



US Army Corps
Of Engineers
Wilmington District

PUBLIC NOTICE

Issue Date: April 13, 2006

Comment Deadline: May 15, 2006

Corps Action ID: 200600815

The Wilmington District, Corps of Engineers (Corps) has received an application from **U.S. Marine Corp Base-Camp Lejeune** is seeking Department of the Army authorization to impact **83.06 acres of jurisdictional wetlands** associated with the **development of a new weapons training range** in the Greater Sandy Run Area, Onslow County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at www.saw.usace.army.mil/wetlands

Applicant: Marine Corp Base, Camp Lejeune
Attn: Scott Brewer
PSC Box 20004
Camp Lejeune, North Carolina 28542

AGENT (if applicable): Marine Corp Base, Camp Lejeune
Attn: Martin Korenek
PSC Box 20004
Camp Lejeune, North Carolina 28542

Authority

The Corps will evaluate this application and decide whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of Section 404 of the Clean Water Act (33 USC 1344).

Location

The 300 acre project site is located west of US Hwy 17/ North of Moores Road and lies in the portion of Marine Corp Base Camp Lejeune referred to as the Greater Sand Run Area (GSRA) in Onslow County. The site is adjacent to the Great Sandy Run Pocosin, a tributary to Shelter Swamp Creek, ultimately a tributary to the Northeast Cape Fear River. The site can be located at 34° 36.59' N and 77°30.73' W.

Existing Site Conditions

The project location is dominated by a series of southern pine forests of various age classes. Prior to acquisition by the USMC, the GSRA was intensively managed for high volume commercial timber production for about 45 years.

SOILS

Soils at the GSRA are comprised primarily of loamy fine sands and fine sands. Five soil types are mapped in the project area. Two non-hydric soils occurring on project site include Foreston loamy fine sand (FoA) and Stallings loamy fine sand (St). Three soils listed as hydric soils by the National Technical Committee on Hydric Soils (USDA, Soil Conservation Service [SCS] 1991) occur on the site. These include: Leon fine sand (Le), Torhunta fine sandy loam (To), and Woodington loamy fine sand (Wo) (Figure 3). These soils are influenced by seasonally high water tables and typically have a high organic content and small particle size. A branch of Shelter Swamp Creek, a tributary of the Cape Fear River Basin lies to the north of the project area.

NATURAL COMMUNITIES

The site is currently undeveloped and forested. It is located on a ridge that separates the Great Sandy Run Pocosin into a northern pocosin and a southern pocosin. Natural communities of the area were identified and classified into two broad categories; upland and wetland communities. The upland communities found in the project area most closely resemble the Mesic Pine Flatwoods community described by Schafale and Weakley (1990). Two variants occur: planted pine monocultures and naturally regenerated, managed, mixed pine forests.

UPLANDS

Planted pine monocultures areas are characterized by a dominant loblolly pine (*Pinus taeda*) canopy. Depending on the age of the individual stands and the frequency of occurrence of fire, these woodlands may have anything from a sparse understory to a dense understory. Common understory species include sweet gum (*Liquidambar styraciflua*), horse sugar (*Symplocos tinctoria*), blackberries (*Rubus spp.*), common greenbrier (*Smilax rotundifolia*), and bracken fern (*Pteridium aquilinum*).

WETLANDS

Two classes of non-riparian wetlands, palustrine forested and scrub-shrub wetlands, (based upon the Cowardin classification system, Cowardin et al. 1979), can be found in the SR-8 project area.

Palustrine forests are further broken down into five subclasses, of which two were identified at SR-8: broad-leaved deciduous forests (PF01) and needle-leaved evergreen forests (PF04). Broad-leaved deciduous wetlands are generally dominated by tree species such as red maple, black gum (*Nyssa sylvatica*), and sweet gum. Mid-story of this subclass is comprised of red bay, sweet bay (*Magnolia virginiana*), ironwood (*Carpinus caroliniana*), and American holly (*Ilex opaca*). The needle-leaved evergreen canopy is dominated by pond pine and loblolly pine, with a mid-canopy similar to the broad-leaved

deciduous wetland. These subclasses both share similar shrub layers of highbush blueberry (*Vaccinium corymbosum*), titi (*Cyrilla racemiflora*), wax myrtle (*Myrica cerifera*), inkberry (*Ilex glabra*), fetterbush (*Lyonia lucida*) and sweet pepperbush (*Clethra alnifolia*).

Two of the five subclasses of scrub-shrub wetlands can be found within the SR-8 site: scrub-shrub broad-leaved evergreen (SS3) and scrub-shrub needle-leaved evergreen (SS4). Broad-leaved evergreen scrub-shrub wetlands have organic soils and dominant species include titi, fetterbush, inkberry, and evergreen bayberry (*Myrica heterophylla*). Needle-leaved evergreen scrub-shrub wetlands are generally composed of young or stunted pond pine or loblolly pine. Several fern species populate this herb layer including netted chain fern (*Woodwardia areolata*), royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*) and bracken fern. The size and species composition of these areas is an estimate based upon a review of aerial photography and field observations.

Applicant's Stated Purpose

The applicant's stated purpose is to build a modern multi-purpose machine gun range to replace the antiquated existing machine gun ranges with the Base. The Marine Corps's mission is to provide the most effective fighting force possible in a rapidly changing world accented by asymmetrical warfare and the continuing global war on terrorism.

Project Description

Building and operating the SR-8 Range will cause unavoidable impacts to wetlands due to mechanized land clearing, cutting, and filling required for the construction of roads, facilities, target emplacements, buildings, and other infrastructure.

Construction of the MPMG Range may require impacting (clearing, cutting, and filling) up to 86.03 acres of non-riparian wetlands (Table 1). The areas of compacted fill serving as the foundations for targets, roads, buildings and firing positions totals 9.64 acres (Table 2). 76.39 acres will remain as vegetated areas to be mowed and maintained within the range footprint. The general fill area will see a combination of cutting and filling to create a consistent grade across the range. To establish the desired grade through the range as much as a meter of fill would be placed in areas. See designs attached.

TOTAL FILL (GENERAL GRADING AND COMPACTED FILL FOR STRUCTURES)							
Wetland Type	AREA (M^2)	FILL (M^3)	CUT (M^3)	AREA (FT^2)	FILL (FT^3)	CUT (FT^3)	AREA (ACRES)
PF04/SS3	127400	61293	4649	1371334	2164542	164178	31.48
PF01/4/SS3	100101	46320	1830	1077487	1635775	64626	24.74
PF01/SS3	580	92	0	6243	3249	0	0.14
PF04	54121	18995	988	582558	670802	34891	13.37
PF01	65930	20239	322	709671	714734	11371	16.29
TOTAL							86.03

Table 1. Summary of proposed wetland impacts/general fill at SR-8. Information provided by U.S. Army Engineering and Support Center, Huntsville, Alabama.

COMPACTED FILL FOR BUILT UPON AREAS (targets, roads, buildings, firing berm, etc.)						
Wetland Type	AREA (M^2)	FILL (M^3)	AREA (FT^2)	FILL (FT^3)	FILL (YD^3)	AREA (ACRES)
PF04/SS3	20305	12086	218566	426813	15808	5.02
PF01/4/SS3	8703	1715	93681	60565	2243	2.15
PF01/SS3	0	0	0	0	0	0.00
PF04	3178	990	34206	34962	1295	0.79
PF01	6831	1189	73531	41989	1555	1.69
TOTAL						9.64

Table 2. Summary of proposed compacted fill areas at SR-8. Information provided by U.S. Army Engineering and Support Center, Huntsville, Alabama.

Compensatory mitigation for this proposed project will be provided with credits from the Greater Sandy Run Area Wetland Mitigation Bank. To date there are 201.91 credits available for use within the Bank while another 565.1 credits awaiting final approval.

Other Required Authorizations

This notice and all applicable application materials are being forwarded to the appropriate State agencies for review. The Corps will generally not make a final permit decision until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State certification required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice in the NCDWQ Central Office in Raleigh serves as application to the NCDWQ for certification. A waiver will be deemed to occur

if the NCDWQ fails to act on this request for certification within sixty days of the date of the receipt of this notice in the NCDWQ Central Office. Additional information regarding the Clean Water Act certification may be reviewed at the NCDWQ Central Office, 401 Oversight and Express Permits Unit, 2321 Crabtree Boulevard, Raleigh, North Carolina 27604-2260. All persons desiring to make comments regarding the application for certification under Section 401 of the Clean Water Act should do so in writing delivered to the North Carolina Division of Water Quality (NCDWQ), 1650 Mail Service Center, Raleigh, North Carolina 27699-1650 Attention: Ms Cyndi Karoly by May 6, 2006.

The applicant has not provided to the Corps, a certification statement that his/her proposed activity complies with and will be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2(b)(2), the Corps can not issue a permit for the proposed work until the applicant submits such a certification to the Corps and the North Carolina Division of Coastal Management (NCDCM), and the NCDCM notifies the Corps that it concurs with the applicant's consistency certification.

Essential Fish Habitat

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps' initial determination is that the proposed project will not adversely impact EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

Cultural Resources

The Corps has consulted the latest published version of the National Register of Historic Places and is not aware that any registered properties, or properties listed as being eligible for inclusion therein are located within the project area or will be affected by the proposed work. Presently, unknown archeological, scientific, prehistoric, or historical data may be located within the project area and/or could be affected by the proposed work.

Endangered Species

The Corps has reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. According to Camp Lejeune natural resource staff no occurrences of Rough-leaved loosestrife were observed during a high probability habitat survey. Also according to the applicant, there have been no sightings of red-cockaded woodpeckers within the GSRA area. Based on available information, the Corps is not aware of the presence of species listed as threatened or endangered or their critical habitat formally designated pursuant to the Endangered Species Act of 1973 (ESA) within the project area. A final determination on the effects of the proposed project will be made upon additional review of the project and

completion of any necessary biological assessment and/or consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service."

Evaluation

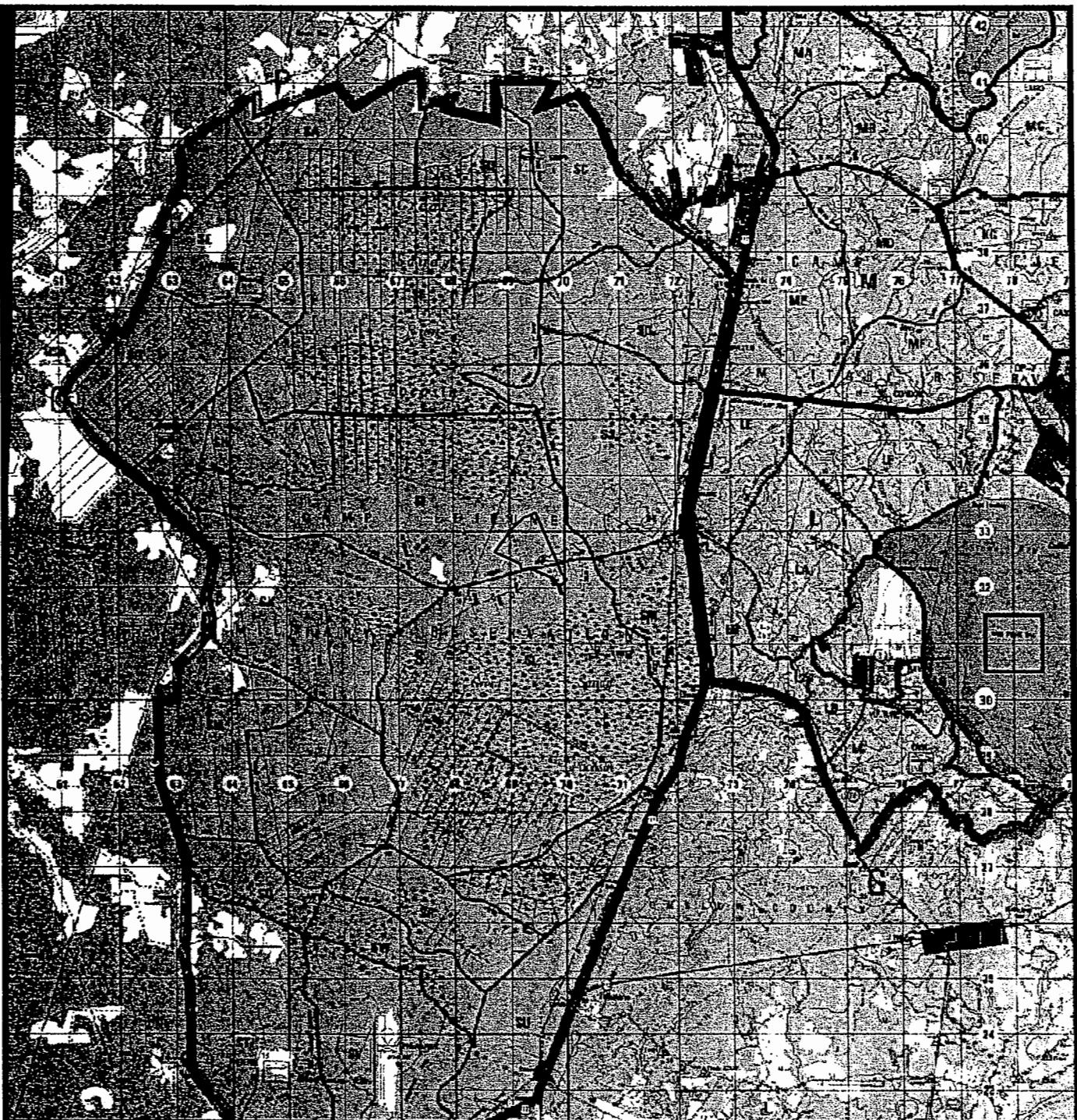
The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

Commenting Information

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidate State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

Written comments pertinent to the proposed work, as outlined above, will be received by the Corps of Engineers, Wilmington District, until 5pm, May 15, 2006. Comments should be submitted to Brad Shaver, Regulatory Specialist at (910) 251-4611.



 Site Boundary

0

12,000

24,000

Feet

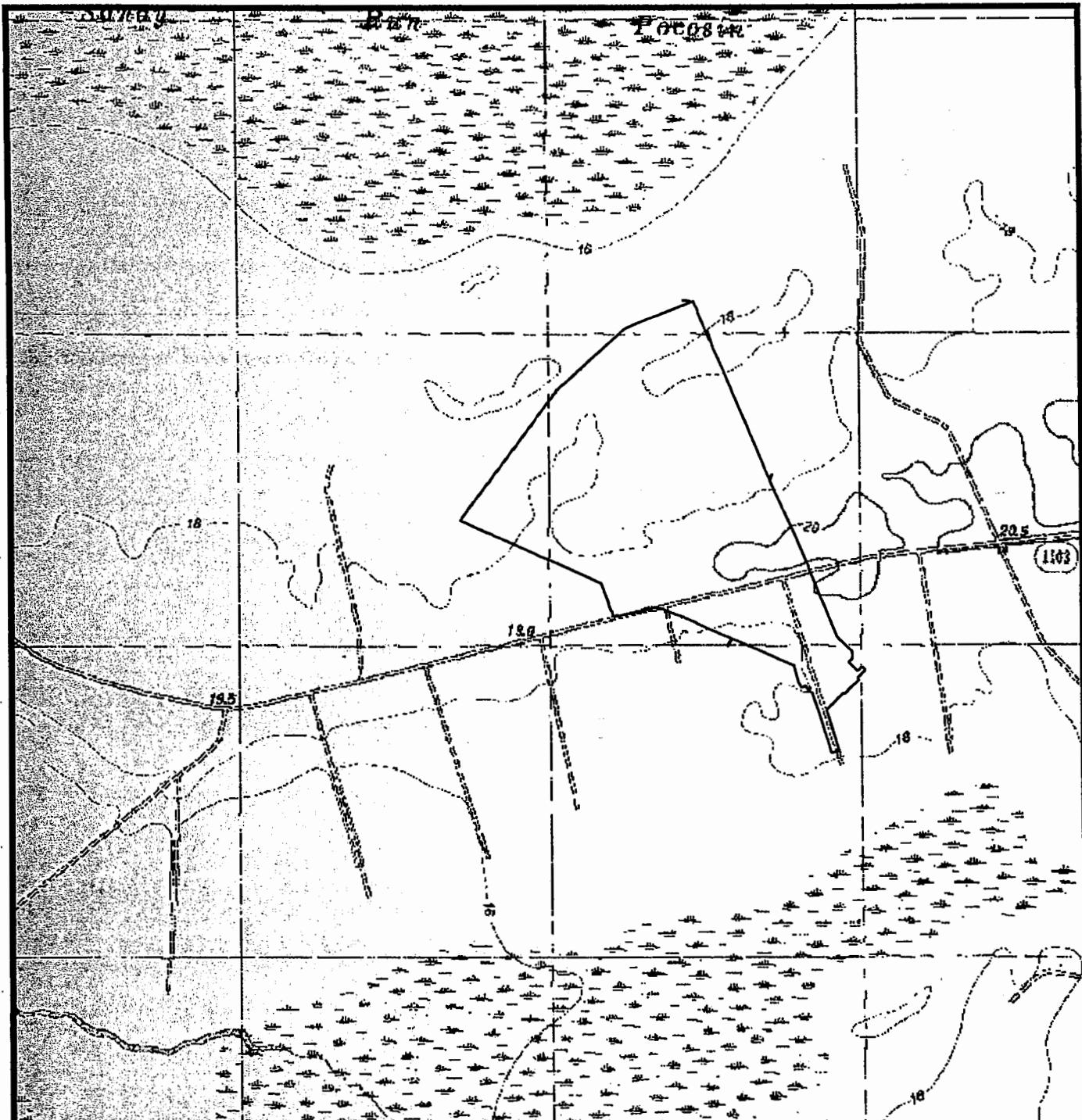
1 inch equals 8,333 feet

Map Source: Camp Lejeune Military Installation Map

**SR-8 MPMG
GSRA
MCB Camp Lejeune
Onslow County, NC
Individual Permit Application**

Prepared: March 2, 2006
Author: Land and Wildlife Resources Section
Organization: Marine Corps Base, Camp Lejeune
Environmental Conservation Branch

Figure 1. Vicinity Map



Site Boundary

0 1,500 3,000
Feet

Map Source: USGS 7.5 Minute Topographic Quadrangle, Folkstone

1 inch equals 1,500 feet

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Figure 2. Topographic Map



Site Boundary

Map Source: Soil Survey of Onslow County, North Carolina 1992

N
0 800 1,600
1 inch equals 800 feet

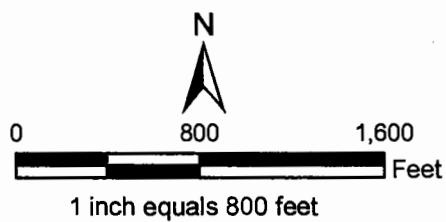
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Figure 3. Soils Map



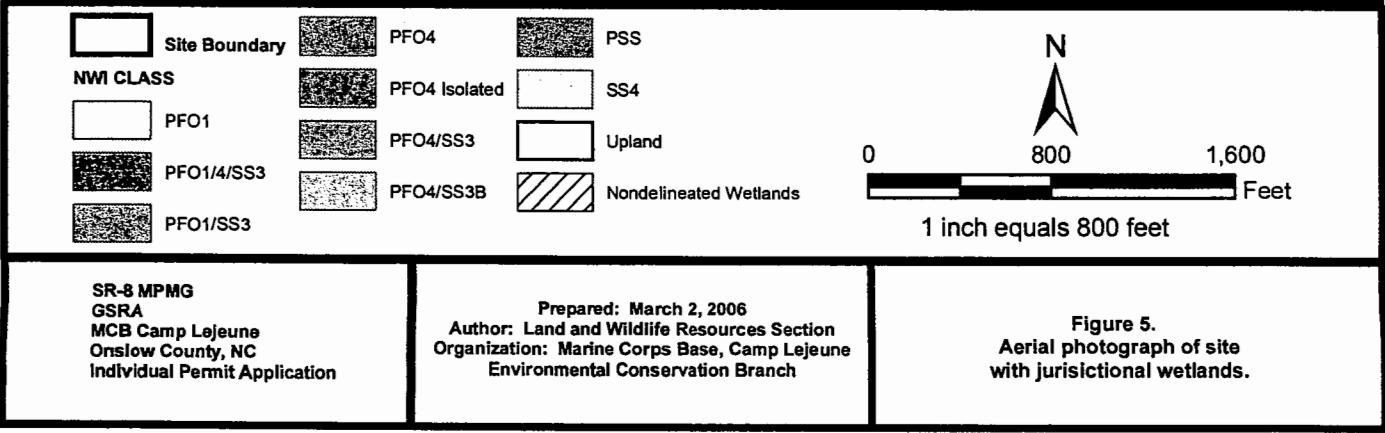
 Site Boundary

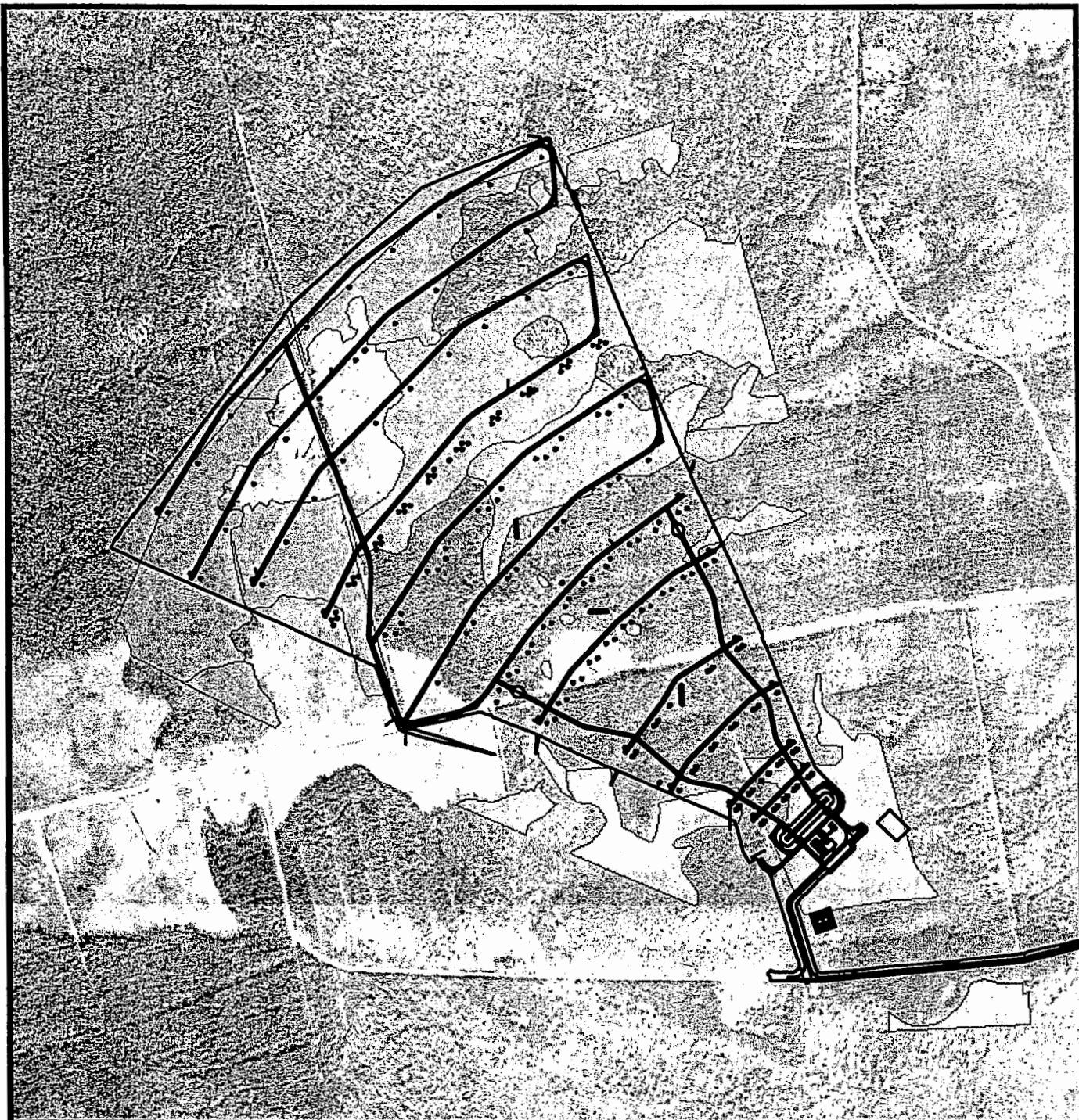


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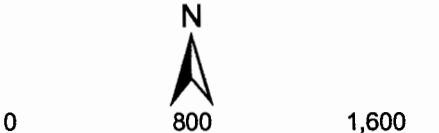
Figure 4.
Aerial photograph of site.





— SR-8 MPMG LAYOUT

■ Jurisdictional Wetlands

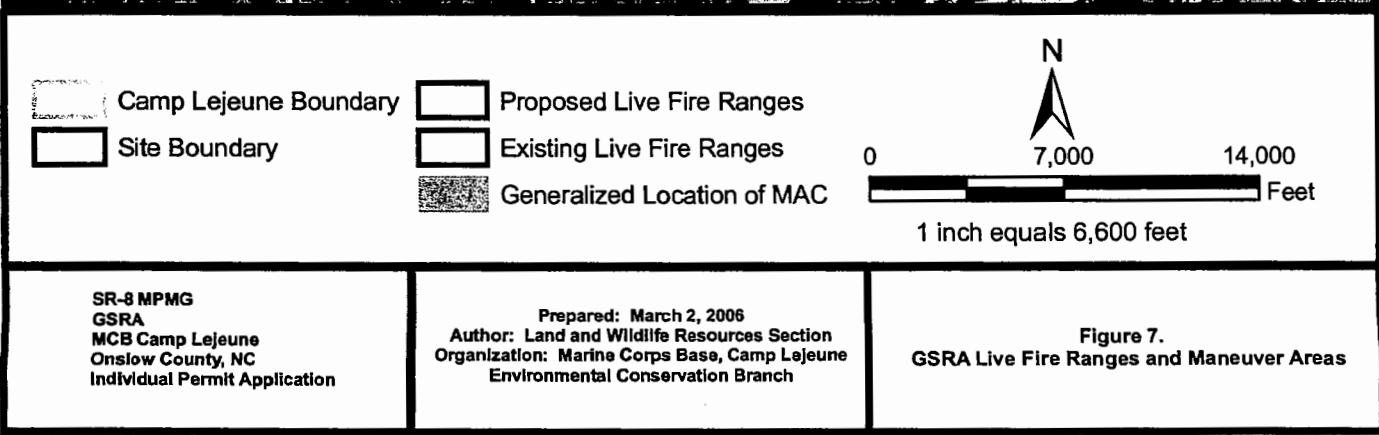


1 inch equals 800 feet

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MCB Camp Lejeune
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Figure 6. Project Layout.





GSRA Wetland Mitigation Bank

N

0 4,200 8,400
Feet

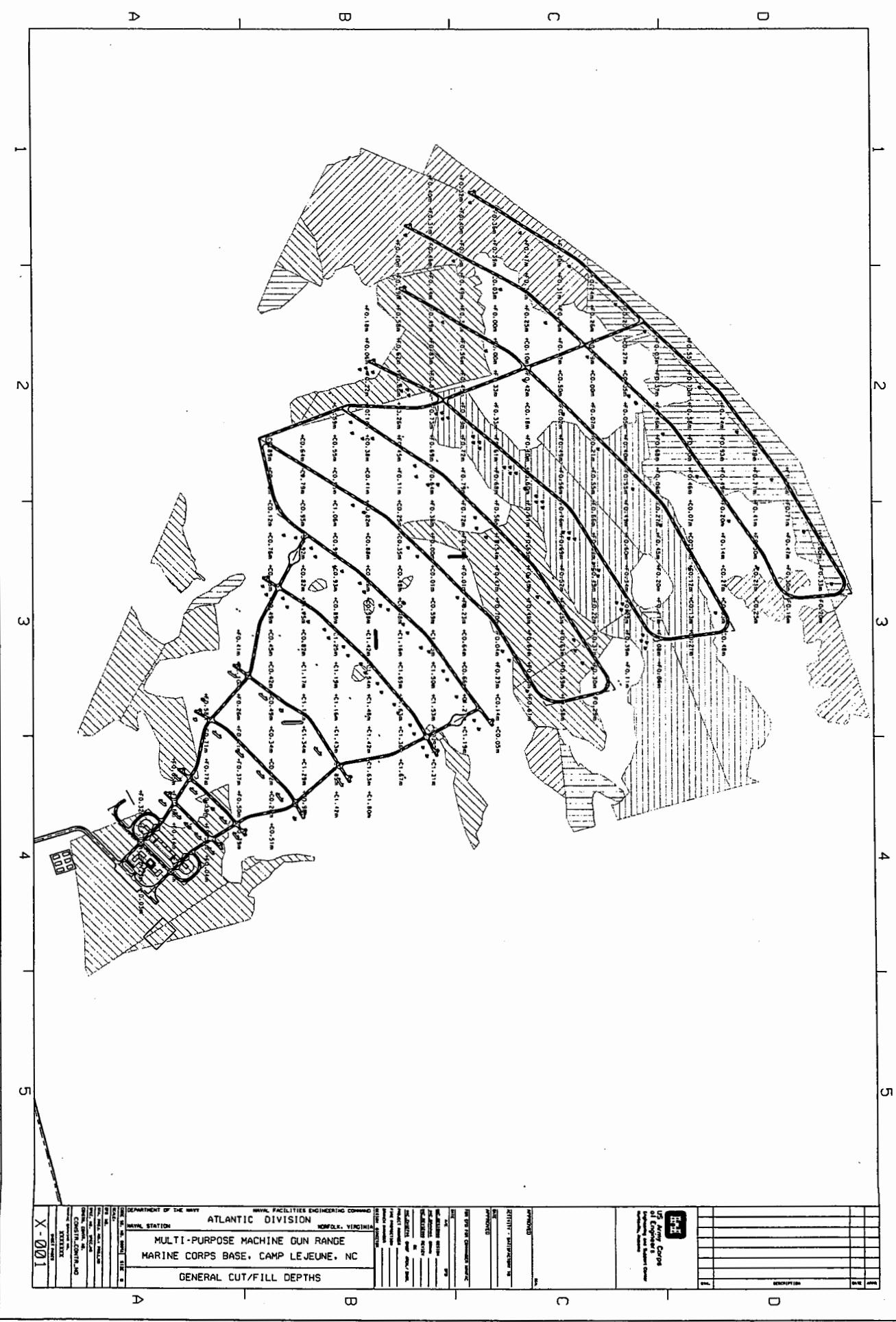
1 inch equals 4,200 feet

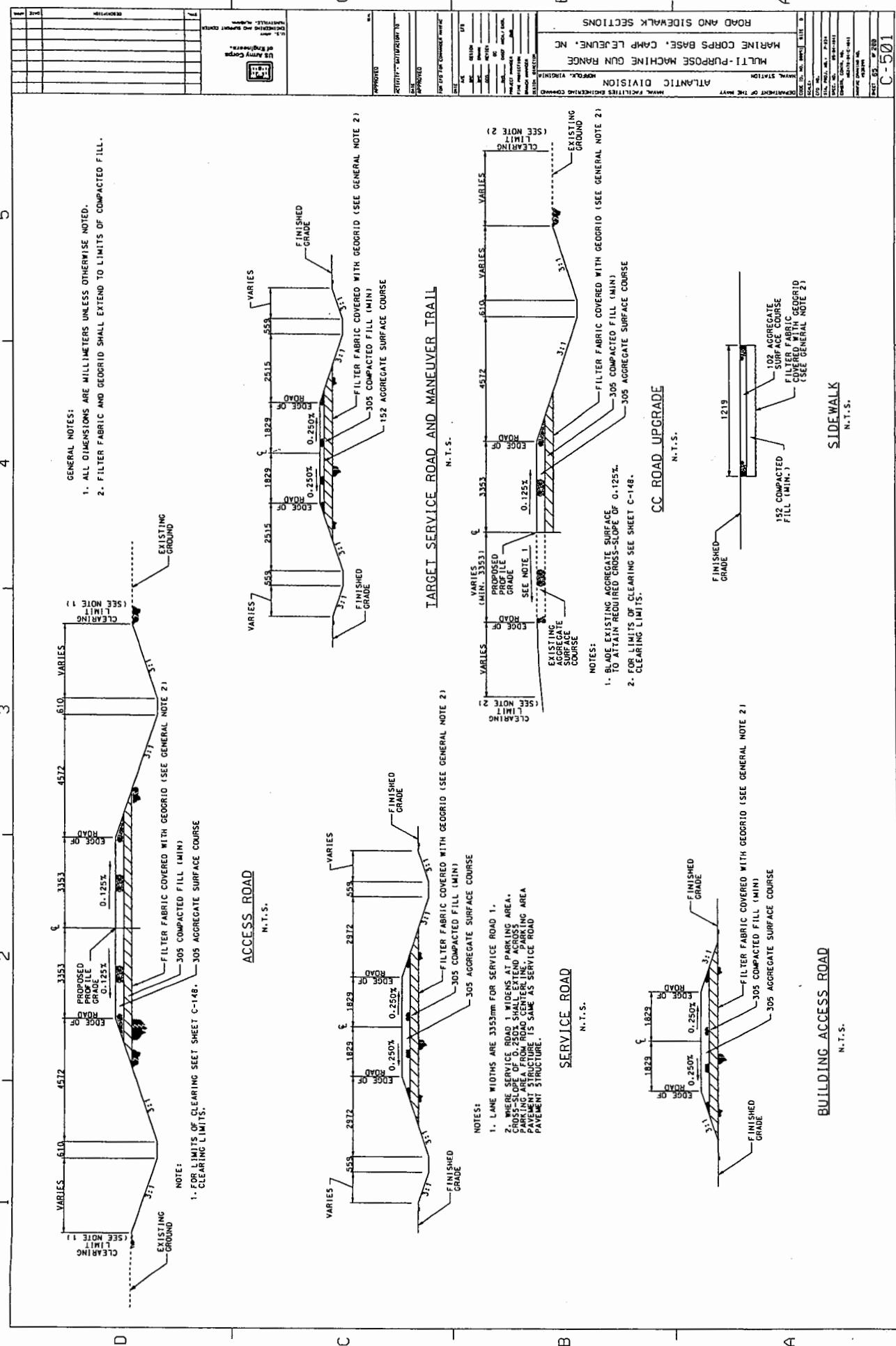
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Figure 8. GSRA Wetland Mitigation Bank

Designs/Drawings





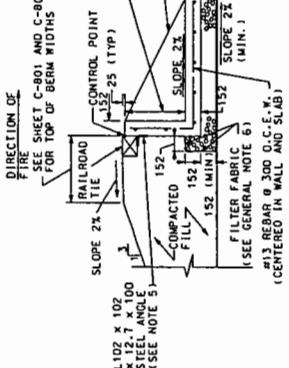
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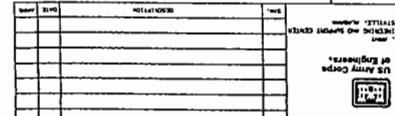
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SECTION A
N.T.S.
C-502/C-502

GENERAL NOTES:

1. CONCRETE SHALL DEVELOP A MINIMUM COMpressive STRENGTH OF 20 MPa IN 28 DAYS.
2. EMPLACEMENTS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE OR CAST-IN-PLACE STRUCTURES SHALL BE PRECAST.
3. AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR SURFACED CONSISTENT WITH THE NATURAL SURROUNDINGS. GROUND COVER SHALL NOT REDUCE TARGET VISIBILITY.
4. PLACE TREATED RAILROAD TIES AGAINST CONCRETE WALL ON L102 X 102 X 12.7 X 100 STEEL ANGLES SPACED A MAXIMUM OF 900 ON CENTER. ATTACH ANGLE TO CONCRETE WALL WITH CONCRETE ANCHORS.
5. ALL DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE NOTED.
6. FILTER FABRIC AND GEOTRID SHALL EXTEND TO LIMITS OF CAPILLARY WATER BARRIER AND COMPACTED FILL.



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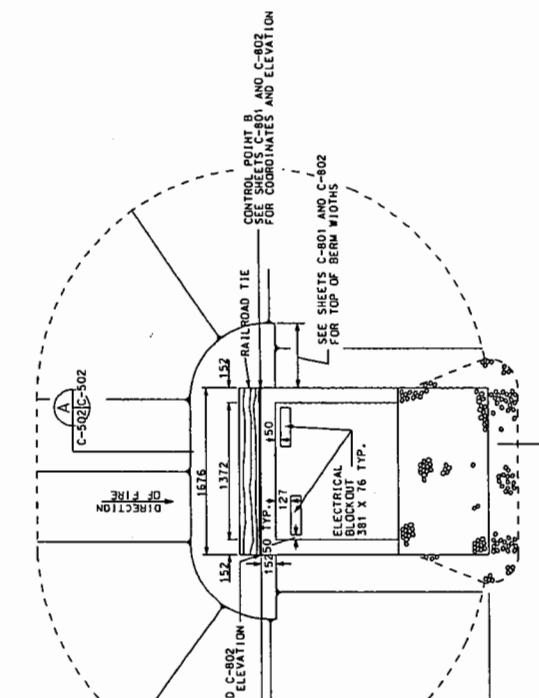
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GENERAL NOTES:
 1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 20 MPa IN 28 DAYS.
 2. EMPLACEMENTS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE OR CAST-IN-PLACE STRUCTURES SHALL BE PRECAST.
 3. AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR SURFACE CONSISTENT WITH THE NATURAL SURROUNDINGS.
 4. PLACE TREATED RAILROAD TIES AGAINST CONCRETE WALL ON L102 X 102 X 12.7 X 100 STEEL ANGLES SPACED A MAXIMUM OF 900 MM ON CENTER. ATTACH ANGLE TO CONCRETE WALL WITH CONCRETE ANCHORS.
 5. ALL DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE NOTED.
 6. FILTER FABRIC AND GEOTRID SHALL EXTEND TO LIMITS OF CAPILLARY WATER BARRIER AND COMPACTED FILL.

SECTION A
N.T.S.
C-502/C-502



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GENERAL NOTES.

1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa IN 28 DAYS.
 2. ENLACEMENTS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE. STRUCTURES SHALL BE CAST-IN-PLACE.
 3. AREA DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR RESURFACED CONSISTENT WITH THE NATURAL SURROUNDINGS. GROUNDED COVER SHALL BE REDUCE TARGET VISIBILITY.
 4. PLACE TREATED RAILROAD TIES AGAINST CONCRETE WALL ON 1.00M X 1.27M X 0.06M ANGLES SPACED 1.00M CENTER TO CENTER. ATTACH ANGLE TO CONCRETE WALL WITH CORD-E-EZ SCREWS.
 5. ALL DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE NOTED.
 6. FILTER FABRIC AND GEOTEXTILE SHALL EXTEND TO LIMITS OF CLOAKED WATER BARRIER AND COMPACTED FILL.

SECTION A
N.T.S. C-501C-503

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DOUBLE STATIONARY INFANTRY TARGET (SIT) EMPLACEMENT

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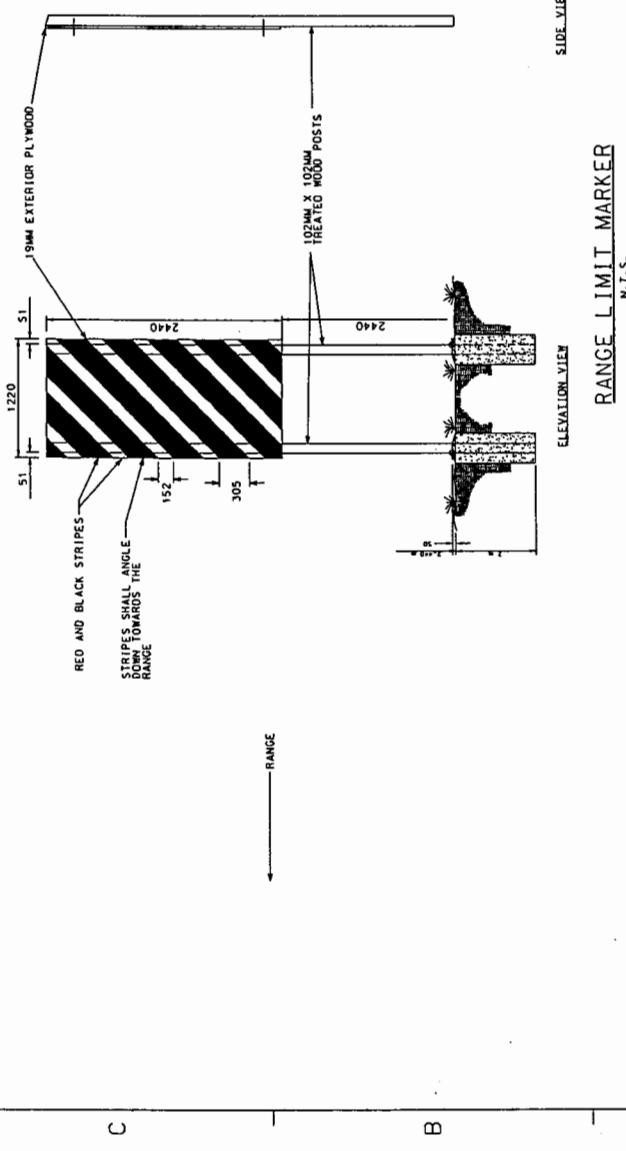
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GENERAL NOTE •

1. ALL DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE NOTED.
 2. SEE SHEET E-505 FOR RANGE LIMIT MARKER POWER AND LIGHT FIXTURE MOUNTING DETAIL.
 3. LOCATION OF LIMIT MARKERS TO BE FIELD VERIFIED BY BASE RANGE CLERK OFFICER



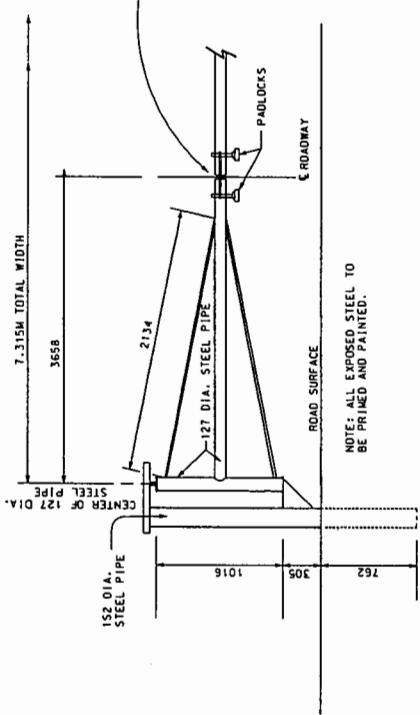
NOTE:

1. DIAGONAL STRIPES ON LIMIT MARKER SHALL ANGLE DOWN TOWARDS THE RANGE.
2. LOCATION OF LIMIT MARKERS (A) TO BE FIELD VERIFIED BY BASE RANGE SAFETY OFFICER.

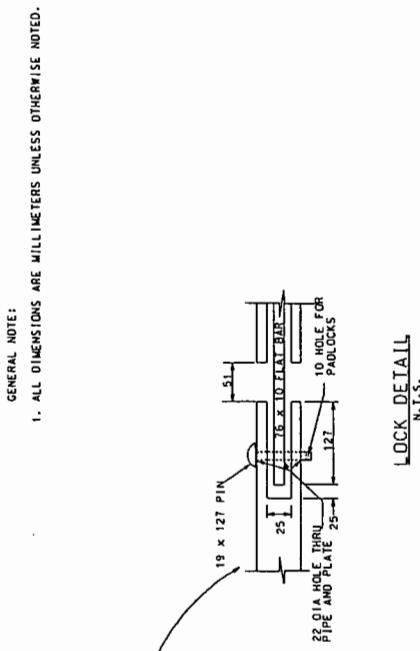
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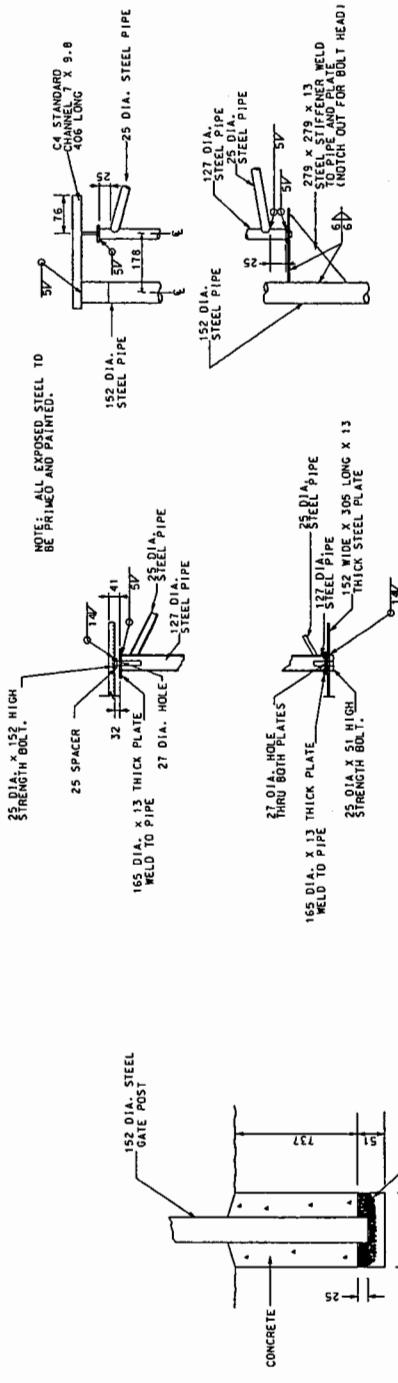
GENERAL NOTE:
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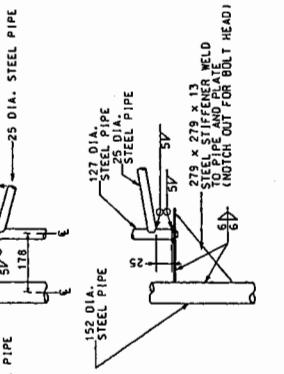
SECURITY BARRIER ELEVATION
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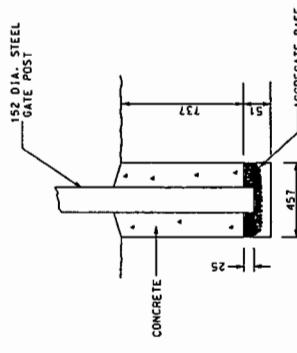
LOCK DETAIL
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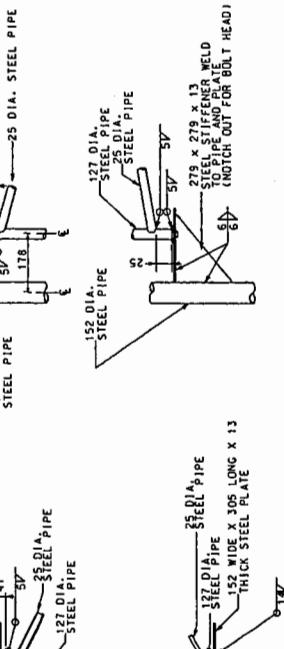
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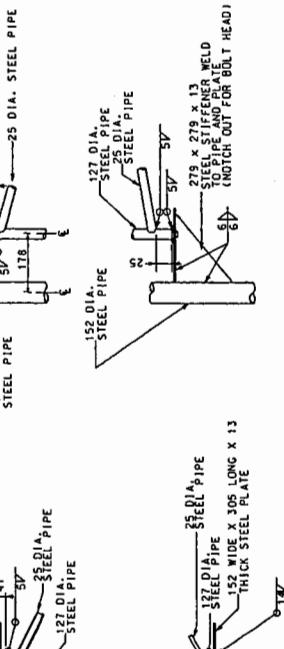
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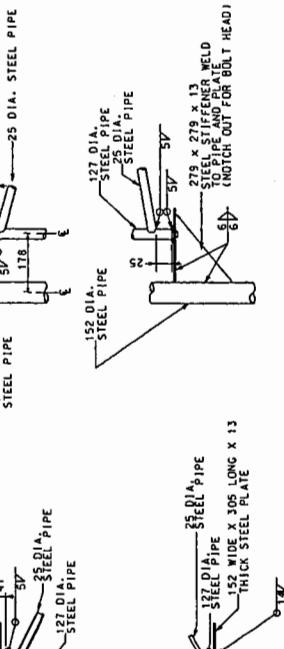
POST FOUNDATION
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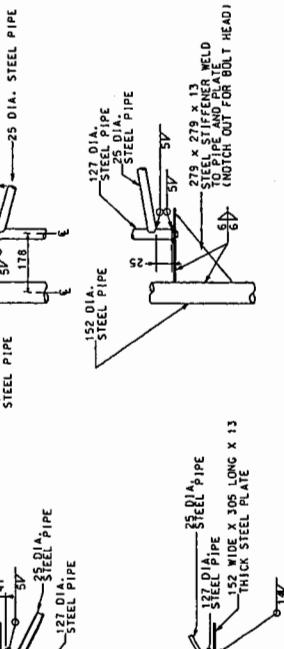
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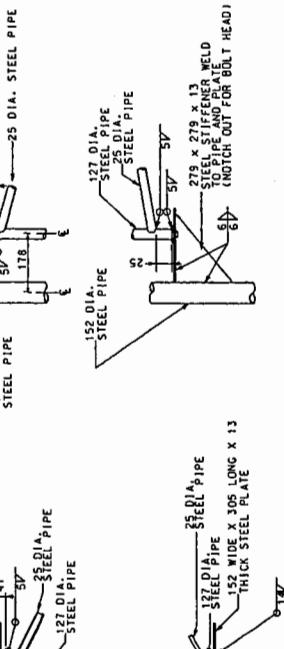
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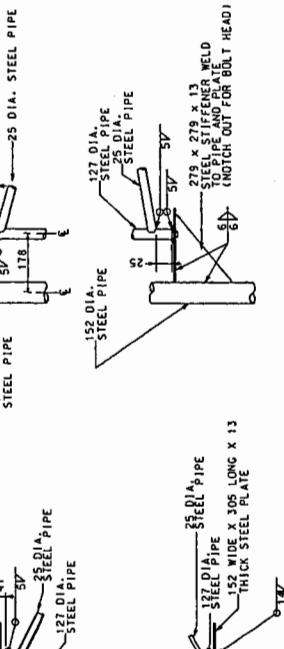
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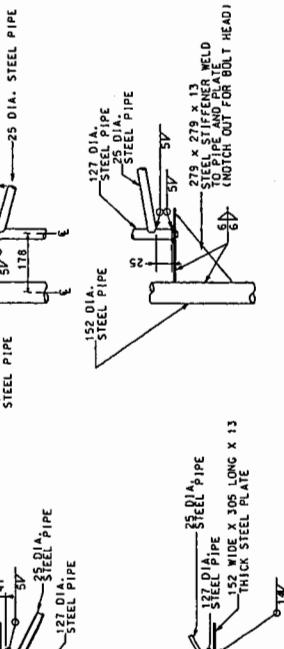
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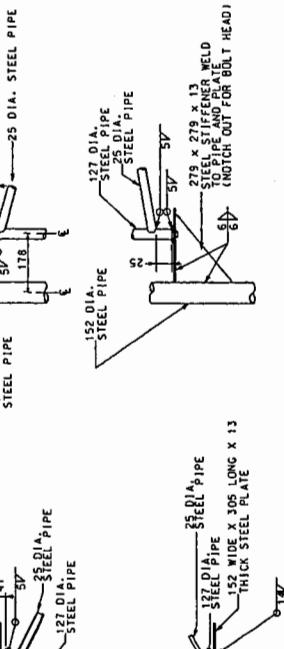
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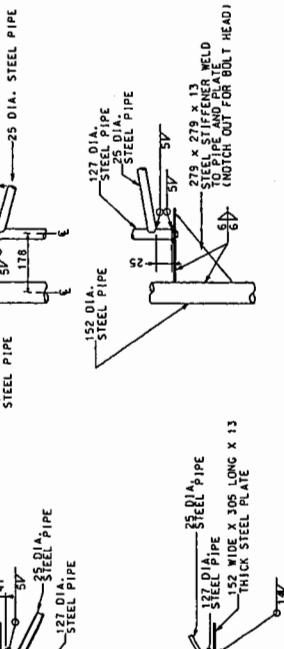
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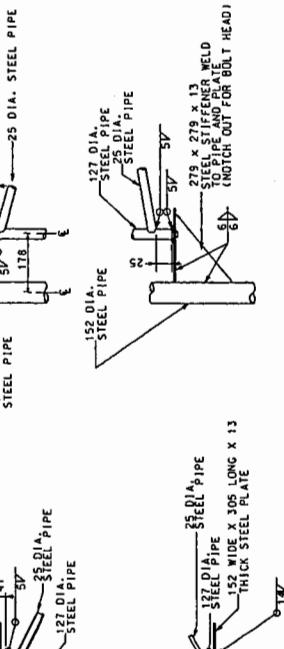
SECURITY BARRIER DETAILS
N.T.S.



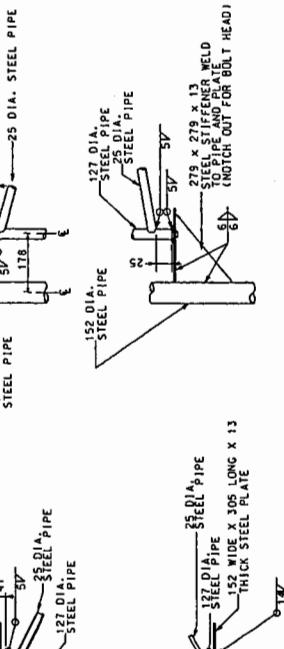
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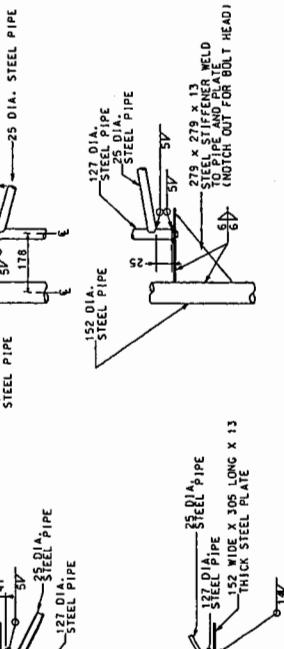
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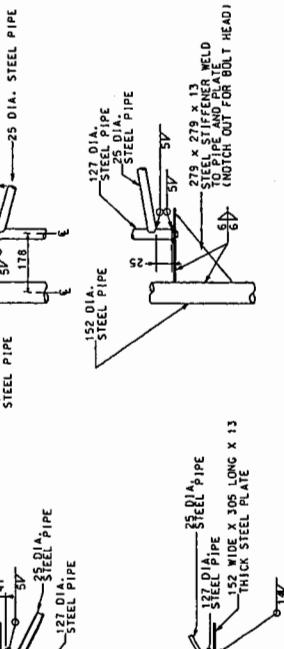
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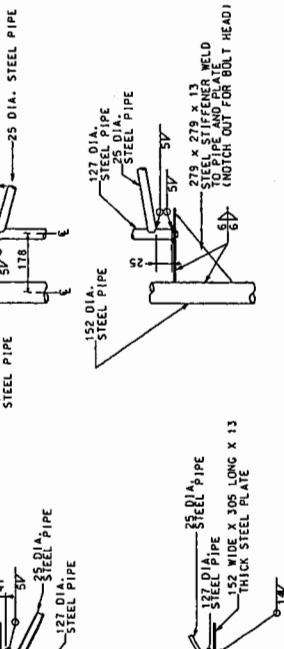
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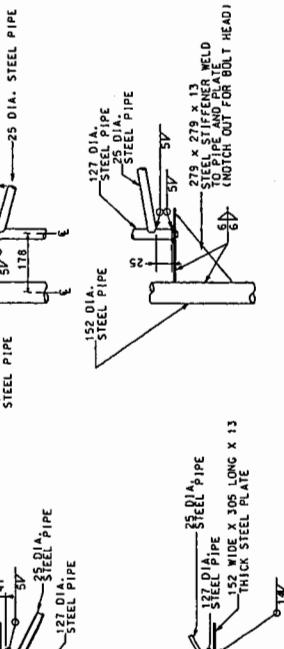
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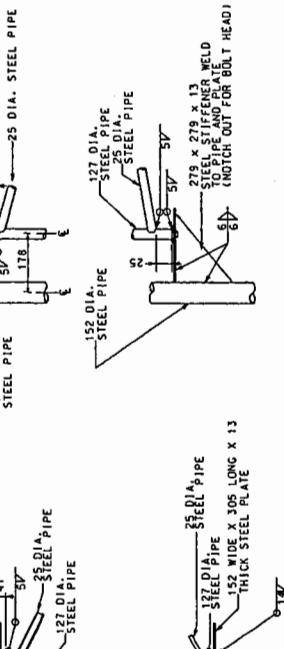
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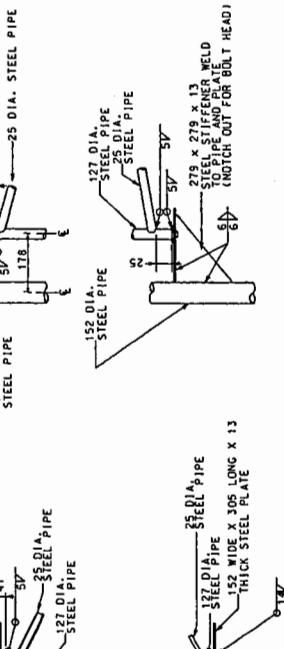
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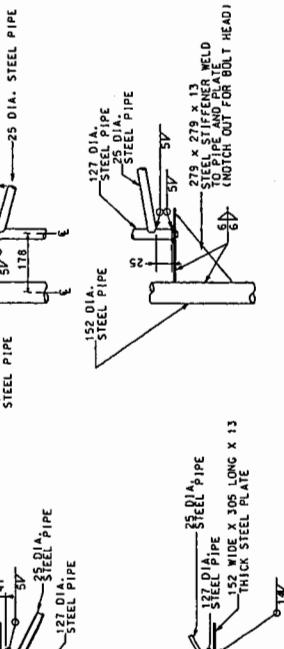
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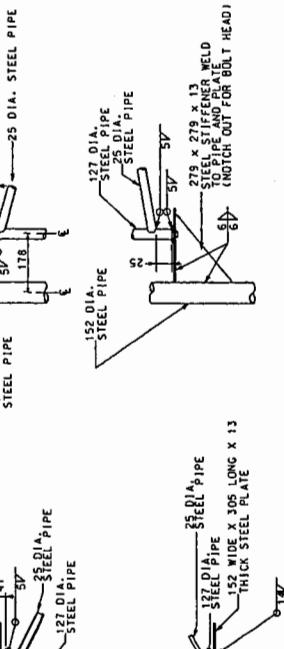
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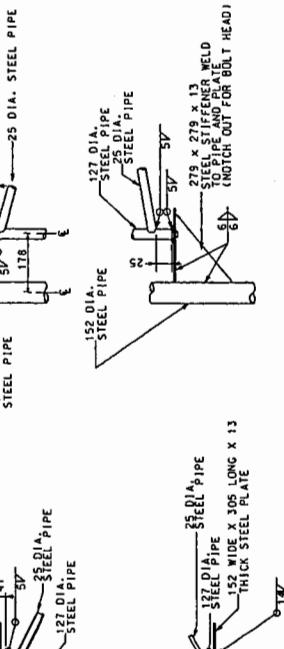
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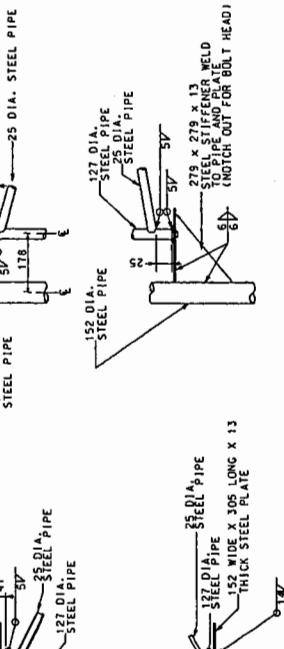
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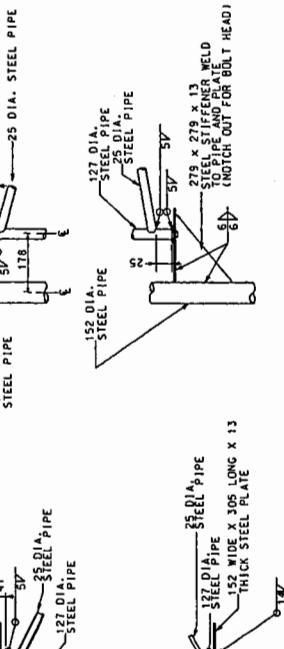
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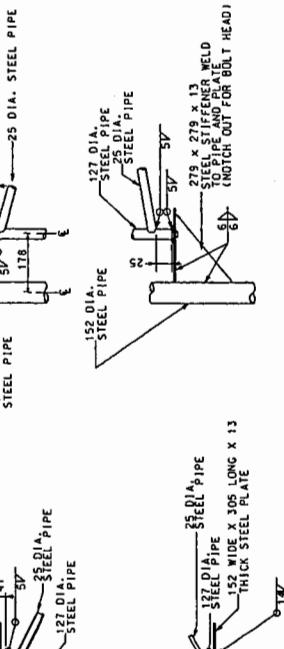
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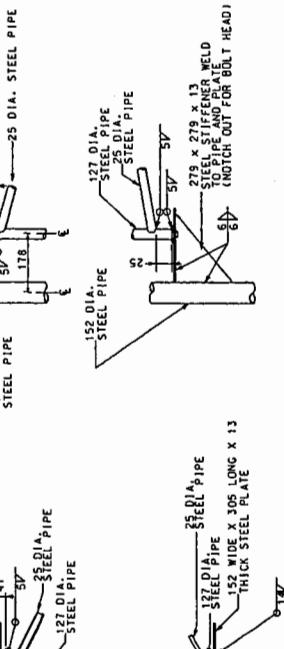
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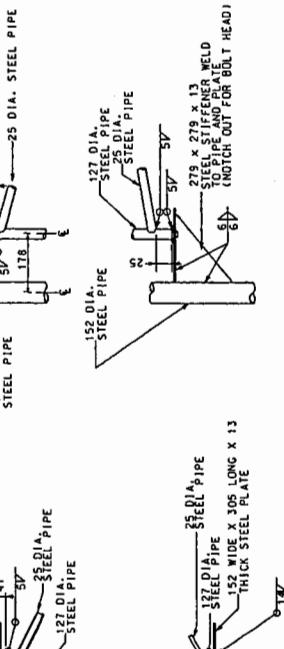
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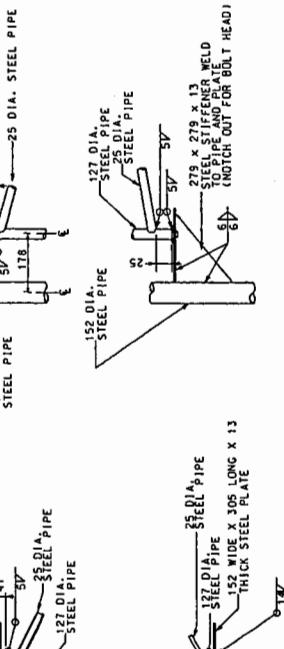
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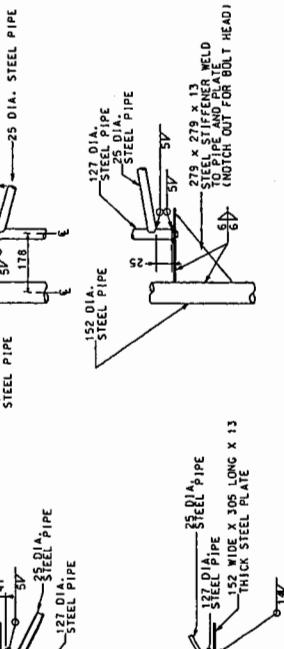
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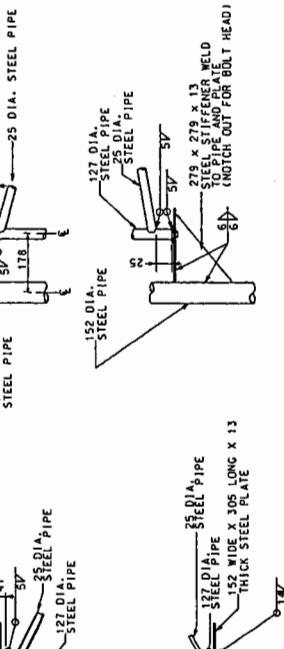
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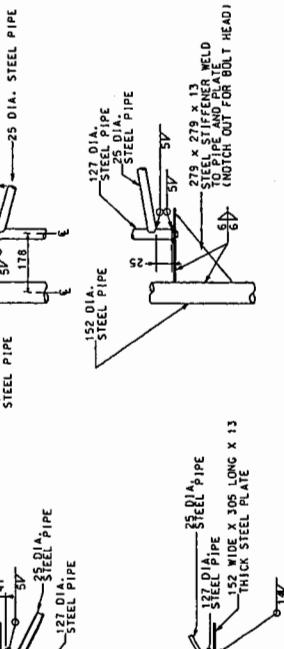
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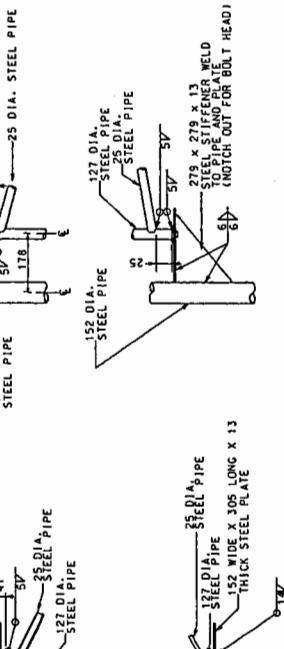
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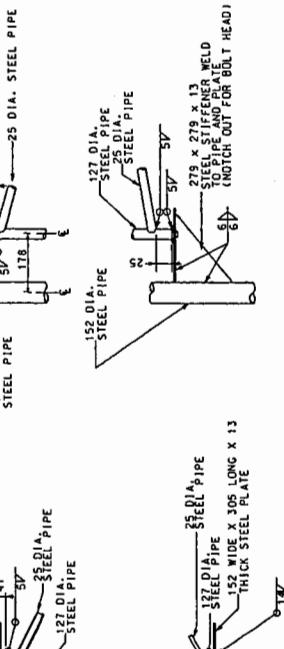
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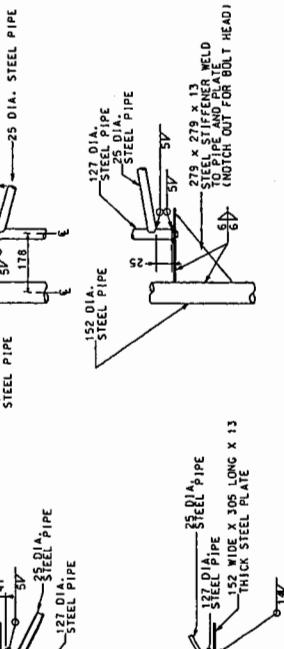
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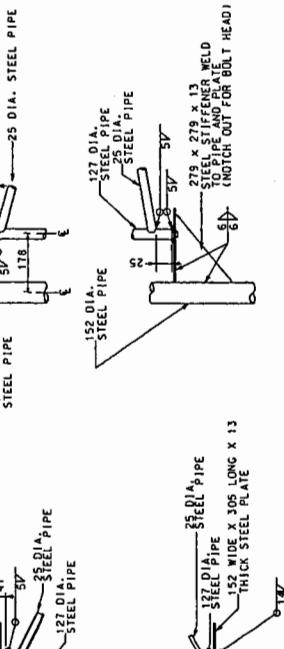
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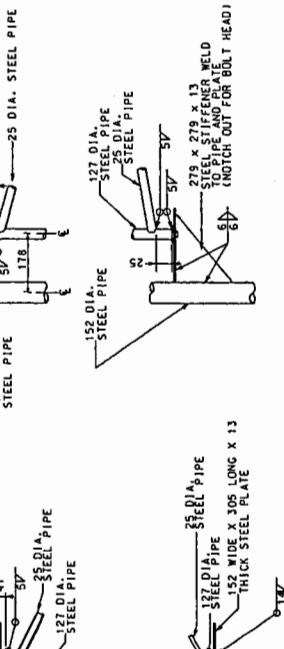
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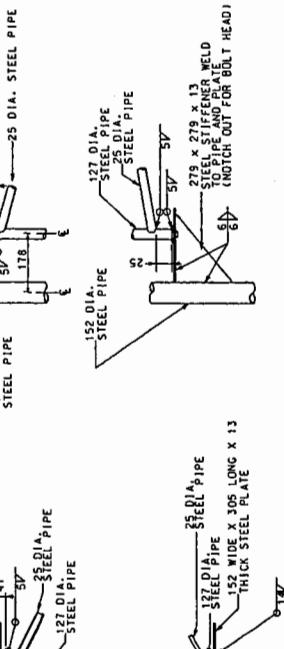
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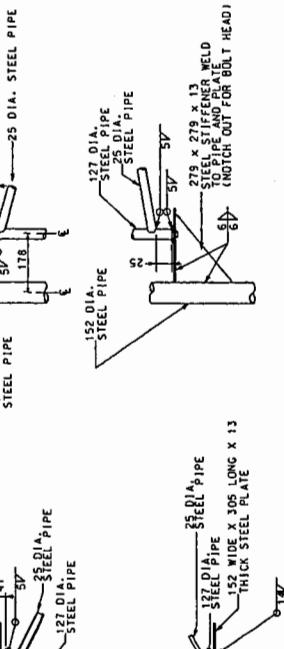
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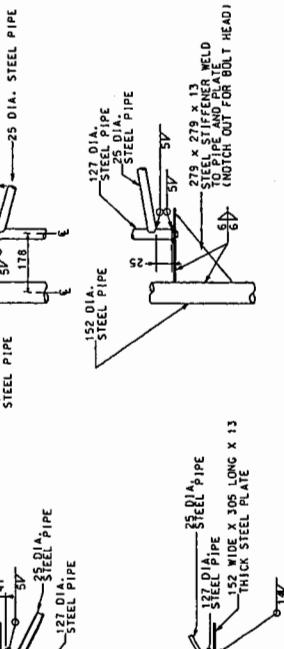
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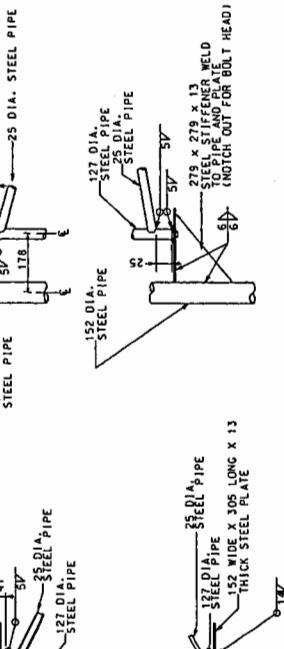
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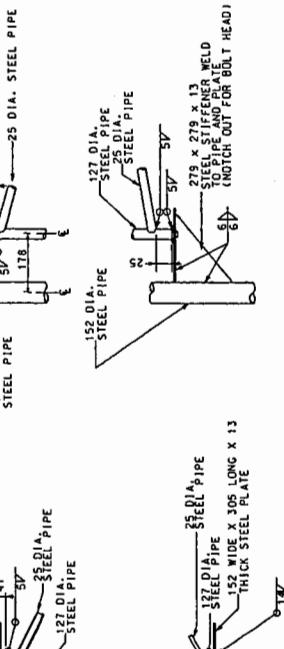
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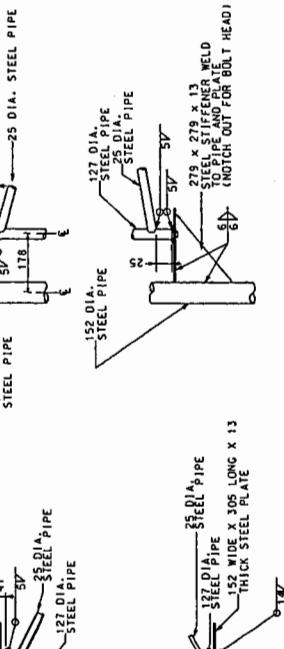
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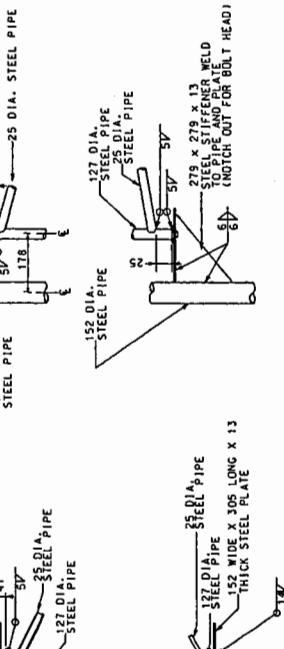
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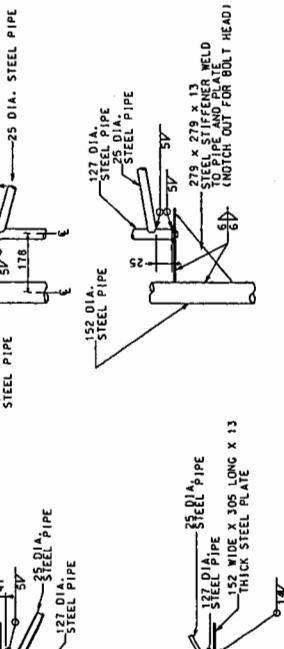
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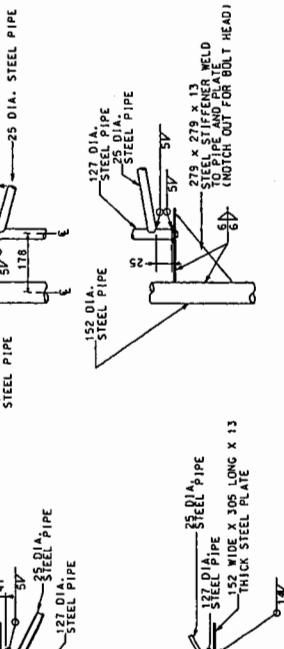
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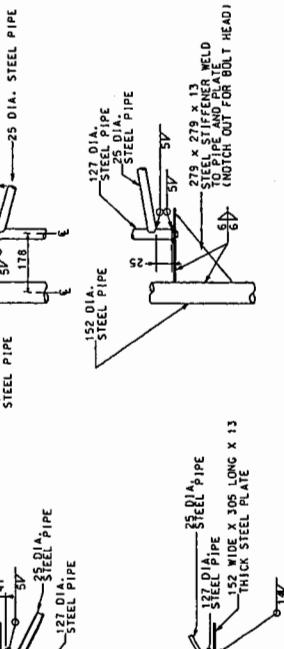
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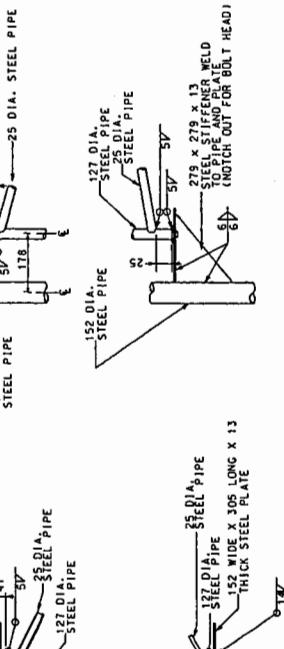
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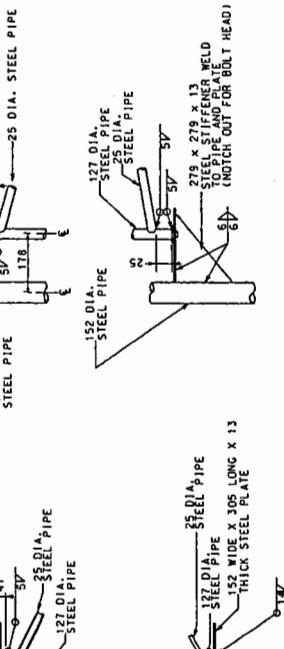
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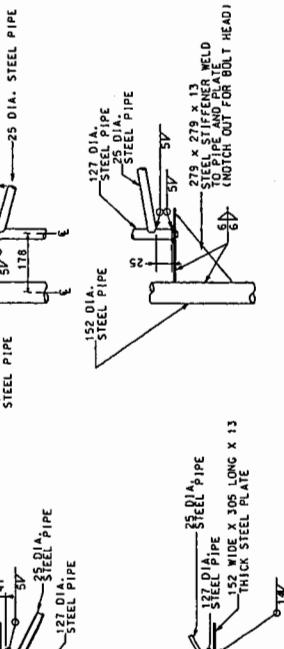
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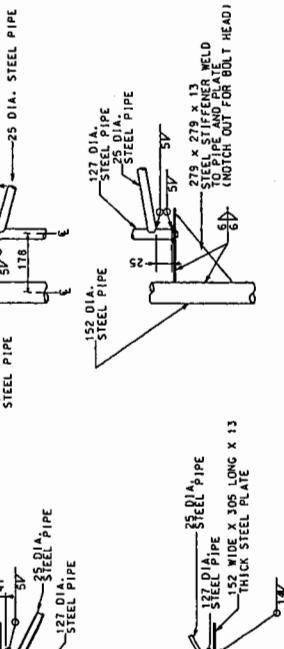
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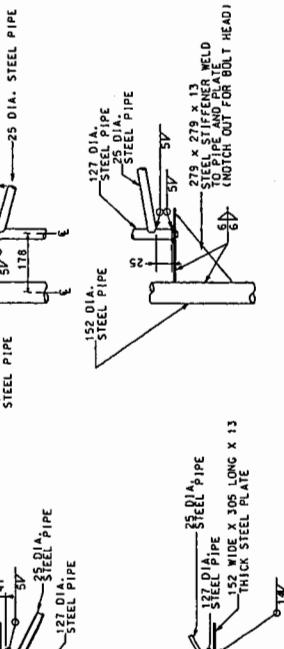
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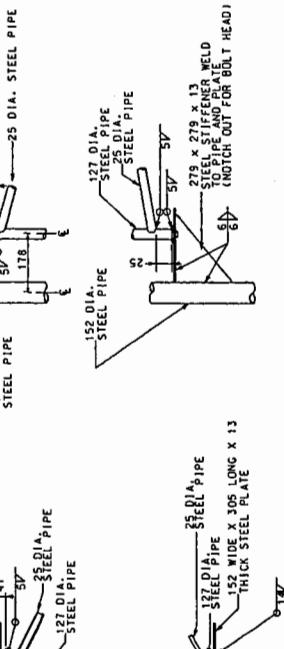
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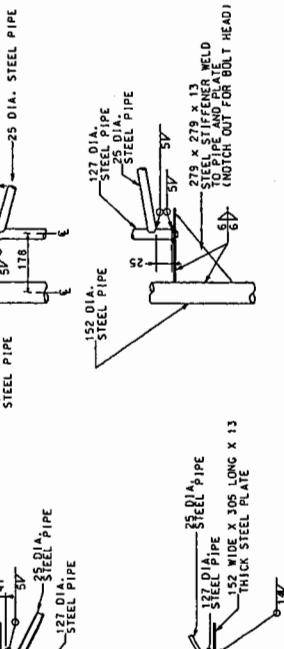
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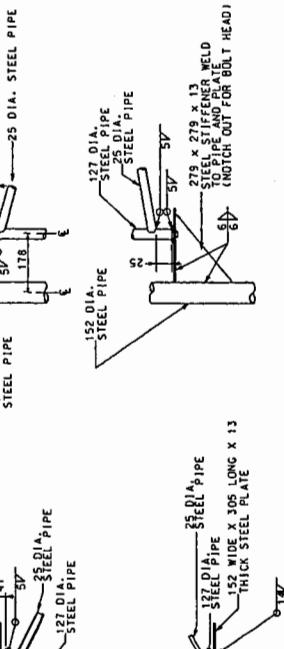
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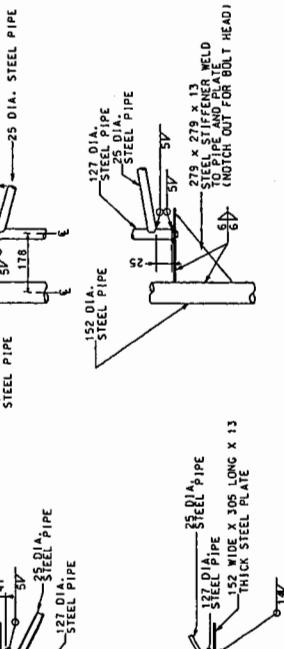
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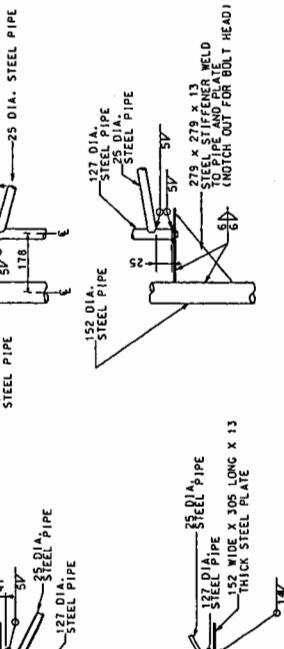
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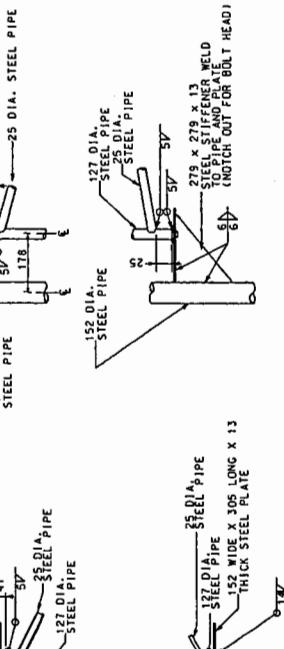
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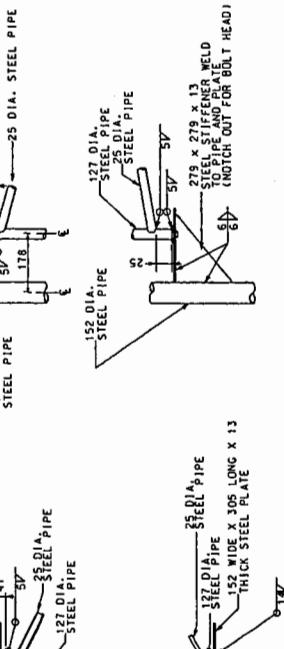
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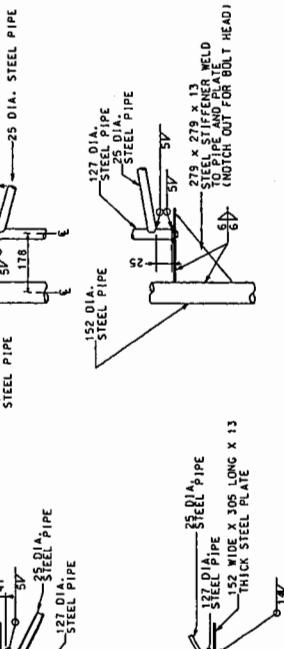
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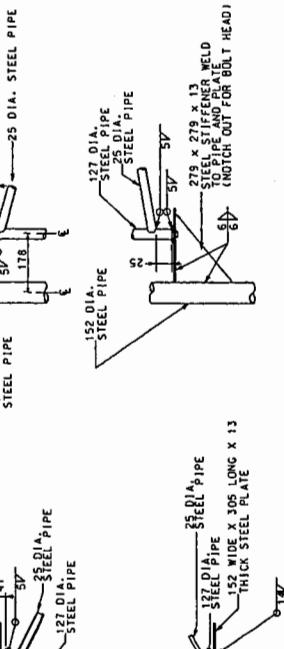
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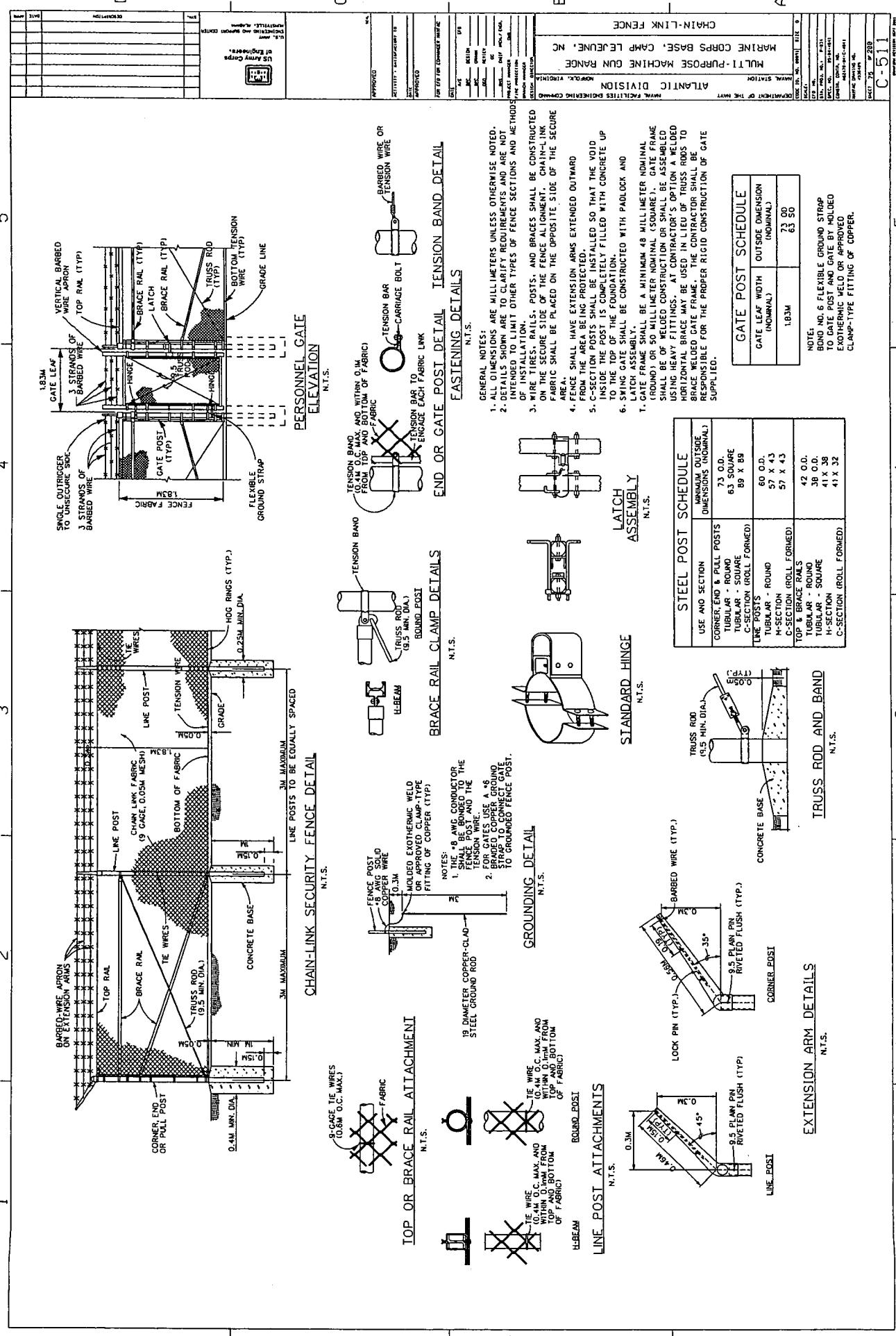


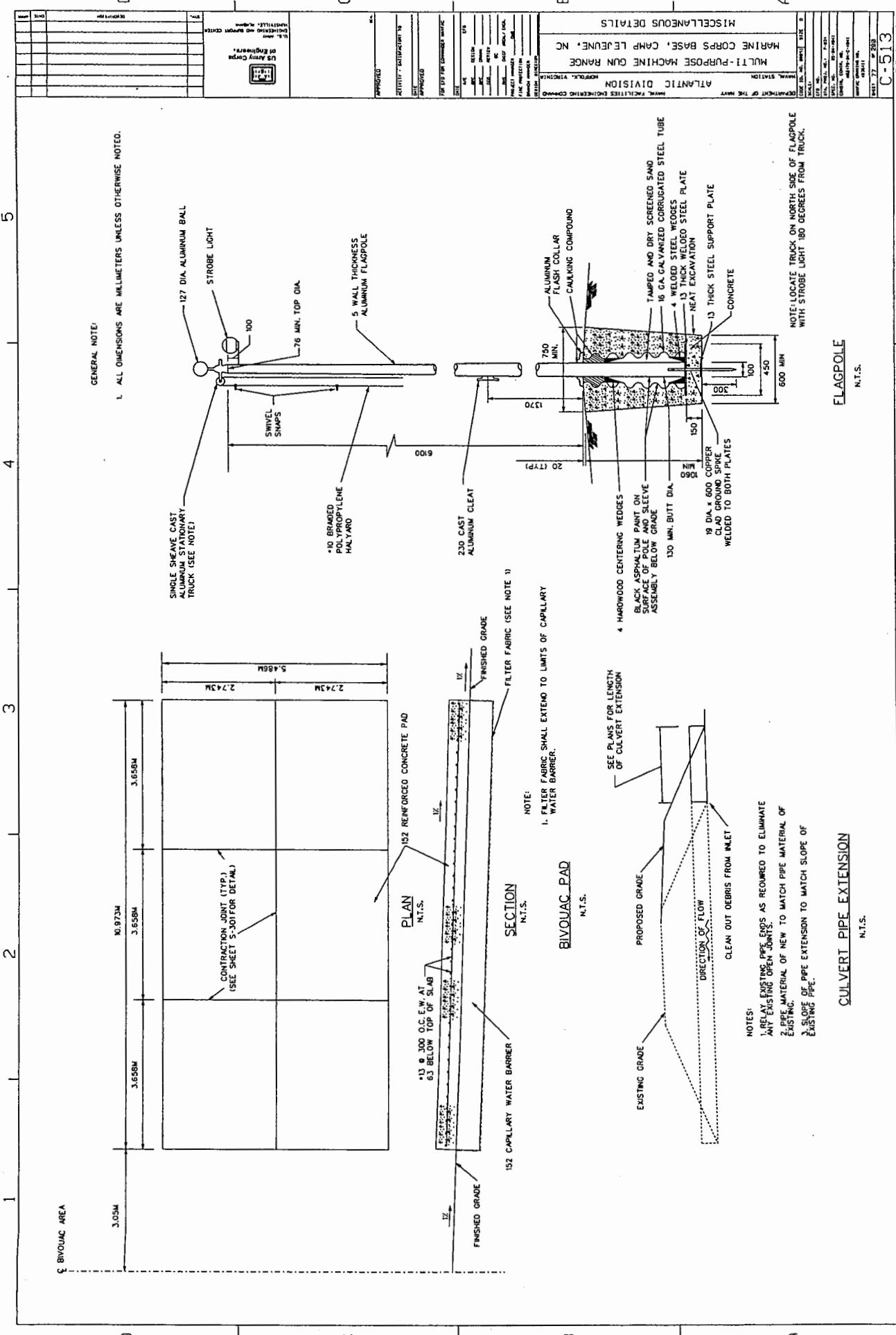
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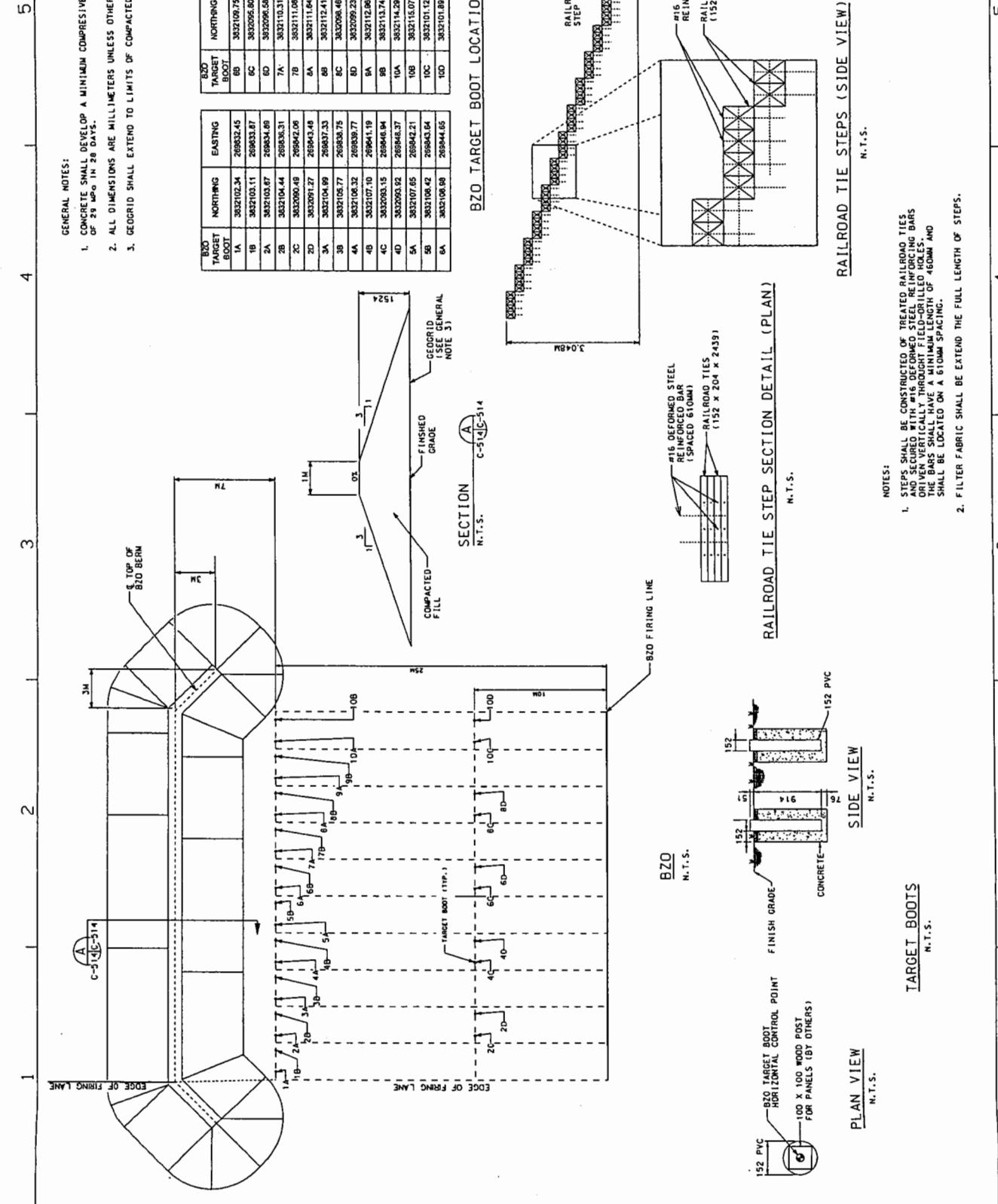
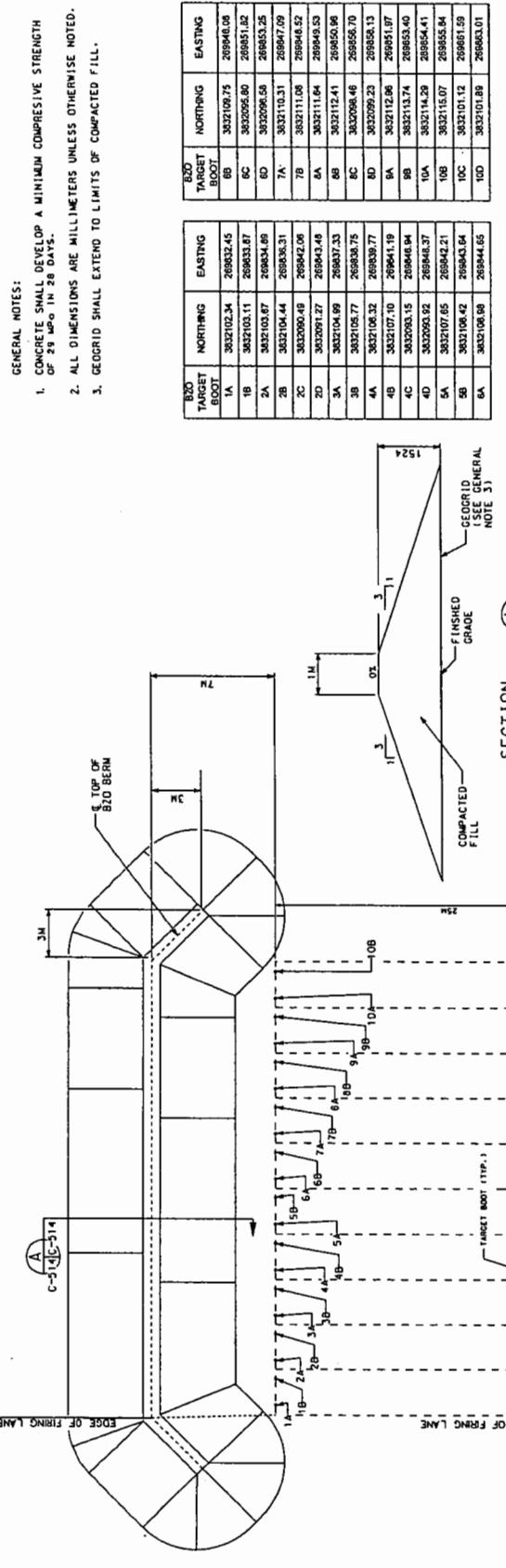
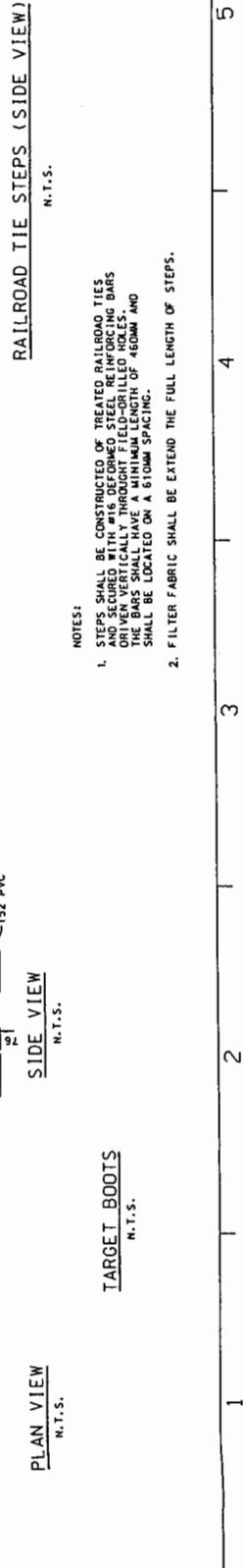
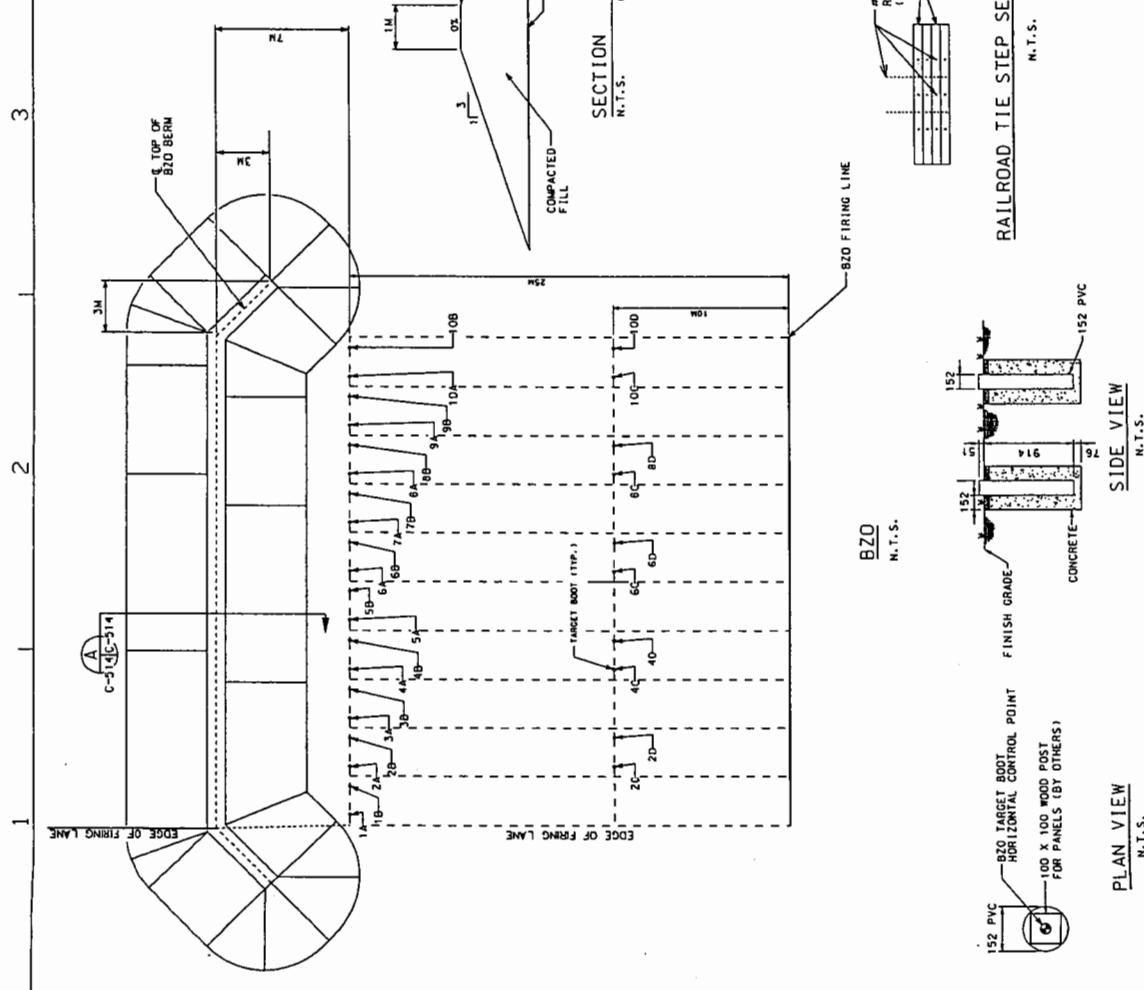


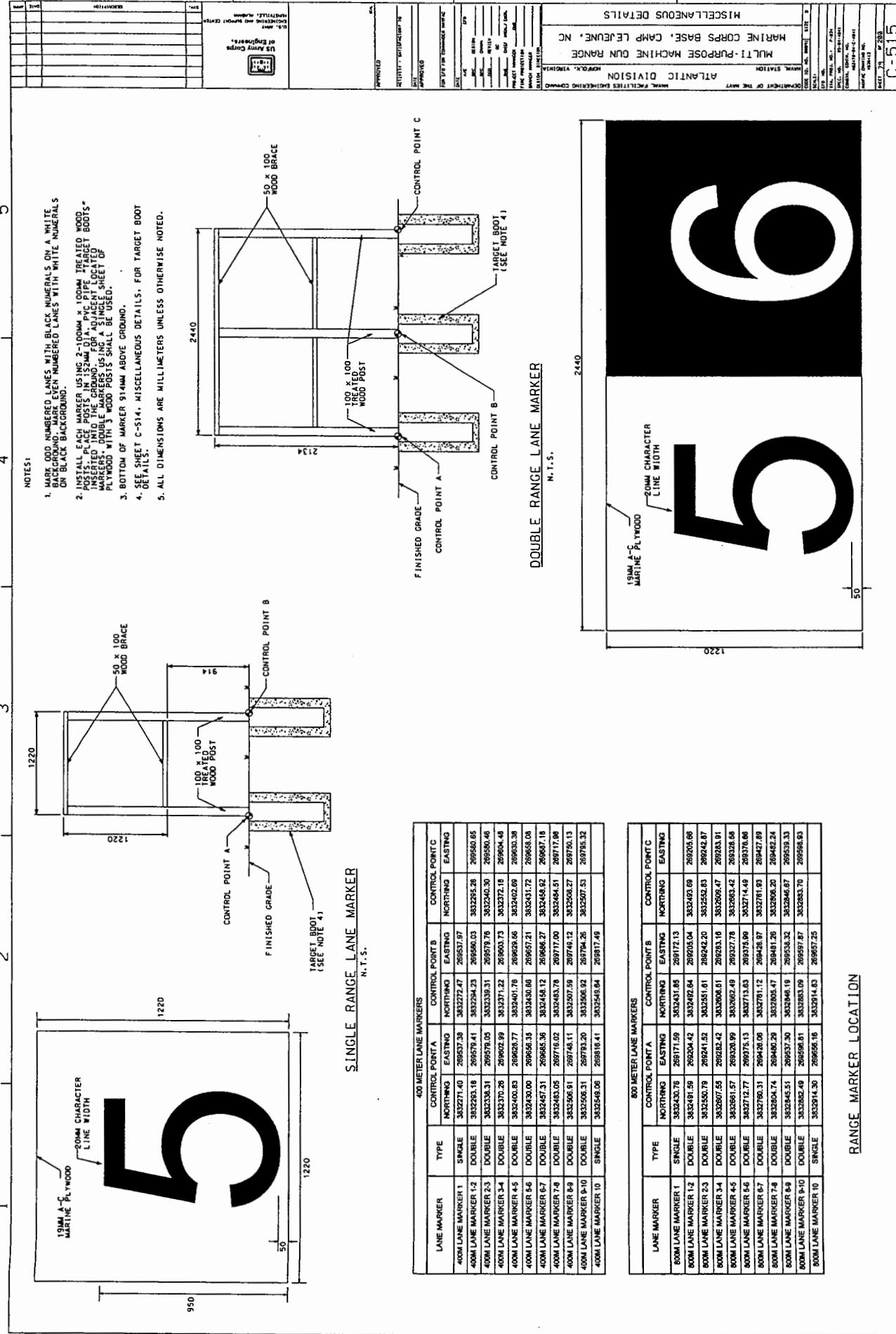
SECURITY BARRIER DETAILS
N.T.S.











C-515

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LEGEND

EXISTING

NEW

ABBREVIATIONS USED

BZO BATTLE SIGHT ZERO

CONCRETE MONUMENT

CSP CORRUGATED STEEL PIPE

EASTING

ELEVATION

FINISHED FLOOR ELEVATION

METER

MM MILLIMETER

MIT MOVING INFANTRY TARGET REPLACEMENT

N NORTHING

NOT TO SCALE

POWER CENTER REPLACEMENT

RADIIUS

SIT STATIONARY INFANTRY TARGET REPLACEMENT

STA STATION

TYPICAL

BULLARD
CABLE PIERSTAL
CONCRETE MONUMENT
FIRE HYDRANT
GUY WIRE
POWERPOLE
SANITARY SEWER MANHOLE
SIGN

SOIL BORING

WATER METER

BUILDING CORNER

CONCRETE PAD

GRAVEL ROAD

FENCE

MAJOR CONTOUR

MINOR CONTOUR

TREELINE

WETLAND AREAS

ROAD CENTER LINE

SIT

MIT

PC

SURVEY CONTROL POINTS

PT#

NORTHING (Y)

EASTING (X)

ELEVATION (Z)

CLJ 100

3823992.231

271932.566

22.142

CLJ 200

3823899.042

271822.454

21.769

J116

3833071.328

272056.111

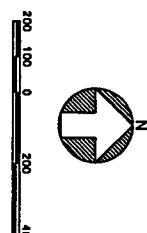
21.204

NOTES:

- ALL HATCHED AREAS ARE WETLAND AREAS.
- CLJ 100 AND CLJ 200 ARE 3 1/2 INCH DIA. BRASS SURVEY MARKERS SET IN CONCRETE AND STAMPED CORPS OF ENGINEERS, YEAR 2005, WITH POINT DESTINATION.
- J116 IS A NORTH CAROLINA GEODETIC SURVEY CONTROL MARKER.

A.J. CLJ 200
A.J. CLJ 100

A.J. J116



DEPARTMENT OF THE NAVY		ATLANTIC DIVISION		MARINE FACILITIES ENGINEERING COMMAND		MARINE STATION NORFOLK, VIRGINIA		U.S. ARMY SURVEYORS AND SUPPORT CENTER		MONTGOMERY ALABAMA	
NAME	GRADE	NAME	GRADE	NAME	GRADE	NAME	GRADE	NAME	GRADE	NAME	GRADE
JOHN	MAJOR	JOHN	MAJOR	JOHN	MAJOR	JOHN	MAJOR	JOHN	MAJOR	JOHN	MAJOR
DOE	MAJOR	DOE	MAJOR	DOE	MAJOR	DOE	MAJOR	DOE	MAJOR	DOE	MAJOR

C-101

1

2

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4

5

A

B

C

D

1

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3

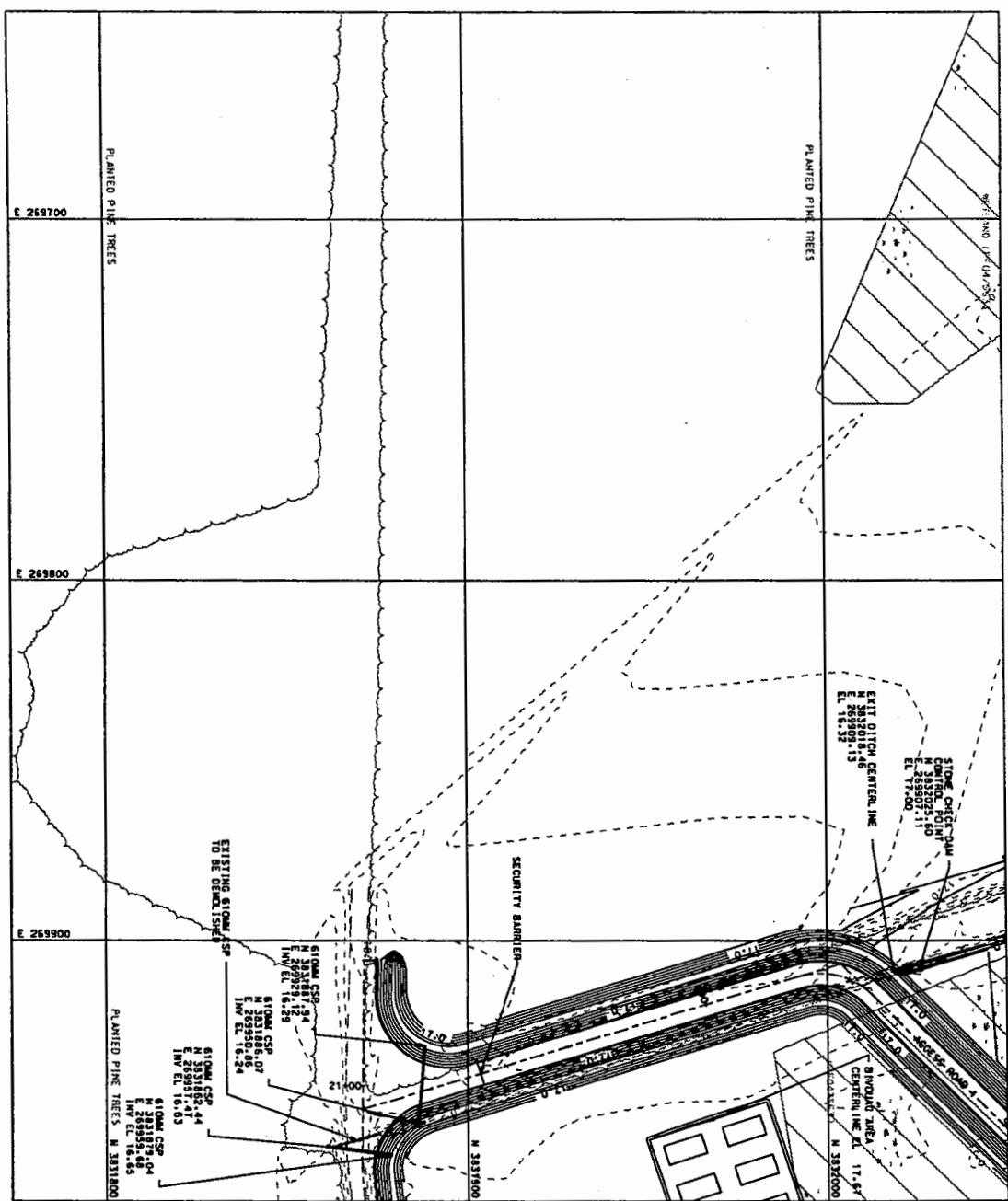
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B

C

D

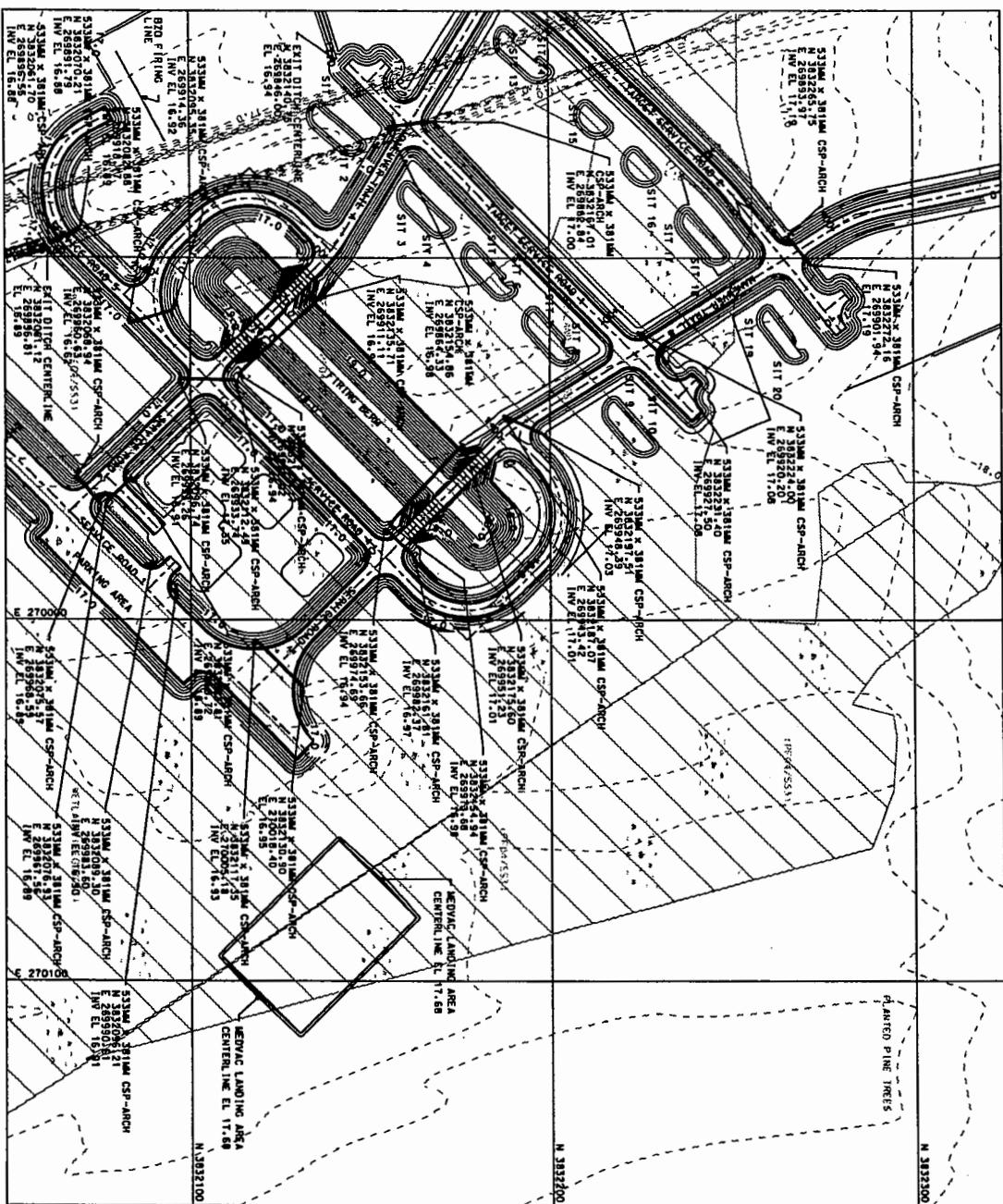


1

2. SEE SHEET C-515. MISCELLANEOUS CLEARING LIMIT. SECTIONS FOR CC ROAD UPGRADE AND DETAILS, FOR EXTENDING EXISTING
 3. SEE SHEET C-512. MISCELLANEOUS DETAILS, FOR GRADING AT BIWIDAC AREA.
 4. SEE SHEET C-501. ROAD AND SIDEWALK SECTIONS, FOR ROAD SECTIONS.
 5. SEE SHEET C-512, MISCELLANEOUS DETAILS, FOR EXIT DITCH GRADING.
 6. SEE SHEET C-508, EROSION AND SEGMENTAL CRIB, FOR STORE, CRITCH, DAM DETAILS.
 7. SEE SHEET C-108, SITE LAYOUT PLAN, FOR BIWIDAC CENTERLINE ELEVATION.

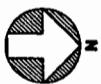


DEPARTMENT OF THE NAVY		MARINE FACILITIES ENGINEERING COMMAND											
		ATLANTIC DIVISION NORFOLK, VIRGINIA											
MARINE STATION		MULTI-PURPOSE MACHINE GUN RANGE MARINE CORPS BASE, CAMP LE JEUNE, NC											
		GRAVING AND DRAINAGE PLAN											
C-131													

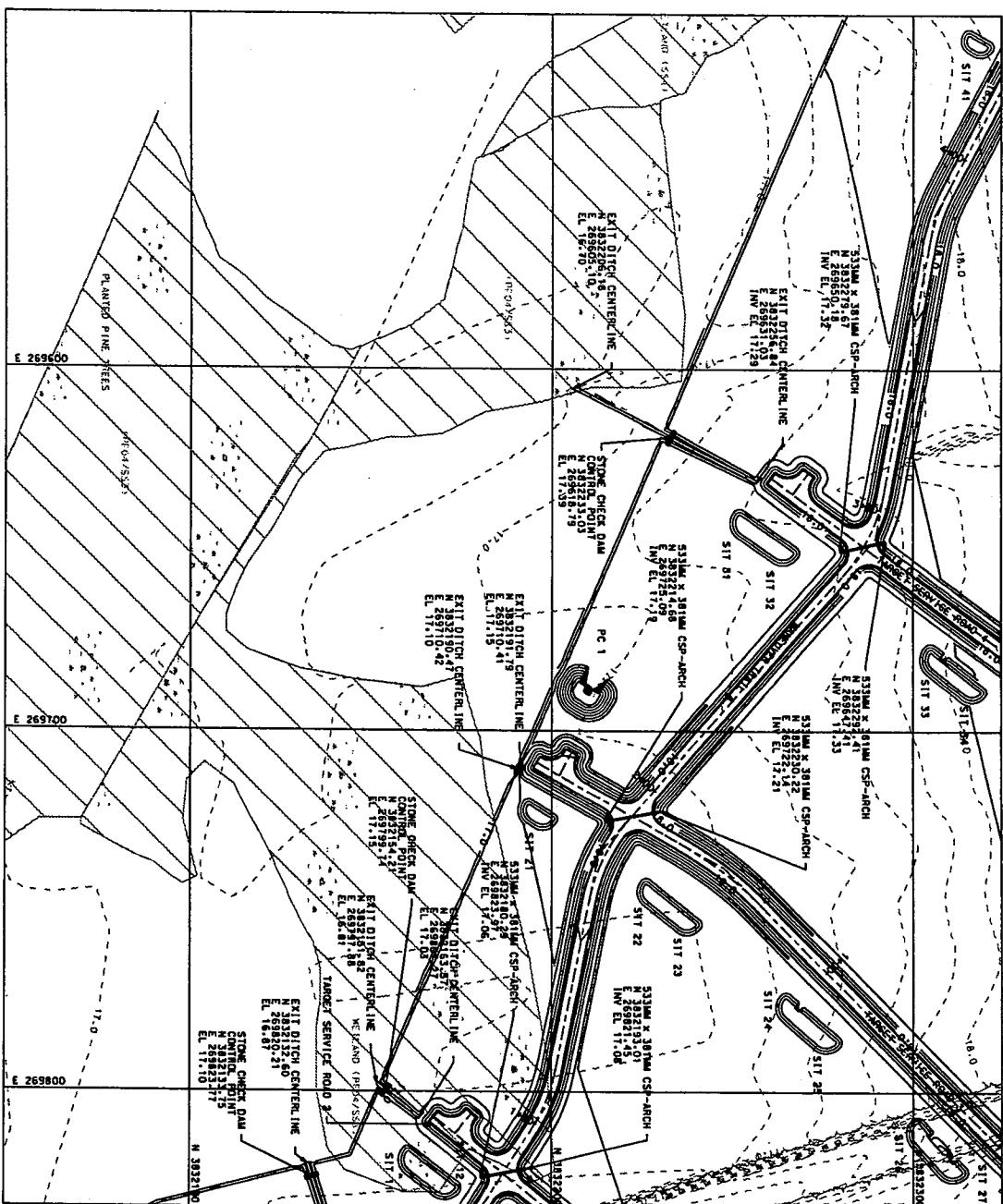


104

4. SEE SHEET C-10C, STATIONARY INFANTRY TARGET EQUIPMENT FOR SIT
 5. SEE SHEET C-10D, STATIONARY INFANTRY TARGET EQUIPMENT FOR DOUBLE SIT REPLACEMENT DETAILS.
 6. SEE SHEET C-10E, FRAM BEAM, FOR GRADING AT FIRING, REAR
 7. SEE SHEET C-11, MISCELLANEOUS DETAILS, FOR GRADING AT MEDVAC LANDING AREA.
 8. SEE SHEET C-11B, MISCELLANEOUS DETAILS, FOR GRADING AT BUILDING EXTENSION.
 9. SEE SHEET C-11C, MISCELLANEOUS DETAILS, FOR EXIT DITCH GRADING.
 10. SEE SHEET C-11D, MISCELLANEOUS DETAILS, FOR TARGET SERVICE TUNNELS/HOLES.
 11. SEE SHEET C-11E, MISCELLANEOUS DETAILS, FOR B20, BEM LOCATION AND GRID NO [REDACTED]
 1. SEE SHEET C-10F, SITE LAYOUT PLAN, FOR MEDVAC CENTERLINE ELEVATIONS.
 2. SEE SHEET C-10G, SITE LAYOUT PLANS, FOR BUILDING FINISHED FLOOR ELEVATIONS.
 3. SEE SHEET C-10H, ROAD AND SIDEWALK SECTIONS, FOR ROAD SECTIONS.



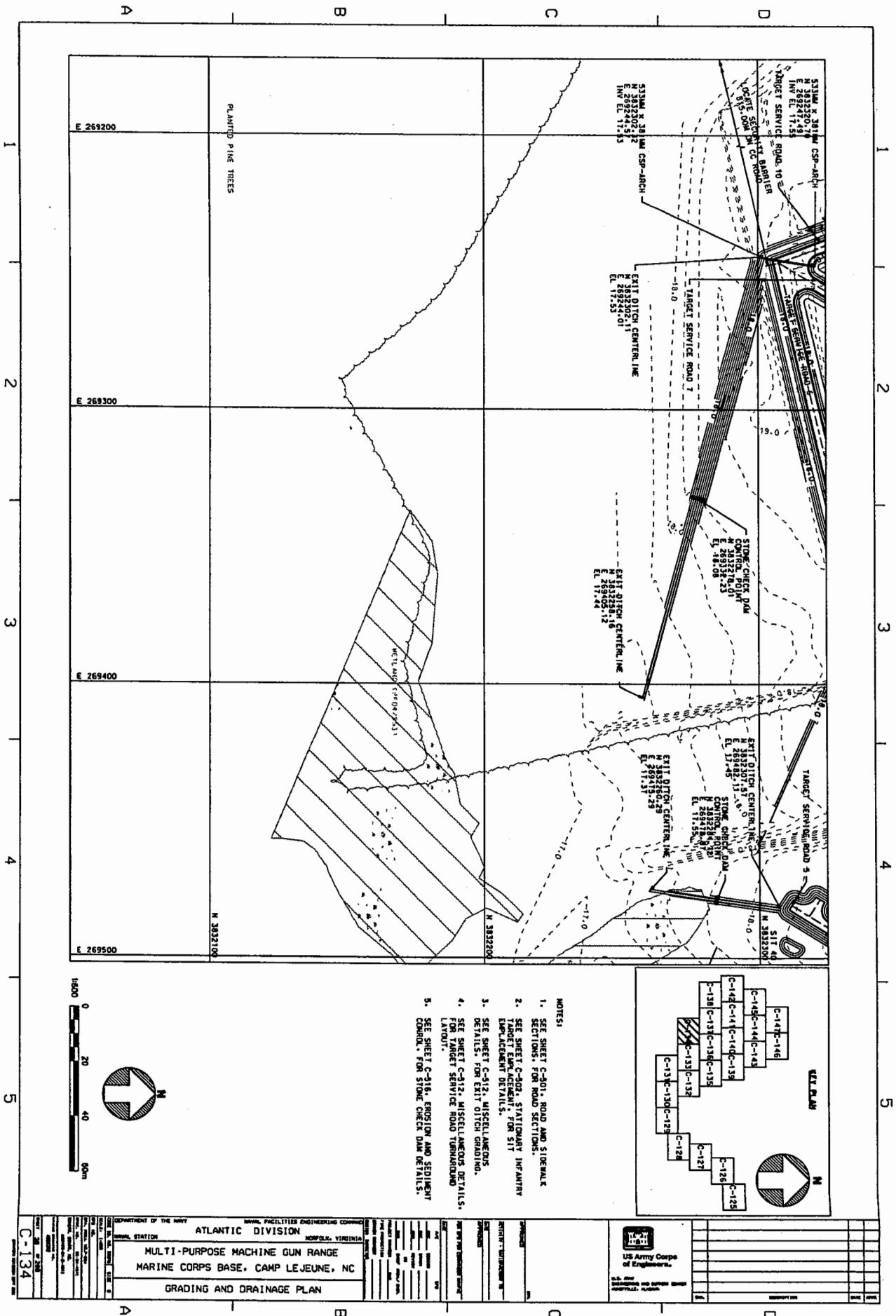
DEPARTMENT OF THE NAVY		NAVAL FACILITIES ENGINEERING COMMAND																			
NAVAL STATION		ATLANTIC DIVISION		NOFORL, VIRGINIA																	



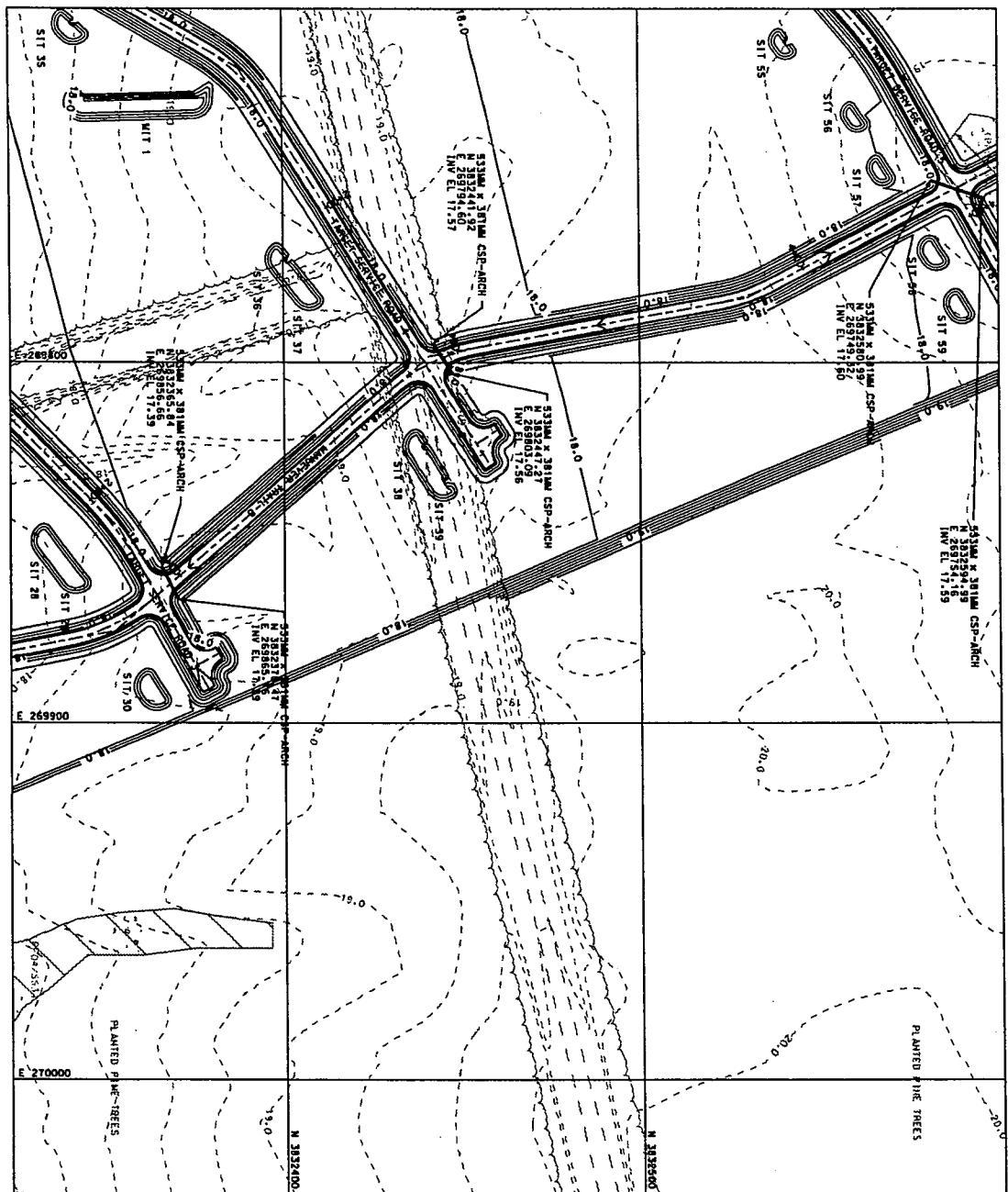
NOTES:

1. SEE SHEET C-101, ROAD AND SIDEWALK SECTIONS, FOR ROAD SECTIONS.
2. SEE SHEET C-102, STATIONARY INFANTRY TARGET EMPLACEMENT, FOR SITE EMBLACEMENT DETAILS.
3. SEE SHEET C-103, STATIONARY INFANTRY TARGET EMPLACEMENT, FOR DOUBLE SITE EMBLACEMENT DETAILS.
4. SEE SHEET C-112, MISCELLANEOUS DETAILS, FOR EXIT DITCH GRADING.
5. SEE SHEET C-104, PREDICTIVE ENGINEERING FOR PREVENTER EMBLACEMENT, FOR PREVENTER EMBLACEMENT DETAILS.
6. SEE SHEET C-113, MISCELLANEOUS DETAILS, FOR TARGET SERVICE ROAD TURNAROUND LAYOUT.
7. SEE SHEET C-116, EROSION AND SEDIMENT CONTROL, FOR STONE CHECK DAM DETAILS.

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ATLANTIC DIVISION NAVAL STATION NORFOLK, VIRGINIA		U.S. ARMY CORPS OF ENGINEERS NATIONAL ENGINEERING AND DESIGN CENTER FORT MONMOUTH, NEW JERSEY			
MULTI-PURPOSE MACHINE GUN RANGE MARINE CORPS BASE, CAMP LEJEUNE, NC		U.S. ARMY CORPS OF ENGINEERS NATIONAL ENGINEERING AND DESIGN CENTER FORT MONMOUTH, NEW JERSEY			
GRADING AND DRAINAGE PLAN					
SHEET C-133					
PRINTED ON 07/10/2014 BY NCEC					

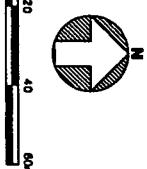


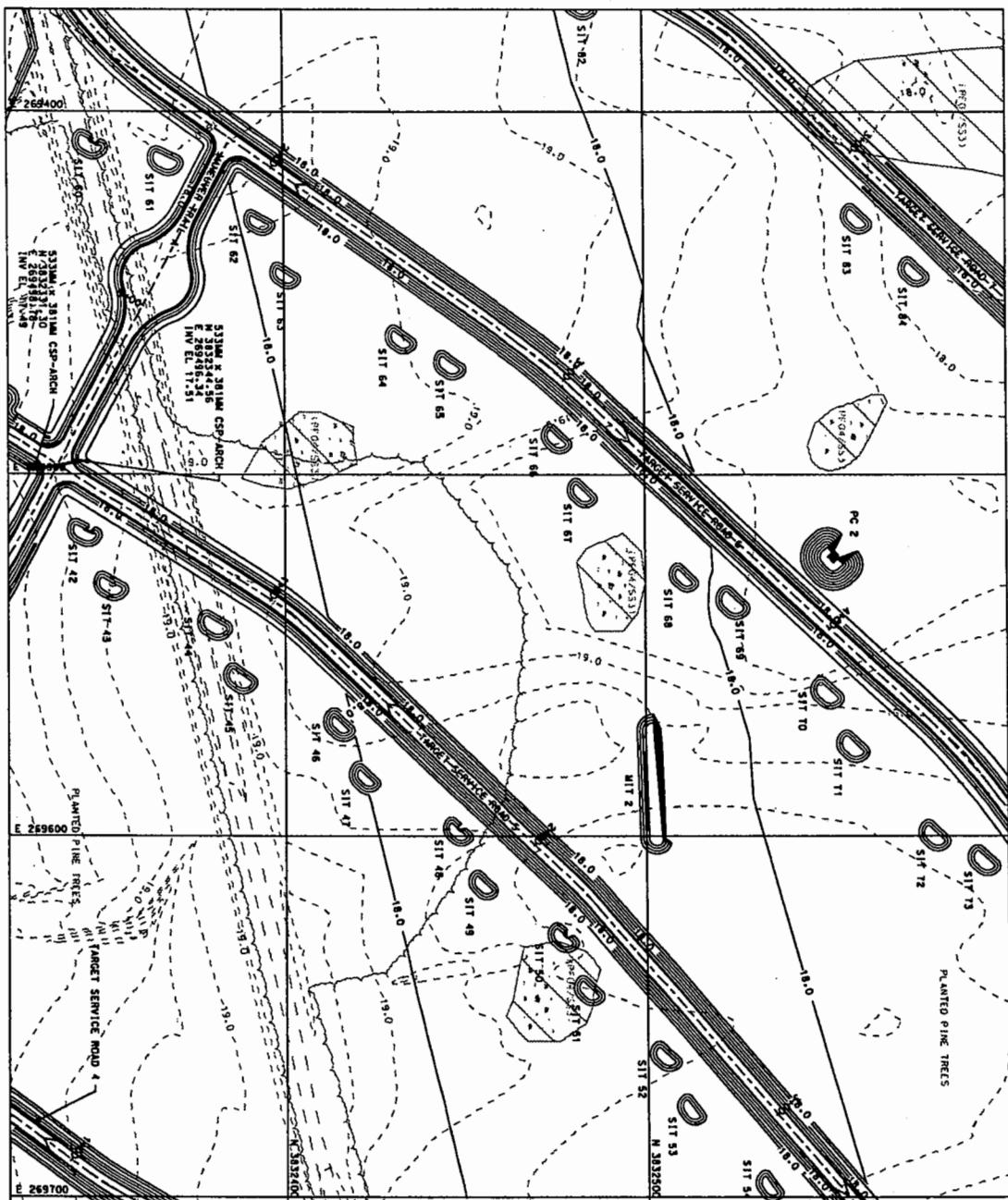
		DEPARTMENT OF THE NAVY		MARINE FACILITIES ENGINEERING CO.	
		NAVAL STATION		ATLANTIC DIVISION	
				NORFOLK, VA.	
		MULTI-PURPOSE MACHINE GUN RANGE			
		MARINE CORPS BASE, CAMP LE JEUNE, N.C.			
				GRADING AND DRAINAGE PLAN	
C-134					



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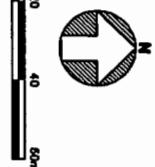
1. SET SHEET C-504A FOR ROAD SECTIONS, OR USE BACK SECTIONS.
 2. SEE SHEET C-502A: STATIONARY INFANTRY TARGET REPLACEMENT, FOR SIT REPLACEMENT DETAILS.
 3. SEE SHEET C-504: STATIONARY INFANTRY EQUIPMENT, FOR DOUBLE SIT EQUIPMENT DETAILS.
 4. SEE SHEET C-512: MISCELLANEOUS DETAILS, FOR TARGET SERVICE ROAD TURNAROUND LAYOUT.
 5. SEE SHEET C-504: MOVING INFANTRY TARGET EQUIPMENT, FOR MOVING INFANTRY TARGET REPLACEMENT DETAILS.

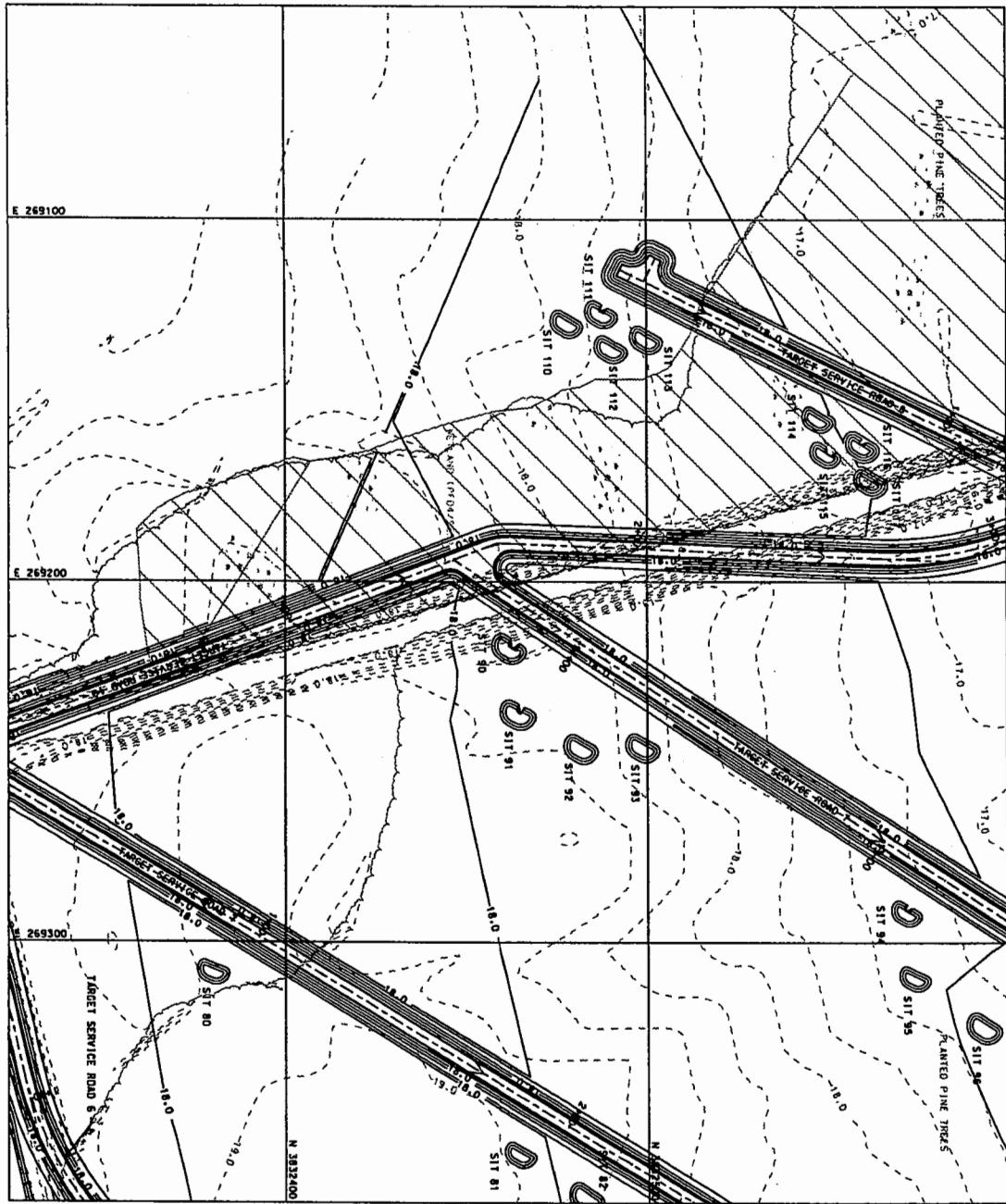




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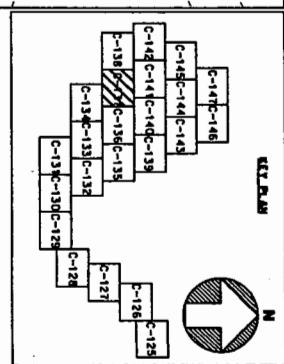
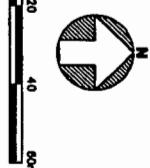
1. SEE SHEET C-501, ROAD AND SIDEWALK SECTIONS, FOR ROAD SECTORS.
 2. SEE SHEET C-502, STATIONARY INFANTRY TARGET EQUIPMENT, FOR SITE EQUIPMENT DETAILS.
 3. SEE SHEET C-503, POSE CENTER EQUIPMENT, FOR POSE CENTER EQUIPMENT DETAILS.
 4. SEE SHEET C-512, MISCELLANEOUS DETAILS, FOR MAKER/OWNER TRAIL-BE-SAC LAYOUT.
 5. SEE SHEET C-504, MOVING THE MARRY TARGET TARGET EQUIPMENT DETAILS.

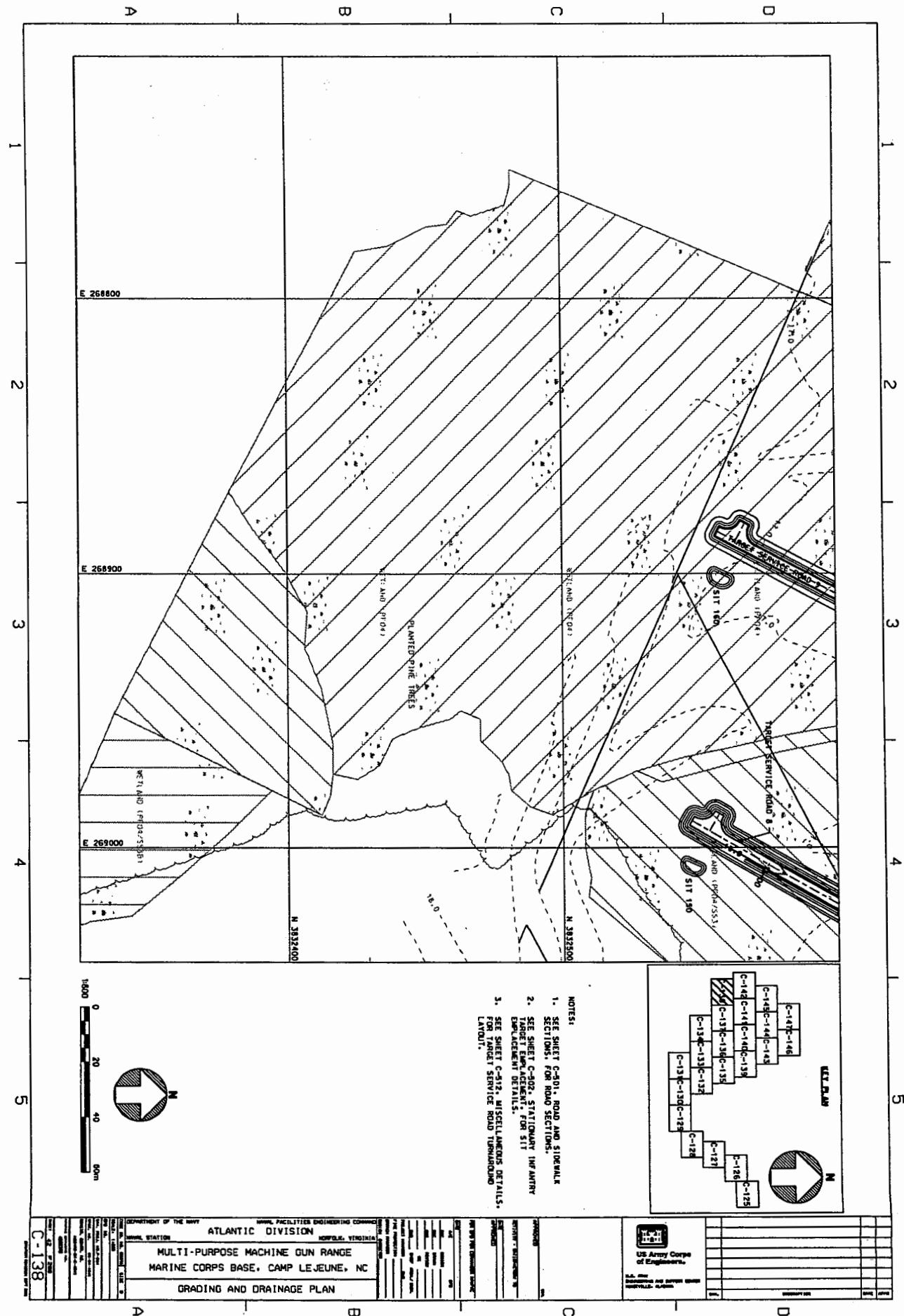


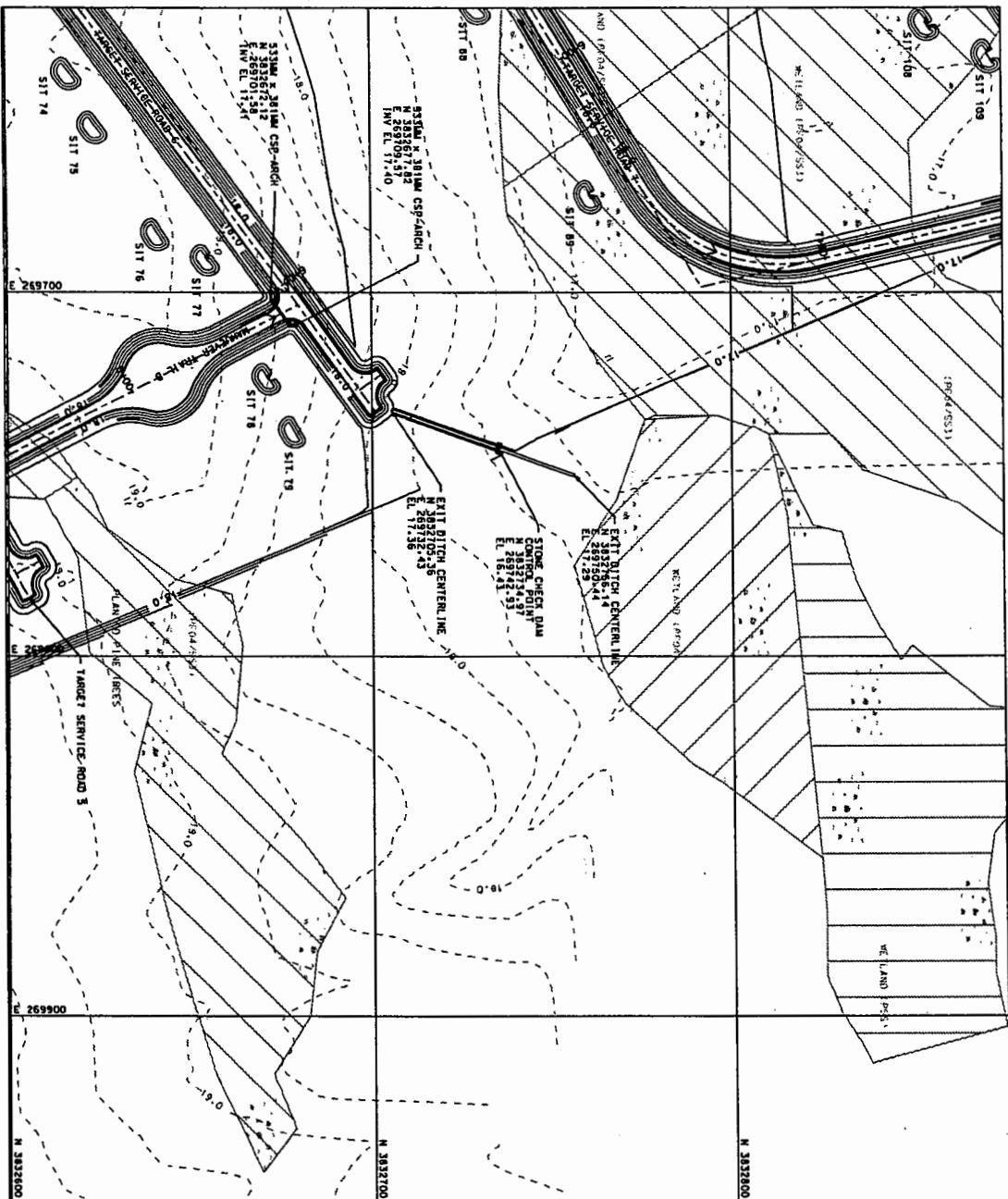


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1. SEE SHEET C-502 ROAD AND SIDEWALK SECTIONS FOR ROAD SECTIONS.
 2. SEE SHEET C-502 STATIONARY INFANTRY TARGET PLACEMENT FOR SIT EQUIPMENT DETAILS.
 3. SEE SHEET C-512 MISCELLANEOUS DETAILS, FOR TARGET SERVICE ROAD TURNAROUND LAYOUT.

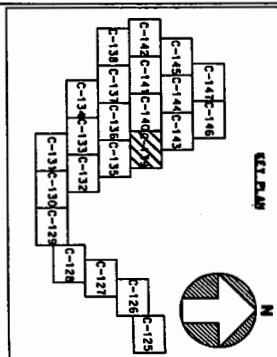




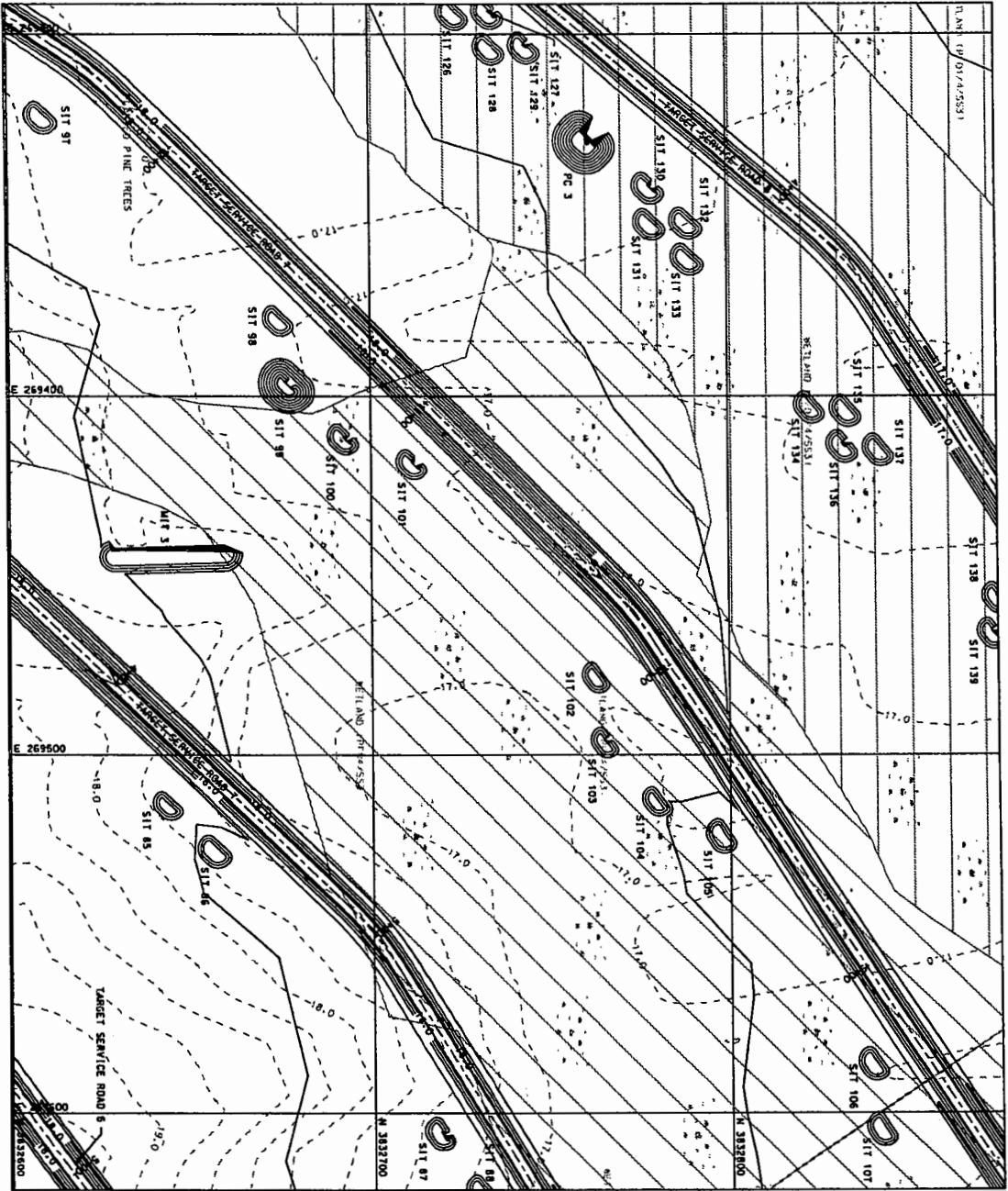


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1. SEE SHEET C-101, ROAD AND SIDEWALK SECTIONS.
 2. SEE SHEET C-102, STATIONARY INFANTRY TARGET ENCLAVE AGREEMENT FOR SITE EMPLOYMENT DETAILS.
 3. SEE SHEET C-112, MISCELLANEOUS DETAILS, FOR EXIT DITCH GRADING.
 4. SEE SHEET C-114, MISCELLANEOUS DETAILS, FOR MANEUVER TRAIL CUT-OUT-SEGMENT LAYOUT.
 5. SEE SHEET C-116, MISCELLANEOUS DETAILS, FOR TARGET SERVICE ROAD TURNAROUND LAYOUT.
 6. SEE SHEET C-116, FUSION AND SEGMENT CONTROL, FOR STORE CHECK DAM DETAILS.

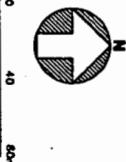


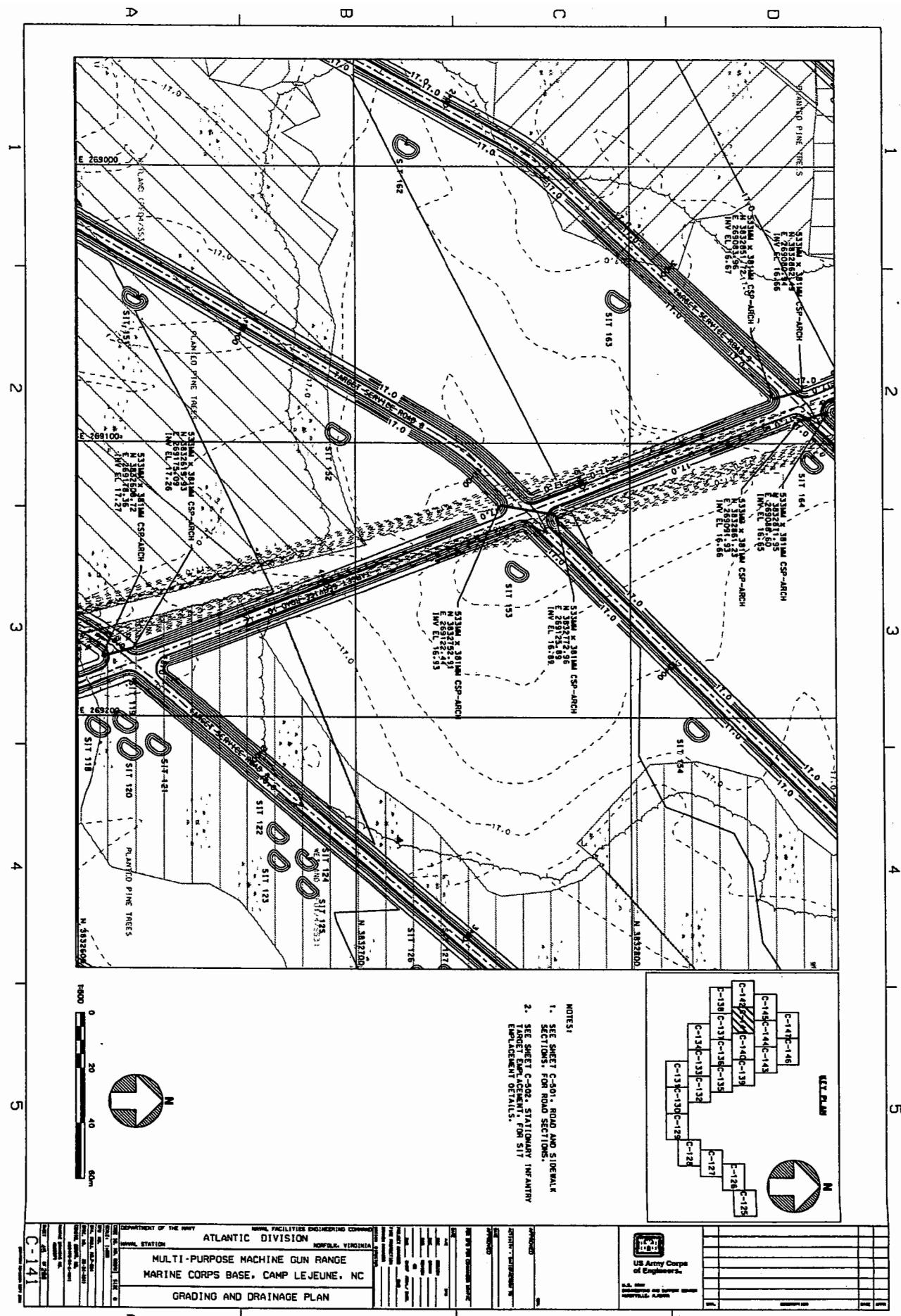
DEPARTMENT OF THE ARMY		ARMED FACILITIES ENGINEERING COMMAND		ATLANTIC DIVISION		HOPKINS, VIRGINIA			
ARMED STATION		MULTI-PURPOSE MACHINE GUN RANGE		MARINE CORPS BASE, CAMP LEJEUNE, NC					
GRADING AND DRAINAGE PLAN									
C-139									

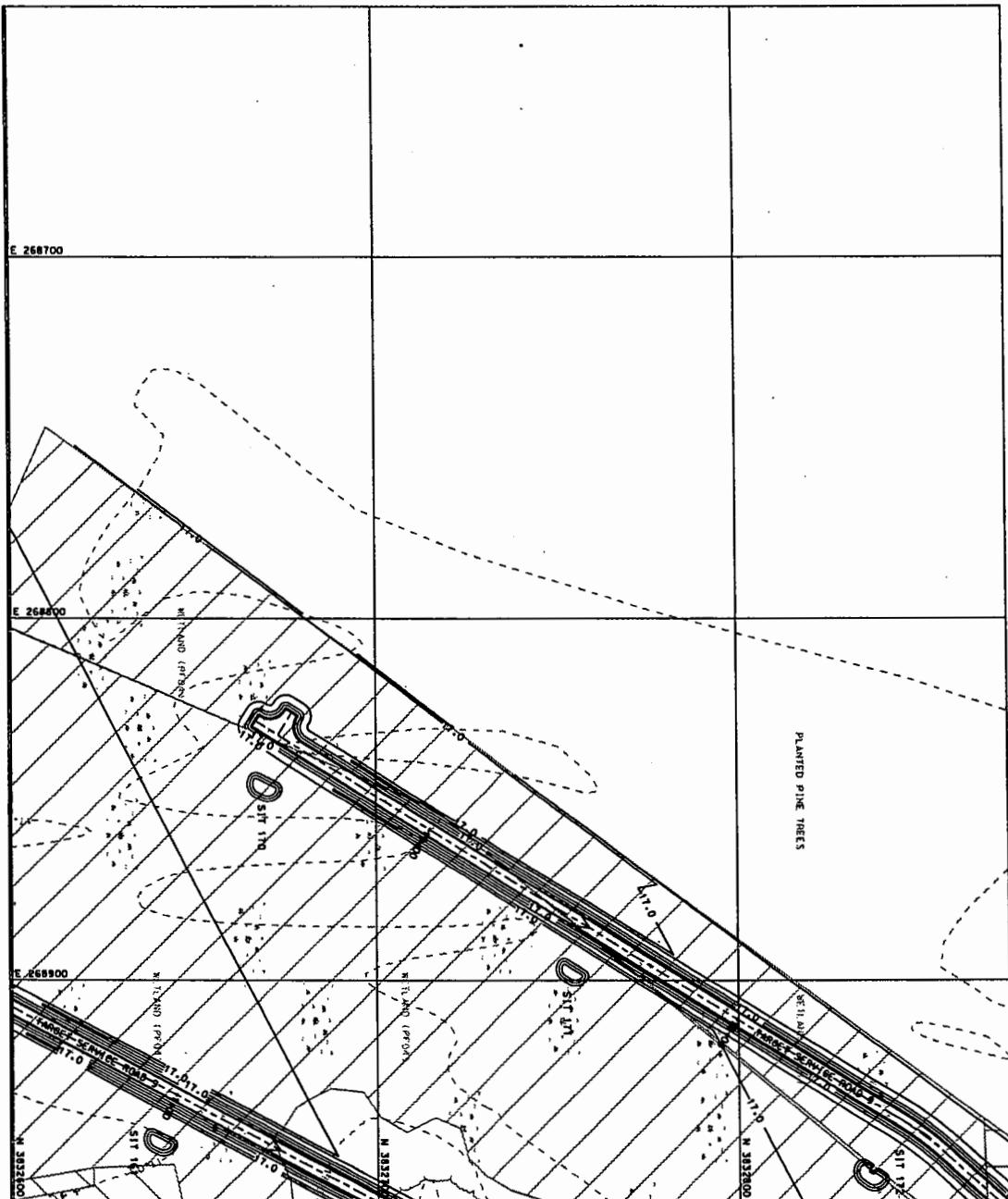


NOTES

1. SEE SHEET C-501, FOR ROAD AND SIDEWALK SECTION.
 2. SEE SHEET C-502, STATIONARY INFANTRY TARGET EQUIPMENT, FOR SIT UP EQUIPMENT DETAILS.
 3. SEE SHEET C-503, POMERCENTE EQUIPMENT, FOR POMERCENTE EQUIPMENT DETAILS.
 4. SEE SHEET C-504, MOVING INFANTRY TARGET EQUIPMENT, FOR MOVING INFANTRY TARGET EQUIPMENT DETAILS.





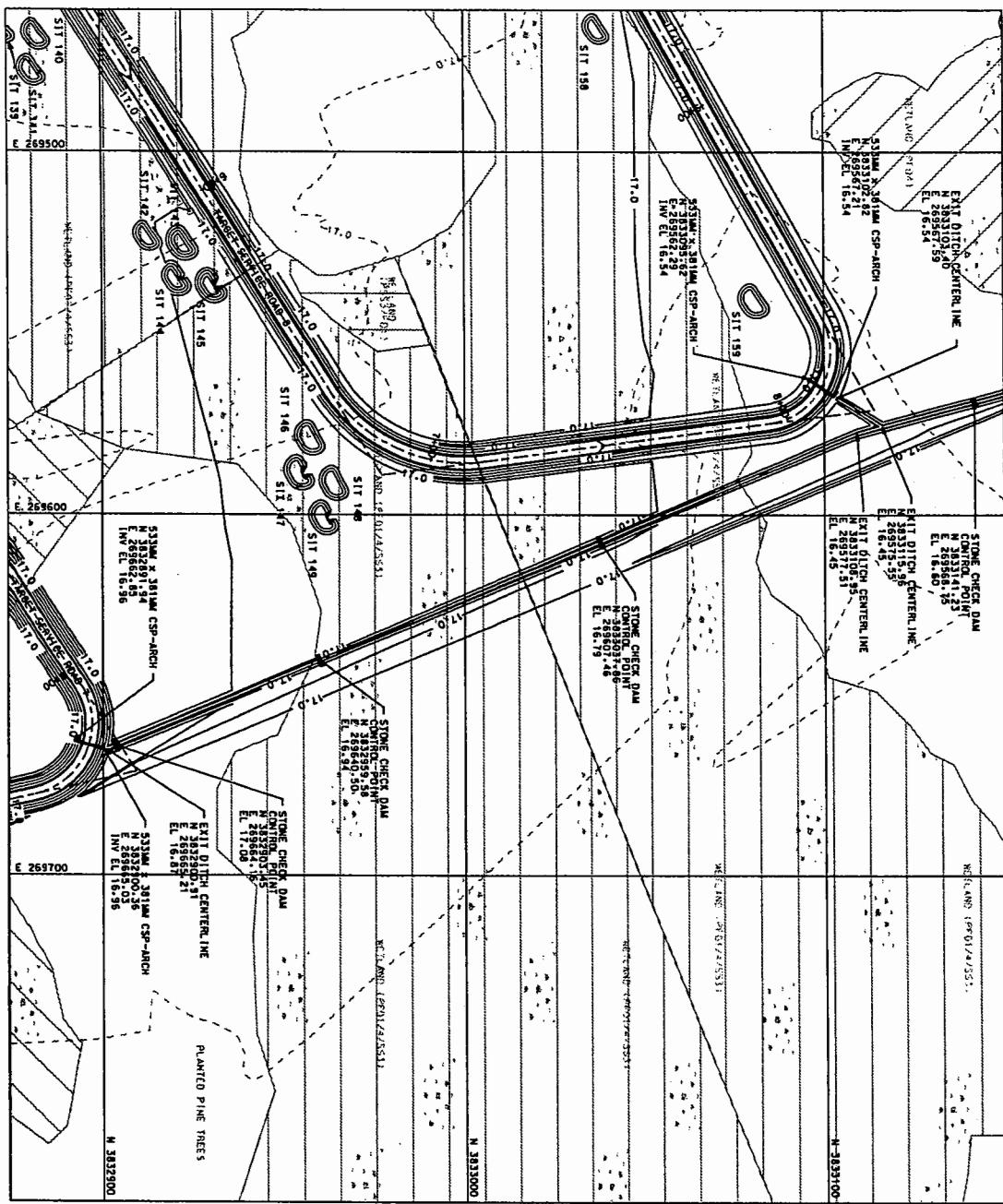


NOTE

1. SECTION C-101 ROAD AND SIDEWALK
 2. SEE SHEET C-502. STATIONARY INFANTRY TARGEET PLACEMENT FOR SIT IMPERSONATION DETAILS.
 3. SEE SHEET C-512. MISCELLANEOUS DETAILS, FOR TARGET SERVICE ROAD TURNAROUND LAYOUT.

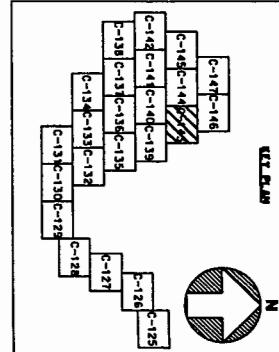


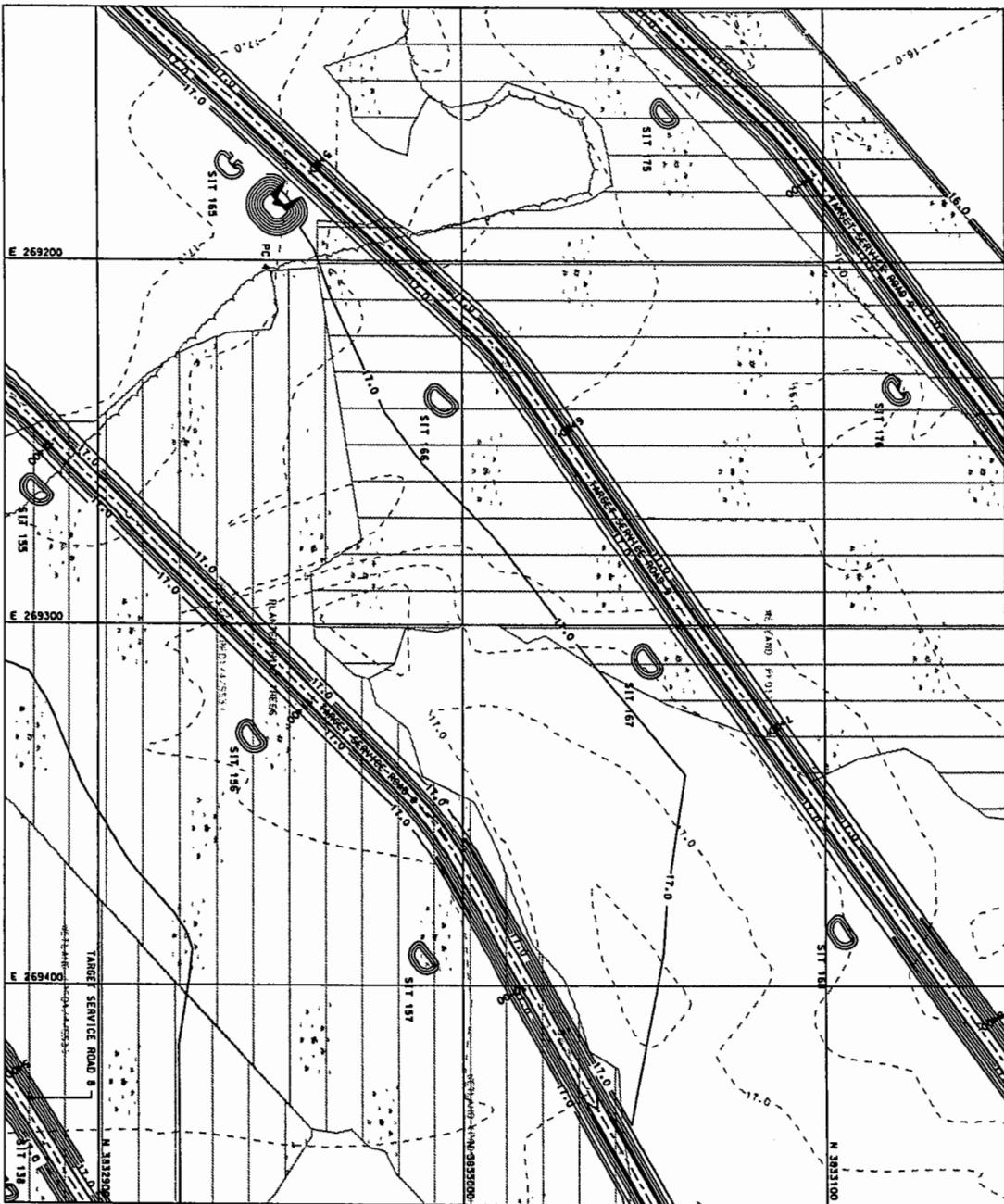
DEPARTMENT OF THE NAVY		MARINE FACILITIES ENGINEERING COMMAND																			
		ATLANTIC DIVISION NORFOLK, VIRGINIA																			
		MULTI-PURPOSE MACHINE GUN RANGE MARINE CORPS BASE, CAMP LEJEUNE, NC																			
		GRADING AND DRAINAGE PLAN																			
C-142																					



1. SEE SHEET C-501: ROAD AND SIDEWALK

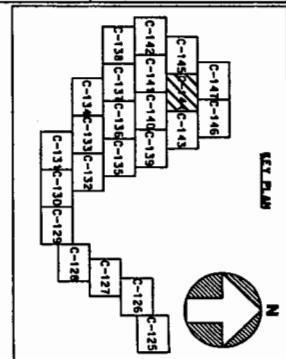
2. SEE SHEET C-12, STATIONARY INFANTRY SECTION, FOR ROAD DETAILS.
 3. SEE SHEET C-12, TARGET EMBODIMENT, FOR SIT REPLACEMENT DETAILS.
 4. SEE SHEET C-12, MISCELLANEOUS DETAILS, FOR EXIT DITCH GRADING.
 5. SEE SHEET C-12, EROSION AND SEDIMENT CONTROL, FOR STONE CHECK DAM DETAILS.



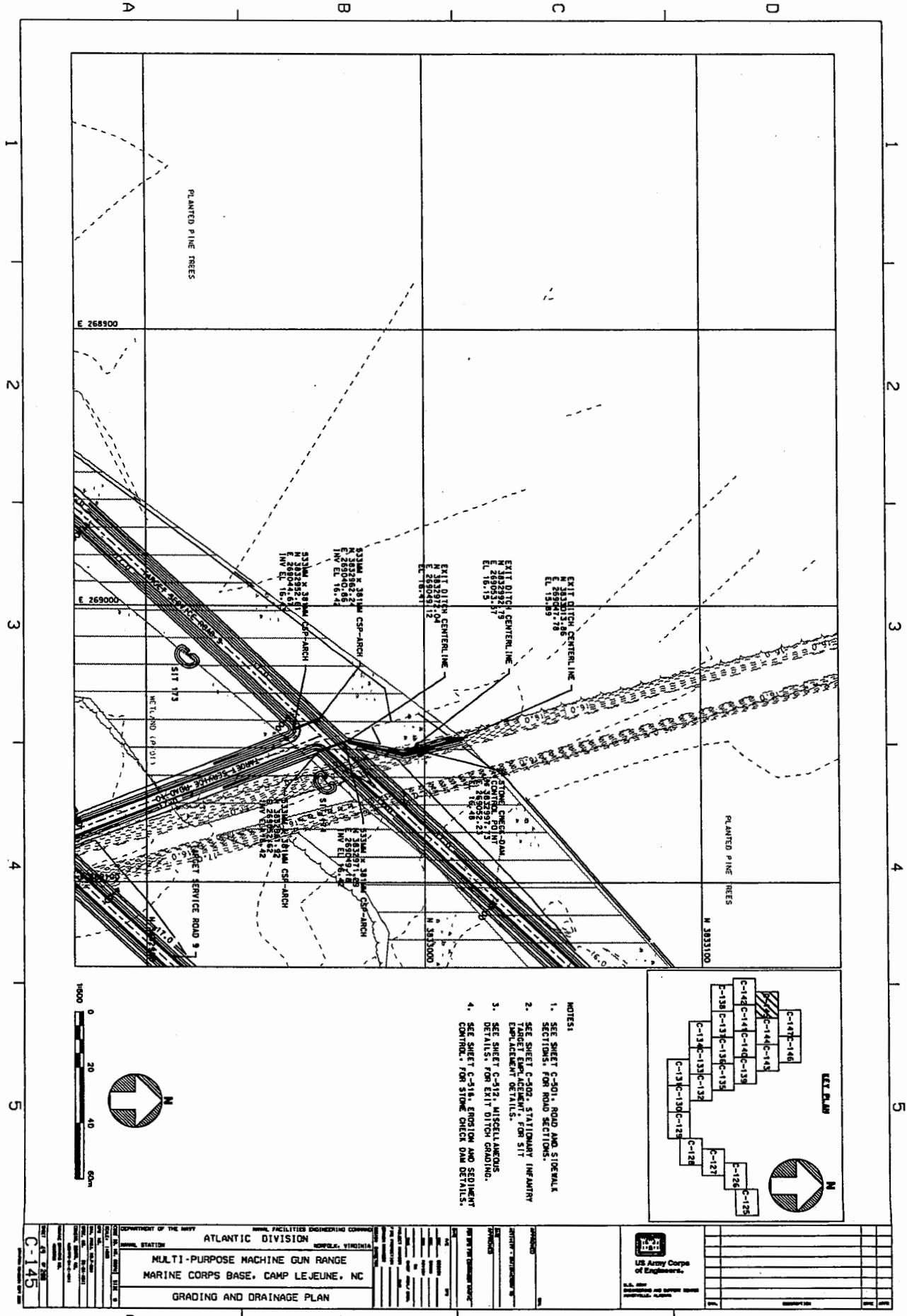


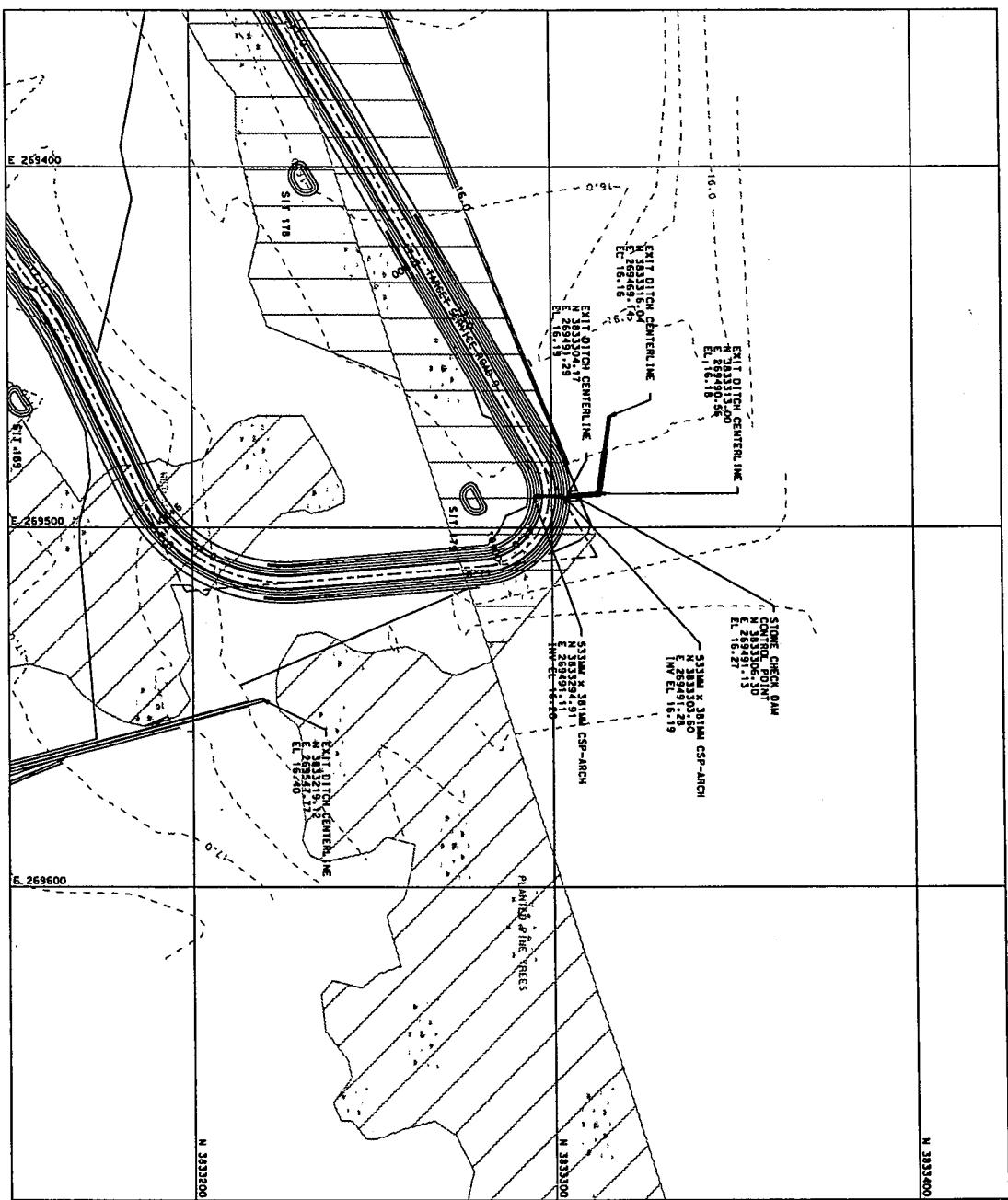
1.

1. SEE SHEET C-501, ROAD AND SIDEWALK SECTIONS FOR ROAD SECTIONS.
 2. SEE SHEET C-502, STATIONARY INFANTRY PLATE EMB. ACCEMET, FOR SIT PLACEMENT DETAILS.
 3. SEE SHEET C-503, POWER CENTER EQUIPMENT, FOR POWER CENTER EQUIPMENT PLACEMENT DETAILS.



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		MULTI-PURPOSE MACHINE GUN RANGE MARINE CORPS BASE, CAMP LEJEUNE, NC										U.S. ARMY ARMED FORCES ENGINEER HEADQUARTERS, ALABAMA									
		GRADING AND DRAINAGE PLAN																			

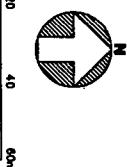




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- NOTE 3-1**

 1. SEE SHEET C-301, ROAD AND SIDEWALK SECTIONS, FOR ROAD SECTIONS.
 2. SEE SHEET C-302, STATIONARY INFANTRY ARMOURED PLACEMENT, FOR SIT EQUIPMENT DETAILS.
 3. SEE SHEET C-312, MISCELLANEOUS DETAILS, FOR EXIT DITCH GRADING.
 4. SEE SHEET C-316, DRAINS AND SEDIMENT CONTROL, FOR STREAM CHECK DRAIN DETAILS.



DEPARTMENT OF THE NAVY		NAVAL FACILITIES ENGINEERING COMMAND	
		ATLANTIC DIVISION	
NAVAL STATION		NORFOLK, VIRGINIA	
		MULTI-PURPOSE MACHINE GUN RANGE	
		MARINE CORPS BASE, CAMP LEJEUNE, NC	
		GRADING AND DRAINAGE PLAN	
C-146			

