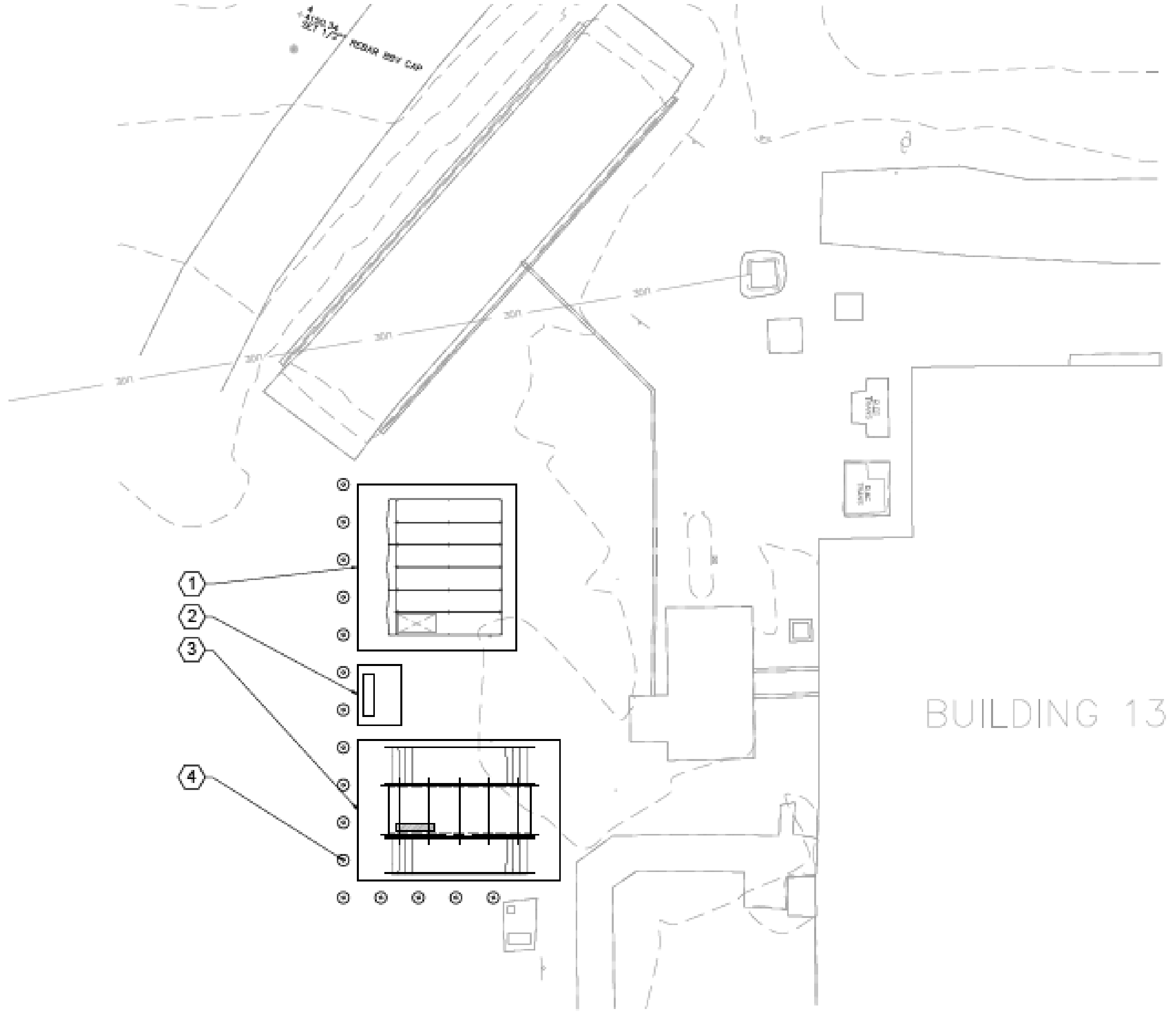


KEYED NEW NOTES:

1. PROPOSED LOCATION OF NEW SWITCHGEAR.
2. PROPOSED LOCATION OF NEW TRANSFORMER.
3. PROPOSED LOCATION OF NEW GENERATOR.
4. PROPOSED CONDUIT ROUTING FOR NEW EQUIPMENT.

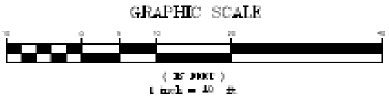
GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-302 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.



STRUCTURAL SITE PLAN: BUILDING 13

SCALE: 1" = 10'



SHEET KEY NOTES

1. (N) GENERATOR SWITCHGEAR, 4160KV - SEE DETAIL 300/S-503
2. (N) 1000kVA TRANSFORMER - SEE 400/S-505
3. (N) 500kW GENERATOR - SEE 200/S-501
4. (N) EQUIPMENT BOLLARD PER 103/S-003, SPACE AT 5' OC MAX

LEGEND

REV. NO.	DESCRIPTION

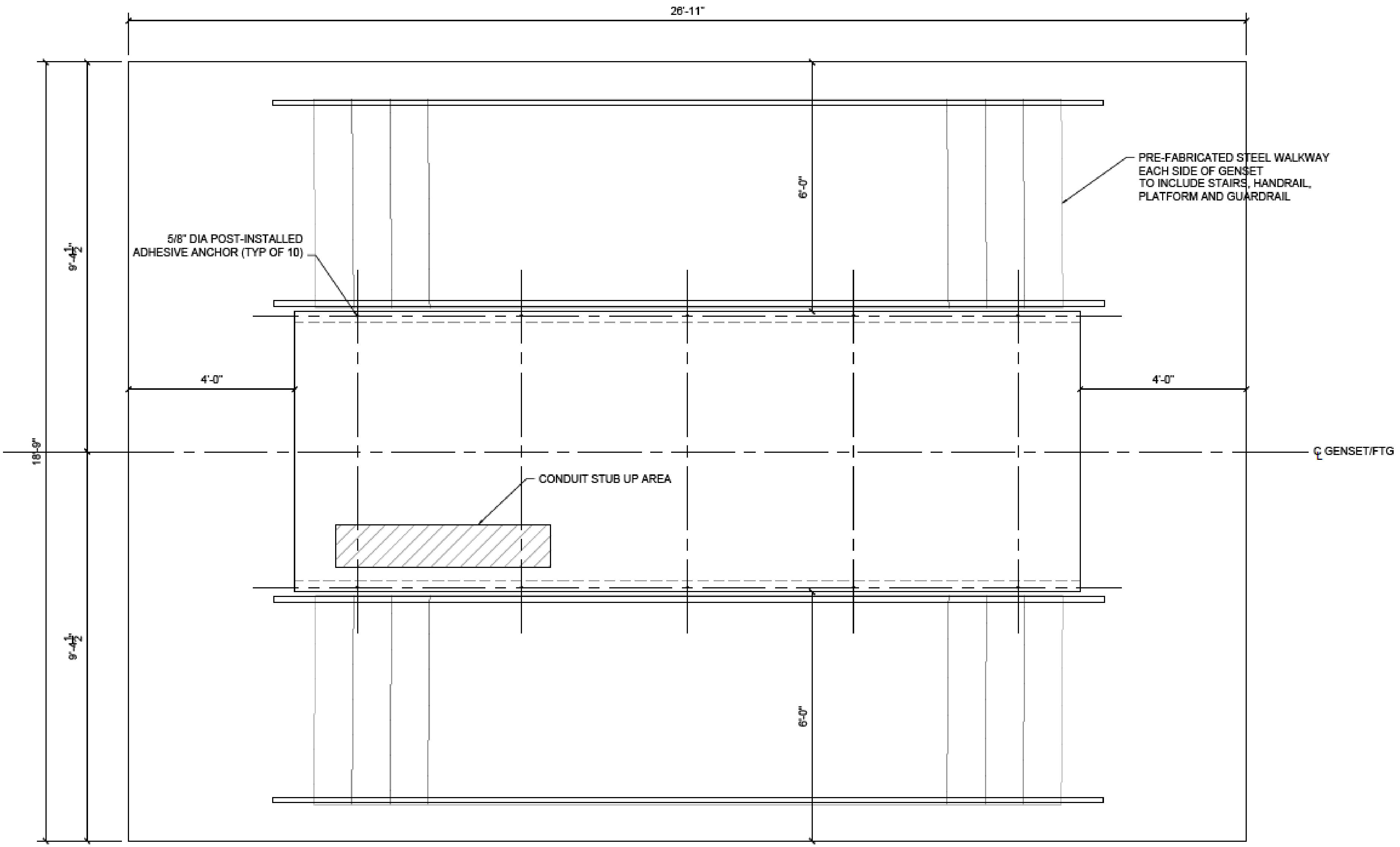
REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	T.A.	
DRAFTSPERSON	SPT	
SECURITY		
FIRE/HEP.		
ENVIRONMENTAL		
SAFETY		
QUALITY		
DIRECTOR		

ame
CONTRACTOR / OPERAT
9 SO. MAINE

HAWTHOR
GENERATOR
SITE PLAN

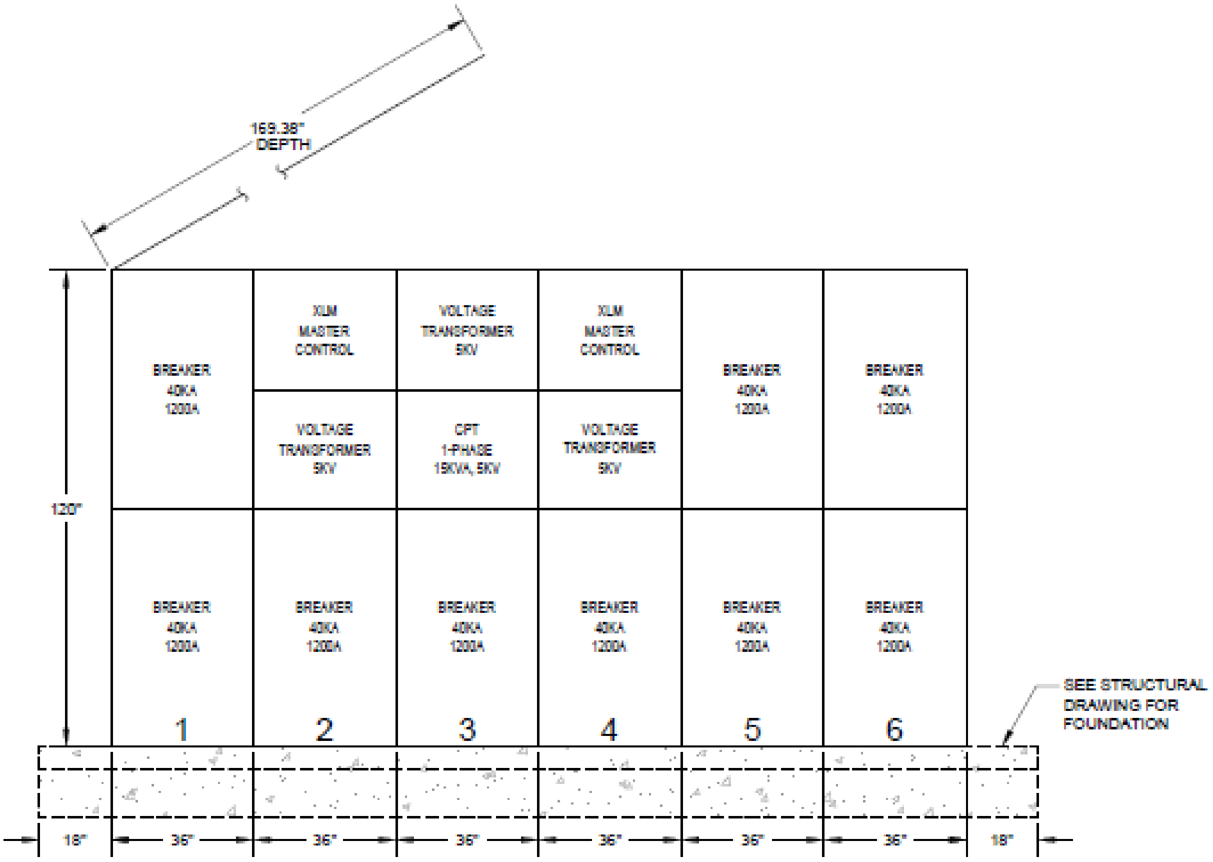
DRAWING NUMBER S-101



EQUIPMENT PAD - 500kW GENERATOR SET

SCALE: 1/2" = 1'-0"

200
S-501

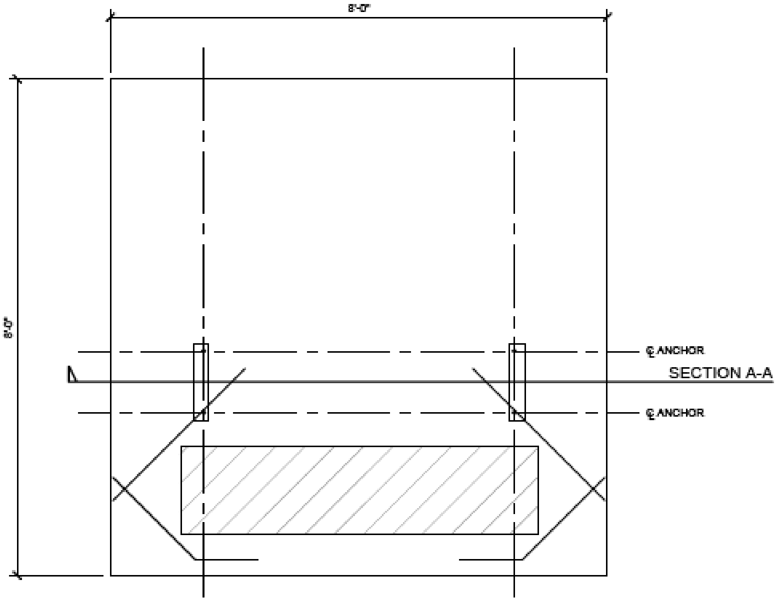


ELEVATION

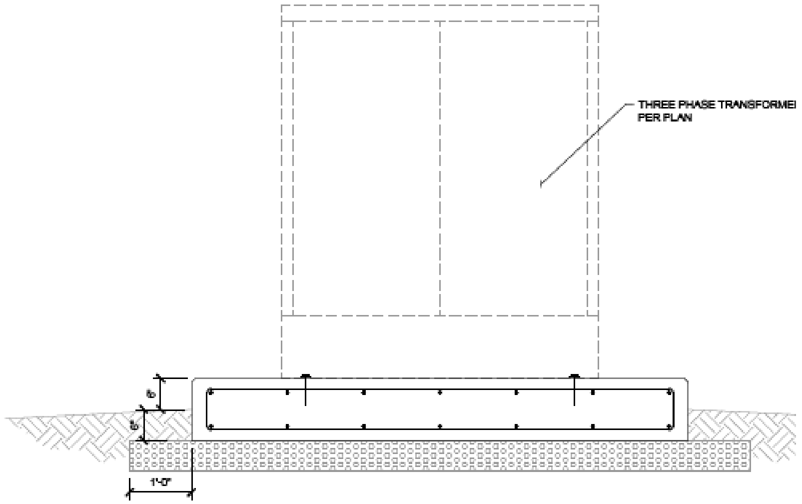
A
E-305

BUILDING 13 -
NEW 4160KV GENERATOR SWITCHGEAR

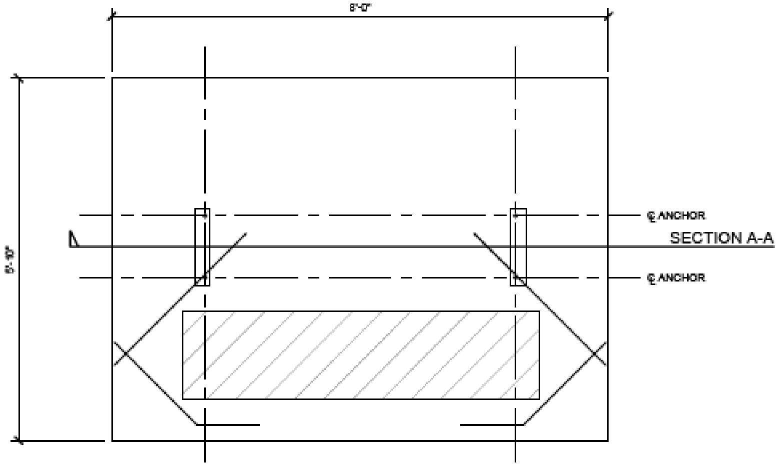
SCALE: NTS



ANCHOR/FOUNDATION PLAN - 1500kVA TRANSFORMER



SECTION A-A: ANCHOR/FOUNDATION PLAN - TRANSFORMER



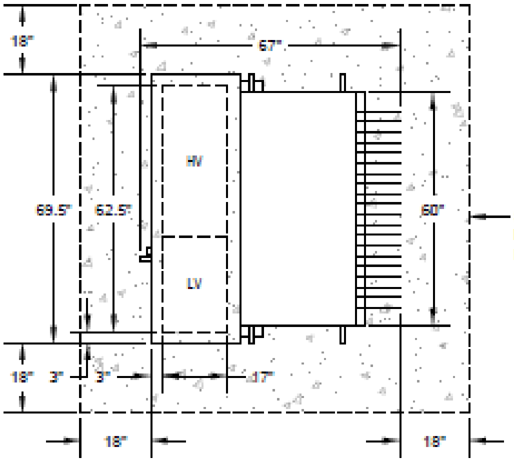
ANCHOR/FOUNDATION PLAN - 1000kVA TRANSFORMER

REV. NO.	
MGR. ENGINEERING	
ENGINEER	
DRAFTSPERSON	
SECURITY	
FIRE INSP.	
ENVIRONMENTAL	
SAFETY	
QUALITY	
DIRECTOR	

TRANSFORMER FOUNDATION

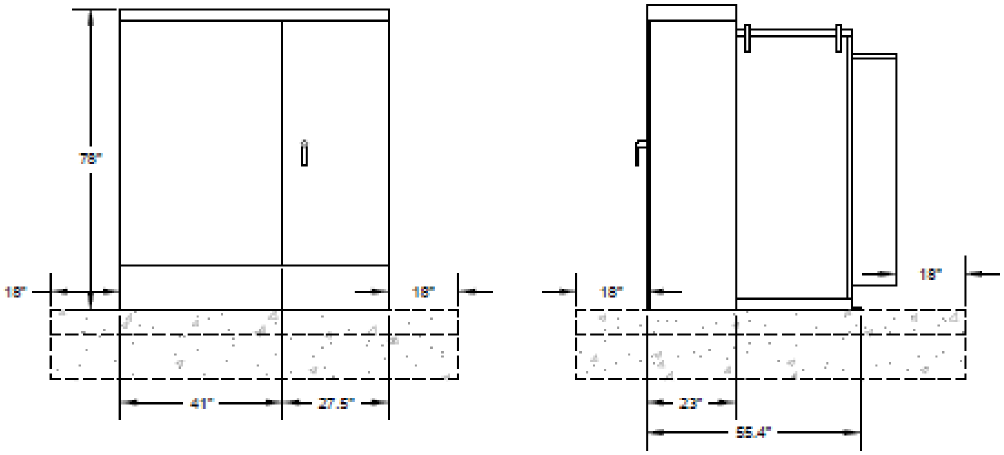
SCALE: 3/4" = 1'-0"

400
S-505



SEE STRUCTURAL DRAWING FOR FOUNDATION

TOP VIEW



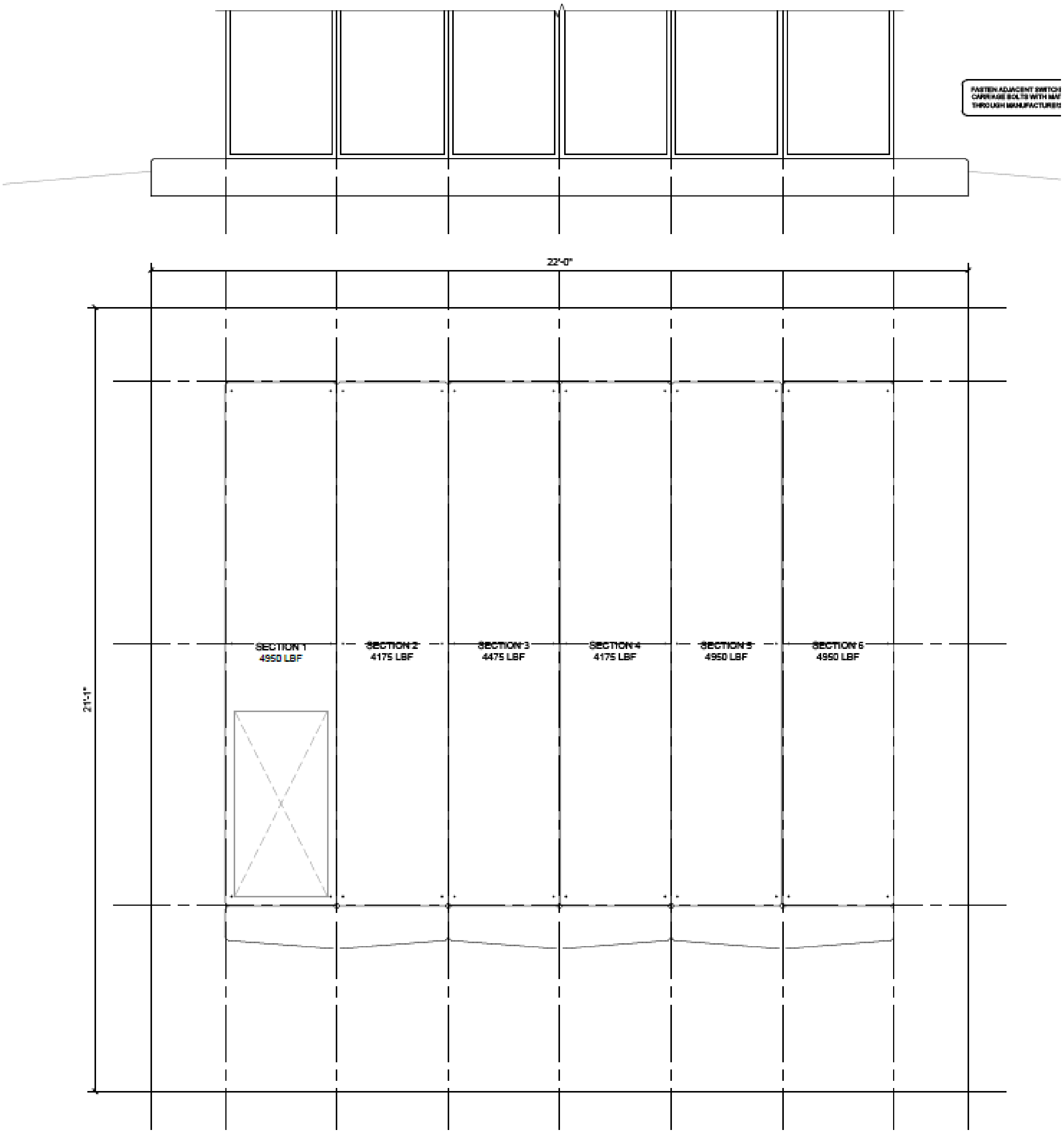
FRONT VIEW

SIDE VIEW

A
E-307

BUILDING 13 -
NEW 1000KVA TRANSFORMER

SCALE: NTS



GENERATOR SWITCHGEAR B13: 4160KV FOUNDATION

SCALE: 1/2" = 1'-0"

APPENDIX D

Building 70 Substation

Preliminary Site

Plans Drawings

KEYED DEMO NOTES:

1 DISCONNECT EXISTING TRANSFORMER FEEDS AND PREP FOR CONNECTION TO NEW SWITCHGEAR. REFER TO E-202 FOR MORE INFORMATION.

2 IN EXISTING SWITCHGEAR CABINET, REMOVE ALL CIRCUIT BREAKERS AND APPURTENANCES. CABINET IS TO REMAIN TO BE USED AS SPLICE BOX. REFER TO E-202 FOR MORE INFORMATION.

GENERAL NOTES:

1. REFER TO NEW SINGLE-LINE DIAGRAM E-303 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.

REV. NO.

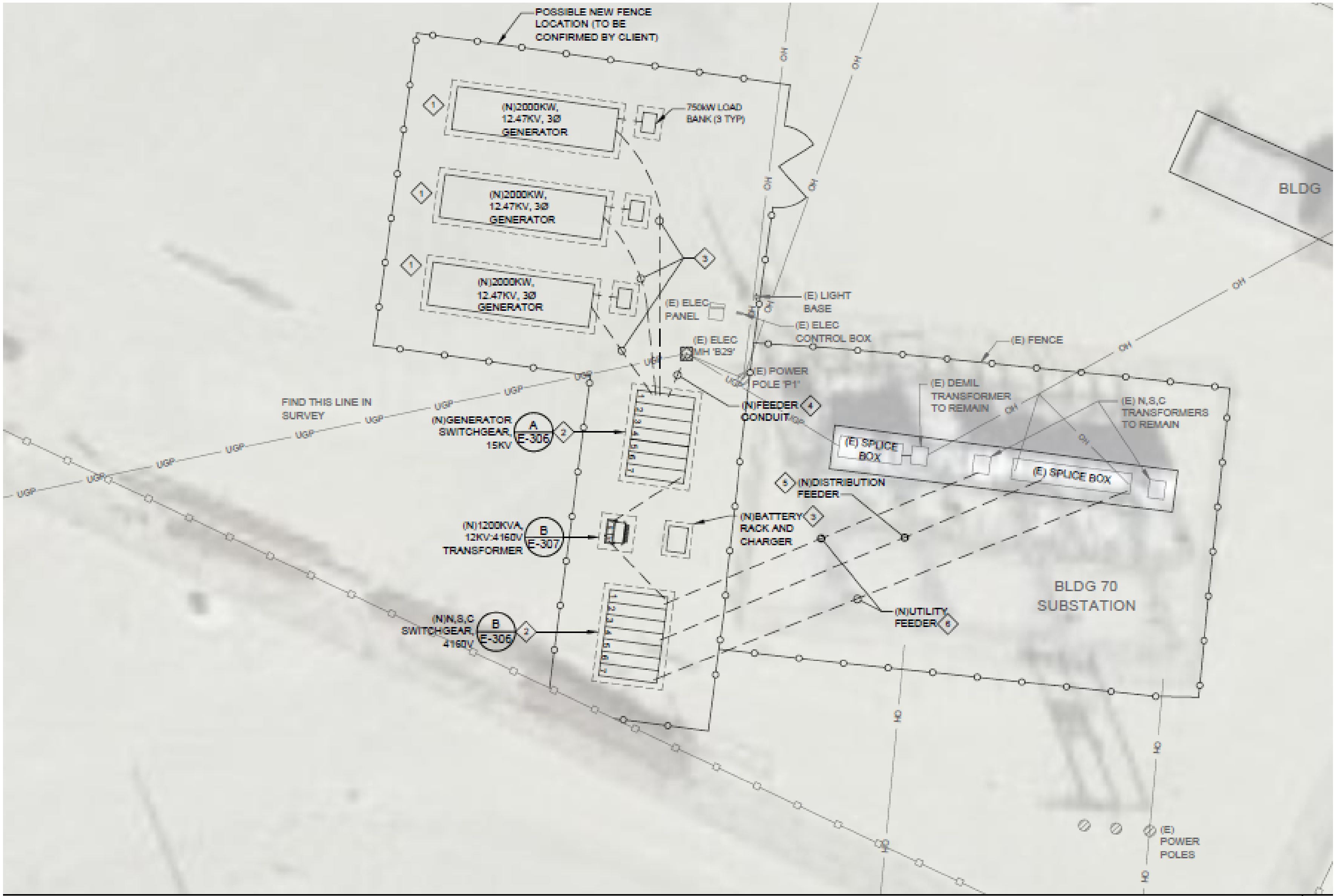
MGR. ENGINEERING

ENGINEER

DRAFTSPERSON

SECURITY

FIRE INSP.

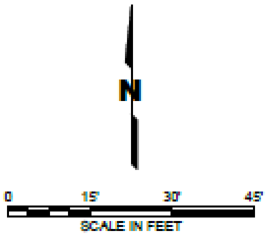


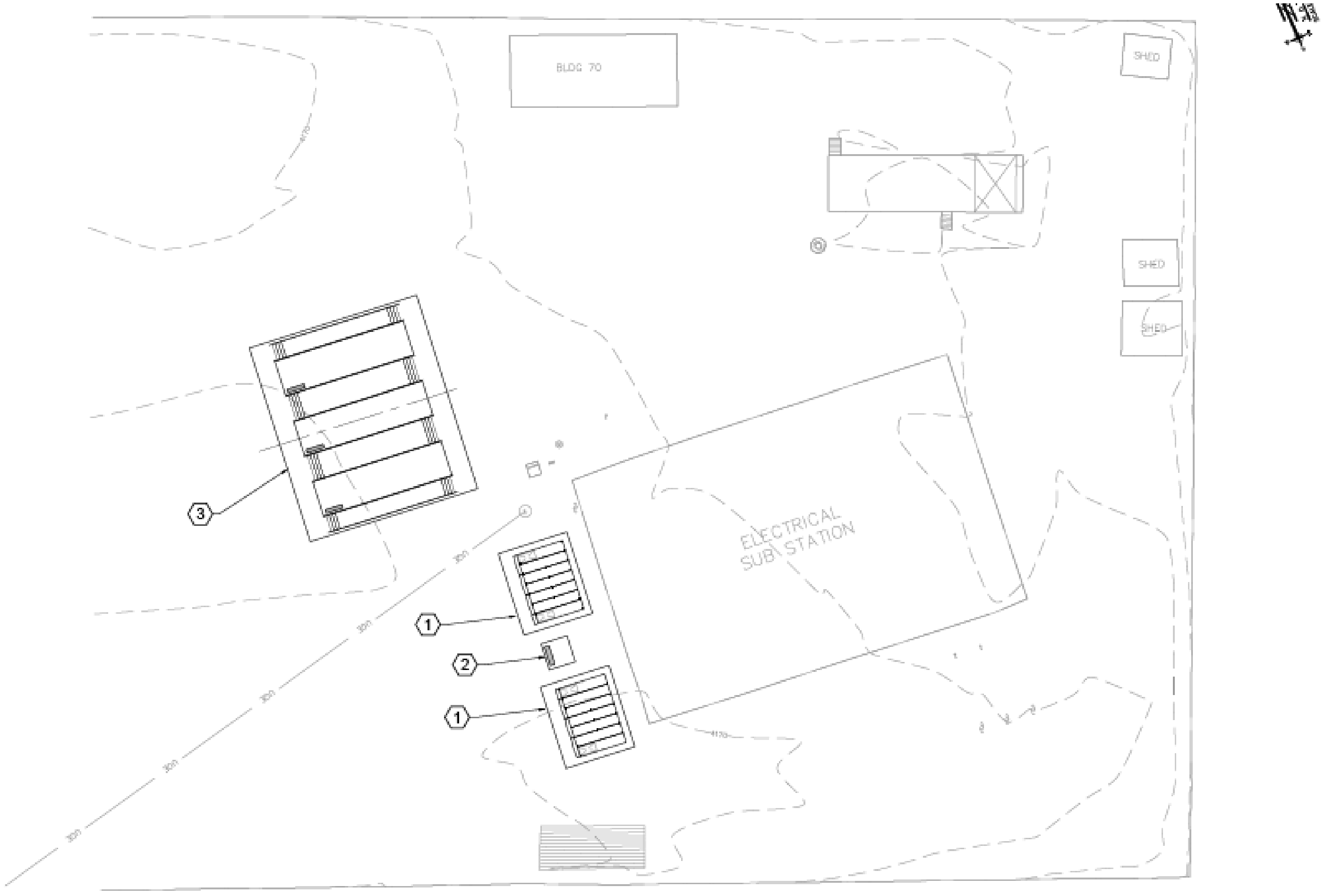
KEYED NEW NOTES:

1. PROPOSED LOCATION OF NEW 2000KW GENERATOR.
2. PROPOSED LOCATIONS OF NEW SWITCHGEARS AND ASSOCIATED BATTERY RACK AND CHARGER.
3. PROPOSED CONDUIT ROUTING FROM NEW SWITCHGEAR TO NEW GENERATORS.
4. PROPOSED CONDUIT ROUTING TO REFEED EXISTING U.G. VAULT.
5. PROPOSED DOWNSTREAM CONDUITS TO REFEED EXISTING LOAD.
6. PROPOSED PRIMARY CONDUITS TO RECONNECT EXISTING UTILITY TRANSFORMERS.

GENERAL NOTES:

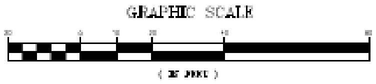
1. REFER TO NEW SINGLE-LINE DIAGRAM E-304 FOR CONSTRUCTION SEQUENCE AND OTHER ADDITIONAL INFORMATION.





STRUCTURAL SITE PLAN: DEMIL SUBSTATION, BUILDING 70

SCALE: 1" = 20'



SHEET KEY NOTES

1. (N) GENERATOR SWITCHGEAR, 4160KV - SEE DETAIL 301/S-504 (TYPICAL OF 2)
2. (N) 1500kVA TRANSFORMER - SEE 400/S-505
3. (N) EQUIPMENT PAD FOR (3) 2000kW GENERATORS - SEE 201/S-502

LEGEND

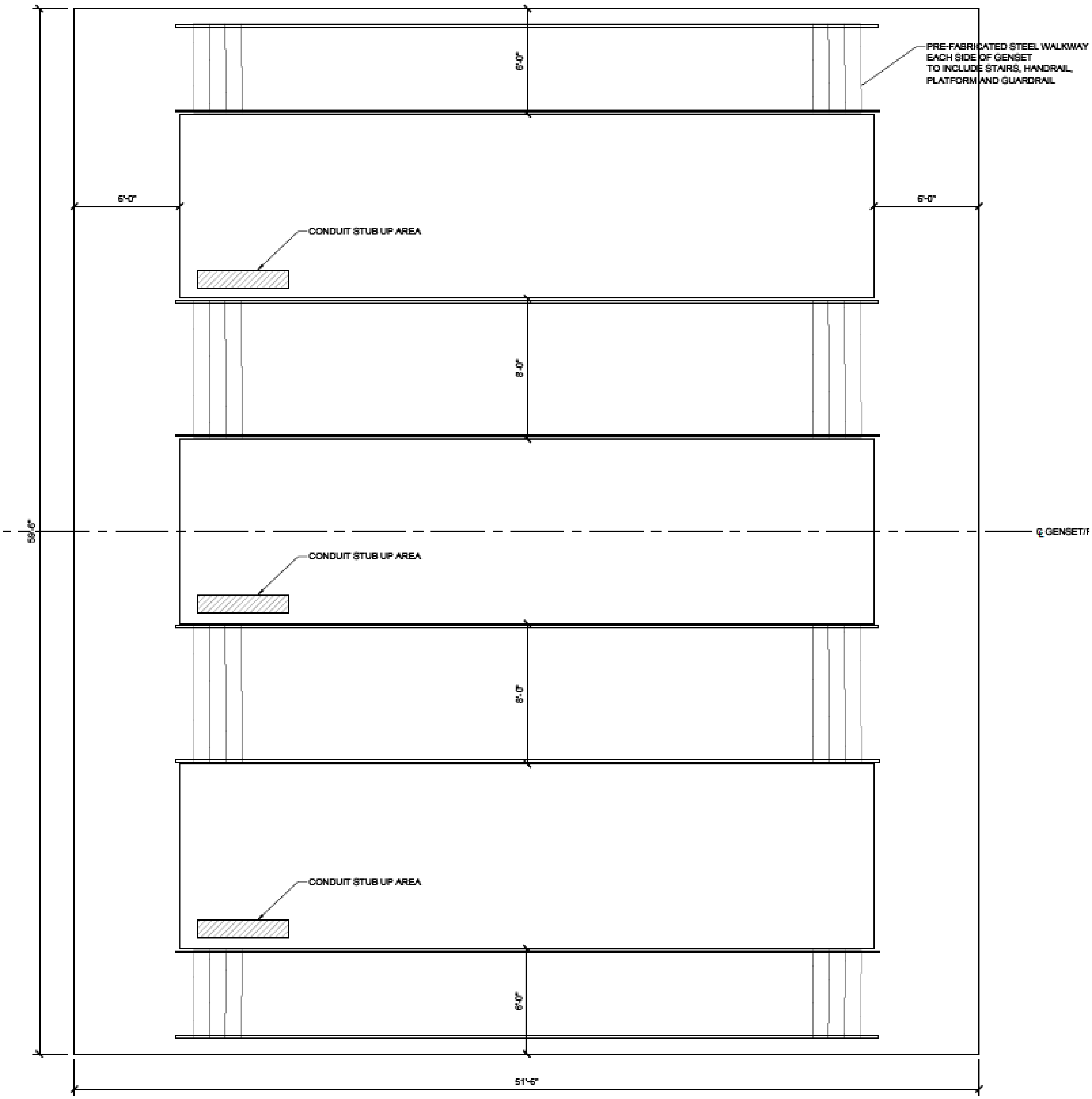
REV. NO.	DESCRIPTION

REVISIONS

APPROVALS		
MGR. ENGINEERING	TBD	DATE
ENGINEER	T.A.	
DRAFTSPERSON	DFT	
SECURITY		
FIRE MAR.		
ENVIRONMENTAL		
SAFETY		
QUALITY		

ament
CONTRACTOR / OPERATOR HA
9 SO. MAINE HAWTHORN

HAWTHORNE A
GENERATOR SYS
SITE PLAN: DEMI
BUILDI

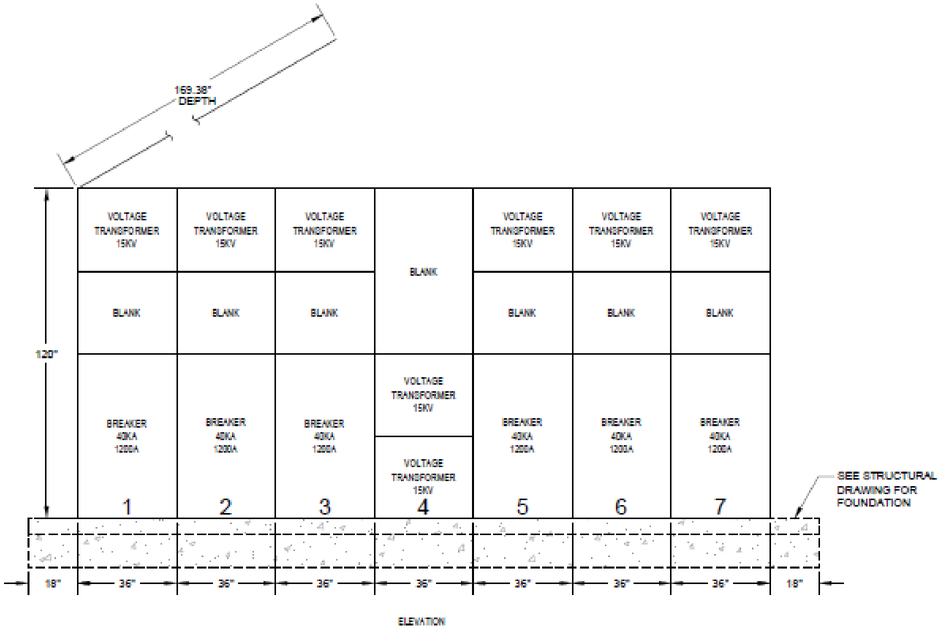


QUIPMENT PAD - 2000kW GENERATOR SET

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

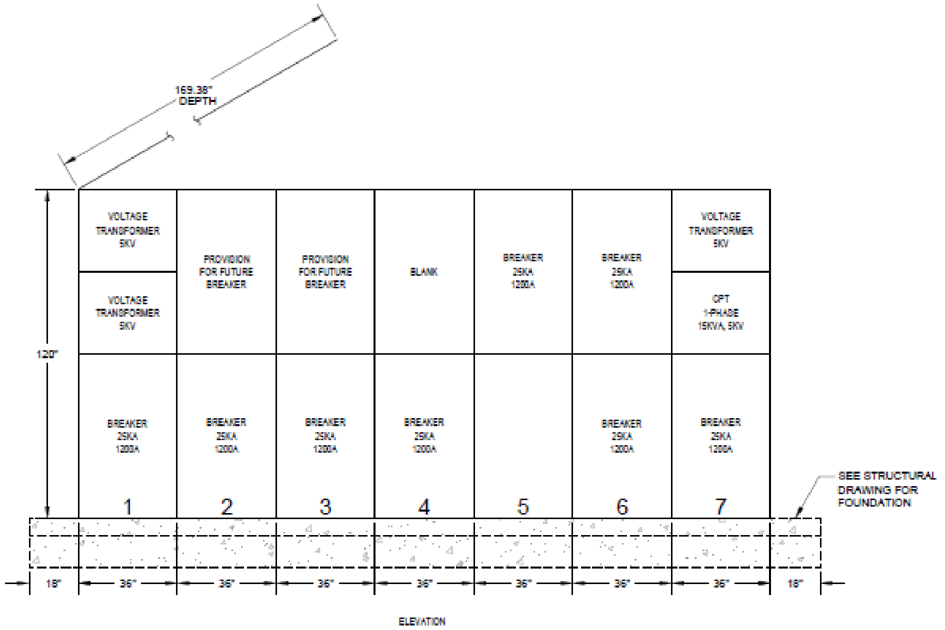
210

S-502



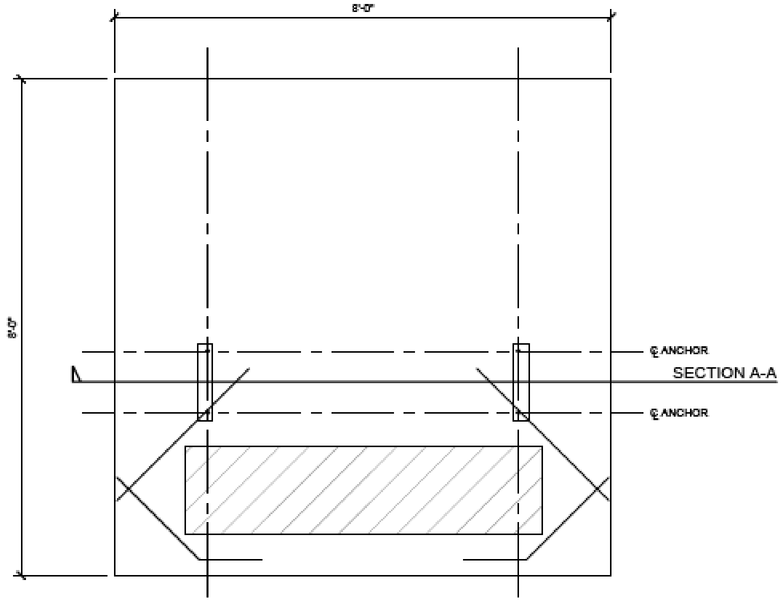
A
E-306

DMIL SUBSTATION -
NEW 15KV GENERATOR SWITCHGEAR
SCALE: NTS

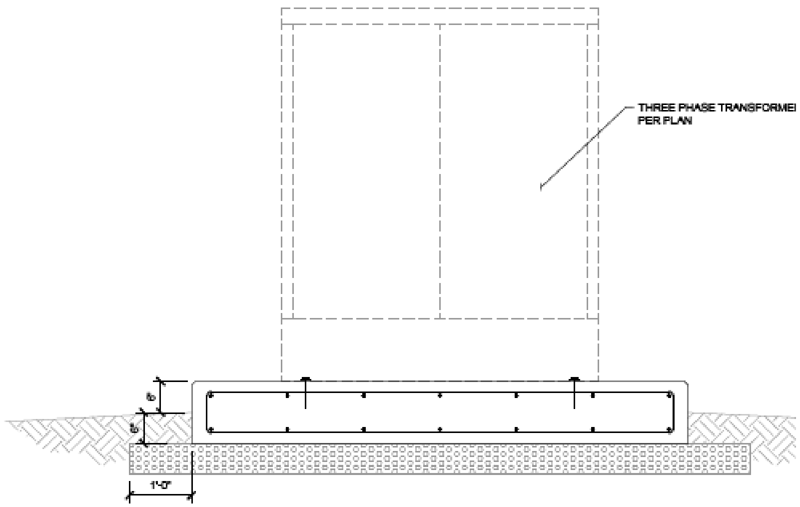


B
E-306

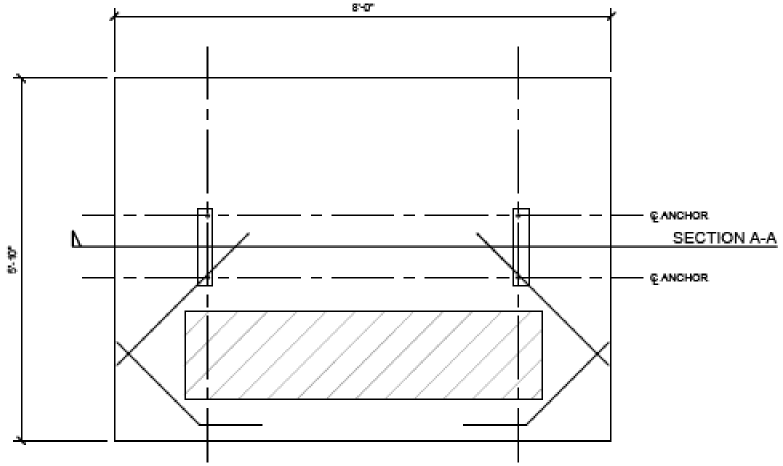
DMIL SUBSTATION - NEW NORTH, SOUTH,
CENTRAL (N,S,C) 4160V SWITCHGEAR
SCALE: NTS



ANCHOR/FOUNDATION PLAN - 1500kVA TRANSFORMER



SECTION A-A: ANCHOR/FOUNDATION PLAN - TRANSFORMER



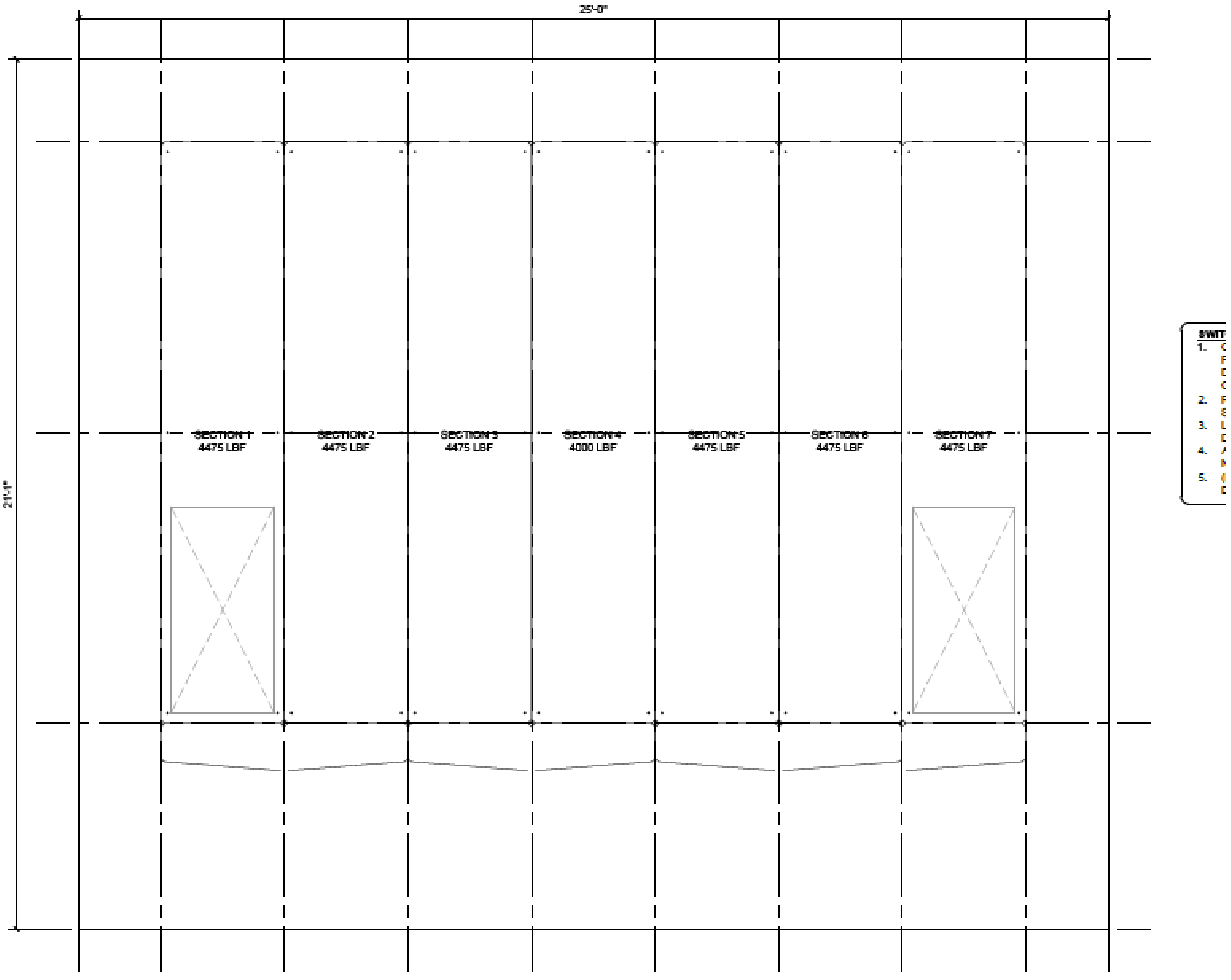
ANCHOR/FOUNDATION PLAN - 1000kVA TRANSFORMER

TRANSFORMER FOUNDATION

SCALE: 3/4" = 1'-0"

400
S-505

REV. NO.
MGR. ENGINEERING
ENGINEER
DRAFTSPERSON
SECURITY
FIRE INSP.
ENVIRONMENTAL
SAFETY
QUALITY



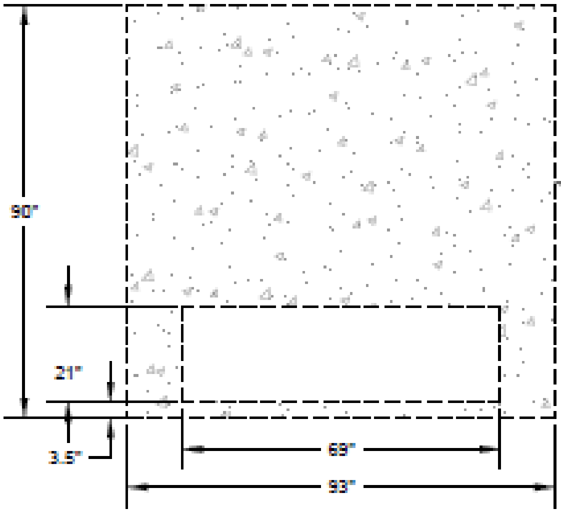
GENERATOR SWITCHGEAR B70: 4160KV FOUNDATION

SCALE: 1/2" = 1'-0"

301

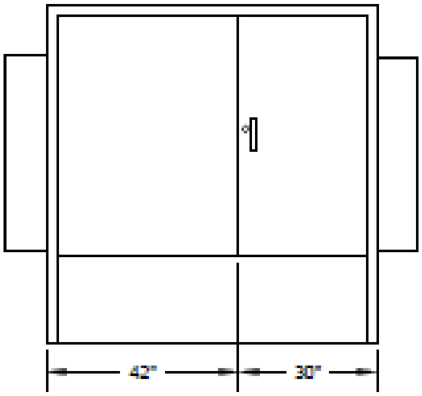
S-504

Why is this information important?

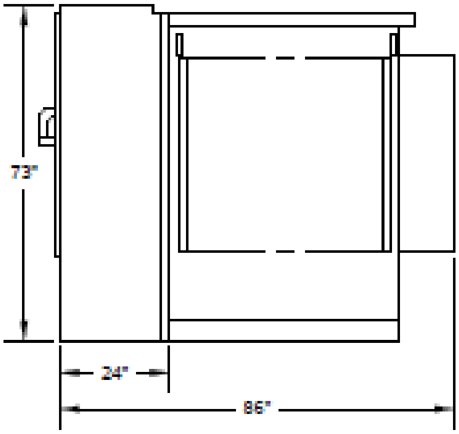


SEE STRUCTURAL
DRAWING FOR
FOUNDATION

FOUNDATION
TOP VIEW



FRONT VIEW



SIDE VIEW

DMIL SUBSTATION -
NEW 1200KVA TRANSFORMER FOR N,S,C

B
E-307

SCALE: NTS