SOF MARINE RAIDER REGIMENT HQ
P-1395

MARSOC, CAMP LEJEUNE
JACKSONVILLE, NORTH CAROLINA

FINAL DESIGN SUBMITTAL - 22 JUNE 2020

CONTRACT:N4008518D0601 TASK ORDER: N4008518F7180 CAT CODE: CC610-71

NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC
CI CORE - NORFOLK, VIRGINIA

SYM	DESCRIPTION	DATE	APPR

NAVFAC

HDR ARCHITECTURE, INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 50019 NORTH CAROLINA OMAHA, NEBRASKA

SEAL

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	AVS	DRW	KLC	CHK	ZNK

PM/QM SGL/RMS

BRANCH MANAGER DJD

CHIEF ENG/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MIDLANT CORE CI
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
COVER SHEET

SCALE: AS NOTED

EPROJECT NO.: 1603164

CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12794220

SHEET 1 OF 228

G-000

DRAWFORM REVISION: 17 APRIL 2018

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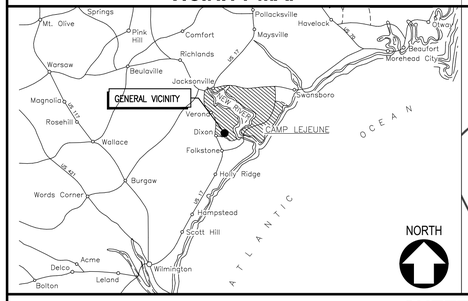
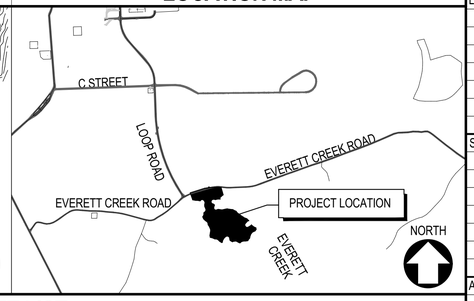
UNCLASSIFIED

VICINITY MAP



LOCATION MAP



SHEET LIST

SHEET NUMBER	NAVFAC DRAWING NO.	SHEET NAME
GENERAL		
G-000	12794220	COVER SHEET
G-001	12794221	LIST OF SHEETS
G-002	12794222	LIST OF SHEETS
G-003	12794223	CODE ANALYSIS
G-004	12794224	LIFE SAFETY PLAN-AREA A
G-005	12794225	LIFE SAFETY PLAN-AREA B
G-006	12794226	CODE COMPLIANCE SITE PLAN
GEOTECHNICAL		
B-100	12794227	FIELD EXPLORATION BORING LOCATION MAP AND PRELOADING REQUIREMENTS
B-101	12794228	BORING LEGEND AND LOGS
B-102	12794229	BORING LOGS
B-103	12794230	BORING LOGS
B-104	12794231	BORING LOGS AND LABORATORY TEST RESULTS
CIVIL		
C-001	12794232	CIVIL LEGEND
VF101	12794233	EXISTING SITE PLAN
CD101	12794234	DEMOLITION PLAN
CS101	12794235	OVERALL SITE PLAN AND KEY MAP
CS102	12794236	SITE LAYOUT AND CONTROLS PLAN 1
CS103	12794237	SITE LAYOUT AND CONTROLS PLAN 2
CS104	12794238	SITE LAYOUT AND CONTROLS PLAN 3
CG101	12794239	GRADING AND DRAINAGE PLAN 1
CG102	12794240	GRADING AND DRAINAGE PLAN 2
CG103	12794241	GRADING AND DRAINAGE PLAN 3
CG104	12794242	PRE-DEVELOPMENT DRAINAGE AREA MAP
CG105	12794243	POST-DEVELOPMENT DRAINAGE AREA MAP
CG106	12794244	POST-DEVELOPMENT SUBWATERSHED MAP
CG201	12794245	STORM SYSTEM PROFILES 1
CG202	12794246	STORM SYSTEM PROFILES 2
CS201	12794247	ACCESS ROADWAY PLAN AND PROFILE 1
CS301	12794248	ACCESS ROADWAY CROSS SECTIONS 1
CS302	12794249	ACCESS ROADWAY CROSS SECTIONS 2
CS303	12794250	ACCESS ROADWAY CROSS SECTIONS 3
CU101	12794251	UTILITY PLAN 1
CU102	12794252	UTILITY PLAN 2
CU103	12794253	UTILITY PLAN 3
CU201	12794254	WATER MAIN AND FORCE MAIN PROFILES
CE101	12794255	EROSION CONTROL PLAN PHASE 1 - PLAN 1
CE102	12794256	EROSION CONTROL PLAN PHASE 1 - PLAN 2
CE103	12794257	EROSION CONTROL PLAN PHASE 1 - PLAN 3
CE104	12794258	EROSION CONTROL PLAN PHASE 2 - PLAN 1
CE105	12794259	EROSION CONTROL PLAN PHASE 2 - PLAN 2
CE106	12794260	EROSION CONTROL PLAN PHASE 2 - PLAN 3
C-501	12794261	CIVIL SITE DETAILS
C-502	12794262	CIVIL SITE DETAILS
C-503	12794263	CIVIL SITE DETAILS
C-504	12794264	CIVIL SITE DETAILS
C-505	12794265	CIVIL SITE DETAILS
C-506	12794266	CIVIL SITE DETAILS
C-507	12794267	CIVIL SITE DETAILS
C-508	12794268	CIVIL SITE DETAILS
C-509	12794269	CIVIL SITE DETAILS
C-510	12794270	CIVIL SITE DETAILS
C-511	12794271	EROSION CONTROL DETAILS
C-512	12794272	EROSION CONTROL DETAILS
C-513	12794273	EROSION CONTROL DETAILS
C-514	12794274	EROSION CONTROL DETAILS
C-515	12794275	EROSION CONTROL DETAILS
LANDSCAPE		
L-101	12794276	LANDSCAPE – SITE PLAN - OVERALL SITE
L-401	12794277	LANDSCAPE - ENLARGEMENT - MAIN ENTRANCE
L-501	12794278	LANDSCAPE – FINISHES & DETAILS - SECTIONS
L-502	12794279	LANDSCAPE – DETAILS & SITE FURNISHINGS
LP101	12794280	LANDSCAPE – PLANTING PLAN - DRIVE & BMP
LP102	12794281	LANDSCAPE – PLANTING PLAN - MAIN BUILDING
LP601	12794282	LANDSCAPE – PLANTING SCHEDULE & DETAILS
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S-001	12794283	GENERAL NOTES AND PLAN LEGEND
S-002	12794284	STRUCTURAL STANDARD DETAILS
S-003	12794285	STRUCTURAL STANDARD DETAILS
S-101	12794286	FOUNDATION AND GROUND FLOOR PLAN - OVERALL
S-102	12794287	FOUNDATION AND GROUND FLOOR PLAN - AREA A
S-103	12794288	FOUNDATION AND GROUND FLOOR PLAN - AREA B
S-501	12794289	STRUCTURAL SECTIONS & DETAILS
ARCHITECTURE		
A-001	12794290	ARCHITECTURAL SYMBOLS, LEGENDS, ABBREVIATIONS AND NOTES
A-002	12794291	AIR BARRIER DIAGRAMS
A-003	12794292	ARCHITECTURAL SITE PLAN
A-100	12794293	FOUNDATION DRAINAGE PLAN
A-101	12794294	OVERALL FLOOR PLAN
A-102	12794295	FLOOR PLAN - AREA "A"
A-103	12794296	FLOOR PLAN - AREA "B"
A-104	12794297	OVERALL REFLECTED CEILING PLAN
A-105	12794298	REFLECTED CEILING PLAN - AREA "A"
A-106	12794299	REFLECTED CEILING PLAN - AREA "B"
A-107	12794300	ROOF PLAN
A-108	12794301	GYPSUM CEILING LOCATION PLAN
A-201	12794302	NORTH AND SOUTH ELEVATIONS
A-202	12794303	EAST AND WEST ELEVATIONS
A-301	12794304	BUILDING SECTIONS
A-302	12794305	BUILDING SECTIONS
A-310	12794306	WALL SECTIONS
A-311	12794307	WALL SECTIONS
A-312	12794308	WALL SECTIONS
A-313	12794309	WALL SECTION DETAILS
A-314	12794310	WALL SECTION DETAILS
A-315	12794311	WALL SECTIONS AND DETAILS
A-316	12794312	WALL SECTION DETAILS
A-317	12794313	WALL SECTION DETAILS
A-401	12794314	ENLARGED PLANS AND INTERIOR ELEVATIONS
A-402	12794315	ENLARGED PLANS AND INTERIOR ELEVATIONS
A-403	12794316	ENLARGED PLANS AND INTERIOR ELEVATIONS
A-404	12794317	ENLARGED REFLECTED CEILING PLANS AND DETAILS
A-405	12794318	TYPICAL MOUNTING HEIGHTS
A-501	12794319	EXTERIOR DETAILS
A-502	12794320	EXTERIOR DETAILS
A-503	12794321	EXTERIOR DETAILS
A-510	12794322	DETAILS
A-511	12794323	DETAILS
A-520	12794324	CEILING DETAILS
A-530	12794325	CASEWORK DETAILS
A-531	12794326	INTERIOR PARTITION SCHEDULE AND DETAILS
A-601	12794327	DOOR SCHEDULE AND DETAILS
A-602	12794328	DOOR DETAILS
A-603	12794329	WINDOW ELEVATIONS AND DETAILS
A-604	12794330	WINDOW DETAILS
A-605	12794331	PARTITION DETAILS
A-900	12794332	DUMPSTER ENCLOSURE
INTERIORS		
I-605	12794333	OVERALL FF&E PLAN
I-606	12794334	FF&E PLAN - AREA A
I-607	12794335	FF&E PLAN - AREA B
I-609	12794336	INTERIOR FINISH LEGEND
I-610	12794337	FINISH SCHEDULE
I-611	12794338	FINISH PLAN - AREA A
I-612	12794339	FINISH PLAN - AREA B
I-613	12794340	INTERIOR DETAILS
I-614	12794341	FF&E PLAN - AREA A - MODULAR WALL SYSTEM
I-615	12794342	FF&E PLAN - AREA B - MODULAR WALL SYSTEM
I-616	12794343	MODULAR WALL SYSTEM DETAILS
I-617	12794344	MODULAR WALL SYSTEM ELEVATIONS
I-618	12794345	MODULAR WALL SYSTEM ELEVATIONS
I-619	12794346	MODULAR WALL SYSTEM ELEVATIONS
I-620	12794347	MODULAR WALL SYSTEM ELEVATIONS
I-621	12794348	COLLATERAL EQUIPMENT PLAN - AREA A - RAISED ACCESS FLOOR
I-622	12794349	COLLATERAL EQUIPMENT PLAN - AREA B - RAISED ACCESS FLOOR
I-623	12794350	SIGNAGE PLAN - AREA A
I-624	12794351	SIGNAGE PLAN - AREA B
I-625	12794352	SIGNAGE DETAILS
FIRE PROTECTION		
FA001	12794353	LEGEND, ABREVIATIONS AND NOTES
FA101	12794354	FIRE ALARM AND MASS NOTIFICATION PLAN-AREA A
FA102	12794355	FIRE ALARM AND MASS NOTIFICATION PLAN-AREA B
FA601	12794356	FIRE ALARM DIAGRAMS

SHEET NUMBER	NAVFAC DRAWING NO.	SHEET NAME
FIRE PROTECTION		
FX101	12794357	FIRST FLOOR FIRE PROTECTION PLAN-AREA A
FX102	12794358	FIRST FLOOR FIRE PROTECTION PLAN-AREA B
FX501	12794359	FIRE PROTECTION DETAILS
FX502	12794360	FIRE PROTECTION RISER DIAGRAM, SYMBOLS AND ABBREVIATIONS
PLUMBING		
P-001	12794361	LEGEND, ABREVIATIONS AND NOTES
PL101	12794362	SANITARY AND SUPPLY FLOOR PLAN - AREA "A"
PL102	12794363	SANITARY AND SUPPLY FLOOR PLAN - AREA "B"
P-401	12794364	ENLARGED PLUMBING PLANS
P-402	12794365	ENLARGED PLUMBING PLANS
P-501	12794366	PLUMBING DETAILS
P-502	12794367	PLUMBING DETAILS
P-601	12794368	PLUMBING SCHEDULES
P-901	12794369	DOMESTIC WATER RISER
P-902	12794370	SANITARY RISER
P-903	12794371	PROPANE GAS RISER
MECHANICAL		
M-001	12794372	LEGEND, ABREVIATIONS AND NOTES
MS101	12794373	MECHANICAL SITE PLAN
MH101	12794374	DUCTWORK FLOOR PLAN - AREA "A"
MH102	12794375	DUCTWORK FLOOR PLAN - AREA "B"
MH103	12794376	ROOF PLAN
MP101	12794377	MECHANICAL PIPING FLOOR PLAN - AREA "A"
MP102	12794378	MECHANICAL PIPING FLOOR PLAN - AREA "B"
M-301	12794379	MECHANICAL SECTION
M-401	12794380	ENLARGED MECHANICAL PLANS
M-501	12794381	MECHANICAL DETAILS
M-502	12794382	MECHANICAL DETAILS
M-503	12794383	MECHANICAL DETAILS
M-504	12794384	MECHANICAL DETAILS
M-601	12794385	MECHANICAL SCHEDULES
M-602	12794386	MECHANICAL SCHEDULES
M-603	12794387	MECHANICAL SCHEDULES
M-604	12794388	OUTSIDE AIR AND DESIGN CONDITIONS
M-701	12794389	MECHANICAL CONTROLS - CHILLED WATER
M-702	12794390	MECHANICAL CONTROLS - HEATING WATER
M-703	12794391	MECHANICAL CONTROLS - ERU
M-704	12794392	MECHANICAL CONTROLS - FCU
M-705	12794393	MECHANICAL CONTROLS - MISC
ELECTRICAL		
E-001	12794394	LEGEND, ABBREVIATIONS AND GENERAL NOTES
ES101	12794395	SITE PLAN - ELECTRICAL
EL101	12794396	FIRST FLOOR PLAN - LIGHTING - AREA A
EL102	12794397	FIRST FLOOR PLAN - LIGHTING - AREA B
EL501	12794398	LIGHTING DETAILS
EL502	12794399	LIGHTING DETAILS
EL503	12794400	LIGHTING DETAILS
EL601	12794401	LIGHTING FIXTURE & LIGHTING CONTROL STRATEGY SCHEDULES
EP101	12794402	FIRST FLOOR PLAN - POWER - AREA A
EP102	12794403	FIRST FLOOR PLAN - POWER - AREA B
EP103	12794404	FIRST FLOOR PLAN - MECHANICAL EQUIPMENT POWER - AREA A
EP104	12794405	FIRST FLOOR PLAN - MECHANICAL EQUIPMENT POWER - AREA B
EP105	12794406	FIRST FLOOR PLAN - AV EQUIPMENT POWER - AREA A
EP106	12794407	FIRST FLOOR PLAN - AV EQUIPMENT POWER - AREA B
EP401	12794408	ENLARGED PLANS
EP402	12794409	ENLARGED PLANS
EP501	12794410	POWER DETAILS
EP502	12794411	POWER DETAILS
EP503	12794412	POWER DETAILS
EP601	12794413	POWER RISER DIAGRAM
EP602	12794414	PANELBOARD SCHEDULES
EP603	12794415	PANELBOARD SCHEDULES
EP604	12794416	PANELBOARD SCHEDULES
EP605	12794417	PANELBOARD SCHEDULES
EP606	12794418	PANELBOARD SCHEDULES
ET001	12794419	TELECOMMUNICATIONS LEGEND, ABBREVIATIONS AND GENERAL NOTES
ET101	12794420	FIRST FLOOR PLAN - TELECOMMUNICATIONS - AREA A
ET102	12794421	FIRST FLOOR PLAN - TELECOMMUNICATIONS - AREA B
ET103	12794422	FIRST FLOOR PLAN - NETWORK OVERHEAD HORIZONTAL PATHWAYS - AREA A
ET104	12794423	FIRST FLOOR PLAN - NETWORK OVERHEAD HORIZONTAL PATHWAYS - AREA B
ET105	12794424	FIRST FLOOR PLAN - NETWORK BELOW FLOOR ROUTING - AREA A
ET106	12794425	FIRST FLOOR PLAN - NETWORK BELOW FLOOR ROUTING - AREA B
ET401	12794426	ENLARGED PLANS
ET501	12794427	TELECOMMUNICATIONS DETAILS
ET502	12794428	TELECOMMUNICATIONS DETAILS
ET503	12794429	TELECOMMUNICATIONS DETAILS
ET504	12794430	TELECOMMUNICATIONS DETAILS
ET601	12794431	TELECOMMUNICATIONS RISER DIAGRAMS
ET602	12794432	NETWORK CONNECTIONS SCHEDULE
EY101	12794433	FIRST FLOOR PLAN - AUXILIARY SYSTEMS - AREA A
EY102	12794434	FIRST FLOOR PLAN - AUXILIARY SYSTEMS - AREA B
EY501	12794435	AUXILIARY SYSTEMS DETAILS
EY601	12794436	AUXILIARY SYSTEMS RISER DIAGRAMS
EG101	12794437	LIGHTNING PROTECTION PLAN

APPR | DATE | SYM | DESCRIPTION

NAVFAC

HDR ARCHITECTURE, INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 50019 NORTH CAROLINA OMAHA, NEBRASKA SEAL

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A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	AVS	DRW	KLC	CHK	ZNK

PM/DM SGL/RMS
BRANCH MANAGER DJD
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
CAMP LEJEUNE - JACKSONVILLE NC
MIDLANT CORE CI
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
LIST OF SHEETS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794221
SHEET 2 OF 228

G-001

DRAWFORM REVISION: 17 APRIL 2018

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SHEET LIST

SHEET NUMBER	NAVFAC DRAWING NO.	SHEET NAME
AUDIO/VIDEO		
TA000	12794438	AV DRAWING INDEX, SYMBOLS AND NOTES
TA100	12794439	OVERALL AV ROOM PLAN
TA101	12794440	AREA A AV FLOOR PLAN
TA102	12794441	AREA B AV FLOOR PLAN
TA201	12794442	AREA A AV REFLECTED CEILING PLAN
TA202	12794443	AREA B AV REFLECTED CEILING PLAN
TA400	12794444	OPS AREAS DISPLAY WALL ELEVATION
TA500	12794445	CONFERENCE ROOM SIGNAL FLOW LINE DIAGRAM
TA501	12794446	OPS AREAS SIGNAL FLOW LINE DIAGRAM
TA502	12794447	OFFICE/OPEN AREAS SIGNAL FLOW LINE DIAGRAM

SYM DESCRIPTION DATE APPR

NAVFAC

HDR ARCHITECTURE, INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 50019 NORTH CAROLINA OMAHA, NEBRASKA

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SATISFACTORY TO DATE 06/19/2020

DES AVS DRW KLC CHK ZNK

PM/DM SGL/RMS

BRANCH MANAGER DJD

CHIEF ENG/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
MIDLANT CORE CI
CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS

LIST OF SHEETS

SCALE: AS NOTED

EPROJECT NO.: 1603164

CONSTR. CONTR. NO.:

NAVFAC DRAWING NO. 12794222

SHEET 3 OF 228

G-002

DRAWFORM REVISION: 17 APRIL 2018

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FACILTY DESCRIPTION
P-1395 SOF MARINE RAIDER REGIMENT HQ

CODE ANALYSIS
REFERENCED CODES AND STANDARDS

UNIFIED FACILITIES CRITERIA (UFC)
UFC 1-200-01, GENERAL BUILDING REQUIREMENTS, 20 JUN 2016, CHANGE 2, 01 NOV 2018.
UFC 1-300-02, UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS) FORMAT STANDARD, CHANGE 2, 1 APRIL 2019.
UFC 1-300-9N (15 MAY 2014 INCLUDING CHANGE 4, 14 JUN 2018) DESIGN PROCEDURES.
UFC 3-220-01, GEOTECHNICAL ENGINEERING, 1 NOVEMBER 2012
UFC 3-230-01, WATER STORAGE, DISTRIBUTION AND TRANSMISSION, 1 SEP 2018, CHANGE 1, 1 OCT 2018.
UFC 3-520-01, INTERIOR ELECTRICAL SYSTEMS, 6 OCTOBER 2015
UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES, 7 FEB 2020.
UFC 3-601-02, OPERATION AND MAINTENANCE: INSPECTION, TESTING AND MAINTENANCE OF FIRE PROTECTION SYSTEMS, 8 SEP 2010.
UFC 4-010-01, DOD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS, 12 DEC 2018
UFC 4-021-01, DESIGN AND O&M MASS NOTIFICATION SYSTEMS, 9 APR 2008, CHANGE 1, JANUARY 2010.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
NFPA 1, FIRE CODE, 2015 EDITION.
NFPA 13, STANDARD FOR THE INSTALLATION OF AUTOMATIC SPRINKLERS, 2019 EDITION.
NFPA 24, STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES, 2019 EDITION
NFPA 70, NATIONAL ELECTRIC CODE, 2017 EDITION
NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2019 EDITION.
NFPA 80, STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES, 2019 EDITION
NFPA 90A, STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATION SYSTEMS, 2018 EDITION.
NFPA 101, LIFE SAFETY CODE, 2018 EDITION.
NFPA 170, STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS, 2018 EDITION
NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION. ALTERATION, AND DEMOLITION OPERATIONS, 2019 EDITION
NFPA 291, RECOMMEND PRACTICE FOR FIRE FLOW TESTING AND MARKING OF HYDRANTS, 2019 EDITION

OTHER REFERENCES
INTERNATIONAL CODE COUNCIL, INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION. (AS AMENDED BY UFC 1-200-01)
ARCHITECTURAL BARRIERS ACT (ABA), 2015 EDITION

BUILDING OCCUPANCY CLASSIFICATION

• IBC OCCUPANCY CLASSIFICATIONS - MIXED USE AND OCCUPANCY - NON-SEPARATED OCCUPANCY		IBC § 508.3
	ASSEMBLY A-3	IBC § 303 (ASSEMBLY)
	GROUP B	IBC § 304 (BUSINESS)
• NFPA OCCUPANCY CLASSIFICATIONS - MIXED OCCUPANCIES - NON-SEPARATED OCCUPANCY		NFPA 101 § 6.1.14.3
	NEW ASSEMBLY	NFPA CHAPTER 12
	NEW BUSINESS	NFPA CHAPTER 38

BUILDING DESCRIPTION - PROVIDED

• TYPE IIB CONSTRUCTION (IBC)	IBC § 602 & TABLE 601
• TOTAL BUILDING AREA: 30,000 SQ.FT.	IBC § 502 BUILDING AREA DEFINITION
• BUILDING HEIGHT AND STORIES: 25FT. 10IN. AND 1 STORIES	IBC § 502 BUILDING HEIGHT DEFINITION
• BUILDING IS FULLY PROTECTED WITH AN AUTOMATIC SPRINKLER SYSTEM	

ALLOWABLE IBC BUILDING HEIGHT AND FLOOR AREA:

• ALLOWABLE GROSS SQUARE FEET OF BUILDING: 38,000 SQ.FT. MIXED USE	IBC §506.2.2
• ALLOWABLE HEIGHT: 75 FEET AND 3 STORIES FOR FULLY SPRINKLED A-3 BUILDING	IBC §504.1 TABLE 504.3/504.4

FIRE RESISTANCE REQUIREMENTS
IBC STRUCTURAL ELEMENTS:

• STRUCTURAL FRAME (INCLUDING COLUMNS, GIRDERS, AND TRUSSES)	0 HOUR	IBC 601 & TABLE 602 ALL ALLOWABLE COMBUSTIBLE MATERIALS AS DEFINED IN SECTION 603
• BEARING WALLS - EXTERIOR SEPARATION DISTANCE >30'	0 HOUR	
• BEARING WALLS - INTERIOR	0 HOUR	
• NONBEARING WALLS - EXTERIOR SEPARATION DISTANCE >30'	0 HOUR	
• NONBEARING WALLS & PARTITIONS - INTERIOR	0 HOUR (NOTE 1)	
• FLOOR CONSTRUCTION (INCLUDING SUPPORTING BEAMS AND JOISTS)	0 HOUR	
• ROOF CONSTRUCTION (INCLUDING SUPPORTING BEAMS AND JOISTS)	0 HOUR	

NFPA 101 EXIT ACCESS CORRIDORS:

• CORRIDORS PROVIDING ACCESS TO AN EXIT: NO RATING REQUIRED IN FULLY SPRINKLERED BUILDINGS	NFPA 101 § 7.1.3.1 (2), 12.3.6 (2), 38.3.6.1 (3)

PROTECTION FROM HAZARDS

• SMOKE PARTITION REQUIRED FOR GENERAL STORAGE, BOILER, OR FURNACE ROOMS	NFPA 101 §8.7.1.1, 8.7.1.2 , 38.3.2.1

REQUIRED FIRE DAMPERS IN RATED WALLS

• FIRE DAMPERS NOT REQUIRED FOR FULLY DUCTED HVAC IN 1-HOUR FIRE RATED BARRIERS. FIRE DAMPERS REQUIRED FOR AIR TRANSFER GRILLES.	NFPA 90A § 5.3.1.1

INTERIOR WALL, CEILING, AND FLOOR FINISHES: NFPA 101 CHAPTER 10 TABLE A.10.2.2

GROUP	WITH SPRINKLER SYSTEM			
	EXITS	EXIT ACCESS CORRIDORS	ROOMS AND ENCLOSED SPACES	INTERIOR FINISH FLOOR
ASSEMBLY	A	A OR B	A, B, OR C	CLASS I OR II
BUSINESS	A OR B	A OR B	A, B, OR C	CLASS I OR II

MEANS OF EGRESS REQUIRED; SEE LIFE SAFETY PLANS FOR EGRESS PROVIDED

MINIMUM NUMBER OF MEANS OF EGRESS

• OCCUPANT LOAD 1-500: NOT LESS THAN 2 MEANS OF EGRESS REQUIRED	NFPA 101 § 7.4.1.1

TRAVEL DISTANCE TO AN EXIT

• ASSEMBLY, SPRINKLERED: 250 FEET	NFPA 101 § 12.2.6.2 (1)
• BUSINESS, SPRINKLERED: 300 FEET	NFPA 101 § 38.2.6.3

COMMON PATH OF TRAVEL

• ASSEMBLY, SPRINKLERED: 50 OR LESS OCCUPANTS 75FT, GREATER THAN 50 OCCUPANTS 20FT	NFPA 101 § 12.2.5.1.2
• BUSINESS, SPRINKLERED: 100 FEET	NFPA 101 § 38.2.5.3.1

DEAD-END LIMITS

• ASSEMBLY, SPRINKLERED: 20 FEET	NFPA 101 § 12.2.5.1.3
• BUSINESS, SPRINKLERED: 50 FEET	NFPA 101 § 38.2.5.2.1

REMOTENESS OF EXITS

• MINIMUM DISTANCE SEPARATION BETWEEN EXITS AND EXIT ACCESS DOORS SHALL BE NOT LESS THAN 1/3RD THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED.	NFPA 101 § 7.5.1.3.3

MINIMUM WIDTH

• NOT LESS THAN 36" FOR ANY MEANS OF EGRESS	NFPA 101 § 7.3.4.1 (2)
• NOT LESS THAN 44" FOR ALL CORRIDORS SERVING MORE THAN 50 ASSEMBLY OCCUPANTS	NFPA 101 § 12.2.3.8
• NOT LESS THAN 32" FOR DOOR CLEAR WIDTH	NFPA 101 § 7.2.1.2.3.2
• DOORS SHALL SWING IN THE DIRECTION OF TRAVEL WHERE SERVING 50 OR MORE PERSONS.	NFPA 101 § 7.2.1.4.2 (1)

ILLUMINATION OF MEANS OF EGRESS

• MINIMUM ILLUMINATION FOR FLOORS AND OTHER WALKING SURFACES SHALL BE AT LEAST 1FT. CANDLE	NFPA 101 § 7.8.1.3 (2)

MARKING MEANS OF EGRESS

• EXITS OTHER THAN MAIN EXTERIOR EXIT DOORS THAT ARE OBVIOUSLY AND CLEARLY IDENTIFIED AS EXITS, SHALL BE MARKED BY APPROVED SIGNS	NFPA 101 § 7.10.1.2.1
• ACCESS TO EXITS SHALL BE MARKED BY APPROVED, READILY VISIBLE SIGNS IN ALL CASES WHERE THE EXIT OR WAY TO REACH EXIT IS NOT READILY APPARENT TO OCCUPANTS	NFPA 101 § 7.10.1.5.1
• A SIGN WITH DIRECTIONAL INDICATOR SHOWING DIRECTION OF TRAVEL SHALL BE PLACED IN EVERY LOCATION WHERE DIRECTION OF TRAVEL TO REACH THE NEAREST EXIT IS NOT APPARENT	NFPA 101 § 7.10.2.1
• EVERY EXIT OR DIRECTIONAL SIGN SHALL BE ILLUMINATED BY A RELIABLE LIGHT SOURCE	NFPA 101 § 7.10.5.1

ACCESSIBLE MEANS OF EGRESS

• PER UFC 1-200-01 §2-10 AND 2-11, DELETE CHAPTER 10 & 11 OF THE IBC FOR MEANS OF EGRESS AND ACCESSIBILITY. UTILIZE THE ABA. WHERE THE ABA REFERENCES THE IBC, THE 2015 EDITION WILL BE USED.	UFC 1-200-01 § 2-10 & 2-11
• ACCESSIBLE MEANS OF EGRESS SHALL COMPLY WITH THE IBC §1007 (2003 EDITION) ACCESSIBLE MEANS OF EGRESS. (NOTE: IN THE 2015 EDITION OF IBC ACCESSIBLE MEANS OF EGRESS WAS MOVED TO SECTION 1009)	ABA F207.1 (2015 EDITION)
• ACCESSIBLE MEANS OF EGRESS SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS. WHERE MORE THAN ONE MEANS OF EGRESS ARE REQUIRED BY SECTION 1006.1 OR 1006.3 FROM ANY ACCESSIBLE SPACE, EACH ACCESSIBLE PORTION OF THE SPACE SHALL BE SERVED BY NOT LESS THAN TWO.	IBC § 1009.1
• EACH REQUIRED ACCESSIBLE MEANS OF EGRESS SHALL BE CONTINUOUS TO A PUBLIC WAY AND SHALL CONSIST OF ONE OR MORE OF THE FOLLOWING (ONLY THOSE INCLUDED IN DESIGN ARE LISTED):	IBC § 1009.2

OCCUPANCY CAPACITY FACTORS

• LEVEL COMPONENTS (DOORS) - 0.2 INCHES PER OCCUPANT FOR DOORS IN BUILDINGS THAT ARE FULLY SPRINKLERED.	NFPA 101 TABLE 7.3.3.1

OCCUPANCY LOAD FACTORS

• ASSEMBLY USE: LESS CONCENTRATED WITHOUT FIXED SEATING 15 SQ. FT/PERSON NET FLOOR AREA • BUSINESS USE CONCENTRATED: 50 SQ. FT/PERSON GROSS FLOOR AREA • BUSINESS USE: 150 SQ.FT./PERSON GROSS FLOOR AREA	NFPA 101 TABLE 7.3.1.2
• MECHANICAL/ELECTRICAL ROOMS: 500 SQ.FT./PERSON GROSS FLOOR AREA • CONFERENCE ROOMS: 15 SQ.FT./PERSON NET FLOOR AREA • RECEPTION AREAS: 15 SQ.FT./PERSON NET FLOOR AREA • IT EQUIPMENT ROOMS: 300 SQ.FT./PERSON GROSS FLOOR AREA	UFC 3-600-01, TABLE 10-1

FIRE DEPARTMENT VEHICLE ACCESS (UFC 3-600-01 § 9-1; SEE CODE COMPLIANCE SITE PLAN)

• ALL-WEATHER GROUND ACCESS MUST BE PAVED, START FROM THE ROAD, AND TERMINATE NO FARTHER THAN 33 FEET FROM AN EXTERIOR DOOR ACCESSIBLE FOR FIRE DEPARTMENT INGRESS.	UFC 3-600-01 § 9-1.1
• DIMENSIONS OF FIRE LANES AND TURNAROUNDS COMPLY WITH NFPA 1.	

FIRE HYDRANT PLACEMENT AND COVERAGE (UFC 3-600-01 § 9-3.5; SEE CODE COMPLIANCE SITE PLAN)

• ALL PARTS OF THE FACILITY EXTERIOR MUST BE WITHIN 350FT OF A HYDRANT WITH CONSIDERATION GIVEN TO ACCESSIBILITY AND OBSTRUCTIONS.	UFC 3-600-01 § 9-3.5.8.2
• AT LEAST ONE HYDRANT MUST BE LOCATED WITHIN 150FT OF THE FIRE DEPARTMENT CONNECTION	UFC 3-600-01 § 9-3.5.8.4

ACTIVE FIRE PROTECTION SYSTEMS (SHALL COMPLY WITH UFC 3-600-01 CHAPTER 9)
FIRE ALARM AND MASS NOTIFICATION SYSTEM (MNS)

• FIRE ALARM SYSTEM TO BE INSTALL IN ACCORDANCE WITH UFC-3-600-01, NFPA 70, NFPA 72 AND ABA	
• MASS NOTIFICIATION SYSTEM TO BE INSTALLED IN ACCORDANCE WITH UFC 4-021-01	
• ANALOG / ADDRESSABLE FIRE ALARM SYSTEM SHALL BE PROVIDED	UFC 3-600-01 § 9-18.4
• REPORTING TO SUR-GARD SYSTEM III MULTI-PLATFORM DIGITAL TELEPHONE RECIEVER.	
• REMOTE ANNUNCIATOR PROVIDED AT DESIGNATED PRIMARY ENTRANCE	UFC 3-600-01 § 9-18.4.4
• MANUAL PULL STATION AT ALL EXIT DOORS	UFC 3-600-01 § 9-18.7.4
• SPRINKLER WATERFLOW MONITORING - SEPARATE ADDRESS FOR EACH WATERFLOW SWITCH	UFC 3-600-01 § 9-18.7.1
• SPRINKLER VALVE SUPERVISION - SEPARATE ADDRESS FOR EACH VALVE	UFC 3-600-01 § 9-18.7.3
• NOTIFICIATION TO BE PROVIDED THROUGHOUT ENTIRE BUILDING	UFC 3-600-01 § 9-18.6.1
• MASS NOTIFICATION SYSTEM PROVIDED WHERE OCCUPANT LOAD IS 11 OR MORE PERSONS	UFC 4-010-01 § 1-7
• VOICE INTELLIGIBILITY TO BE PROVIDED THROUGHOUT (CIS >0.7 OR STI > 0.5)	UFC 4-021-01 § 4-6.1.2
• THE FIRE ALARM EVACUATION SIGNAL SHALL BROADCAST OVER THE MNS SYSTEM.	UFC 3-600-01 § 9-18.1.2.1
• BREAKER LOCK SHALL BE PROVIDED FOR FIRE ALARM AND MNS IAW UFC 3-520-01	UFC 3-600-01 § 9-18.11.1
• SURGE PROTECTION DEVICE SHALL BE PROVIDED FOR ALL 120 VAC POWERED FIRE ALARM AND MNS EQUIPMENT	UFC 3-600-01 § 9-18.11.2

FIRE SUPPRESSION SYSTEMS AND WATER SUPPLY

• SPRINKLER PROTECTION REQUIRED FOR SINGLE STORY TYPE I OR II CONSTRUCTION EXCEEDING 15,000SQ.FT.	UFC 3-600-01 § 9-7.2.1.1
• SPRINKLER PROTECTION REQUIRED FOR MULTI-STORY BUILDING REGARDLESS OF FLOOR AREA OR CONSTRUCTION TYPE	UFC 3-600-01 § 9-7.2.1.2
• SPRINKLER SYSTEMS MUST COMPLY WITH NFPA 13 EXCEPT WHERE SPECIFICALLY MODIFIED BY UFC-3-600-01	UFC 3-600-01 § 9-7.1.1
• SPRINKLER SYSTEM DESIGN TO BE IN ACCORDANCE WITH TABLE 9-3 & TABLE 9-4 OF UFC 3-600-01 WITH THE EXCEPTION OF STORAGE OCCUPANCIES, WHERE NFPA 13 DESIGN CRITERIA APPLIES	UFC 3-600-01 § 9-7.3
• ANTICIPATED SYSTEM DEMAND IS 875 GPM @ 38 PSI BASED ON PRELIMINARY CALCUATIONS	
• SYSTEM DEMAND INCLUDES BOTH SPRINKLER AND HOSE STREAM ALLOWANCE	
• EXISTING WATER SUPPLY WILL BE CAPABLE TO SUPPLY DEMAND WITHOUT A FIRE PUMP	
• FIRE SPRINKLER WATER SUPPLY UNDERGROUND PIPING - BASE STANDARD IS TO PROVIDE UNSUPERVISED BURIED RESILENT SEATED GATE VALVE IN LIEU OF PIV	NFPA 24 § 6.1.1.3
• STANDPIPE SYSTEMS NOT REQUIRED	UFC 3-600-01 § 9-10

FIRE EXTINGUISHERS

• FIRE EXTINGUISHERS ARE NOT REQ'D IN SPRINKLERED BUILDINGS	UFC 3-300-01 § 9-17.1
• PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED PER NFPA 10. MECHANICAL ROOMS SHALL HAVE BRACKET MOUNTED FIRE EXTINGUISHERS. RECESSED OR SEMI-RECESSED TO BE PROVIDED IN FINISHED SPACES. EXTINGUISHERS OUTSIDE COMMUNICATIONS SPACES SHALL BE SUITABLE FOR ELECTRONICS (EG:CLEAN AGENT).	
• MECHANICAL ROOMS AND LARGE STORAGE ROOMS SHALL BE PROTECTED UTILIZING ORDINARY (MODERATE] EXTINGUISHER PLACEMENT FOR CLASS A HAZARDS. A STANDARD 4A:80BC EXTINGUISHER WILL COVER 6,000 SQ.FT. OF FLOOR SPACE WITH A MAXIMUM TRAVEL DISTANCE TO THE EXTINGUISHER OF 75 FEET.	NFPA 10 TABLE § 6.2.1.1

APPR | DATE | DESCRIPTION | SYM

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APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020
DES AJS | DRW TRF | CHK ZJS
PM/DM SGL/RMS
BRANCH MANAGER DSN
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC
MIDLANT CI CORE
JACKSONVILLE, NORTH CAROLINA
MARSOC
P1395 MARINE RAIDER HEADQUARTERS
CODE ANALYSIS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794223
SHEET 4 OF 228
G-003
DRAWFORM REVISION: 17 APRIL 2018

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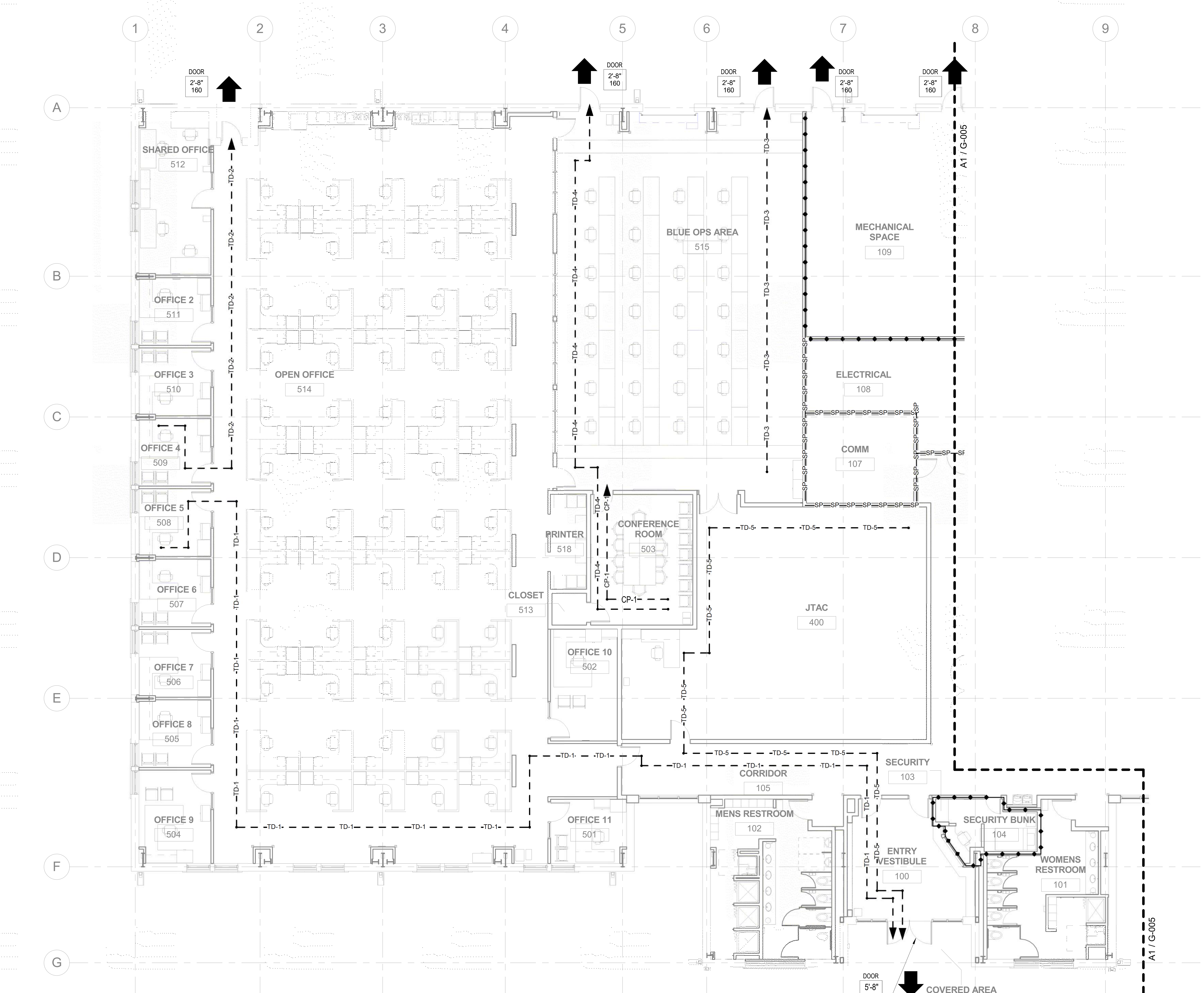


A1 FIRST FLOOR LIFE SAFETY PLAN - AREA A

1/8" = 1'-0"

LIFE SAFETY NOTES:

1. FOR EXIT LIGHTS AND EMERGENCY LIGHTING, SEE ELECTRICAL LIGHTING DRAWINGS (E SERIES).

LIFE SAFETY SYMBOLS:

EXIT DOOR TAG

A — CLEAR DOOR WIDTH [FEET - INCHES]
B — OCCUPANT LOAD CAPACITY [NO.OF PEOPLE]

LINE TYPES FOR MEANS OF EGRESS:

COMPONENT	SYMBOL
TRAVEL DISTANCE	TD
COMMON PATH	CP

EXIT DISCHARGE

EXIT DISCHARGE ARROW

WALL RATING LEGEND

1 HOUR FIRE BARRIER

—SP—SP—SP—SP—SP- SMOKE PARTITION

MEANS OF EGRESS ARRANGEMENT DISTANCE SCHEDULE - BUILDING SUMMARY		
EGRESS PATH ID	EGRESS DISTANCE PROVIDED	MAXIMUM PERMITTED
CP-1	27' - 6"	100' - 0"
TD-1	212' - 6"	300' - 0"
TD-2	69' - 6"	300' - 0"
TD-3	57' - 0"	300' - 0"
TD-4	96' - 0"	300' - 0"
TD-5	140' - 6"	300' - 0"
TD-8	149' - 0"	300' - 0"

MEANS OF EGRESS WIDTH CAPACITY			
	PROVIDED EGRESS CAPACITY - LEVEL COMPONENTS & RAMPS		
EXIT ID	EGRESS CAPACITY FACTOR	CLEAR WIDTH	OCCUPANT LOAD CAPACITY
100A	0.2	5' - 8"	320
109B	0.2	2' - 8"	160
109D	0.2	2' - 8"	160
110	0.2	2' - 8"	160
514	0.2	2' - 8"	160
515B	0.2	2' - 8"	160
515C	0.2	2' - 8"	160

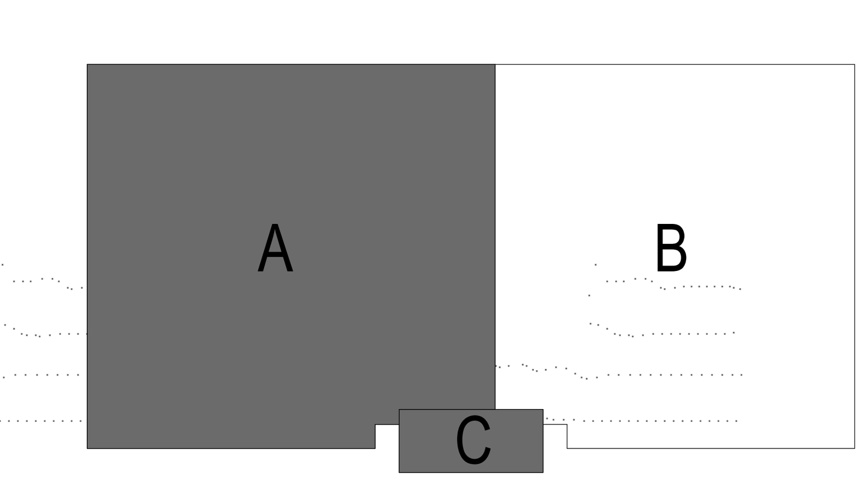
BLUE OPERATIONS OCCUPANT LOAD SCHEDULE

OCCUPANT USE TYPE	AREA (SQ FT)	OCCUPANT LOAD FACTOR (SF/PERSON)	OCCUPANT LOAD
ASSEMBLY	2253	15	151
BUSINESS	3456	150	24
BUSINESS (CONCENTRATED)	6162	50	124
CONFERENCE	356	15	24
RECEPTIONIST	86	15	6

COMMON AREA OCCUPANT LOAD SCHEDULE

OCCUPANT USE TYPE	AREA (SQ FT)	OCCUPANT LOAD FACTOR (SF/PERSON)	OCCUPANT LOAD
BUSINESS	2625	150	54
IT/COMM	231	300	1
MECH/ELEC	1236	500	3

KEY PLAN



SYM	DESCRIPTION	DATE	APPR

NAVFAC

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ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

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BRANCH MANAGER DSN
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FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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CAMP LEJEUNE - JACKSONVILLE, NC
MIDLANT CI CORE
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
LIFE SAFETY PLAN-AREA A

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794224
SHEET 5 OF 228

G-004

DRAWFORM REVISION: 17 APRIL 2018

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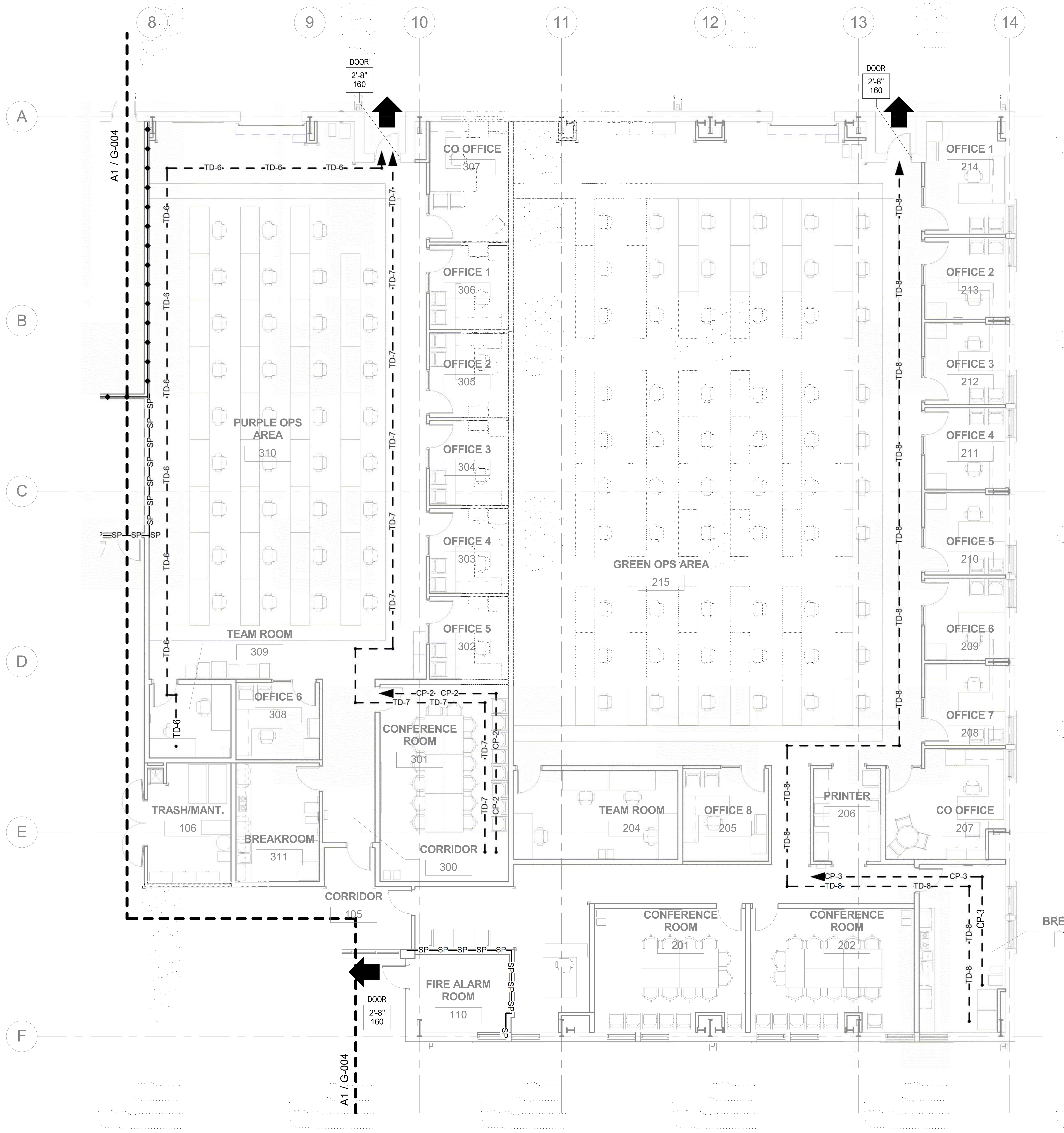


A1 FIRST FLOOR LIFE SAFETY PLAN - AREA B

1/8" = 1'-0"

0 4' 8' 16'

LIFE SAFETY NOTES:

1. FOR EXIT LIGHTS AND EMERGENCY LIGHTING, SEE ELECTRICAL LIGHTING DRAWINGS (E SERIES).

LIFE SAFETY SYMBOLS:

EXIT DOOR TAG

A — CLEAR DOOR WIDTH [FEET - INCHES]

B — OCCUPANT LOAD CAPACITY [NO.OF PEOPLE]

LINE TYPES FOR MEANS OF EGRESS:

COMPONENT	SYMBOL
TRAVEL DISTANCE	— — TD — — ▶
COMMON PATH	— — CP — — ▶

EXIT DISCHARGE

EXIT DISCHARGE ARROW ➡

WALL RATING LEGEND

—◆—◆—◆—◆— 1 HOUR FIRE BARRIER

—SP—SP—SP—SP—SP- SMOKE PARTITION

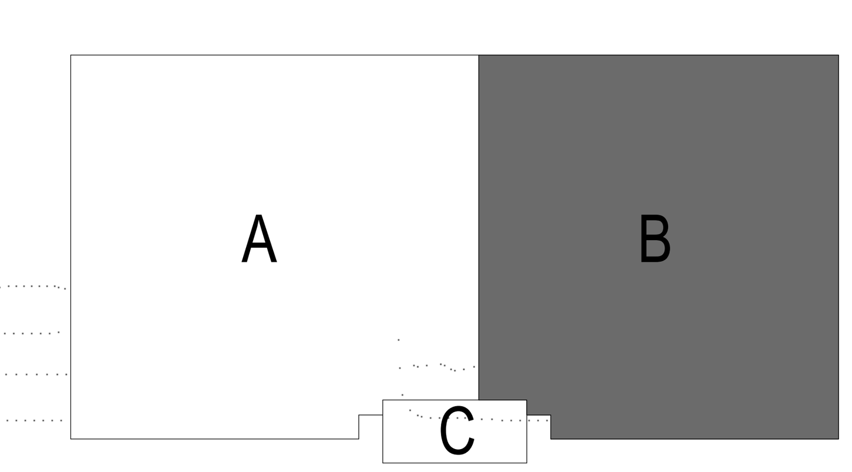
MEANS OF EGRESS ARRANGEMENT DISTANCE SCHEDULE - BUILDING SUMMARY		
EGRESS PATH ID	EGRESS DISTANCE	
	PROVIDED	MAXIMUM PERMITTED
CP-2	35' - 6"	100' - 0"
CP-3	36' - 0"	100' - 0"
TD-6	105' - 6"	300' - 0"
TD-7	112' - 0"	300' - 0"
TD-8	149' - 0"	300' - 0"

MEANS OF EGRESS WIDTH CAPACITY			
	PROVIDED EGRESS CAPACITY - LEVEL COMPONENTS & RAMPS		
EXIT ID	EGRESS CAPACITY FACTOR	CLEAR WIDTH	OCCUPANT LOAD CAPACITY
100A	0.2	5' - 8"	320
110	0.2	2' - 8"	160
215A	0.2	2' - 8"	160
310A	0.2	2' - 8"	160

PURPLE OPERATIONS OCCUPANT LOAD SCHEDULE			
OCCUPANT USE TYPE	AREA (SQ FT)	OCCUPANT LOAD FACTOR (SF/PERSON)	OCCUPANT LOAD
BUSINESS	1602	150	11
BUSINESS (CONCENTRATED)	2509	50	51
CONFERENCE	422	15	29

GREEN OPERATIONS OCCUPANT LOAD SCHEDULE			
OCCUPANT USE TYPE	AREA (SQ FT)	OCCUPANT LOAD FACTOR (SF/PERSON)	OCCUPANT LOAD
BUSINESS	2447	150	17
BUSINESS (CONCENTRATED)	4320	50	87
CONFERENCE	641	15	43
RECEPTIONIST	274	15	19

KEY PLAN



PLAN NORTH

SYM | DESCRIPTION | DATE | APPR

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FOR COMMANDER NAVFAC 7/9/2020

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SATISFACTORY TO DATE 06/19/2020

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BRANCH MANAGER DSN
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FIRE PROTECTION

DEPARTMENT OF THE NAVY
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NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MIDLANT CI CORE
JACKSONVILLE, NORTH CAROLINA
MARSOC
P1395 MARINE RAIDER HEADQUARTERS
LIFE SAFETY PLAN-AREA B

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794225
SHEET 6 OF 228

G-005

DRAWFORM REVISION: 17 APRIL 2018

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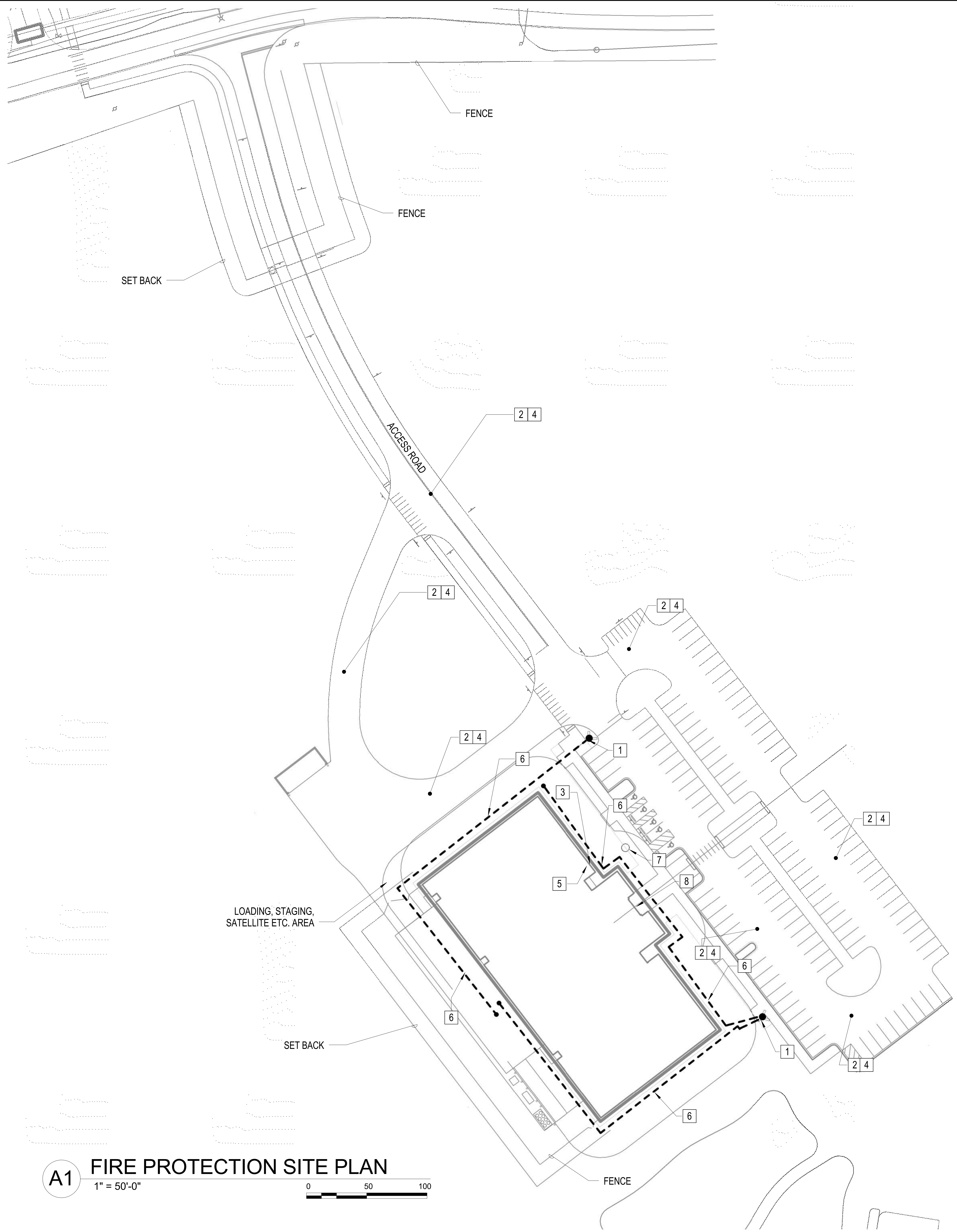


A1 FIRE PROTECTION SITE PLAN
1" = 50'-0"
0 50 100

GENERAL NOTES

1. A FRONTAGE INCREASE FOR ADDITIONAL ALLOWABLE BUILDING SQUARE FOOTAGE NOT APPLIED.

LEGEND

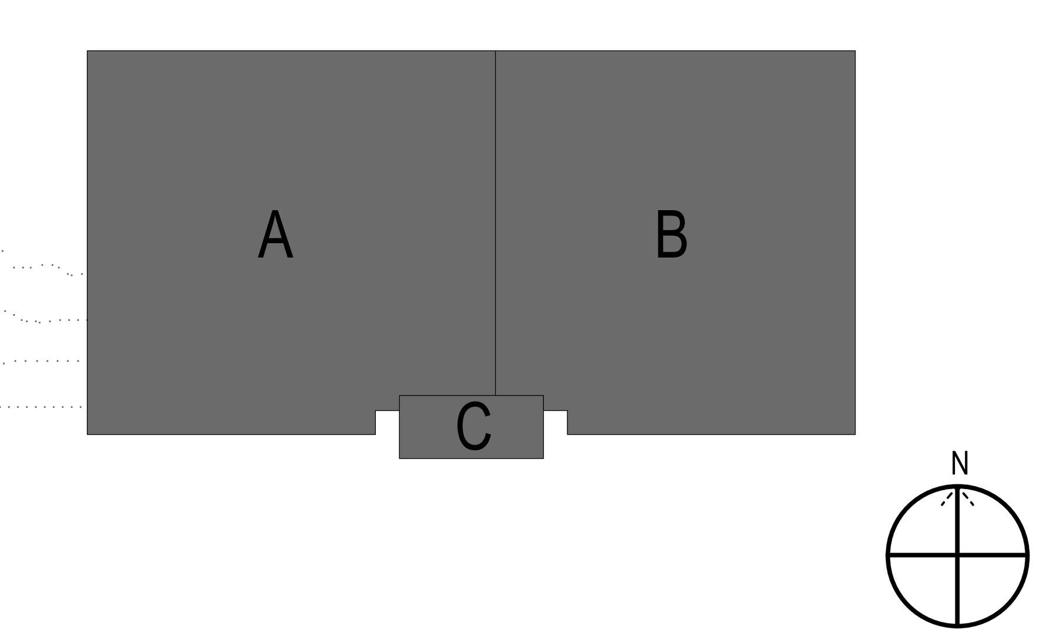
HOSE PULL

HYDRANT

KEYNOTES

1. ALL PARTS OF BUILDING EXTERIOR WITHIN 350 FT OF A FIRE HYDRANT AS REQUIRED UFC 3-600-01 PARA. 9-3.5.8.2.
2. ALL WEATHER GROUND ACCESS SHALL BE PROVIDED FOR EMERGENCY VEHICLES PER UFC 3-600-01 PARA 9-1.1.
3. FIRE DEPARTMENT CONNECTION PROVIDED WITHIN 150 FT OF A FIRE HYDRANT AS REQUIRED BY UFC 3-600-01 PARA. 3-7.3.3.
4. PER UFC 3-600-01 PARA 2-10.2. DIMENSIONS OF FIRE LANES AND TURNAROUNDS SHALL COMPLY WITH NFPA 1, FIRE CODE, FIRE DEPARTMENT ACCESS ROAD WITH UNOBSTRUCTED WIDTH IS NOT LESS THAN 20 FT AS REQUIRED PER 2018 NFPA 1 SECTION 18.2.3.5.1.1.
5. FIRE ALARM/SPRINKLER RISER ROOM.
6. FIRE HOSE PULL 350 FT.
7. FIRE SPRINKLER WATER SUPPLY SHUT OFF BURIED RESILIENT SEATED 8" GATE VALVE.
8. FIRE DEPARTMENT MAIN ENTRANCE TO BUILDING.

KEY PLAN



SYM	DESCRIPTION	DATE	APPR

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PM/DM	SGL/RMS	
BRANCH MANAGER	DSN	
CHIEF ENG/ARCH	EJA	
FIRE PROTECTION		

DEPARTMENT OF THE NAVY
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CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
CODE COMPLIANCE SITE PLAN

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794226
SHEET 7 OF 228

G-006

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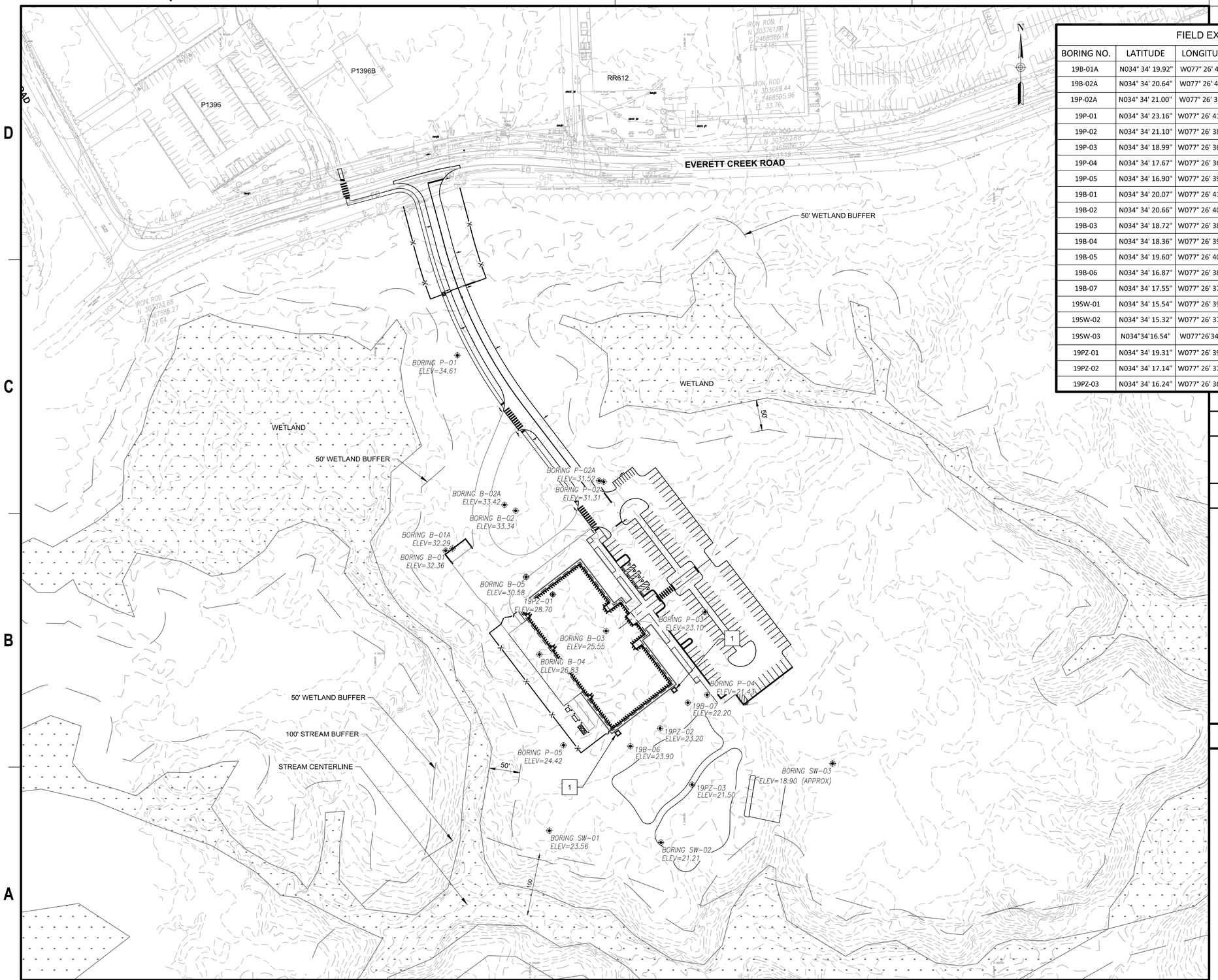


FIELD EXPLORATION LOCATION DATA

BORING NO.	LATITUDE	LONGITUDE	NORTHING	EASTING	TEST DEPTH	SURFACE ELEV.
19B-01A	N034° 34' 19.92"	W077° 26' 41.64"	302918.000'	2468117.000'	< 5 FEET	32.29
19B-02A	N034° 34' 20.64"	W077° 26' 40.56"	302992.000'	2468212.000'	< 5 FEET	33.42
19P-02A	N034° 34' 21.00"	W077° 26' 38.76"	303031.000'	2468365.000'	< 5 FEET	31.52
19P-01	N034° 34' 23.16"	W077° 26' 41.38"	303233.571'	2468135.931'	10 FEET	34.61'
19P-02	N034° 34' 21.10"	W077° 26' 38.59"	303029.321'	2468372.362'	10 FEET	31.31'
19P-03	N034° 34' 18.99"	W077° 26' 36.67"	302818.750'	2468535.948'	10 FEET	23.10'
19P-04	N034° 34' 17.67"	W077° 26' 36.66"	302685.015'	2468539.570'	10 FEET	21.43'
19P-05	N034° 34' 16.90"	W077° 26' 39.45"	302603.582'	2468307.470'	10 FEET	24.42'
19B-01	N034° 34' 20.07"	W077° 26' 41.53"	302921.400'	2468128.114'	50 FEET	32.36'
19B-02	N034° 34' 20.66"	W077° 26' 40.30"	302982.495'	2468230.208'	50 FEET	33.34'
19B-03	N034° 34' 18.72"	W077° 26' 38.59"	302788.264'	2468376.197'	40 FEET	25.55'
19B-04	N034° 34' 18.36"	W077° 26' 39.89"	302750.257'	2468268.478'	40 FEET	26.83'
19B-05	N034° 34' 19.60"	W077° 26' 40.12"	302875.482'	2468246.962'	4 FEET	30.58'
19B-06	N034° 34' 16.87"	W077° 26' 38.16"	302601.958'	2468415.545'	40 FEET	23.90'
19B-07	N034° 34' 17.55"	W077° 26' 37.03"	302672.205'	2468508.379'	40 FEET	22.20'
19SW-01	N034° 34' 15.54"	W077° 26' 39.75"	302465.462'	2468284.427'	15 FEET	23.56'
19SW-02	N034° 34' 15.32"	W077° 26' 37.59"	302446.376'	2468464.888'	15 FEET	21.21'
19SW-03	N034°34'16.54"	W077°26'34.25"	302574.07'	2468742.29'	9 FEET	18.90 (APPROX)
19PZ-01	N034° 34' 19.31"	W077° 26' 39.61"	302847.130'	2468290.068'	15 FEET	28.70'
19PZ-02	N034° 34' 17.14"	W077° 26' 37.58"	302630.737'	2468463.567'	15 FEET	23.20'
19PZ-03	N034° 34' 16.24"	W077° 26' 36.97"	302539.826'	2468515.272'	15 FEET	21.50'

NEW WORK KEYNOTES

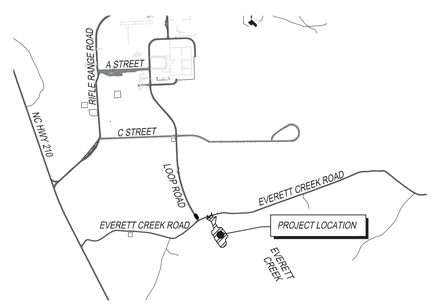
1. SETTLEMENT PLATE, SEE PRELOADING REQUIREMENTS BELOW.

GENERAL SHEET NOTES

PRELOADING REQUIREMENTS:

A. INSTALL TWO SETTLEMENT PLATES FIVE FEET OUTSIDE OF THE BUILDING FOOTPRINT AFTER STRIPPING AND GRUBBING AND BEFORE ANY GRADE INCREASING FILL. SETTLEMENT PLATES WILL BE CONSTRUCTED IN ACCORDANCE WITH NCDOT STANDARD 100_010_W5518_RDY_2G-1 OR APPROVED EQUAL.
B. CONTRACTOR MUST SURVEY INITIAL SETTLEMENT PLATE LOCATIONS AND ELEVATIONS, INCLUDING ANY INSTALLED RISERS PRIOR TO FILL PLACEMENT.
C. CONTRACTOR MUST PROVIDE SURVEYED INFORMATION ON A WEEKLY BASIS OF SETTLEMENT PLATE ELEVATION ONCE FINAL SUBGRADE ELEVATIONS HAVE BEEN REACHED FOR A MINIMUM PERIOD OF 60 DAYS (PRELOADING WAIT PERIOD). REPORT RESULTS TO THE CONTRACTING OFFICER WEEKLY.
D. ONCE SETTLEMENT PROGRESSION HAS STABILIZED (90% SETTLEMENT DISSIPATED OR GREATER), ISSUE REPORT OF SETTLEMENT OBSERVATIONS TO THE CONTRACTING OFFICER REQUESTING RELEASE FROM THE PRELOADING PERIOD.

LOCATION MAP *NOT TO SCALE*



FIELD EXPLORATION BORING LOCATION MAP

1" = 80' 0' 40' 80' 160'

APPR	DATE	DESCRIPTION	SYM

NAVFAC

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 040175 ENGINEER JAMES R. DEVEREAUX
6/26/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND
CAMP LEJEUNE ~ JACKSONVILLE NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
FIELD EXPLORATION BORING LOCATION MAP AND PRELOADING REQUIREMENTS

SCALE:	1" = 80'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794227
SHEET	8 OF 228

B-100

DRAWFORM REVISION: 17 APRIL 2018

Page 1of 2

4880 Sadler Road
Glen Allen, VA 23060

MATERIAL AND SAMPLE SYMBOLS LIST

Page 2 of 2

4880 Sadler Road
Glen Allen, VA 23060

MATERIAL AND SAMPLE SYMBOLS LIST

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BORING NUMBER 19B-01

PAGE 1 OF 2

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC
NORTH 302922 **EAST** 2468165
DATE STARTED 1/16/19 **COMPLETED** 1/16/19
STATION --- **OFFSET** ft
GROUND ELEVATION 32 ft NAVD88 **HOLE SIZE** 4.0"
DRILLING CONTRACTOR GET Solutions, Inc
GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs
∇ **AT TIME OF DRILLING** 6.0 ft / Elev 26.0 ft
LOGGED BY Dustin Houser (GET) **CHECKED BY** Kohltan Heiter, EIT/HDR
AT END OF DRILLING NO LONG TERM MEASUREMENTS TAKEN
NOTES The estimated Seasonal High Water Table Elevation is 26.0.
AFTER DRILLING No Long Term Measurements Taken

MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0.0/32.0 1" Surficial Soil	SS 1	60	2-1-2-3 (3)							
0.1/31.9 *Alluvium*, brown, fine to medium POORLY GRADED SAND, loose, moist (SP)	SS 2	100	3-3-2-4 (5)			23				3
4.0/28.0 *Alluvium*, brown to gray, fine to medium POORLY GRADED SAND, medium dense, moist (SP)	SS 3	100	5-5-6-8 (11)			19				
6.0/26.0 *Alluvium*, gray, fine to medium POORLY GRADED SAND WITH SILT, loose, wet (SP-SM)	SS 4	100	5-4-2-2 (6)			21				8
8.0/24.0 *Alluvium*, gray, fine to medium POORLY GRADED SAND WITH SILT, medium dense, moist (SP-SM)	SS 5	100	1-3-6-12 (9)							
10.0/22.0 *Alluvium*, dark gray, fine to medium CLAYEY SAND, loose, wet (SC)	SS 6	75	1-3-2-2 (5)			24	31	16	15	29
13.0/19.0 *Alluvium*, dark gray, CLAYEY SAND, very loose, wet (SC)	SS 7	100	WOH/24"			37	44	20	24	45
16.5/15.5										
18.0/14.0 *Alluvium*, dark gray, SANDY LEAN CLAY, very soft, wet (CL)	SS 8	100	WOH/24"			36				
20.0/12.0 Shelby Tube Collected from a depth of 20-22 ft bgs.	SH 1	100				38	48	22	26	53
	SS 9	100	WOH/24"			42				

(Continued Next Page)

Latitude: 34.5723 Longitude: -77.4448

GEOTECH BH COLUMNS - GINT STD US LAB - HDR 20160912_TEMP.GDT - 10/18/19 15:20 - J:\GEOTECH\PROJECTS\NAVFAC\CAMP LEJEUNE - JACKSONVILLE, NC\P1395, MARINE RAIDER\GINT\MARINERADIER_FINAL_SB.GPJ

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

BORING NUMBER 19B-01

PAGE 2 OF 2

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC

MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
28.0/4.0 *Alluvium*, dark gray, SANDY LEAN CLAY, medium stiff, wet (CL)	SS 10	100	1-3-4-6 (7)			41	47	18	29	61
31.5/0.5										
33.0/-1.0 *Alluvium*, olive- gray, fine SILTY SAND, very dense, contains marine shell fragments, wet (SM)	SS 11	98	8-18-45-50/4"							
36.5/-4.5										
38.0/-6.0 *Alluvium*, dark gray, SANDY LEAN CLAY, medium stiff, contains marine shell fragments, wet (CL)	SS 12	100	3-3-3-6 (6)			73				
	SS 13	100	2-2-3-4 (5)			51	49	20	29	52
46.5/-14.5										
48.0/-16.0 *Alluvium*, dark gray, fine to medium SILTY SAND, medium dense, wet (SM)	SS 14	100	3-4-6-7 (10)							

Bottom of borehole at 50.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

GEOTECH BH COLUMNS - GINT STD US LAB - HDR 20160912_TEMP.GDT - 10/18/19 15:20 - J:\GEOTECH\PROJECTS\NAVFAC\CAMP LEJEUNE - JACKSONVILLE, NC\P1395, MARINE RAIDER\GINT\MARINERADIER_FINAL_SB.GPJ

BORING LOG GENERAL NOTES:

1. THE SOIL BORING RECORDS REPRESENT THE GEOTECHNICAL ENGINEER'S INTERPRETATION OF THE SUBSURFACE CONDITIONS ENCOUNTERED AT THE SPECIFIC BORING LOCATIONS AT THE TIME OF THE SITE EXPLORATION BASED ON VISUAL EXAMINATION OF FIELD SAMPLES OBTAINED AND LABORATORY CLASSIFICATION TESTING ON SELECTED SAMPLES.
2. LINES DESIGNATING THE INTERFACE BETWEEN VARIOUS STRATA ON THE BORING RECORDS REPRESENT THE APPROXIMATE INTERFACE LOCATION. THE ACTUAL TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL THAN INDICATED. THE BORING RECORDS MAY NOT NECESSARILY BE REPRESENTATIVE OF THE MATERIAL CHARACTER AND STRATA THICKNESS OVER THE ENTIRE CONSTRUCTION AREA.
3. WATER LEVELS SHOWN ON THE BORING RECORDS REPRESENT THE CONDITIONS ENCOUNTERED AT THE TIME OF THE FIELD EXPLORATION AND DO NOT NECESSARILY REPRESENT GROUNDWATER LEVELS THAT WILL BE ENCOUNTERED DURING CONSTRUCTION. IT IS POSSIBLE THAT GROUNDWATER LEVELS WILL FLUCTUATE DUE TO SEASONAL VARIATIONS AND OTHER FACTORS.
4. APPROXIMATE BORING LOCATIONS ARE SHOWN ON DRAWING SHEET B-100. BORING LOCATIONS (LAT/LONG) WERE ESTABLISHED USING A HANDHELD GPS RECEIVER HAVING AN ACCURACY OF 10 FEET. BORING SURFACE ELEVATIONS SHALL BE CONSIDERED ACCURATE TO NO MORE THAN 0.5 FEET.
5. BORINGS WERE ADVANCED USING MUD ROTARY DRILLING METHOD AS NOTED. REFER TO THE BORING LOG LEGEND FOR AN EXPLANATION OF THE SYMBOLS USED. BORINGS AND TESTING WERE PERFORMED BY GET SOLUTIONS, INC.

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Telephone: (804) 799-6900

BORING NUMBER 19B-01A

PAGE 1 OF 1

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC
NORTH 302918 **EAST** 2468117
DATE STARTED 4/12/19 **COMPLETED** 4/12/19
STATION --- **OFFSET** ft
GROUND ELEVATION 32 ft NAVD88 **HOLE SIZE**
DRILLING CONTRACTOR GET Solutions, Inc
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger
AT TIME OF DRILLING
LOGGED BY Dustin Houser (GET) **CHECKED BY** Sudha Bhusal, PE/HDR
▼ **AT END OF DRILLING** 3.2 ft / Elev 28.8 ft
NOTES The estimated Seasonal High Water Table Elevation is 28.0.
AFTER DRILLING

MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0.0/32.0 1" Surficial Soil										
0.1/31.9 Gray, fine to medium POORLY GRADED SAND WITH SILT, (SP-SM)										
1.0/31.0 Gray to yellow- brown, fine to medium POORLY GRADED SAND, (SP)										
2.0/30.0 Gray to light brown, fine to coarse POORLY GRADED SAND, (SP)										
3.0/29.0 Light gray, fine to coarse POORLY GRADED SAND, (SP)										
4.0/28.0 Light gray to light brown, fine to coarse POORLY GRADED SAND, (SP)										

Bottom of borehole at 5.0 feet.
Boring backfilled with bentonite chips and soil cuttings upon termination.

Latitude: 34.5722 Longitude: -77.4449

GEOTECH BH COLUMNS - GINT STD US LAB - HDR 20160912_TEMP.GDT - 10/18/19 15:20 - J:\GEOTECH\PROJECTS\NAVFAC\CAMP LEJEUNE - JACKSONVILLE, NC\P1395, MARINE RAIDER\GINT\MARINERADIER_FINAL_SB.GPJ

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BORING NUMBER 19B-02

PAGE 1 OF 2

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC
NORTH 302997 **EAST** 2468260
DATE STARTED 1/16/19 **COMPLETED** 1/16/19
STATION --- **OFFSET** ft
GROUND ELEVATION 33 ft NAVD88 **HOLE SIZE** 4.0"
DRILLING CONTRACTOR GET Solutions, Inc
GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs
∇ **AT TIME OF DRILLING** 3.5 ft / Elev 29.5 ft
LOGGED BY Dustin Houser (GET) **CHECKED BY** Kohltan Heiter, EIT/HDR
AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 29.0.
AFTER DRILLING No Long Term Measurements Taken

MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0.0/33.0 1" Surficial Soil 0.1/32.9 *Alluvium*, gray, fine to coarse POORLY GRADED SAND, loose, moist (SP)	SS 1	70	1-1-2-1 (3)							
2.0/31.0 *Alluvium*, gray to pale brown, fine to coarse POORLY GRADED SAND, loose, moist (SP)	SS 2	100	1-2-2-2 (4)			25	NP	NP	NP	5
4.0/29.0 *Alluvium*, brown, fine to coarse POORLY GRADED SAND, loose, wet (SP)	SS 3	100	3-3-4-3 (7)							
6.0/27.0 *Alluvium*, brown, fine to coarse POORLY GRADED SAND WITH SILT, loose, wet (SP-SM)	SS 4	100	2-3-3-2 (6)			25	NP	NP	NP	7
8.0/25.0 *Alluvium*, dark- brown, fine to medium POORLY GRADED SAND, loose, wet (SP)	SS 5	100	2-2-2-4 (4)			31	NP	NP	NP	3
10.0/23.0 *Alluvium*, dark- brown, fine to medium POORLY GRADED SAND, dense, wet (SP)	SS 6	100	6-14-13-12 (27)							
12.5/20.5 13.0/20.0 *Alluvium*, dark- gray, CLAYEY SAND, very loose, wet (SC)	SS 7	100	WOH/24"			34	36	17	19	40
16.5/16.5										
18.0/15.0 *Alluvium*, dark- gray, SANDY LEAN CLAY, soft, wet (CL)	SS 8	100	WOH-1-1-1 (2)			39				
23.0/10.0 *Alluvium*, dark- gray, SANDY LEAN CLAY, soft, wet (CL)	SS 9	100	1-1-1 (2)			38	42	14	28	57

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Latitude: 34.5725 Longitude: -77.4444

GEOTECH BH COLUMNS - GINT STD US LAB - HDR 20160912_TEMP.GDT - 10/18/19 15:20 - J:\GEOTECH\PROJECTS\NAVFAC\CAMP LEJEUNE - JACKSONVILLE, NC\P1395, MARINE RAIDER\GINT\MARINERADIER_FINAL_SB.GPJ

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Glen Allen, VA 23060
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BORING NUMBER 19B-02

PAGE 2 OF 2

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC

MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
28.0/5.0 *Alluvium*, dark- gray, SANDY LEAN CLAY, very soft, wet (CL)	SS 10	100	WOH/18"-3			42				
33.0/0.0 *Alluvium*, dark- gray, SANDY LEAN CLAY, very stiff, wet (CL)	SS 11	100	4-2-12-27 (14)							
38.0/-5.0 *Alluvium*, dark- gray, SANDY LEAN CLAY, medium stiff, contains marine shell fragments, wet (CL)	SS 12	100	3-3-3-5 (6)			51	45	19	26	56
41.5/-8.5										
43.0/-10.0 *Alluvium*, dark- gray, fine SILTY SAND, loose, wet (SM)	SS 13	100	3-3-3-3 (6)							
	SS 14	100	3-3-4-4 (7)							

Bottom of borehole at 50.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

GEOTECH BH COLUMNS - GINT STD US LAB - HDR 20160912_TEMP.GDT - 10/18/19 15:20 - J:\GEOTECH\PROJECTS\NAVFAC\CAMP LEJEUNE - JACKSONVILLE, NC\P1395, MARINE RAIDER\GINT\MARINERADIER_FINAL_SB.GPJ

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BORING NUMBER 19B-02A

PAGE 1 OF 1

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC
NORTH 302992 **EAST** 2468212
DATE STARTED 4/12/19 **COMPLETED** 4/12/19
STATION --- **OFFSET** ft
GROUND ELEVATION 33 ft NAVD88 **HOLE SIZE**
DRILLING CONTRACTOR GET Solutions, Inc
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger
AT TIME OF DRILLING
LOGGED BY Dustin Houser (GET) **CHECKED BY** Sudha Bhusal, PE/HDR
▼ **AT END OF DRILLING** 3.8 ft / Elev 29.2 ft
NOTES The estimated Seasonal High Water Table Elevation is 29.0.
AFTER DRILLING

MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0.0/33.0 1" Surficial Soil										
0.1/32.9 Gray, fine to medium POORLY GRADED SAND WITH SILT, (SP-SM)										
1.0/32.0 Dark brown to light yellow- brown, fine to medium POORLY GRADED SAND, (SP)										
2.0/31.0 Yellow- brown to orange- brown, fine to medium POORLY GRADED SAND, (SP)										
3.0/30.0 Orange- brown light brown, fine to coarse POORLY GRADED SAND, (SP)										
4.0/29.0 Light brown to light gray, fine to coarse POORLY GRADED SAND, (SP)										

Bottom of borehole at 5.0 feet.
Boring backfilled with bentonite chips and soil cuttings upon termination.

Latitude: 34.5724 Longitude: -77.4446

GEOTECH BH COLUMNS - GINT STD US LAB - HDR 20160912_TEMP.GDT - 10/18/19 15:20 - J:\GEOTECH\PROJECTS\NAVFAC\CAMP LEJEUNE - JACKSONVILLE, NC\P1395, MARINE RAIDER\GINT\MARINERADIER_FINAL_SB.GPJ

SYM	DESCRIPTION	DATE	APPR

NAVFAC

JAMES R. DEVEREAUX
040175
6/26/2020
SEAL

440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
James E. Donahue, R.A.
FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES SB	DRW SD	CHK AZ
PM/DM SGL/RMS		
BRANCH MANAGER FAD		
CHIEF ENG/ARCH EJA		
FIRE PROTECTION		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
MIDLANT CI CORE
CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
BORING LEGEND AND LOGS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794228
SHEET 9 OF 228

B-101

DRAWFORM REVISION: 17 APRIL 2018

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6/25/2020 7:08:05 AM

BORING NUMBER 19B-03 (PAGE 1 OF 2)

FDR 4880 Sadler Road, Suite 100, Glen Allen, VA 23060, Telephone: (804) 799-6900

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC
NORTH: 302802 — EAST: 2468408 — DATE STARTED: 1/15/19 — COMPLETED: 1/15/19
STATION: --- — OFFSET: ft — GROUND ELEVATION: 26 ft NAVD88 — HOLE SIZE: 4.0"
DRILLING CONTRACTOR: GET Solutions, Inc — GROUND WATER LEVELS:
DRILLING METHOD: Mud Rotary w/ SPTs — AT TIME OF DRILLING: 3.0 ft / Elev 23.0 ft
LOGGED BY: Dustin Houser (GET) — CHECKED BY: Kohltan Heiter, EIT/HDR — AT END OF DRILLING: No Long Term Measurements Taken
NOTES: The estimated Seasonal High Water Table Elevation is 23.0. — AFTER DRILLING: No Long Term Measurements Taken

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
0.0/26.0	2" Surficial Soil	SS 1	15	3-1-3-2 (4)							
0.2/25.8	*Alluvium*, dark- brown, SANDY LEAN CLAY, medium stiff, moist to wet (CL)	SS 2	85	2-2-2-3 (4)			29	32	18	14	52
4.0/22.0	*Alluvium*, dark- brown, fine to medium SILTY SAND, medium dense, moist (SM)	SS 3	100	5-6-8-8 (14)							
6.0/20.0	*Alluvium*, dark- brown, fine to medium SILTY SAND, loose, moist (SM)	SS 4	85	4-3-3-2 (6)							
8.0/18.0	*Alluvium*, dark- brown, fine to medium POORLY GRADED SAND WITH SILT, very loose, moist (SP-SM)	SS 5	75	WOH/24"			27	NP	NP	NP	6
10.0/16.0	*Alluvium*, dark- brown, fine to medium SILTY SAND, loose, moist (SM)	SS 6	100	1-1-2-2 (3)							
		SS 7	75	1-1-2-1 (3)			32				
14.0/12.0	*Alluvium*, gray, SANDY LEAN CLAY, soft, wet (CL)	SH 1	100				36	47	21	26	58
16.0/10.0	Shelby Tube Collected from a depth of 15-17 ft bgs.										
18.0/8.0	*Alluvium*, gray, SANDY LEAN CLAY, very soft, wet (CL)	SS 8	100	WOH/24"			36				
		SS 9	100	WOH/24"			35				

(Continued Next Page) — Latitude: 34.5719 — Longitude: -77.444

BORING NUMBER 19B-03 (PAGE 2 OF 2)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
25.0/1.0	Shelby Tube Collected from a depth of 25-27 ft bgs.	SH 2	100				35	34	18	16	50
27.5/-1.5											
28.0/-2.0	*Alluvium*, dark green- gray, fine to coarse POORLY GRADED SAND WITH GRAVEL, medium dense, contains marine shell fragments, wet (SP)	SS 10	100	4-4-6-13 (10)							
31.5/-5.5											
33.0/-7.0	*Alluvium*, dark- gray, fine to medium CLAYEY SAND, medium dense, contains marine shell fragments, wet (SC)	SS 11	100	10-10-5-6 (15)			28	29	16	13	25
38.0/-12.0	*Alluvium*, dark- gray, fine to medium CLAYEY SAND, loose, contains marine shell fragments, wet (SC)	SS 12	100	2-3-3-3 (6)							

Bottom of borehole at 40.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

BORING NUMBER 19B-04 (PAGE 1 OF 2)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC
NORTH: 302732 — EAST: 2468312 — DATE STARTED: 1/15/19 — COMPLETED: 1/15/19
STATION: --- — OFFSET: ft — GROUND ELEVATION: 27 ft NAVD88 — HOLE SIZE: 4.0"
DRILLING CONTRACTOR: GET Solutions, Inc — GROUND WATER LEVELS:
DRILLING METHOD: Mud Rotary w/ SPTs — AT TIME OF DRILLING: 2.0 ft / Elev 25.0 ft
LOGGED BY: Dustin Houser (GET) — CHECKED BY: Kohltan Heiter, EIT/HDR — AT END OF DRILLING: No Long Term Measurements Taken
NOTES: The estimated Seasonal High Water Table Elevation is 25.0. — AFTER DRILLING: No Long Term Measurements Taken

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
0.0/27.0	3" Surficial Soil	SS 1	70	1-1-3-2 (4)							
0.3/26.7	*Alluvium*, gray, fine to medium POORLY GRADED SAND, loose, moist (SP)										
2.0/25.0	*Alluvium*, dark- brown, fine to medium SILTY SAND, medium dense, wet (SM)	SS 2	100	2-5-4-4 (9)							
		SS 3	100	3-3-5-9 (8)			34	NP	NP	NP	18
6.0/21.0	*Alluvium*, brown, fine to medium SILTY SAND, medium dense, wet (SM)	SS 4	100	6-6-5-3 (11)							
8.0/19.0	*Alluvium*, brown, fine to medium POORLY GRADED SAND, loose, wet (SP)	SS 5	100	2-2-2-2 (4)							
		SS 6	100	2-1-2-1 (3)							
11.5/15.5	*Alluvium*, gray, SANDY LEAN CLAY, wet (CL)										
13.0/14.0	*Alluvium*, gray, SANDY LEAN CLAY, very soft, wet (CL)	SS 7	100	WOH/24"			38	39	19	20	50
		SS 8	100	WOH/24"			41				
21.5/5.5											
23.0/4.0	*Alluvium*, gray, fine to medium SILTY SAND, medium dense, wet (SM)	SS 9	100	5-6-9-12 (15)							

(Continued Next Page) — Latitude: 34.5717 — Longitude: -77.4443

BORING NUMBER 19B-04 (PAGE 2 OF 2)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
26.5/0.5											
28.0/-1.0	*Alluvium*, dark green- gray, fine to medium POORLY GRADED SAND, medium dense, contains marine shell fragments, wet (SP)	SS 10	85	6-3-19-24 (22)							
31.5/-4.5											
33.0/-6.0	*Alluvium*, dark green- gray, fine to medium CLAYEY SAND, medium dense, contains marine shell fragments, wet (SC)	SS 11	100	11-8-7-5 (15)			38	27	14	13	21
36.5/-9.5											
38.0/-11.0	*Alluvium*, dark green- gray, fine to medium POORLY GRADED SAND, loose, contains marine shell fragments, wet (SP)	SS 12	100	3-3-3-3 (6)							

Bottom of borehole at 40.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

NORTH CAROLINA PROFESSIONAL SEAL 040175 ENGINEER JAMES R. DEVEREAUX 6/26/2020

SEAL

BORING NUMBER 19B-05 (PAGE 1 OF 1)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC
NORTH: 302833 — EAST: 2468242 — DATE STARTED: 4/12/19 — COMPLETED: 4/12/19
STATION: --- — OFFSET: ft — GROUND ELEVATION: 31 ft NAVD88 — HOLE SIZE:
DRILLING CONTRACTOR: GET Solutions, Inc — GROUND WATER LEVELS:
DRILLING METHOD: Hand Auger — AT TIME OF DRILLING:
LOGGED BY: Dustin Houser (GET) — CHECKED BY: Sudha Bhusal, PE/HDR — AT END OF DRILLING: 2.7 ft / Elev 28.3 ft
NOTES: The estimated Seasonal High Water Table Elevation is 28.0. — AFTER DRILLING:

Depth/Elev (ft)	Material Description
0.0/31.0	2" Surficial Soil
0.2/30.8	Gray to brown, fine to medium POORLY GRADED SAND WITH SILT, (SP-SM)
1.0/30.0	Brown to yellow- brown, fine to medium POORLY GRADED SAND, (SP)
2.0/29.0	Orange- brown to light brown, fine to coarse POORLY GRADED SAND, (SP)
3.0/28.0	Light brown to light gray, fine to coarse POORLY GRADED SAND, (SP)

Bottom of borehole at 4.0 feet.
Boring backfilled with bentonite chips and soil cuttings upon termination.

Latitude: 34.572 — Longitude: -77.4445

BORING NUMBER 19B-06 (PAGE 1 OF 2)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC
NORTH: 302602 — EAST: 2468416 — DATE STARTED: 10/4/19 — COMPLETED: 10/4/19
STATION: --- — OFFSET: ft — GROUND ELEVATION: 24 ft NAVD88 — HOLE SIZE: 4.0"
DRILLING CONTRACTOR: GET Solutions, Inc — GROUND WATER LEVELS:
DRILLING METHOD: Mud Rotary w/ SPTs — AT TIME OF DRILLING: 11.0 ft / Elev 13.0 ft
LOGGED BY: J. Meals / GETS — CHECKED BY: Harsh Patel/HDR — AT END OF DRILLING:
NOTES: The estimated Seasonal High Water Table Elevation is 20.0. — AFTER DRILLING: NO LONG TERM MEASUREMENTS TAKEN

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
0.0/24.0	6" Surficial Soil	SS 1	65	3-3-3-2 (6)							
0.5/23.5	*Alluvium*, brown, fine to medium POORLY GRADED SAND WITH SILT, loose, moist (SP-SM)										
2.0/22.0	*Alluvium*, red- tan, mottled, LEAN CLAY WITH SAND, stiff, moist (CL)	SS 2	85	3-4-4-5 (8)	1.0		19				
4.0/20.0	*Alluvium*, gray to red- tan, mottled, LEAN CLAY WITH SAND, very stiff, moist (CL)	SS 3	85	3-5-8-6 (13)	1.0		34	48	18	30	79
6.0/18.0	*Alluvium*, gray to red- tan, mottled, fine to medium CLAYEY SAND, medium dense, moist (SC)	SS 4	75	4-5-5-4 (10)			20				24
8.0/16.0	*Alluvium*, tan to gray, SANDY LEAN CLAY, firm, moist (CL)	SS 5	100	2-2-3-2 (5)	0.5		29	35	14	21	59
10.0/14.0	*Alluvium*, tan to gray, SANDY LEAN CLAY, firm, moist to wet (CL)	SS 6	90	2-2-2-3 (4)	0.25		34				
13.0/11.0	*Alluvium*, gray, LEAN CLAY WITH SAND, very soft, wet (CL)	SS 7	100	WOH/18"-1	0.5		34				
19.0/5.0	*Alluvium*, gray, SANDY LEAN CLAY, very soft, wet (CL)	SS 8	85	WOH/24"	0.5		32	37	14	23	67
		SS 9	90	WOH/18"-1	0.5		33				

(Continued Next Page) — Latitude: 34.5714 — Longitude: -77.4439

BORING NUMBER 19B-06 (PAGE 2 OF 2)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
26.5/-2.5											
28.0/-4.0	*Alluvium*, gray to tan, fine to medium POORLY GRADED SAND WITH SILT, dense, contains marine shell fragments, wet (SP-SM)	SS 10	90	25-15-12-14 (27)							
31.5/-7.5											
33.0/-9.0	*Alluvium*, gray, fine to medium CLAYEY SAND, loose, contains marine shell fragments, wet (SC)	SS 11	90	3-3-3-2 (6)			29				15
38.0/-14.0	*Alluvium*, gray, fine to medium CLAYEY SAND, medium dense, contains marine shell fragments, wet (SC)	SS 12	90	3-4-5-7 (9)							

Bottom of borehole at 40.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 84% used for N60 values.

BORING NUMBER 19B-07 (PAGE 1 OF 2)

CLIENT: NAVFAC — PROJECT NAME: P1395 Marine Raider Regimental HQS
PROJECT NUMBER: 10136813 — PROJECT LOCATION: Camp Lejeune, NC
NORTH: 302672 — EAST: 2468508 — DATE STARTED: 10/3/19 — COMPLETED: 10/3/19
STATION: --- — OFFSET: ft — GROUND ELEVATION: 22 ft NAVD88 — HOLE SIZE: 4.0"
DRILLING CONTRACTOR: GET Solutions, Inc — GROUND WATER LEVELS:
DRILLING METHOD: Mud Rotary w/ SPTs — AT TIME OF DRILLING: 12.0 ft / Elev 10.0 ft
LOGGED BY: J. Meals / GETS — CHECKED BY: Harsh Patel/HDR — AT END OF DRILLING:
NOTES: The estimated Seasonal High Water Table Elevation is 18.0. — AFTER DRILLING: NO LONG TERM MEASUREMENTS TAKEN

Depth/Elev (ft)	Material Description	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	PID (ppm)	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Fines Content (%)
0.0/22.0	4" Surficial Soil	SS 1	100	2-2-3-3 (5)							
0.3/21.7	*Alluvium*, tan and brown, fine to medium POORLY GRADED SAND WITH SILT, loose, moist (SP-SM)										
2.0/20.0	*Alluvium*, red- tan to gray, mottled, fine to medium CLAYEY SAND, loose, moist (SC)	SS 2	75	2-3-3-2 (6)			23	29	14	15	47
4.0/18.0	*Alluvium*, tan, SANDY LEAN CLAY, stiff, moist (CL)	SS 3	85	3-3-5-5 (8)	0.5		18				
6.0/16.0	*Alluvium*, tan- gray, mottled, SANDY LEAN CLAY, firm, moist (CL)	SS 4	60	3-3-3-3 (6)	1.0		25	37	12	25	61
8.0/14.0	*Alluvium*, gray- tan, mottled, LEAN CLAY WITH SAND, firm, moist (CL)	SS 5	85	2-3-3-3 (6)	0.5		30				
10.0/12.0	*Alluvium*, gray, LEAN CLAY WITH SAND, firm, moist to wet (CL)	SS 6	85	2-2-3-3 (5)	0.5		31				
13.0/9.0	*Alluvium*, gray, LEAN CLAY WITH SAND, very soft, wet (CL)	SS 7	100	WOH/24"	1.0		37	46	17	29	76
		SS 8	100	WOH/24"	1.0		37				
21.5/0.5											
23.0/-1.0	*Alluvium*, dark gray, fine to medium POORLY GRADED SAND, medium dense, contains marine shell fragments, wet (SP)	SS 9	90	4-6-8-9 (14)			39				4

(Continued Next Page) — Latitude: 34.5715 — Longitude: -77.4436

NAVFAC

FDR 440 S. CHURCH STREET, SUITE 1000, CHARLOTTE, NC 28202, TEL (704)338-6700

A/E INFO

APPROVED: James E. Donahue, R.A. — FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY: Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	SB
DRW	SD
CHK	AZ
PM/DM	SGL/RMS
BRANCH MANAGER	FAD
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
MIDLANT CI CORE — CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC — JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
BORING LOGS

SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794229
SHEET	10 OF 228

B-102

DRAWFORM REVISION: 17 APRIL 2018

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6/25/2020 7:08:10 AM

BORING NUMBER 19B-07

PAGE 2 OF 2

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
25													
	-5		26.5/-4.5										
			28.0/-6.0 Alluvium, gray, fine to medium CLAYEY SAND, medium dense, contains marine shell fragments, wet (SC)	SS 10	100	5-7-7-8 (14)							
30													
	-10												
			33.0/-11.0 Alluvium, gray, fine to medium CLAYEY SAND, medium dense, contains marine shell fragments, wet (SC)	SS 11	100	3-5-4-4 (9)			30				16
35													
	-15												
				SS 12	100	4-5-6-7 (11)							
40													

Bottom of borehole at 40.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 84% used for N60 values.

Latitude: 34.572 Longitude: -77.4436

BORING NUMBER 19P-01

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 303250 | EAST 2468142 | DATE STARTED 1/16/19 | COMPLETED 1/16/19
STATION --- | OFFSET ft | GROUND ELEVATION 34 ft NAVD88 | HOLE SIZE 4.0"
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs | AT TIME OF DRILLING 3.0 ft / Elev 31.0 ft
LOGGED BY Dustin Houser (GET) | CHECKED BY Kohltan Heiter, EIT/HDR | AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 28.0 | AFTER DRILLING No Long Term Measurements Taken

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/34.0 3" Surficial Soil	SS 1	35	3-3-2-3 (5)			16	NP	NP	NP	
			0.3/33.7 Alluvium, dark- brown, SILTY SAND, loose, moist (SM)										
	30		2.0/32.0 Alluvium, pale brown, fine to coarse POORLY GRADED SAND, loose, moist to wet (SP)	SS 2	85	2-3-3-6 (6)							
5			4.0/30.0 Alluvium, pale brown to light- gray, fine to coarse POORLY GRADED SAND, medium dense, wet (SP)	SS 3	90	5-6-9-8 (15)							
			6.0/28.0 Alluvium, light gray, fine to coarse POORLY GRADED SAND, medium dense, wet (SP)	SS 4	100	10-10-12-12 (22)							
10	25			SS 5	100	5-4-5-8 (9)							

Bottom of borehole at 10.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.5732 Longitude: -77.4448

BORING NUMBER 19P-02

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 303031 | EAST 2468365 | DATE STARTED 1/16/19 | COMPLETED 1/16/19
STATION --- | OFFSET ft | GROUND ELEVATION 32 ft NAVD88 | HOLE SIZE 4.0"
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs | AT TIME OF DRILLING 7.0 ft / Elev 25.0 ft
LOGGED BY Dustin Houser (GET) | CHECKED BY Kohltan Heiter, EIT/HDR | AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 28.0 | AFTER DRILLING No Long Term Measurements Taken

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/32.0 2" Surficial Soil	SS 1	85	1-1-1-1 (2)							
	30		0.2/31.8 Alluvium, pale brown, fine to medium SILTY CLAYEY SAND, very loose, moist (SC-SM)										
			2.0/30.0 Alluvium, pale brown, fine to medium SILTY CLAYEY SAND, loose, moist (SC-SM)	SS 2	90	2-3-4-4 (7)			23	25	18	7	45
5			4.0/28.0 Alluvium, gray, fine to medium POORLY GRADED SAND, medium dense, moist (SP)	SS 3	100	4-6-7-9 (13)							
	25		6.0/26.0 Alluvium, gray, fine to medium POORLY GRADED SAND, medium dense, moist to wet	SS 4	100	9-9-12-15 (21)							
10			8.0/24.0 Alluvium, gray, fine to medium POORLY GRADED SAND, loose, wet	SS 5	100	4-1-3-5 (4)							

Bottom of borehole at 10.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.5725 Longitude: -77.4441

BORING NUMBER 19P-02A

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 303031 | EAST 2468365 | DATE STARTED 4/12/19 | COMPLETED 4/12/19
STATION --- | OFFSET ft | GROUND ELEVATION 32 ft NAVD88 | HOLE SIZE
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Hand Auger | AT TIME OF DRILLING
LOGGED BY Dustin Houser (GET) | CHECKED BY Sydha Bhusal, PE/HDR | AT END OF DRILLING 2.7 ft / Elev 29.3 ft
NOTES The estimated Seasonal High Water Table Elevation is 29.0 | AFTER DRILLING

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/32.0 2" Surficial Soil										
	30		0.1/31.9 Gray, SILTY SAND, (SM)										
			1.0/31.0 Dark brown to light brown, fine to medium POORLY GRADED SAND WITH SILT, (SP-SM)										
			2.0/30.0 Light brown to orange- brown, fine to coarse POORLY GRADED SAND, (SP)										
			3.0/29.0 Light brown to light gray, fine to coarse POORLY GRADED SAND, (SP)										

Bottom of borehole at 4.0 feet.
Boring backfilled with bentonite chips and soil cuttings upon termination.

Latitude: 34.5725 Longitude: -77.4441

BORING NUMBER 19P-03

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 302826 | EAST 2468519 | DATE STARTED 1/16/19 | COMPLETED 1/16/19
STATION --- | OFFSET ft | GROUND ELEVATION 25 ft NAVD88 | HOLE SIZE 4.0"
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs | AT TIME OF DRILLING Not Encountered During Drilling
LOGGED BY Dustin Houser (GET) | CHECKED BY Kohltan Heiter, EIT/HDR | AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 20.0 | AFTER DRILLING No Long Term Measurements Taken

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/25.0 4" Surficial Soil	SS 1	85	1-1-1-2 (2)			21	25	18	7	45
	25		0.3/24.7 Pale brown, fine to medium SILTY CLAYEY SAND, very loose, moist (SC-SM)										
			2.0/23.0 Light red- brown, SANDY LEAN CLAY, medium stiff, moist (CL)	SS 2	85	1-1-3-3 (4)			23	36	13	23	52
5	20		5.0/20.0 Light- gray, SANDY LEAN CLAY, medium stiff, moist (CL)	SS 3	75	2-2-2-2 (4)			23				
			6.0/19.0 Light- gray to orange- brown, SANDY LEAN CLAY, medium stiff, moist (CL)	SS 4	75	2-3-3-2 (4)			31				
10	15		8.0/17.0 Orange- brown, SANDY LEAN CLAY, medium stiff, moist (CL)	SS 5	85	1-2-2-2 (4)			32				

Bottom of borehole at 10.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.572 Longitude: -77.4436

BORING NUMBER 19P-04

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 302706 | EAST 2468502 | DATE STARTED 1/16/19 | COMPLETED 1/16/19
STATION --- | OFFSET ft | GROUND ELEVATION 24 ft NAVD88 | HOLE SIZE 4.0"
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs | AT TIME OF DRILLING 6.0 ft / Elev 18.0 ft
LOGGED BY Dustin Houser (GET) | CHECKED BY Kohltan Heiter, EIT/HDR | AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 18.0 | AFTER DRILLING No Long Term Measurements Taken

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/24.0 2" Surficial Soil	SS 1	85	1-2-2-2 (4)			17	NP	NP	NP	26
	20		0.2/23.8 Alluvium, dark- brown, fine to medium SILTY SAND, very loose, moist (SM)										
			2.0/22.0 Alluvium, pale brown, CLAYEY SAND, loose, contains organic matter, moist to wet (SC)	SS 2	70	4-3-3-3 (6)			23				
5			4.0/20.0 Alluvium, pale brown to light- gray, CLAYEY SAND, loose, contains organic matter, moist (SC)	SS 3	85	2-3-2-2 (5)			24	30	15	15	28
	15		6.0/18.0 Alluvium, light gray, SANDY LEAN CLAY, medium stiff, contains sand seams and organic matter, wet (CL)	SS 4	100	2-3-2-2 (5)			33				
10				SS 5	100	2-2-3-3 (5)			34				

Bottom of borehole at 10.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.5716 Longitude: -77.4436

BORING NUMBER 19P-05

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 302601 | EAST 2468299 | DATE STARTED 1/16/19 | COMPLETED 1/16/19
STATION --- | OFFSET ft | GROUND ELEVATION 25 ft NAVD88 | HOLE SIZE 4.0"
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs | AT TIME OF DRILLING Not Encountered During Drilling
LOGGED BY Dustin Houser (GET) | CHECKED BY Kohltan Heiter, EIT/HDR | AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 22.0 | AFTER DRILLING No Long Term Measurements Taken

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/25.0 3" Surficial Soil	SS 1	100	1-2-2-2 (4)			19				30
	25		0.3/24.7 Light- brown, fine to medium CLAYEY SAND, loose, moist (SC)										
			3.0/22.0 Light- gray, fine to medium CLAYEY SAND, loose, moist (SC)	SS 2	85	2-2-3-3 (5)			27				
5	20			SS 3	95	4-4-4-5 (8)			22				
			5.5/19.5 Light brown- gray, SANDY LEAN CLAY, trace sand, medium stiff, moist (CL)	SS 4	100	3-2-2-3 (4)			31	39	17	22	59
10	15			SS 5	100	2-2-2-2 (4)			38				

Bottom of borehole at 10.0 feet.
Boring backfilled with grout upon termination. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.5714 Longitude: -77.4443

BORING NUMBER 19SW-01

PAGE 1 OF 1

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

CLIENT NAVFAC | PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813 | PROJECT LOCATION Camp Lejeune, NC
NORTH 302473 | EAST 2468274 | DATE STARTED 1/16/19 | COMPLETED 1/16/19
STATION --- | OFFSET ft | GROUND ELEVATION 23 ft NAVD88 | HOLE SIZE 4.0"
DRILLING CONTRACTOR GET Solutions, Inc | GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs | AT TIME OF DRILLING 14.0 ft / Elev 9.0 ft
LOGGED BY Dustin Houser (GET) | CHECKED BY Kohltan Heiter, EIT/HDR | AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 14.0 | AFTER DRILLING To Be Measured

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	PID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)
0			0.0/23.0 1" Surficial Soil	SS 1	70	2-1-2-1 (3)							
	20		0.1/22.9 Light- gray, fine to medium POORLY GRADED SAND, loose, moist (SP)	SS 2	85	2-2-4-5 (6)							
5				SS 3	100	5-3-5-5 (8)							
			5.0/18.0	SS 4	100	5-4-5-5 (9)							
	15		8.0/17.0 Pale brown, FAT CLAY, stiff, moist (CH)	SS 5	100	4-4-3-3 (7)							
10			8.0/15.0 Pale brown to light gray, FAT CLAY, stiff, wet (CH)	SS 6	90	3-3-3-3 (6)							
	10		10.0/13.0 Dark gray, FAT CLAY, medium stiff, wet (CH)	SS 7	100	3-3-2-3 (5)							
15													

Bottom of borehole at 15.0 feet.
Temporary peizometer installed to a depth of 15 feet bgs. Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.571 Longitude: -77.4444

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA
JAMES R. DEVEREAUX
SEAL
040175
ENGINEER
6/26/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	SB	DRW	SD	CHK	AZ

PM/DM	SGL/RMS
BRANCH MANAGER	FAD
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND – MID-ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
BORING LOGS

SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794230
SHEET	11 OF 228

B-103

DRAWFORM REVISION: 17 APRIL 2018

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6/26/2020 7:08:15 AM

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

BORING NUMBER 19SW-02

PAGE 1 OF 1

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC
NORTH 302461 **EAST** 2468473
DATE STARTED 1/16/19 **COMPLETED** 1/16/19
STATION --- **OFFSET** ft
GROUND ELEVATION 22 ft NAVD88 **HOLE SIZE** 4.0"
DRILLING CONTRACTOR GET Solutions, Inc
GROUND WATER LEVELS:
DRILLING METHOD Mud Rotary w/ SPTs
AT TIME OF DRILLING 4.0 ft / Elev 18.0 ft
LOGGED BY Dustin Houser (GET) **CHECKED BY** Kohltan Heller, EIT-HDR
AT END OF DRILLING No Long Term Measurements Taken
NOTES The estimated Seasonal High Water Table Elevation is 18.0
AFTER DRILLING To Be Measured

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE) BLOWS/6"	POCKET PEN. (tsf)	FID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: FINES CONTENT (%)
0			0.0/22.0 1" Surficial Soil 0.1/21.9 Brown to gray, fine to medium POORLY GRADED SAND WITH SILT, loose, moist (SP-SM)	SS 1	80	1-1-2-1 (3)							
5	20		17' 4.0/18.0 Gray, fine to medium CLAYEY SAND, loose, wet (SC)	SS 2	80	2-1-2-3 (3)							
15				SS 3	95	2-2-2-1 (4)			11	41	16	25	26
			7.0/15.0	SS 4	95	2-2-2-3 (4)							
10			8.0/14.0 Gray, FAT CLAY, trace sand, medium stiff, wet (CH)	SS 5	90	2-2-2-2 (4)			30				
	10		10.0/12.0 Gray, FAT CLAY, trace sand, soft, wet (CH)	SS 6	85	1-1-2-1 (3)			30				
15				SS 7	75	1-1-2-1 (3)							

Bottom of borehole at 15.0 feet.
Temporary peizometer installed to a depth of 15 feet bgs.
Soil relative density and consistency descriptions based on N60 values. Automatic Hammer with a hammer efficiency of 80% used for N60 values.

Latitude: 34.571 Longitude: -77.4438

4880 Sadler Road, Suite 100
Glen Allen, VA 23060
Telephone: (804) 799-6900

BORING NUMBER 19SW-03

PAGE 1 OF 1

CLIENT NAVFAC
PROJECT NAME P1395 Marine Raider Regimental HQS
PROJECT NUMBER 10136813
PROJECT LOCATION Camp Lejeune, NC
NORTH 302552 **EAST** 2468741
DATE STARTED 4/12/19 **COMPLETED** 4/12/19
STATION --- **OFFSET** ft
GROUND ELEVATION 19 ft NAVD88 **HOLE SIZE**
DRILLING CONTRACTOR GET Solutions, Inc
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger
AT TIME OF DRILLING
LOGGED BY Dustin Houser (GET) **CHECKED BY** Sudha Bhusal, PE/HDR
AT END OF DRILLING 7.0 ft / Elev 11.4 ft
NOTES The estimated Seasonal High Water Table Elevation is 16.0
AFTER DRILLING

DEPTH (ft)	ELEV (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE) BLOWS/6"	POCKET PEN. (tsf)	FID (ppm)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	ATTERBERG LIMITS: FINES CONTENT (%)
0			0.0/19.0 2" Surficial Soil 0.2/18.8 Gray to brown, fine to medium POORLY GRADED SAND WITH SILT, (SP-SM)										
5	15		1.0/18.0 Light brown, fine to medium POORLY GRADED SAND, (SP)										
			2.0/17.0 Light brown to light gray, LEAN CLAY WITH SAND, (CL)										
			3.0/16.0 Light gray and orange- brown, CLAYEY SAND, (SC)										
10			7.0/12.0 Orange- brown, CLAYEY SAND, (SC)										

Bottom of borehole at 9.0 feet.
Boring backfilled with bentonite chips and soil cuttings upon termination.

Latitude: 34.5712 Longitude: -77.4429

TABLE C-1: SUMMARY OF LABORATORY TESTING RESULTS

Boring ID	Sample Type	Depth, feet			w (%)	Atterberg Limits LL (%)	Atterberg Limits PL (%)	Atterberg Limits PI (%)	Grain Size Analysis % Gravel [1]	Grain Size Analysis % Sand [1]	Grain Size Analysis % Silt/Clay [2]	USCS Symbol	Standard Proctor $w_{Modified\ test}$ (%)	Standard Proctor $\gamma_{d\ max}$ (pcf)	Standard Proctor w_{opt} (%)	California Bearing Ratio γ_d (pcf)	California Bearing Ratio w (%)	California Bearing Ratio % MDD	California Bearing Ratio CBR	California Bearing Ratio % Swell
19B-01	Jar	2.0	to	4.0	22.7	-	-	-	-	97.1	2.9	-	-	-	-	-	-	-	-	-
19B-01	Jar	4.0	to	6.0	19.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-01	Jar	6.0	to	8.0	21.2	-	-	-	-	92.2	7.8	-	-	-	-	-	-	-	-	-
19B-01	Jar	10.0	to	12.0	24.0	31	16	15	0.0	70.9	29.1	SC	-	-	-	-	-	-	-	-
19B-01	Jar	13.0	to	15.0	36.9	44	20	24	0.0	55.1	44.9	SC	-	-	-	-	-	-	-	-
19B-01	Jar	18.0	to	20.0	35.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-01	Tube	20.0	to	22.0	37.8	48	22	26	0.0	46.9	53.1	CL	-	-	-	-	-	-	-	-
19B-01	Jar	23.0	to	25.0	41.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-01	Jar	28.0	to	30.0	41.2	47	18	29	0.0	39.3	60.7	CL	-	-	-	-	-	-	-	-
19B-01	Jar	38.0	to	40.0	73.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-01	Jar	43.0	to	45.0	51.4	49	20	29	0.5	47.7	51.8	CL	-	-	-	-	-	-	-	-
19B-02	Jar	2.0	to	4.0	25.2	NP	NP	NP	0.0	95.4	4.6	SP	-	-	-	-	-	-	-	-
19B-02	Jar	6.0	to	8.0	25.1	NP	NP	NP	0.0	93.3	6.7	SP-SM	-	-	-	-	-	-	-	-
19B-02	Jar	8.0	to	10.0	31.4	NP	NP	NP	0.1	96.7	3.2	SP	-	-	-	-	-	-	-	-
19B-02	Jar	13.0	to	15.0	34.4	36	17	19	0.0	60.5	39.5	SC	-	-	-	-	-	-	-	-
19B-02	Jar	18.0	to	20.0	38.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-02	Jar	23.0	to	25.0	38.3	42	14	28	0.0	42.6	57.4	CL	-	-	-	-	-	-	-	-
19B-02	Jar	28.0	to	30.0	42.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-02	Jar	38.0	to	40.0	51.3	45	19	26	0.1	44.3	55.6	CL	-	-	-	-	-	-	-	-
19B-03	Jar	2.0	to	4.0	29.3	32	18	14	0.0	48.1	51.9	CL	-	-	-	-	-	-	-	-
19B-03	Jar	8.0	to	10.0	26.8	NP	NP	NP	0.0	94.5	5.5	SP-SM	-	-	-	-	-	-	-	-
19B-03	Jar	13.0	to	15.0	32.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-03	Tube	15.0	to	17.0	35.9	47	21	26	0.0	41.6	58.4	CL	-	-	-	-	-	-	-	-
19B-03	Jar	18.0	to	20.0	35.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-03	Jar	23.0	to	25.0	34.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-03	Tube	25.0	to	27.0	34.8	34	18	16	0.0	49.6	50.4	CL	-	-	-	-	-	-	-	-
19B-03	Jar	33.0	to	35.0	27.8	29	16	13	3.2	71.6	25.2	SC	-	-	-	-	-	-	-	-
19B-04	Jar	4.0	to	6.0	33.7	NP	NP	NP	18.6	63.4	18.0	SM	-	-	-	-	-	-	-	-
19B-04	Jar	13.0	to	15.0	38.4	39	19	20	0.0	50.0	50.0	CL	-	-	-	-	-	-	-	-
19B-04	Jar	18.0	to	20.0	41.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-04	Jar	33.0	to	35.0	38.4	27	14	13	5.4	73.6	21.0	SC	-	-	-	-	-	-	-	-
19B-06	Jar	2.0	to	4.0	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-06	Jar	4.0	to	6.0	34.4	48	18	30	0.0	20.6	79.4	CL	-	-	-	-	-	-	-	-
19B-06	Jar	6.0	to	8.0	20.1	-	-	-	-	-	24.0	-	-	-	-	-	-	-	-	-
19B-06	Jar	8.0	to	10.0	28.7	35	14	21	0.0	40.8	59.2	CL	-	-	-	-	-	-	-	-
19B-06	Jar	10.0	to	12.0	33.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-06	Jar	13.0	to	15.0	34.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-06	Jar	18.0	to	20.0	32.1	37	14	23	0.0	32.7	67.3	CL	-	-	-	-	-	-	-	-

TABLE C-1: SUMMARY OF LABORATORY TESTING RESULTS

Boring ID	Sample Type	Depth, feet			w (%)	Atterberg Limits LL (%)	Atterberg Limits PL (%)	Atterberg Limits PI (%)	Grain Size Analysis % Gravel [1]	Grain Size Analysis % Sand [1]	Grain Size Analysis % Silt/Clay [2]	USCS Symbol	Standard Proctor $w_{Modified\ test}$ (%)	Standard Proctor $\gamma_{d\ max}$ (pcf)	Standard Proctor w_{opt} (%)	California Bearing Ratio γ_d (pcf)	California Bearing Ratio w (%)	California Bearing Ratio % MDD	California Bearing Ratio CBR	California Bearing Ratio % Swell
19B-06	Jar	23.0	to	25.0	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-06	Jar	33.0	to	35.0	29.0	-	-	-	-	-	15.0	-	-	-	-	-	-	-	-	-
19B-07	Jar	2.0	to	4.0	22.7	29	14	15	0.0	53.3	46.7	SC	-	-	-	-	-	-	-	-
19B-07	Jar	4.0	to	6.0	17.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-07	Jar	6.0	to	8.0	25.1	37	12	25	0.0	38.7	61.3	CL	-	-	-	-	-	-	-	-
19B-07	Jar	8.0	to	10.0	30.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-07	Jar	10.0	to	12.0	31.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-07	Jar	13.0	to	15.0	37.0	46	17	29	0.0	24.4	75.6	CL	-	-	-	-	-	-	-	-
19B-07	Jar	18.0	to	20.0	37.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19B-07	Jar	23.0	to	25.0	39.3	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-	-
19B-07	Jar	33.0	to	35.0	29.7	-	-	-	-	-	16.0	-	-	-	-	-	-	-	-	-
19P-01	Bulk	1.0	to	4.0	16.4	NP	NP	NP	0.0	68.4	31.6	SM	16.4	104.6	12.7	-	-	-	-	-
19P-02	Bulk	1.0	to	4.0	22.6	25	18	7	0.1	54.5	45.4	SC-SM	22.6	109.1	15.3	-	-	-	-	-
19P-03	Bulk	0.3	to	2.0	20.5	25	18	7	0.1	54.5	45.4	SC-SM	18.1	109.1	15.3	108.1	19.7	99.1	7.7	0.0
19P-03	Jar	2.0	to	4.0	22.8	36	13	23	0.0	47.7	52.3	CL	-	-	-	-	-	-	-	-
19P-03	Jar	4.0	to	6.0	23.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-03	Jar	6.0	to	8.0	30.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-03	Jar	8.0	to	10.0	32.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-04	Jar	0.0	to	2.0	17.2	NP	NP	NP	0.2	73.5	26.3	SM	-	-	-	-	-	-	-	-
19P-04	Jar	2.0	to	4.0	22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-04	Jar	4.0	to	6.0	24.3	30	15	15	0.0	71.6	28.4	SC	-	-	-	-	-	-	-	-
19P-04	Jar	6.0	to	8.0	32.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-04	Jar	8.0	to	10.0	33.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-05	Bulk	1.0	to	4.0	17.4	NP	NP	NP	0.0	91.7	8.3	SP-SM	17.4	117.5	10.7	-	-	-	-	-
19P-05	Jar	0.3	to	2.0	19.4	-	-	-	0.0	69.6	30.4	-	-	-	-	-	-	-	-	-
19P-05	Jar	2.0	to	4.0	27.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-05	Jar	4.0	to	6.0	21.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19P-05	Jar	6.0	to	8.0	31.0	39	17	22	0.0	41.4	58.6	CL	-	-	-	-	-	-	-	-
19P-05	Jar	8.0	to	10.0	38.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19SW-02	Jar	4.0	to	6.0	10.7	41	16	25	0.0	73.7	26.3	SC	-	-	-	-	-	-	-	-
19SW-02	Jar	8.0	to	10.0	29.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19SW-02	Jar	10.0	to	12.0	29.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19SW-02	Bulk	0.0	to	10.0	16.4	NP	NP	NP	0.2	89.7	10.1	SP-SM	16.4	106.9	13.6	103.7	17.0	97.0	17.3	0.0

[1] Particle Diameter > Sieve No. 4.
[2] Sieve No. 4 >= Particle Diameter <= Sieve No. 200.
[3] Particle Diameter < Sieve No. 200.

LABORATORY TESTING NOTES:

1. THE LABORATORY TEST RESULTS REPRESENT THE SUBSURFACE SOIL PROPERTIES ENCOUNTERED AT THE SPECIFIC BORING LOCATIONS AND DEPTHS. IT IS POSSIBLE THAT SOIL PROPERTIES AND CONDITIONS BETWEEN THE INDIVIDUAL BORING LOCATIONS AND DEPTHS WILL BE DIFFERENT FROM THOSE INDICATED.
2. LABORATORY TESTS WERE PERFORMED IN GENERAL ACCORDANCE WITH THE FOLLOWING ASTM STANDARDS: D2216, D1140, D6913, D7928, D4318, D698, D1883, AND D2435.
3. MOISTURE CONTENT AND INDEX TESTS WERE PERFORMED ON JAR SAMPLES OBTAINED FROM THE SOIL BORINGS. MOISTURE-DENSITY AND CBR TESTS WERE PERFORMED ON SURFACE EXCAVATED COMPOSITE BULK SAMPLES.
4. "HDR GEOTECHNCICAL ENGINEERING REPORT, REV. 3 - P-1395 SPECIAL OPERATIONS FORCES MARINE RAIDER REGIMENTAL HQS" DATED MAY 29, 2020 CONTAINS DETAILS OF LABORATORY TESTING RESULTS.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA
JAMES R. DEVEREAUX
SEAL
040175
ENGINEER
6/26/2020

SEAL

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	SB	DRW	SD	CHK	AZ

PMDM SGL/RMS
BRANCH MANAGER FAD
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

BORING LOGS AND LABORATORY TEST RESULTS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794231
SHEET 12 OF 228

B-104

DRAWFORM REVISION: 17 APRIL 2018

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CIVIL MAPPING SYMBOLOGY

- EMBANKMENT SLOPE (CUT)
- EMBANKMENT SLOPE (FILL)
- H:V — EMBANKMENT SLOPE RIGHT ARROW RIGHT
- H:V — EMBANKMENT SLOPE LEFT ARROW LEFT
- 123 — SPOT ELEVATION
- SURVEY BENCHMARK
- CP-X — SURVEY CONTROL POINT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- SECTION CORNER MONUMENT
- SECTION CORNER NO MONUMENT
- IDENTIFICATION AND APPROXIMATE LOCATION OF SOIL TEST HOLE
- TEST PIT
- SOIL BORING
- BUOY
- FLOW ARROW
- WATER LEVEL IN SECTION/PROFILE
- TIDE GAUGE
- EXISTING UTILITY POLE
- DOWNGUY
- EXTERIOR UTILITY JUNCTION BOX
- INTERSTATE HIGHWAY SYMBOL
- US HIGHWAY SYMBOL
- STATE HIGHWAY SYMBOL
- HAY BALE
- TEMPORARY SEDIMENT TRAP
- PIEZOMETER
- RAIL SIGNAL
- RAIL SWITCH
- SIGN
- TIRE TREDDLE
- TRAFFIC ARM WITH CARD READER
- TRAFFIC ARM MECHANICAL SWING
- CONCRETE WHEEL STOP
- FFE = 123 — BUILDING FINISHED FLOOR ELEVATION

- CO — CLEANOUT
- CULVERT END SYMBOL (WITH CULVERT SHOWN BETWEEN SYMBOLS)
- FIRE HYDRANT
- F — FUEL OIL METER
- F — FUEL OIL MANHOLE
- F — FUEL OIL VAULT
- GT — GREASE TRAP
- GC — GRIT CHAMBER
- HEADWALL
- I — INDUSTRIAL WASTE WATER METER
- I — INDUSTRIAL WASTE WATER MANHOLE
- G — NATURAL GAS METER
- G — NATURAL GAS RECEIVER
- G — NATURAL GAS TRAP
- G — NATURAL GAS LINE VAULT
- MW — MONITORING WELL
- POST INDICATOR VALVE
- PS — PUMP STATION
- S — SANITARY MANHOLE
- ST — SEPTIC TANK
- TANK BELOW GROUND
- TANK HORIZONTAL ABOVE GROUND
- TANK VERTICAL ABOVE GROUND

- CB — STORM CURB CATCH BASIN
- STORM FLARED END SECTION
- D — STORM DRAINAGE MANHOLE
- STORM DRAINAGE DROP INLET
- WATER/AIR VENT
- WATER BACKFLOW PREVENTER
- WATER BLOWOFF
- W — WATER METER
- WSO — WATER SHUTOFF
- WS — WATER SOFTENER
- W — WATER VALVE VAULT
- GATE VALVE
- PLUG VALVE

- W — EXISTING WATER
- S — EXISTING SANITARY SEWER
- E — EXISTING ELECTRICAL
- OHE — EXISTING OVERHEAD ELECTRICAL
- FO FO FO — EXISTING UNDERGROUND FIBER OPTIC
- UT UT — EXISTING UNDERGROUND TELEPHONE
- UGE UGE — EXISTING UNDERGROUND ELECTRICAL
- GLP — EXISTING UNDERGROUND GAS
- PIPELINE
- LARGE PIPELINE

UTILITY/CIVIL LINE SYMBOLOGY

- W — WATER MAIN
- FM FM — SEWER FORCE MAIN
- STORM DRAINAGE PIPING
- UNDERDRAIN PIPING
- S — GRAVITY SEWER PIPING
- G — GAS PIPING
- UTILITY BENEATH STRUCTURE
- CENTERLINE
- PROPERTY LINE
- EASEMENT
- LOD LOD — LIMITS OF DISTURBANCE
- ROW
- EXISTING CONTOUR (MINOR)
- CONTOUR (MINOR)
- 25 — EXISTING CONTOUR W/ ELEVATION (MAJOR)
- 25 — CONTOUR W/ ELEVATION (MAJOR)
- EXISTING VEGETATION/BRUSH LINE
- EXISTING TREE LINE
- TREE LINE
- EXISTING SECURITY FENCE
- SECURITY FENCE
- FLOOD LIMIT (100 YEAR)
- HIGHWAY GUARDRAIL
- LINEAR REMOVAL/DEMOLITION
- MACHINE CLEAR AND GRUB
- ASPHALT PAVEMENT DEMOLITION
- CONCRETE PAVEMENT DEMOLITION
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- HEAVY DUTY CONCRETE PAVEMENT
- WETLAND BUFFER
- WETLANDS
- SF SF SF — SILT FENCE
- TP TP — TREE PROTECTION FENCE
- TS > TS > — DIVERSION SWALE
- RIPRAP
- CONSTRUCTION ENTRANCE
- SILT FENCE ROCK OUTLET
- SEDIMENT TUBE
- BLOCK & GRAVEL CURB INLET SEDIMENT FILTER
- YARD INLET SEDIMENT FILTER
- STAKING POINT
- RIPRAP OUTLET PROTECTION

GENERAL SHEET NOTES

A. THIS IS A STANDARD CIVIL SYMBOLOGY SHEET. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.

B. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AC	ACRES
APPROX	APPROXIMATELY
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
CB	CATCH BASIN
C/L	CENTERLINE
CO	CLEAN OUT
CONC	CONCRETE
CONT'D	CONTINUED
DBL	DOUBLE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG, DWGS	DRAWING(S)
EA	EACH
ELEC	ELECTRICAL
EL, ELEV	ELEVATION
EXIST, EX	EXISTING
FFE	FINISHED FLOOR ELEVATION
FES	FLARED END SECTION
FH	FIRE HYDRANT
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
HORIZ	HORIZONTAL
INV	INVERT
IE	INVERT ELEVATION
LBS	POUNDS
LF	LINEAR FEET
LOD	LIMITS OF DISTURBANCE
LP	LOW POINT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANIOUS
NCDOT	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
POC	POINT OF CURVATURE
POT	POINT OF TANGENCY
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
R, RAD	RADIUS
RD	ROOF DRAIN
RCO	ROOF DRAIN CLEANOUT
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REINF	REINFORCING
REQD	REQUIRED
SHT	SHEET
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEAN OUT
STA	STATION
SWM	STORM WATER MANAGEMENT
TC	TOP OF CURB
TW	TOP OF WALL
TYP	TYPICAL
VERT	VERTICAL
WM	WATER MAIN
WV	WATER VALVE
W/	WITH
WWR	WELDED WIRE REINFORCING

APPR	DATE	DESCRIPTION	SYM

NAVFAC

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SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB
PMDM	SGL/RMS				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	EJA				
FIRE PROTECTION					

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
CIVIL LEGEND

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794232
SHEET 13 OF 228
C-001

DRAWFORM REVISION: 17 APRIL 2018

SURVEY CONTROL POINT TABLE

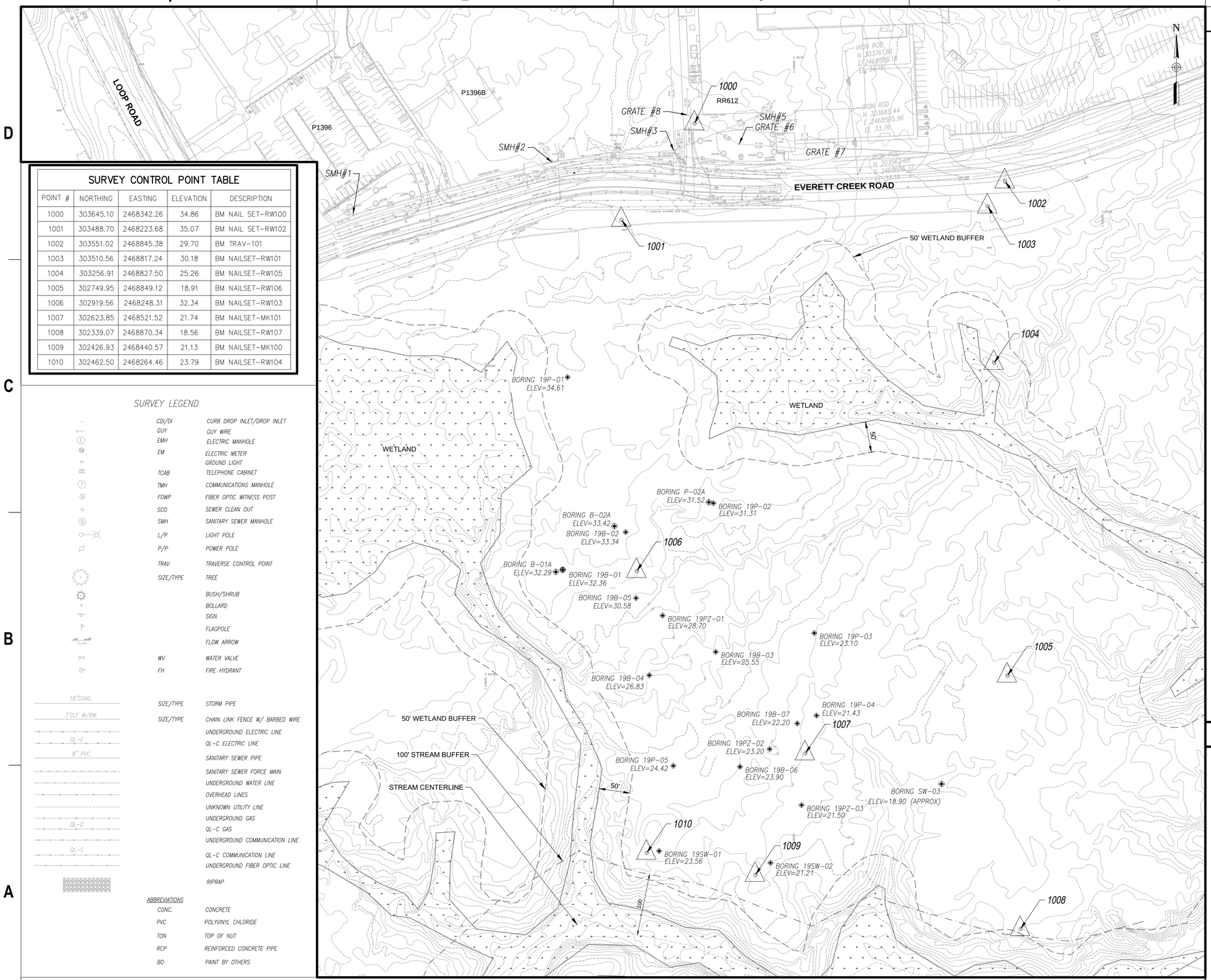
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1000	303645.10	2468342.26	34.86	BM NAIL SET–RW100
1001	303488.70	2468223.68	35.07	BM NAIL SET–RW102
1002	303551.02	2468845.38	29.70	BM TRAV–101
1003	303510.56	2468817.24	30.18	BM NAILSET–RW101
1004	303256.91	2468827.50	25.26	BM NAILSET–RW105
1005	302749.95	2468849.12	18.91	BM NAILSET–RW106
1006	302919.56	2468248.31	32.34	BM NAILSET–RW103
1007	302623.85	2468521.52	21.74	BM NAILSET–MK101
1008	302339.07	2468870.34	18.56	BM NAILSET–RW107
1009	302426.93	2468440.57	21.13	BM NAILSET–MK100
1010	302462.50	2468264.46	23.79	BM NAILSET–RW104

SURVEY LEGEND

	CDI/DI	CURB DROP INLET/DROP INLET
	GUY	GUY WIRE
E	EMH	ELECTRIC MANHOLE
	EM	ELECTRIC METER
		GROUND LIGHT
	TCAB	TELEPHONE CABINET
T	TMH	COMMUNICATIONS MANHOLE
	FOWP	FIBER OPTIC WITNESS POST
	SCO	SEWER CLEAN OUT
S	SMH	SANITARY SEWER MANHOLE
	L/P	LIGHT POLE
	P/P	POWER POLE
	TRAV	TRAVERSE CONTROL POINT
	SIZE/TYPE	TREE
		BUSH/SHRUB
		BOLLARD
		SIGN
		FLAGPOLE
FLOW		FLOW ARROW
	WV	WATER VALVE
	FH	FIRE HYDRANT
18"CONC.	SIZE/TYPE	STORM PIPE
7'CLF W/BW	SIZE/TYPE	CHAIN LINK FENCE W/ BARBED WIRE
		UNDERGROUND ELECTRIC LINE
QL–C		QL–C ELECTRIC LINE
8" PVC		SANITARY SEWER PIPE
		SANITARY SEWER FORCE MAIN
		UNDERGROUND WATER LINE
		OVERHEAD LINES
		UNKNOWN UTILITY LINE
		UNDERGROUND GAS
QL–C		QL–C GAS
		UNDERGROUND COMMUNICATION LINE
QL–C		QL–C COMMUNICATION LINE
		UNDERGROUND FIBER OPTIC LINE
		RIPRAP

ABBREVIATIONS

CONC.	CONCRETE
PVC	POLYVINYL CHLORIDE
TON	TOP OF NUT
RCP	REINFORCED CONCRETE PIPE
BO	PAINT BY OTHERS



EXISTING SITE PLAN

1" = 80' 0' 40' 80' 160'

GENERAL SHEET NOTES

SURVEY PREPARED BY:
PRECISION MEASUREMENTS, INC.
7720 MAIN STREET
MIDDLETON, VIRGINIA 22645
(540) 508-2213

SURVEY NOTES:
1. BASIS OF HORIZONTAL DATUM AND NORTH MERIDIAN: NORTH CAROLINA STATE PLANE COORDINATE SYSTEM / NORTH AMERICAN DATUM 83 (U.S. SURVEY FEET). ESTABLISHED BY GPS OBSERVATION.
2. BASIS OF VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 88. ESTABLISHED BY GPS OBSERVATION.
3. THIS SURVEY WAS PREPARED TO SHOW EXISTING FEATURES AS OF 01/27/2019 AND DOES NOT CERTIFY TO CHANGES TO SITE CONDITIONS WHICH OCCUR SUBSEQUENT TO THIS DATE AND OR TO PROPOSED IMPROVEMENTS.
4. UNDERGROUND UTILITY MARKINGS INDICATED HEREON DESIGNATED BY PRECISION MEASUREMENTS IN CONFORMANCE WITH ASCE STANDARD CI/ASCE 38-02, QUALITY LEVEL B (QL-B) WHEN APPLICABLE; QL-C AND QL-D OTHERWISE.
5. UNDERGROUND PIPE SIZES AND MATERIAL TYPES ARE MEASURED AND IDENTIFIED BY FIELD OBSERVATIONS AS CAN BEST BE DETERMINED WITHOUT BENEFIT OF CONFINED SPACE ENTRY. THIS SURVEY DOES NOT WARRANT SIZES AND MATERIALS WITHIN CONFINED SPACE OR INACCESSIBLE STRUCTURES.
6. UNLESS OTHERWISE SHOWN, THIS SURVEY IS NOT INTENDED TO DEPICT OR DETERMINE THE EXISTENCE OF WETLANDS, FLOODPLAINS, CEMETERIES OR HAZARDOUS ENVIRONMENTAL FEATURES.
7. POWER POLE IDENTIFICATION NUMBERS WERE NOT LISTED ON PHYSICAL POLES AND WERE THEREFORE UNABLE TO BE COLLECTED.

SUE QUALITY LEVELS OF SERVICE (ACCURACY)

QL A = QUALITY LEVEL A (TEST HOLES)
DATA TYPICALLY ACQUIRED AT ONE POINT ON AN UNDERGROUND UTILITY FEATURE EXPOSED BY AIR VACUUM EXCAVATION OR OTHER MEANS. THE HORIZONTAL AND VERTICAL LOCATION OF THIS REFERENCE POINT IS ACQUIRED AND REPORTED TO ACCEPTABLE SURVEY TOLERANCES. THE ACQUIRED DATA FULFILLS SECTION 5.4.5 ON PAGE 6 OF ASCE STANDARD 38-02.
QL B = QUALITY LEVEL B (UTILITY DESIGNATION)
DEPICTION OF AN UNDERGROUND UTILITY LINE ESTABLISHED BY SENSING THE LOCATION WITH ELECTRONIC INSTRUMENTATION. LINEWORK AND UTILITY SURFACE FEATURES ARE ACQUIRED BY SURVEYING POINTS ALONG ALIGNMENT TO ACCEPTABLE SURVEY TOLERANCES.
QL C = QUALITY LEVEL C (RECORDS PLOTTING)
UTILITY INFORMATION OBTAINED FROM RECORD INFORMATION AND PLOTTED TO CORRELATE WITH SURFACE UTILITY FEATURES WHICH HAVE BEEN SURVEY LOCATED AND ACCURATELY REDUCED ONTO DESIGN/ CONSTRUCTION DOCUMENTS.
QL D = QUALITY LEVEL D (RECORDS DRAFTING)
DEPICTION OF UNDERGROUND UTILITY LINES BY TRANSPOSITION FROM UTILITY RECORDS OR PLACED FROM VERBAL RECOLLECTIONS WITHOUT BENEFIT OF SURVEYED SURFACE FEATURES. ACCURACY OF INFORMATION IS QUESTIONABLE.
EOI
END OF INFORMATION PERTAINS TO THE LOSS OF SIGNAL THAT HAS BEEN APPLIED TO AN UNDERGROUND UTILITY AND THEN DETECTED TO ELECTRONICALLY LOCATE THE UTILITY. COMMONLY FOUND WHERE UTILITIES CHANGE TO NON-CONDUCTIVE MATERIALS, ARE CUT OR AT END OF UTILITY.

SANITARY SEWER STRUCTURE DATA

SMH #1
RIM=38.10
INV.=26.67(NW)
INV.=26.70(E)

SMH #5
RIM=35.60
INV.=29.84(W)
INV.=29.89(NE)

SMH #2
RIM=36.80
INV.=28.06(W)
INV.=29.65(N)
INV.=28.10(E)

SMH #3
RIM=36.18
INV.=29.10(W)
INV.=29.18(N)
INV.=29.11(E)
INV.=29.13(SE)

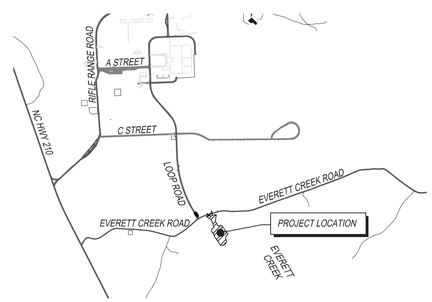
STORM DRAIN STRUCTURE DATA

GRATE #6
RIM=34.01
INV. IN=29.97(E)
INV. OUT=26.97(NW)

GRATE #7
RIM=34.36
INV. IN=31.16(N)
INV. OUT=31.11(W)

GRATE #8
RIM=34.57
INV. IN=25.77(SE)
INV. IN=30.47(E)
INV. OUT=25.67(N)

LOCATION MAP NOT TO SCALE



SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLE 6/22/2020
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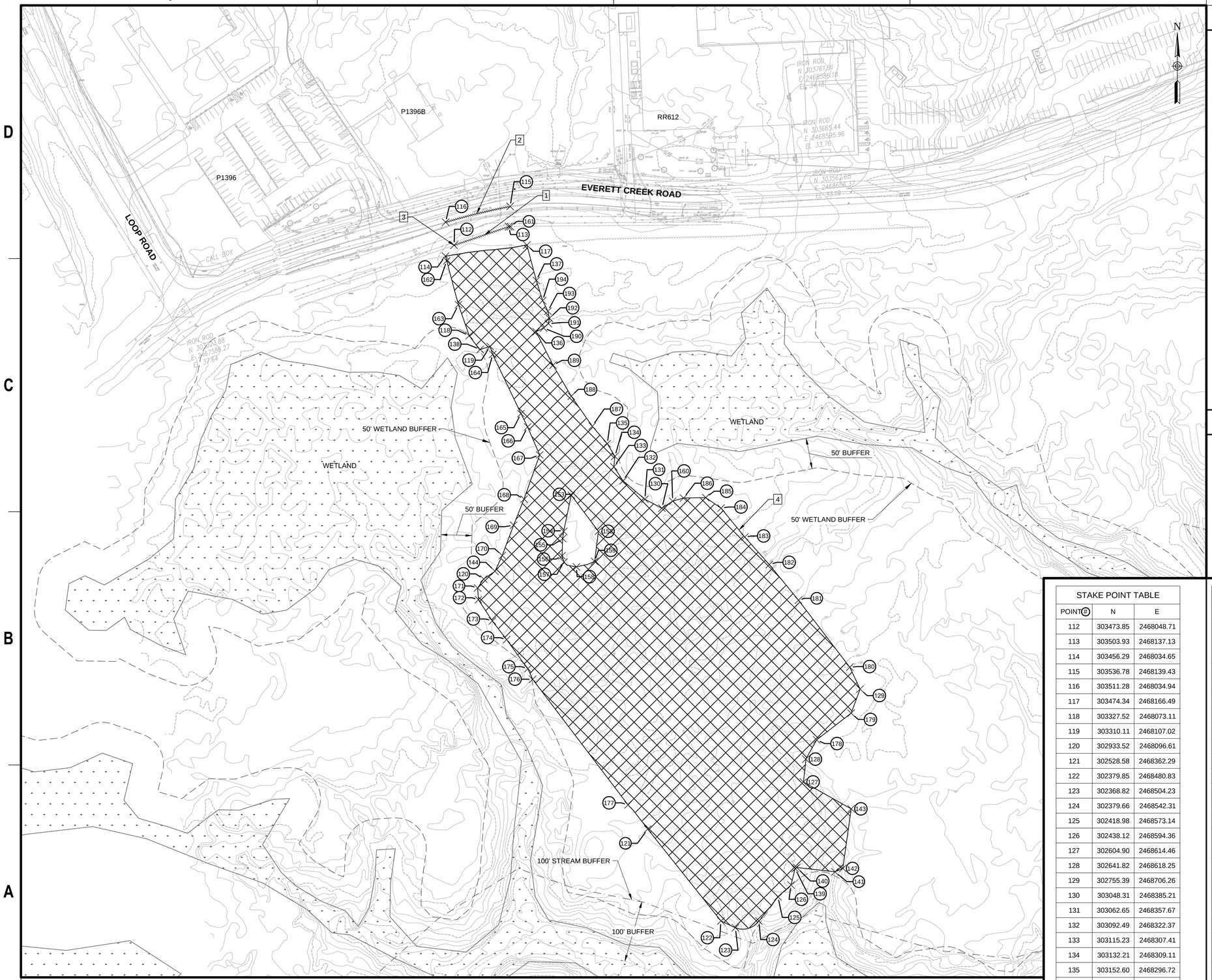
CAMP LEJEUNE JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

EXISTING SITE PLAN

SCALE: 1" = 80'
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794233
SHEET 14 OF 228
VF101
DRAWFORM REVISION: 17 APRIL 2018

UNCLASSIFIED



DEMOLITION PLAN

1" = 80'

0' 40' 80' 160'

GENERAL SHEET NOTES

A. SAW CUT FOR CLEAN LINES WHERE NEW WORK MEETS EXISTING FOR PAVEMENT AND CURB AND GUTTER.
B. COORDINATE DEMOLITION AND REMOVAL OF UTILITIES WITH CONTRACTING OFFICER. ALL DEMOLISHED UTILITIES SHALL BE REMOVED; PERMISSION FROM CONTRACTING OFFICER REQUIRED TO ABANDON A UTILITY IN PLACE.
C. REFER TO ELECTRICAL PLANS FOR ROUTING OF OVERHEAD AND UNDERGROUND ELECTRICAL AND TELECOMMUNICATION LINES.
D. ALL AREAS WHERE STRUCTURES AND PIPING ARE REMOVED SHALL BE GRADED IN A MANNER TO MAINTAIN POSITIVE DRAINAGE. TO AVOID SETTLING IN AREAS OF SIGNIFICANT FILL, PLACE AND COMPACT SOIL IN 6" LIFTS AND PROVIDE A 6" ADDITIONAL SOIL PLACEMENT ABOVE NATURAL GRADE.
E. VERIFY WITH THE OWNER WHETHER ANY MATERIAL OR APPURTENANCES ARE TO BE SALVAGED.
F. ANY UNSUITABLE SOILS ARE NOT TO LEAVE MCBCL. REFER TO SOIL REMOVAL NOTES ON SHEET CG101.
G. SEE CIVIL LEGEND ON SHEET C-001.
H. UTILITIES SHOWN ARE BASED ON INFORMATION PROVIDED BY OTHERS AND IS NOT GUARANTEED TO INCLUDE ALL SUCH FEATURES OR EXACT LOCATIONS. CONTRACTOR TO FIELD VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION. PROTECT ALL EXISTING FEATURES NOT NOTED FOR REMOVAL.
I. FILL ALL STRUCTURES AND HOLES CREATED FROM DEMOLITION WITH COMPACTED FILL MATERIAL TO A 95% MAXIMUM DRY DENSITY PER ASTM D698. REFER TO TRENCHING DETAILS.
J. INSTALL PHASE 1 EROSION CONTROL MEASURES PRIOR TO STARTING DEMOLITION AND/OR MASS CLEARING. SEE SHEETS CG104, CG105, CG106.
K. ALL TIMBER ON THE PROJECT SITE NOTED FOR CLEARING AND GRUBBING MUST BECOME THE PROPERTY OF THE CONTRACTOR, AND MUST BE REMOVED FROM THE PROJECT SITE.
L. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES, AND STATUTES.
M. EXECUTE ALL WORK WITH CARE TO PROTECT FROM DAMAGE ALL ADJACENT EXISTING FEATURES THAT ARE TO REMAIN. ANY SUCH DAMAGE SHALL BE REPAIRED OR REPLACED TO MATCH THE ORIGINAL CONDITION AS APPROVED BY THE CONTRACTING OFFICER AT NO ADDITIONAL COST TO THE GOVERNMENT.
N. PROTECT ALL EXISTING TREES OUTSIDE OF CLEARING LIMITS.

NEW WORK KEYNOTES

1. CONTRACTOR MAY INSTALL VEHICLE GATE IN EXISTING PERIMETER SECURITY FENCE TO ACCESS THE SITE UNTIL THE PERMANENT PERIMETER SECURITY FENCE IS FULLY INSTALLED. GATE MUST BE LOCKED AT THE END OF EACH WORK DAY. CONTRACTOR TO COORDINATE GATE INSTALLATION WITH CONTRACTING OFFICER.
2. SAW CUT EDGE OF EXISTING ROADWAY FOR CLEAN TIE IN OF NEW ROADWAY. REFER TO SHEET CS101 FOR MORE INFORMATION ON NEW ROADWAY TIE IN.
3. EXISTING CHAIN LINK SECURITY FENCE TO BE REMOVED.
4. MACHINE CLEAR AND GRUB. REFER TO NOTE K ON THIS SHEET.

STAKE POINT TABLE		
POINT#	N	E
112	303473.85	2468048.71
113	303503.93	2468137.13
114	303456.29	2468034.65
115	303536.78	2468139.43
116	303511.28	2468034.94
117	303474.34	2468166.49
118	303327.52	2468073.11
119	303310.11	2468107.02
120	302933.52	2468096.61
121	302528.58	2468362.29
122	302379.85	2468480.83
123	302368.82	2468504.23
124	302379.66	2468542.31
125	302418.98	2468573.14
126	302438.12	2468594.36
127	302604.90	2468614.46
128	302641.82	2468618.25
129	302755.39	2468706.26
130	303048.31	2468385.21
131	303062.65	2468357.67
132	303092.49	2468322.37
133	303115.23	2468307.41
134	303132.21	2468309.11
135	303152.60	2468296.72
136	303333.91	2468181.42
137	303416.96	2468181.83

STAKE POINT TABLE		
POINT#	N	E
138	303305.21	2468090.90
139	302464.65	2468600.91
140	302466.41	2468603.60
141	302459.44	2468665.52
142	302464.97	2468678.27
143	302561.36	2468691.78
144	302946.01	2468114.86
152	303010.82	2468282.39
153	303069.16	2468238.66
154	303010.65	2468226.14
155	302999.08	2468224.47
156	302971.11	2468223.51
157	302961.05	2468226.66
158	302953.15	2468246.77
159	302962.04	2468276.30
160	303059.55	2468402.67
161	303504.02	2468140.04
162	303448.69	2468036.74
163	303377.59	2468055.82
164	303297.22	2468111.21
165	303201.32	2468156.96
166	303179.83	2468167.73
167	303134.46	2468187.24
168	303062.86	2468161.96
169	303020.69	2468145.08
170	302971.54	2468126.65

STAKE POINT TABLE		
POINT#	N	E
171	302919.06	2468086.74
172	302899.99	2468088.09
173	302865.62	2468110.63
174	302835.32	2468133.77
175	302788.46	2468168.22
176	302771.09	2468175.92
177	302567.84	2468330.37
178	302673.18	2468635.90
179	302716.35	2468691.80
180	302790.69	2468689.59
181	302899.23	2468606.45
182	302956.94	2468559.20
183	303001.50	2468519.45
184	303048.31	2468481.02
185	303065.36	2468456.20
186	303064.58	2468420.12
187	303180.92	2468272.47
188	303229.48	2468238.48
189	303279.80	2468208.89
190	303340.00	2468193.75
191	303347.06	2468201.30
192	303355.58	2468203.00
193	303367.26	2468200.57
194	303384.31	2468192.14

		APPR
		DATE
		DESCRIPTION
		SYM

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB
PM/DM	SGL/RMS				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	EJA				
FIRE PROTECTION					

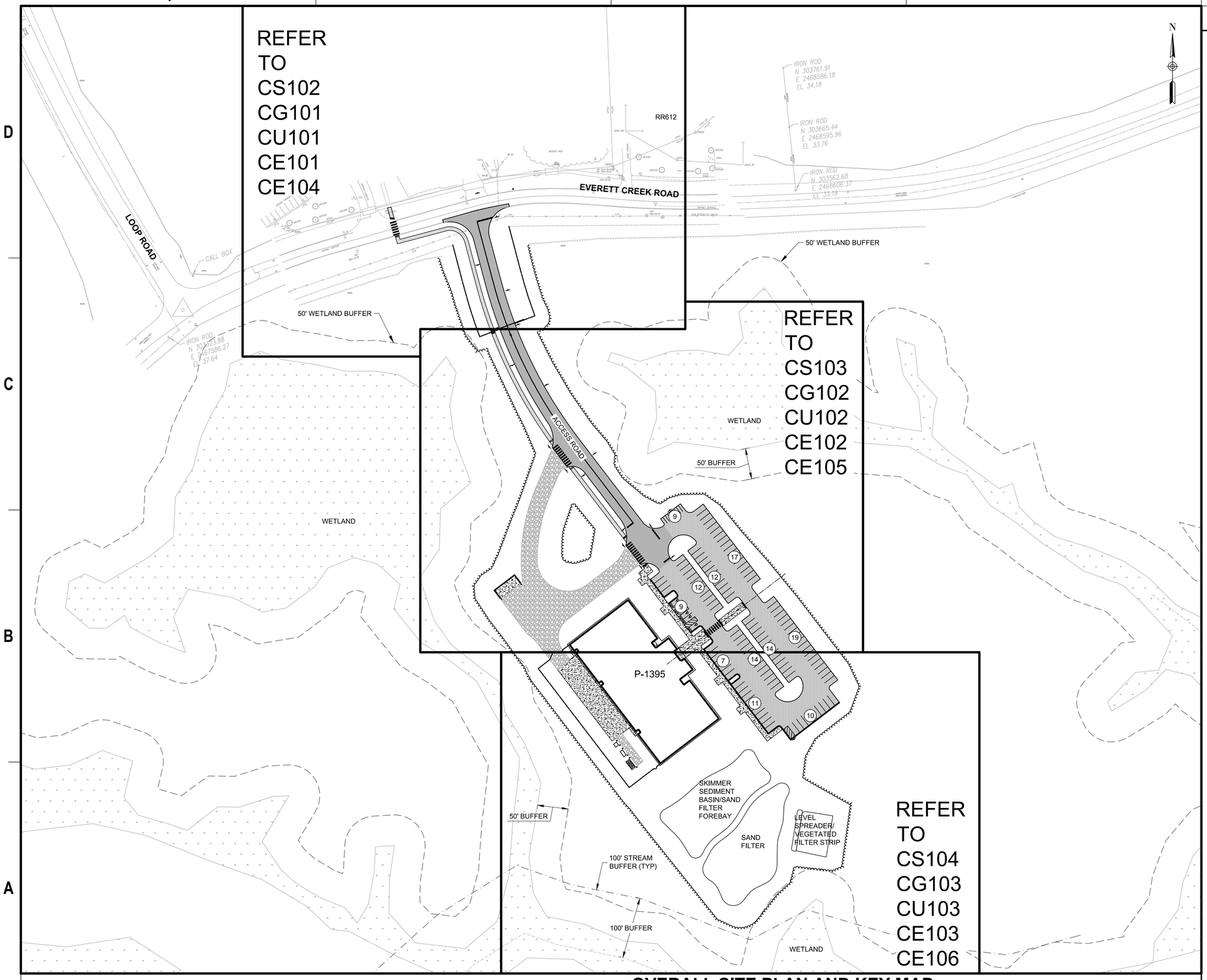
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
DEMOLITION PLAN

SCALE:	1" = 80'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	1279423 4
SHEET	15 OF 228

CD101

DRAWFORM REVISION: 17 APRIL 2018

UNCLASSIFIED



OVERALL SITE PLAN AND KEY MAP

1" = 80' 0' 40' 80' 160'

GENERAL SHEET NOTES

A. SEE LEGEND ON SHEET C-001.

B. ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.

C. COORDINATE THE WORK OF ALL DISCIPLINES. VERIFY FIELD CONDITIONS, QUANTITIES AND DIMENSIONS PRIOR TO THE COMMENCEMENT OF WORK. ANY DISCREPANCIES SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.

PARKING SUMMARY:

STANDARD SPACES = 120

MOTORCYCLE SPACES = 9

ADA ACCESSIBLE SPACES = 5

TOTAL SPACES = 134

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND – MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

OVERALL SITE PLAN AND KEY MAP

SCALE:	1" = 80'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794235
SHEET	16 OF 228

CS101

DRAWFORM REVISION: 17 APRIL 2018

STAKE POINT TABLE		
POINT #	N	E
1	303514.85	2468032.15
2	303522.62	2468060.37
3	303528.11	2468079.98
4	303532.35	2468096.87
5	303535.12	2468109.39
6	303538.42	2468126.02
7	303540.84	2468139.68
8	303535.92	2468140.55
9	303510.03	2468033.48
10	303502.38	2468036.00
11	303512.83	2468088.06
12	303480.33	2468073.89
13	303481.70	2468082.84
14	303486.26	2468108.53
15	303496.58	2468037.54
16	303478.79	2468068.09
17	303475.72	2467958.58
18	303534.24	2467942.40
19	303407.74	2468086.87
20	303418.21	2468126.51
21	303158.66	2468253.71

STAKE POINT TABLE		
POINT #	N	E
22	303184.15	2468203.59
23	303027.56	2468321.27
24	302990.09	2468331.05
25	303147.21	2468211.07
26	303137.27	2468208.12
27	303022.50	2468357.87
28	303016.74	2468391.37
29	303028.18	2468386.69
30	303052.79	2468418.85
31	303052.24	2468455.99
32	303040.59	2468440.77
33	302930.72	2468548.96
34	302921.61	2468537.05
35	302914.60	2468536.11
36	302893.95	2468551.91
37	302893.02	2468558.92
38	302902.13	2468570.83
39	302766.32	2468674.74
40	302757.21	2468662.83
41	302750.27	2468661.84
42	302730.35	2468677.09

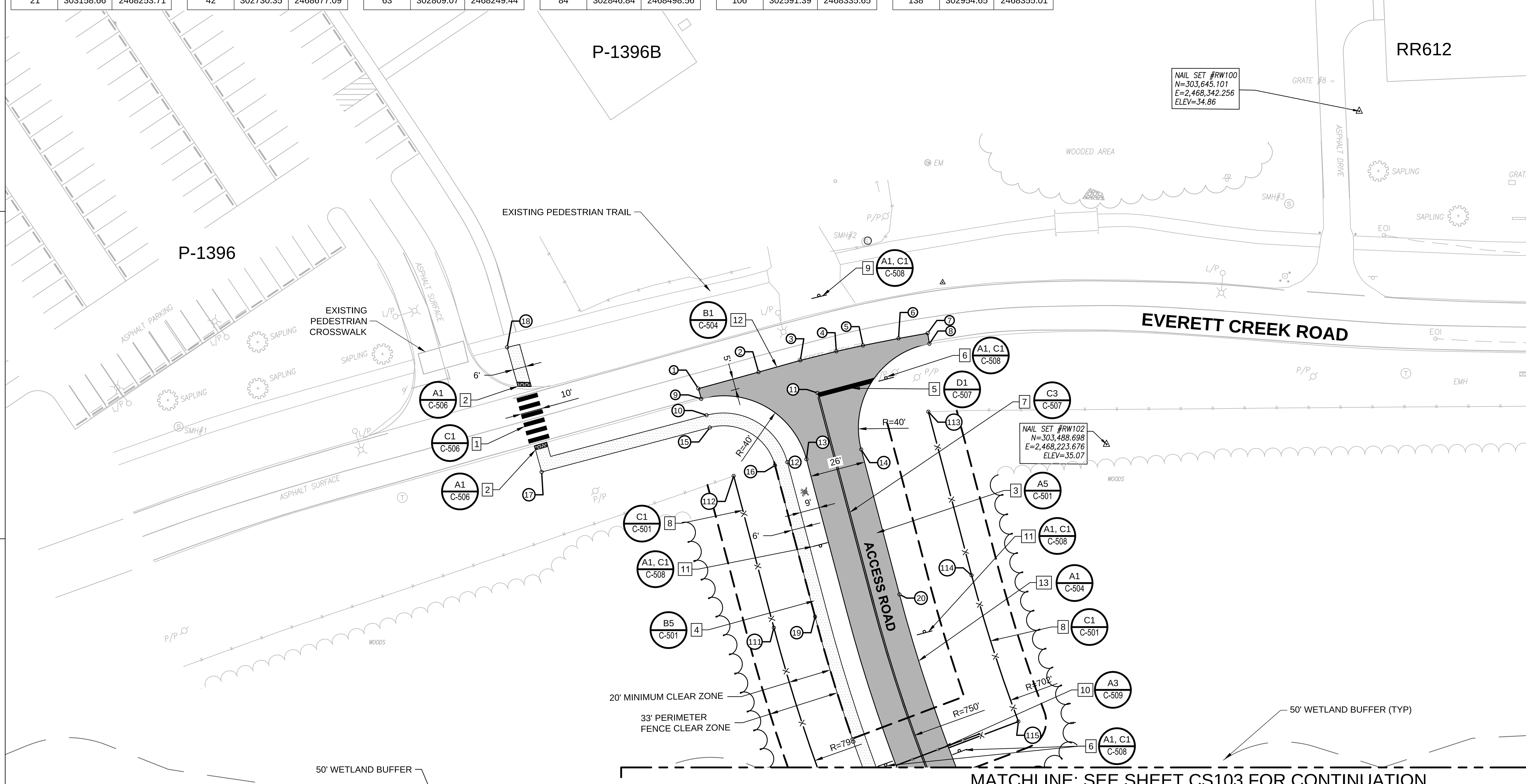
STAKE POINT TABLE		
POINT #	N	E
43	302670.19	2468598.46
44	302685.87	2468585.21
45	302690.19	2468576.87
46	302678.64	2468561.77
47	302816.04	2468456.65
48	302825.76	2468469.36
49	302831.37	2468470.10
50	302852.02	2468454.31
51	302852.76	2468448.70
52	302843.04	2468435.99
53	302929.61	2468369.76
54	302939.33	2468382.47
55	302946.34	2468383.40
56	302951.01	2468348.36
57	302863.68	2468234.20
58	302820.30	2468224.13
59	302799.38	2468239.33
60	302825.14	2468186.78
61	302835.79	2468176.29
62	302844.95	2468166.84
63	302809.07	2468249.44

STAKE POINT TABLE		
POINT #	N	E
64	302823.63	2468238.30
65	302896.72	2468333.81
66	302834.03	2468381.78
67	302834.75	2468399.84
68	302783.18	2468439.30
69	302703.25	2468481.85
70	302630.16	2468386.33
71	302678.03	2468349.71
72	302691.29	2468339.56
73	302667.03	2468307.84
74	302625.63	2468380.40
75	302674.69	2468345.34
76	302765.94	2468433.88
77	302816.36	2468445.70
78	302832.25	2468433.55
79	302801.40	2468425.36
80	302970.32	2468422.97
81	302884.55	2468488.60
82	302875.43	2468476.68
83	302847.77	2468491.55
84	302846.84	2468498.56

STAKE POINT TABLE		
POINT #	N	E
85	302855.95	2468510.47
86	302755.88	2468587.03
87	302746.77	2468575.12
88	302755.74	2468593.43
89	302739.57	2468574.35
90	302769.93	2468614.04
91	302771.07	2468606.88
92	302761.96	2468594.97
93	302862.03	2468518.41
94	302871.14	2468530.33
95	302898.80	2468515.46
96	302899.74	2468508.45
97	302890.62	2468496.54
98	302976.40	2468430.92
99	302985.51	2468442.83
100	302992.52	2468443.76
101	302977.33	2468423.91
102	302962.14	2468404.05
103	302952.22	2468307.15
104	302921.10	2468266.48
106	302591.39	2468335.65

STAKE POINT TABLE		
POINT #	N	E
107	302784.85	2468187.60
110	303324.66	2468092.47
111	303402.63	2468067.53
112	303473.85	2468048.71
113	303504.02	2468140.04
114	303427.15	2468160.34
115	303358.56	2468182.29
125	302960.57	2468186.10
126	303067.12	2468207.10
127	303098.18	2468220.02
128	303103.77	2468262.96
129	303077.11	2468183.10
130	302898.09	2468126.19
131	302923.81	2468159.81
132	302925.01	2468161.38
133	302926.83	2468162.15
134	302816.60	2468243.68
135	302799.33	2468206.54
136	302679.13	2468323.66
137	302633.86	2468358.30
138	302954.65	2468355.01

STAKE POINT TABLE		
POINT #	N	E
139	302947.56	2468360.44
140	302900.23	2468392.24
141	302910.55	2468405.74
142	302909.99	2468409.95
143	302905.23	2468413.60
144	302901.02	2468413.04
145	302890.39	2468399.14
146	302940.26	2468350.91
147	302933.91	2468355.77
148	302886.26	2468392.23
149	302765.02	2468496.94
150	302774.74	2468509.65
151	302774.18	2468513.85
152	302773.39	2468514.46
153	302769.18	2468513.90
154	302759.46	2468501.19
155	302771.89	2468479.72
156	302724.23	2468516.18
157	302813.36	2468246.16



SITE LAYOUT AND CONTROLS PLAN 1

1" = 30'

GENERAL SHEET NOTES

A. SEE LEGEND ON SHEET C-001.

B. RADII ARE 5 FEET TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

C. CURBING SHALL BE CAST-IN-PLACE ON-SITE.

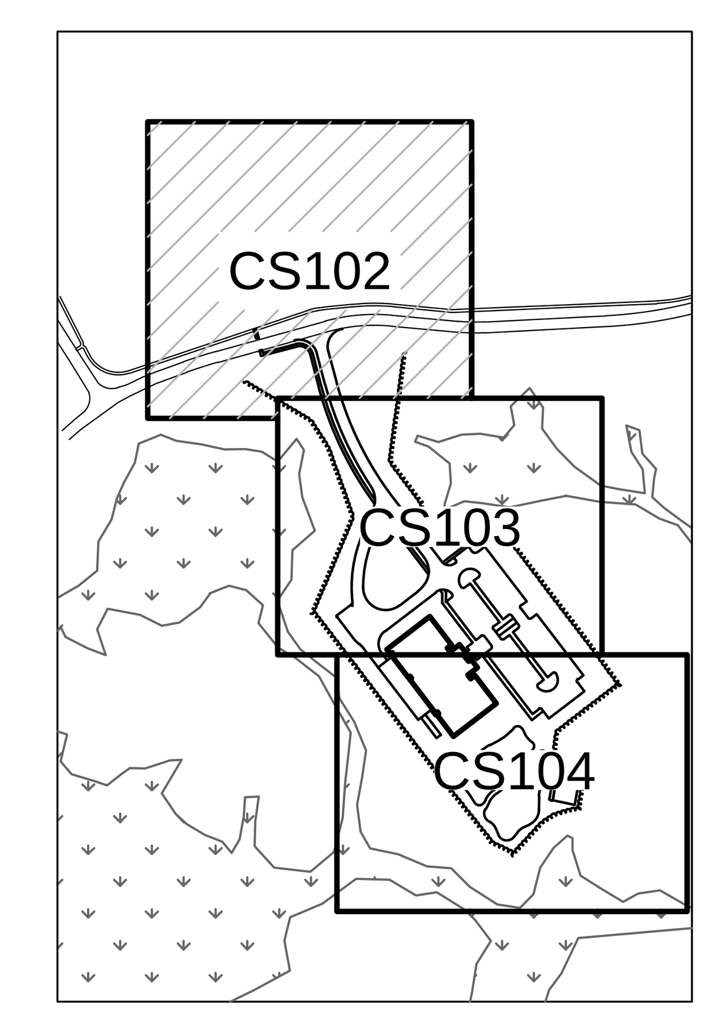
D. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS ASSOCIATED WITH THE BUILDING.

E. ALL DIMENSIONS ARE TO FACE OF THE BUILDING, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED.

F. ALL SIGNS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED. ALL SIGNAGE TO MEET MUTCD STANDARDS UNLESS OTHERWISE INDICATED. SEE DETAIL C1/C-508 FOR INSTALLATION DETAIL AND A1/C-508 FOR SIGN IDENTIFICATION, SIZE, AND QUANTITY.

NEW WORK KEYNOTES

1. PEDESTRIAN CROSS WALK PAVEMENT MARKING, HI-VISIBILITY.
2. ADA RAMPS WITH DETECTABLE WARNING DOMES (TYP.)
3. HEAVY DUTY ASPHALT.
4. LIGHT DUTY ASPHALT WALKING/RUNNING TRAIL.
5. 24" THERMOPLASTIC WHITE STOP BAR.
6. STOP SIGN: MUTCD STANDARD R1-1
7. 4" THERMOPLASTIC DOUBLE YELLOW LINE
8. CHAIN LINK SECURITY FENCE.
9. TWO-DIRECTION LARGE ARROW SIGN: MUTCD STANDARD W1-7.
10. SLIDING GATE.
11. STOP AHEAD SIGN: W3-1.
12. TIE NEW ASPHALT ROADWAY TO EXISTING ASPHALT ROADWAY.
13. PAVEMENT EDGE.



KEYMAP

NOT TO SCALE

SYM | DESCRIPTION | DATE | APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 041570 JOEL C. CAUSEY

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES JCC | DRW ARM | CHK RMB

PM/DM SGL/RMS

BRANCH MANAGER DLB

CHIEF ENG/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MIDLANT CI CORE
JACKSONVILLE, NORTH CAROLINA
MARSOC
P1395 MARINE RAIDER HEADQUARTERS

SITE LAYOUT AND CONTROLS PLAN 1

SCALE: 1" = 30'

EPROJECT NO.: 1603164

CONSTR. CONTR. NO.

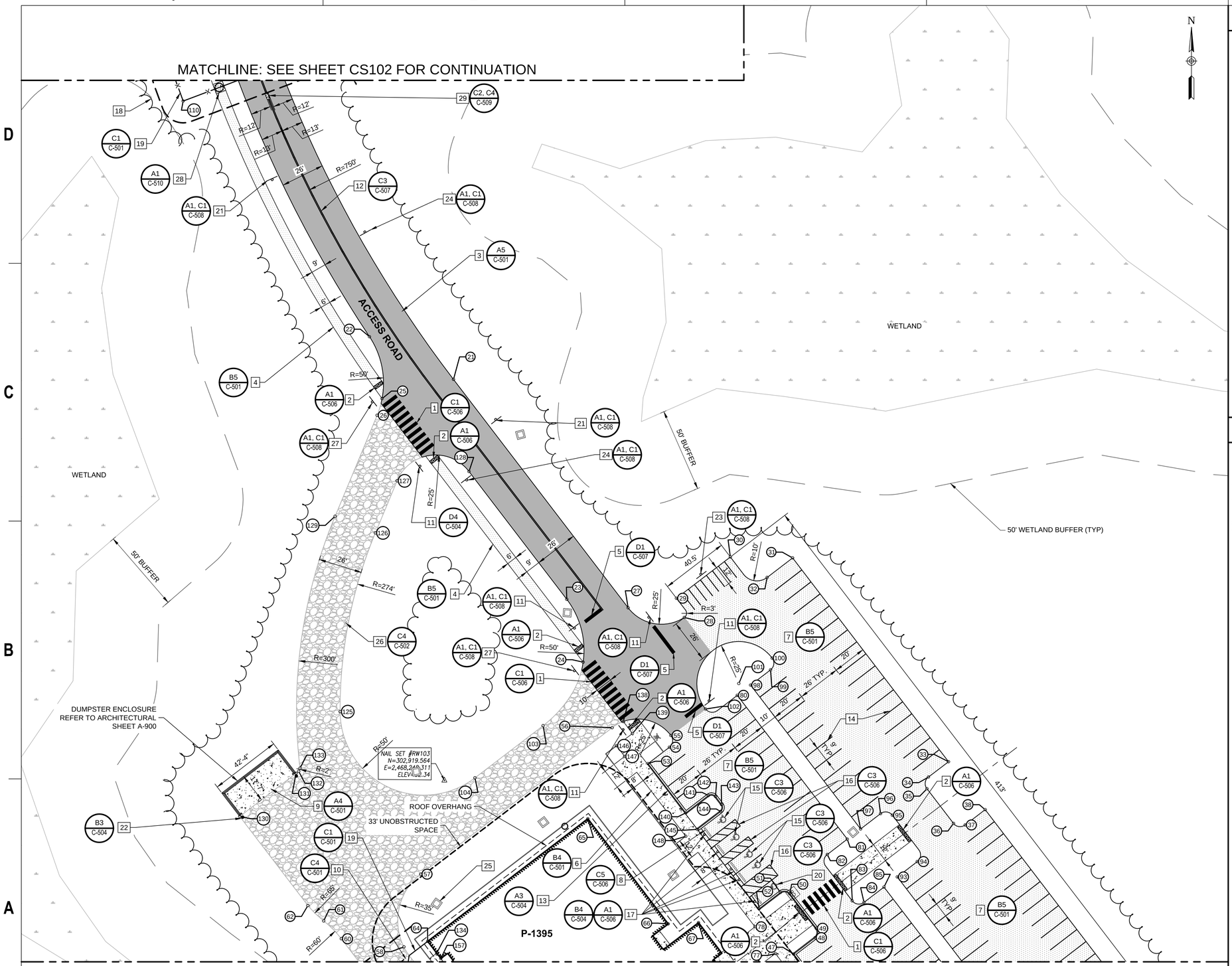
NAVFAC DRAWING NO. 12794236

SHEET 17 OF 228

CS102

DRAWFORM REVISION: 17 APRIL 2018

UNCLASSIFIED



SITE LAYOUT AND CONTROLS PLAN 2

1" = 30'

0 30' 60'

GENERAL SHEET NOTES

A. SEE LEGEND ON SHEET C-001.

B. RADII ARE 5 FEET TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

C. CURBING SHALL BE CAST-IN-PLACE ON-SITE.

D. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS ASSOCIATED WITH THE BUILDING.

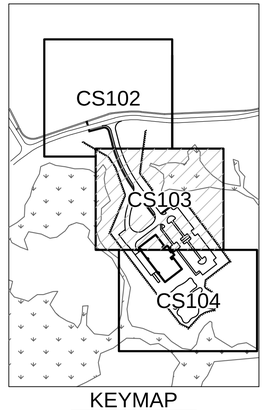
E. ALL DIMENSIONS ARE TO FACE OF THE BUILDING, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED.

F. ALL SIGNS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED. ALL SIGNAGE TO MEET MUTCD STANDARDS UNLESS OTHERWISE INDICATED. SEE DETAIL C1/C-508 FOR INSTALLATION DETAIL AND A1/C-508 FOR SIGN IDENTIFICATION, SIZE, AND QUANTITY.

G. SEE SHEET CS102 FOR STAKE POINT TABLE.

NEW WORK KEYNOTES

1. PEDESTRIAN CROSS WALK PAVEMENT MARKING, HI-VISIBILITY.
2. ADA RAMPS WITH DETECTABLE WARNING DOMES.
3. HEAVY DUTY ASPHALT.
4. LIGHT DUTY ASPHALT WALKING/RUNNING TRAIL.
5. 24" THERMOPLASTIC WHITE STOP BAR.
6. CONCRETE SIDEWALK WITH WALK JOINTS. SEE LANDSCAPE PLANS FOR SIDEWALK SCORING.
7. LIGHT DUTY ASPHALT.
8. CONCRETE WHEELSTOP, TYP.
9. HEAVY DUTY CONCRETE PAVEMENT.
10. 4' WIDE MAN GATE.
11. STOP SIGN: MUTCD STANDARD R1-1, 4-WAY SIGN BELOW: MUTCD STANDARD R1-3.
12. 4" THERMOPLASTIC DOUBLE YELLOW LINE.
13. 18" CURB AND GUTTER.
14. 4" THERMOPLASTIC WHITE LINE (TYP)
15. HANDICAP PARKING SYMBOL (TYP).
16. HANDICAP PAINTED ISLAND (TYP).
17. HANDICAP PARKING SIGNS: MUTCD STANDARD R7-8 AND R7-8P (TYP).
18. TREELINE SHOWN OFFSET FROM LIMITS OF DISTURBANCE FOR GRAPHICAL CLARITY. NO DISTURBANCE IS TO OCCUR WITHIN THE 50' WETLAND BUFFER.
19. CHAIN LINK SECURITY FENCE.
20. VAN ACCESSIBLE SPACE; SEE KEYNOTE 17 THIS SHEET.
21. 25 MPH SPEED LIMIT SIGN: MUTCD STANDARD R2-1.
22. BOLLARD (TYP.). REFER TO ARCHITECTURAL SHEET A-900 FOR BOLLARD PLACEMENT WITHIN DUMPSTER ENCLOSURE.
23. MOTORCYCLE PARKING ONLY SIGN: MUTCD STANDARD R7-5-16.
24. STOP AHEAD SIGN: MUTCD STANDARD W3-1.
25. STORM STRUCTURE (TYP), REFER TO SHEETS CG101 THROUGH CG103 FOR MORE INFORMATION.
26. AGGREGATE TRUCK LOOP PAVEMENT.
27. AUTHORIZED VEHICLES ONLY SIGN: MUTCD STANDARD R5-11.
28. PEDESTRIAN TURNSTILE.
29. STANCHION.



KEYMAP

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB
PM/DM	SGL/RMS				
BRANCH MANAGER	DLB				
CHIEF ENG/ARCH	EJA				
FIRE PROTECTION					

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

SITE LAYOUT AND CONTROLS PLAN 2

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794237
SHEET	18 OF 228

CS103

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CS103 FOR CONTINUATION

P-1395

20' MINIMUM CLEAR ZONE

33' PERIMETER FENCE CLEAR ZONE

33' UNOBSTRUCTED SPACE

SKIMMER SEDIMENT BASIN/SAND FILTER FOREBAY

SAND FILTER

LEVEL SPREADER/ VEGETATED FILTER STRIP

50' BUFFER

100' STREAM BUFFER (TYP)

50' WETLAND BUFFER (TYP)

100' BUFFER

WETLAND

WETLAND

NAIL SET #RW106
N=302,749.950
E=2,468,849.122
ELEV=18.91

NAIL SET #MK101
N=302,623.852
E=2,468,521.523
ELEV=21.74

NAIL SET #RW104
N=302,462.504
E=2,468,264.459
ELEV=23.79

NAIL SET #MK100
N=302,426.933
E=2,468,440.570
ELEV=21.13

NAIL SET #R
N=302,339.0
E=2,468,870.
ELEV=18.56

SITE LAYOUT AND CONTROLS PLAN 3

1" = 30'

0 30' 60'

GENERAL SHEET NOTES

A. SEE LEGEND ON SHEET C-001.

B. RADII ARE 5 FEET TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

C. CURBING SHALL BE CAST-IN-PLACE ON-SITE.

D. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS ASSOCIATED WITH THE BUILDING.

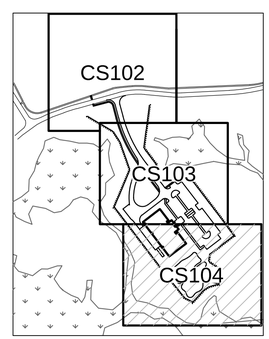
E. ALL DIMENSIONS ARE TO FACE OF THE BUILDING, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED.

F. ALL SIGNS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED. ALL SIGNAGE TO MEET MUTCD STANDARDS UNLESS OTHERWISE INDICATED. SEE DETAIL C1/C-508 FOR INSTALLATION DETAIL AND A1/C-508 FOR SIGN IDENTIFICATION, SIZE, AND QUANTITY.

G. SEE SHEET CS102 FOR STAKE POINT TABLE.

NEW WORK KEYNOTES

1. CHAIN LINK SECURITY FENCE.
2. AGGREGATE TRUCK LOOP PAVEMENT.
3. BOLLARD (TYP.)
4. CONCRETE SIDEWALK WITH WALK JOINTS. SEE LANDSCAPE PLANS FOR SCORING PATTERN.
5. LIGHT DUTY ASPHALT.
6. AGGREGATE MAINTENANCE ROAD.
7. HEAVY DUTY CONCRETE PAVEMENT.
8. 6' WIDE DOUBLE LEAF GATE.
9. 18" CURB AND GUTTER.
10. 4" THERMOPLASTIC WHITE LINE (TYP).
11. PROVIDE 1 FOOT WIDE CONCRETE FLUME THROUGH LANDSCAPE ISLAND FOR DRAINAGE.
12. TRANSFORMER AND GENERATOR PADS. SEE ELECTRICAL PLANS.
13. CHILLER PAD. SEE MECHANICAL PLANS.
14. STORM STRUCTURE (TYP). REFER TO SHEETS CG101 THROUGH CG103 FOR MORE INFORMATION.
15. SAW CUT HEAVY DUTY CONCRETE @ 20' O.C.
16. TREELINE SHOWN OFFSET FROM LIMITS OF DISTURBANCE FOR GRAPHICAL CLARITY. NO DISTURBANCE IS TO OCCUR WITHIN THE 50' WETLAND BUFFER.
17. 20' WIDE DOUBLE LEAF SWING GATE.



KEYMAP

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020

SEAL

HDR
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TEL (704)338-6700

A/E INFO

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ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CODRE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE ~ NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

SITE LAYOUT AND CONTROLS PLAN 3

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794238
SHEET	19 OF 228

CS104

DRAWFORM REVISION: 17 APRIL 2018

P-1396

P-1396B

RR612

EVERETT CREEK ROAD

ACCESS ROAD

FILL IN LOW AREA AS SHOWN AND GRADE TO DRAIN

50' WETLAND BUFFER (TYP)

50' WETLAND BUFFER (TYP)

MATCHLINE: SEE SHEET CG102 FOR CONTINUATION

GRADING AND DRAINAGE PLAN 1

1" = 30'

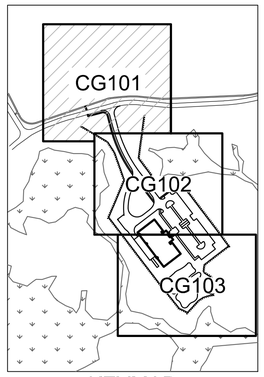
0 30' 60'

GENERAL SHEET NOTES

A. SEE LEGEND ON SHEET C-001.
B. INSTALL AND MAINTAIN EROSION CONTROL MEASURES. SEE EROSION CONTROL SHEETS CE101 THROUGH CE106.
C. FOR STORM PIPING BEDDING SEE DETAIL A4/C-506.
D. FOR TRENCH AND PAVEMENT REPAIR ASSOCIATED WITH PIPE INSTALLATION SEE DETAIL A2/C-506.
E. OBTAIN EXCESS REQUIRED BORROW MATERIALS (IF OFF-SITE BORROW IS DEEMED NECESSARY) FROM OUTSIDE SOURCES OR AS DIRECTED BY THE CONTRACTING OFFICER.
F. ALL GRADE TRANSITIONS SHALL BE SMOOTH AND GRADUAL WITH NO ABRUPT OR SHARP CHANGES.
G. FINISHED GRADE SHALL BE 1/2 INCH TO 1 INCH BELOW TOP OF ABUTTING PAVEMENTS, SIDEWALKS, AND CURBING.
H. WRAP ALL DRAINAGE PIPE JOINTS WITH 24" WIDE GEOTEXTILE FABRIC.
I. ALL STORM DRAINAGE PIPE TO BE CLASS III RCP UNLESS OTHERWISE INDICATED.
J. SEE SPECIFICATION SECTION 01 57 19.01 20 REGARDING SURPLUS SOILS DISPOSAL FOR CAMP LEJEUNE.
K. THIS PROJECT DRAINS INTO EVERETT CREEK WHICH DRAINS INTO THE NEW RIVER. THE PROJECT IS LOCATED IN THE WHITE OAK RIVER BASIN.

NEW WORK KEYNOTES

1. SEE SHEETS CS201 FOR CENTERLINE PROFILE.
2. MATCH EXISTING ELEVATION OF EXISTING PAVEMENT WHERE NEW PAVEMENT TIES TO EXISTING.
3. GRASSED SWALE.



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
MIDLANT CI CORE
MARSOC
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

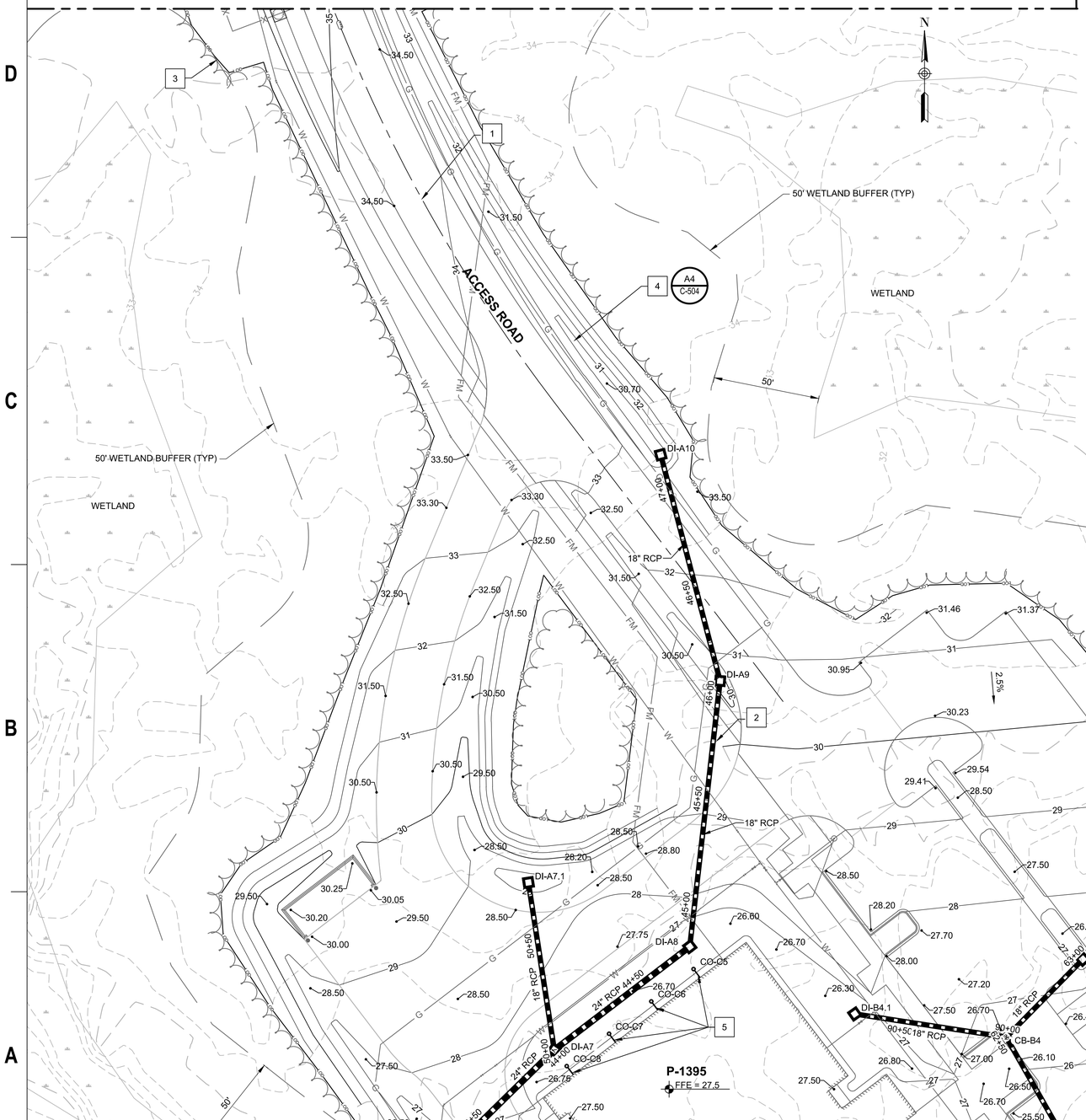
GRADING AND DRAINAGE PLAN 1

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794239
SHEET	20 OF 228

CG101

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CG101 FOR CONTINUATION



MATCHLINE: SEE SHEET CG103 FOR CONTINUATION

GRADING AND DRAINAGE PLAN 2

1" = 30'

0 30' 60'

'STORM A' PIPE DATA				
PIPE DESC	LENGTH	SLOPE	START STRUCTURE	END STRUCTURE
30" RCP	117	0.7%	FES-A1	DI-A2
24" RCP	71	0.5%	DI-A2	DI-A3
24" RCP	37	0.5%	DI-A3	DI-A4
24" RCP	37	0.5%	DI-A4	DI-A5
24" RCP	70	0.5%	DI-A5	DI-A6
24" RCP	70	0.5%	DI-A6	DI-A7
24" RCP	80	0.5%	DI-A7	DI-A8
18" RCP	126	1.7%	DI-A8	DI-A9
18" RCP	110	0.96%	DI-A9	DI-A10
18" RCP	80	0.5%	DI-A7	DI-A7.1

'STORM A' STRUCTURE DATA					
STRUCTURE	NORTHING	EASTING	RIM	INV. IN	INV. OUT
FES-A1	302564.44	2468421.75			17.00 (NW) 30" RCP
DI-A2	302654.04	2468346.78	25.80	18.31 (NW) 24" RCP	17.81 (SE) 30" RCP
DI-A3	302708.61	2468301.11	27.25	18.77 (NW) 24" RCP	18.67 (SE) 24" RCP
DI-A4	302737.60	2468278.94	27.25	19.05 (NW) 24" RCP	18.95 (SE) 24" RCP
DI-A5	302766.60	2468256.77	27.25	19.33 (NW) 24" RCP	19.23 (SE) 24" RCP
DI-A6	302797.37	2468193.96	25.75	19.78 (NE) 24" RCP	19.68 (SE) 24" RCP
DI-A7	302846.15	2468243.65	26.30	20.23 (NE) 24" RCP 21.36 (N) 18" RCP	20.13 (SW) 24" RCP
DI-A8	302894.67	2468307.34	26.30	21.13 (N) 18" RCP	20.63 (SW) 24" RCP
DI-A9	303019.52	2468321.59	29.90	23.36 (N) 18" RCP	23.26 (S) 18" RCP
DI-A10	303125.77	2468293.66	30.40		24.41 (S) 18" RCP
DI-A7.1	302924.83	2468231.51	27.50		21.76 (S) 18" RCP

'STORM C' PIPE DATA				
PIPE DESC	LENGTH	SLOPE	START STRUCTURE	END STRUCTURE
4" HDPE	256	1.59%	CO-C1	CO-C5
4" HDPE	256	1.39%	CO-C2	CO-C6
4" HDPE	256	1.19%	CO-C3	CO-C7
4" HDPE	256	1.00%	CO-C4	CO-C8

'STORM C' STRUCTURE DATA					
STRUCTURE	NORTHING	EASTING	RIM	INV. IN	INV. OUT
CO-C5	302884.12	2468309.12	26.92		23.72 (SE) 4" HDPE
CO-C6	302868.92	2468289.26	27.00		23.72 (SE) 4" HDPE
CO-C7	302853.73	2468269.41	27.00		23.72 (SE) 4" HDPE
CO-C8	302838.54	2468249.55	26.99		23.72 (SE) 4" HDPE

* REFER TO SHEET CG103 FOR STORM SYSTEM 'B', CONTINUANCE OF STORM SYSTEM 'C', AND STORM SYSTEM 'SF' DATA TABLES.

** REFER TO SHEET CG201 AND CG202 FOR STORM SYSTEM PROFILES COMPLETE WITH DETAILED STATIONING, INVERT, PIPE CROSSING, AND GRADE INFORMATION OF THE STORM SYSTEMS.

GENERAL SHEET NOTES

A. SEE GRADING AND DRAINAGE NOTES ON SHEET CG101.

B. REFER TO SHEET CG103 FOR STORM PIPE AND STRUCTURE TABLE FOR STORM SYSTEM 'B'.

C. REFER TO DETAIL A4/C-502 FOR DI.

D. REFER TO DETAIL A1/C-503 AND C1/C-503 FOR CB.

E. REFER TO DETAIL A4/C-503 AND C4/C-503 FOR MH.

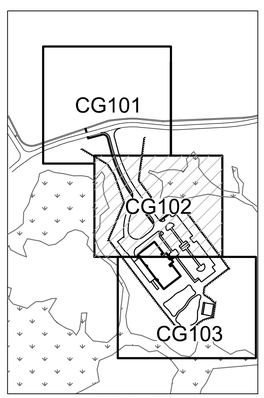
F. REFER TO DETAIL D2/C-505 FOR CO.

G. REFER TO DETAIL C1/C-504 FOR FES.

H. ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.

NEW WORK KEYNOTES

1. SEE SHEET CS201 FOR ACCESS ROAD CENTERLINE PROFILE.
2. SEE SHEETS CG201 AND CG202 FOR STORM SYSTEM PROFILES.
3. TREELINE SHOWN OFFSET FROM LIMITS OF DISTURBANCE FOR GRAPHICAL CLARITY. NO DISTURBANCE IS TO OCCUR WITHIN THE 50' WETLAND BUFFER.
4. GRASSED SWALE.
5. HDPE FOUNDATION UNDER SLAB DRAINAGE. SEE SHEET A-100 FOR MORE INFORMATION.



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020
SEAL

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A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020
DES JCC | DRW ARM | CHK RMB
PM/DM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

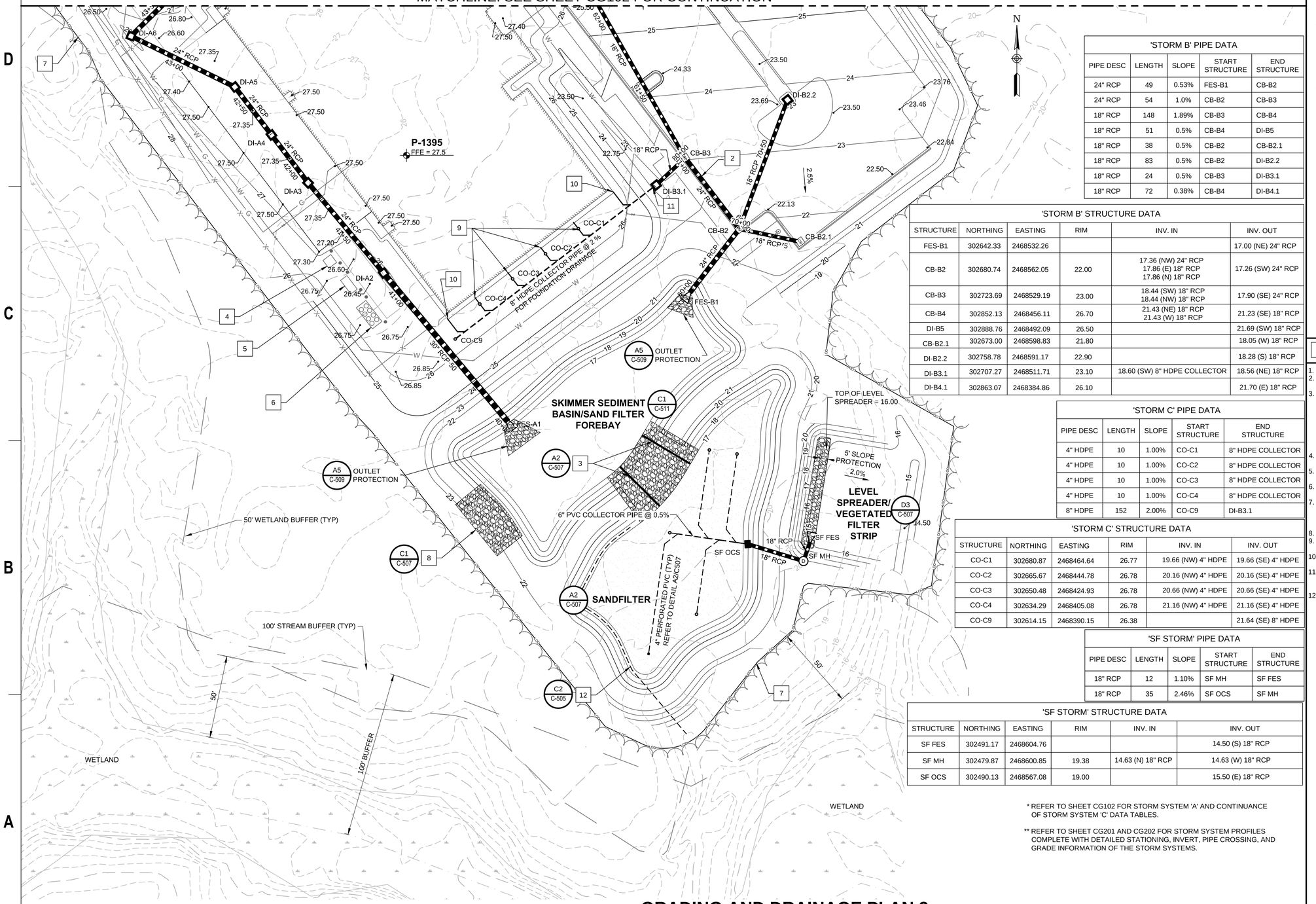
GRADING AND DRAINAGE PLAN 2

SCALE: 1" = 30'
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794240
SHEET 21 OF 228

CG102

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CG102 FOR CONTINUATION



GRADING AND DRAINAGE PLAN 3

1" = 30'

0 30' 60'

'STORM B' PIPE DATA

PIPE DESC	LENGTH	SLOPE	START STRUCTURE	END STRUCTURE
24" RCP	49	0.53%	FES-B1	CB-B2
24" RCP	54	1.0%	CB-B2	CB-B3
18" RCP	148	1.89%	CB-B3	CB-B4
18" RCP	51	0.5%	CB-B4	DI-B5
18" RCP	38	0.5%	CB-B2	CB-B2.1
18" RCP	83	0.5%	CB-B2	DI-B2.2
18" RCP	24	0.5%	CB-B3	DI-B3.1
18" RCP	72	0.38%	CB-B4	DI-B4.1

'STORM B' STRUCTURE DATA

STRUCTURE	NORTHING	EASTING	RIM	INV. IN	INV. OUT
FES-B1	302642.33	2468532.26			17.00 (NE) 24" RCP
CB-B2	302680.74	2468562.05	22.00	17.36 (NW) 24" RCP 17.86 (E) 18" RCP 17.86 (N) 18" RCP	17.26 (SW) 24" RCP
CB-B3	302723.69	2468529.19	23.00	18.44 (SW) 18" RCP 18.44 (NW) 18" RCP	17.90 (SE) 24" RCP
CB-B4	302852.13	2468456.11	26.70	21.43 (NE) 18" RCP 21.43 (W) 18" RCP	21.23 (SE) 18" RCP
DI-B5	302888.76	2468492.09	26.50		21.69 (SW) 18" RCP
CB-B2.1	302673.00	2468598.83	21.80		18.05 (W) 18" RCP
DI-B2.2	302758.78	2468591.17	22.90		18.28 (S) 18" RCP
DI-B3.1	302707.27	2468511.71	23.10	18.60 (SW) 8" HDPE COLLECTOR	18.56 (NE) 18" RCP
DI-B4.1	302863.07	2468384.86	26.10		21.70 (E) 18" RCP

'STORM C' PIPE DATA

PIPE DESC	LENGTH	SLOPE	START STRUCTURE	END STRUCTURE
4" HDPE	10	1.00%	CO-C1	8" HDPE COLLECTOR
4" HDPE	10	1.00%	CO-C2	8" HDPE COLLECTOR
4" HDPE	10	1.00%	CO-C3	8" HDPE COLLECTOR
4" HDPE	10	1.00%	CO-C4	8" HDPE COLLECTOR
8" HDPE	152	2.00%	CO-C9	DI-B3.1

'STORM C' STRUCTURE DATA

STRUCTURE	NORTHING	EASTING	RIM	INV. IN	INV. OUT
CO-C1	302680.87	2468464.64	26.77	19.66 (NW) 4" HDPE	19.66 (SE) 4" HDPE
CO-C2	302665.67	2468444.78	26.78	20.16 (NW) 4" HDPE	20.16 (SE) 4" HDPE
CO-C3	302650.48	2468424.93	26.78	20.66 (NW) 4" HDPE	20.66 (SE) 4" HDPE
CO-C4	302634.29	2468405.08	26.78	21.16 (NW) 4" HDPE	21.16 (SE) 4" HDPE
CO-C9	302614.15	2468390.15	26.38		21.64 (SE) 8" HDPE

'SF STORM' PIPE DATA

PIPE DESC	LENGTH	SLOPE	START STRUCTURE	END STRUCTURE
18" RCP	12	1.10%	SF MH	SF FES
18" RCP	35	2.46%	SF OCS	SF MH

'SF STORM' STRUCTURE DATA

STRUCTURE	NORTHING	EASTING	RIM	INV. IN	INV. OUT
SF FES	302491.17	2468604.76			14.50 (S) 18" RCP
SF MH	302479.87	2468600.85	19.38	14.63 (N) 18" RCP	14.63 (W) 18" RCP
SF OCS	302490.13	2468567.08	19.00		15.50 (E) 18" RCP

* REFER TO SHEET CG102 FOR STORM SYSTEM 'A' AND CONTINUANCE OF STORM SYSTEM 'C' DATA TABLES.

** REFER TO SHEET CG201 AND CG202 FOR STORM SYSTEM PROFILES COMPLETE WITH DETAILED STATIONING, INVERT, PIPE CROSSING, AND GRADE INFORMATION OF THE STORM SYSTEMS.

GENERAL SHEET NOTES

A. SEE GRADING AND DRAINAGE NOTES ON SHEET CG101.

B. REFER TO SHEET CG102 FOR STORM PIPE AND STRUCTURE TABLE FOR STORM SYSTEM 'A'.

C. REFER TO DETAIL A4/C-502 FOR DI.

D. REFER TO DETAIL A1/C-503 AND C1/C-503 FOR CB.

E. REFER TO DETAIL A4/C-503 AND C4/C-503 FOR MH.

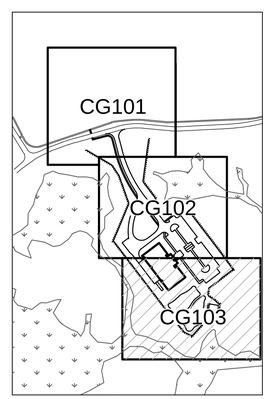
F. REFER TO DETAIL D2/C-505 FOR CO.

G. REFER TO DETAIL C1/C-504 FOR FES.

H. ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.

NEW WORK KEYNOTES

1. SEE SHEETS CS201 FOR CENTERLINE PROFILES.
2. SEE SHEETS CG201 AND CG202 FOR STORM SYSTEM PROFILES.
3. TWO (2) 12" DIP STORM LINES @ 0% SLOPE WITH INVERTS OF 17.00. BASINS ARE TO REMAIN SEPARATE UNTIL SITE HAS BEEN FULLY STABILIZED AND EXCESS SEDIMENT HAS BEEN REMOVED FROM THE SKIMMER SEDIMENT BASIN. CONSULT WITH THE CONTRACTING OFFICER FOR A SITE INSPECTION BEFORE PROCEEDING WITH INSTALLING PIPES AND INTERCONNECTING BASINS.
4. TRANSFORMER PAD, REFER TO ELECTRICAL DRAWINGS. PAD ELEVATION = 27.0
5. GENERATOR PAD, REFER TO ELECTRICAL DRAWINGS. PAD ELEVATION = 27.0
6. CHILLER PAD. REFER TO ELECTRICAL DRAWINGS. PAD ELEVATION = 27.0
7. TREELINE SHOWN OFFSET FROM LIMITS OF DISTURBANCE FOR GRAPHICAL CLARITY. NO DISTURBANCE IS TO OCCUR WITHIN THE 50' WETLAND BUFFER.
8. EMERGENCY SPILLWAY.
9. HDPE FOUNDATION UNDER SLAB DRAINAGE. SEE SHEET A-100 FOR MORE INFORMATION.
10. HDPE FOUNDATION FRENCH DRAIN. SEE SHEET A-100 FOR MORE INFORMATION.
11. TIE FOUNDATION DRAINAGE COLLECTOR PIPE TO STORM DRAINAGE STRUCTURE. ENSURE POSITIVE DRAINAGE OF OF FOUNDATION DRAINAGE PIPING.
12. BMP UNDERDRAIN. DAYLIGHT AT ELEV. 16.0 AS SHOWN.



KEYMAP

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020

SEAL

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM SGL/RMS

BRANCH MANAGER DLB

CHIEF ENG/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

GRADING AND DRAINAGE PLAN 3

SCALE: 1" = 30'

EPROJECT NO.: 1603164

CONSTR. CONTR. NO.

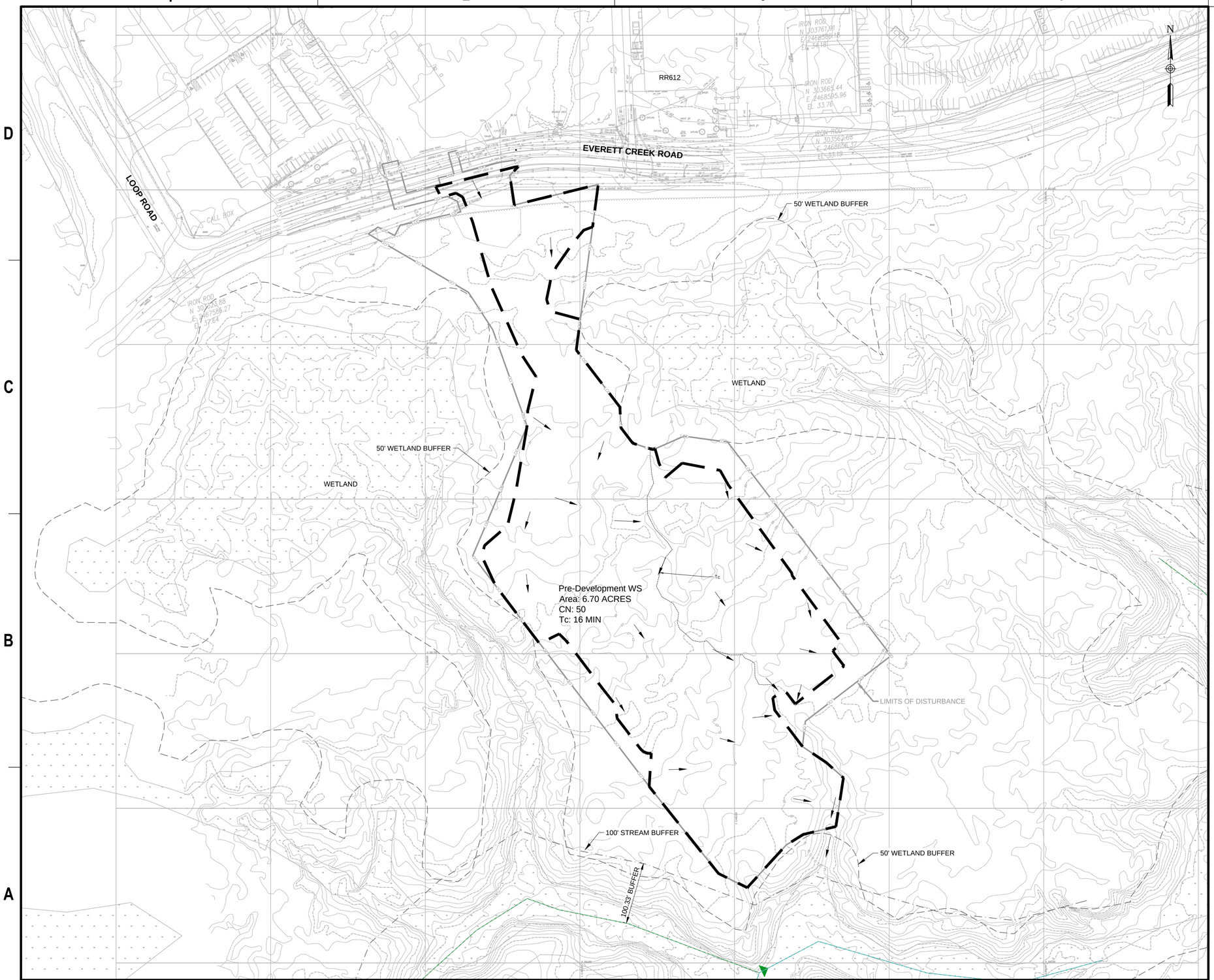
NAVFAC DRAWING NO.
12794241

SHEET 22 OF 228

CG103

DRAWFORM REVISION: 17 APRIL 2018

UNCLASSIFIED



PRE-DEVELOPMENT DRAINAGE AREA MAP

1" = 80'

0' 40' 80' 160'

UNCLASSIFIED

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLE 6/22/2020

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DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

PRE-DEVELOPMENT DRAINAGE AREA MAP

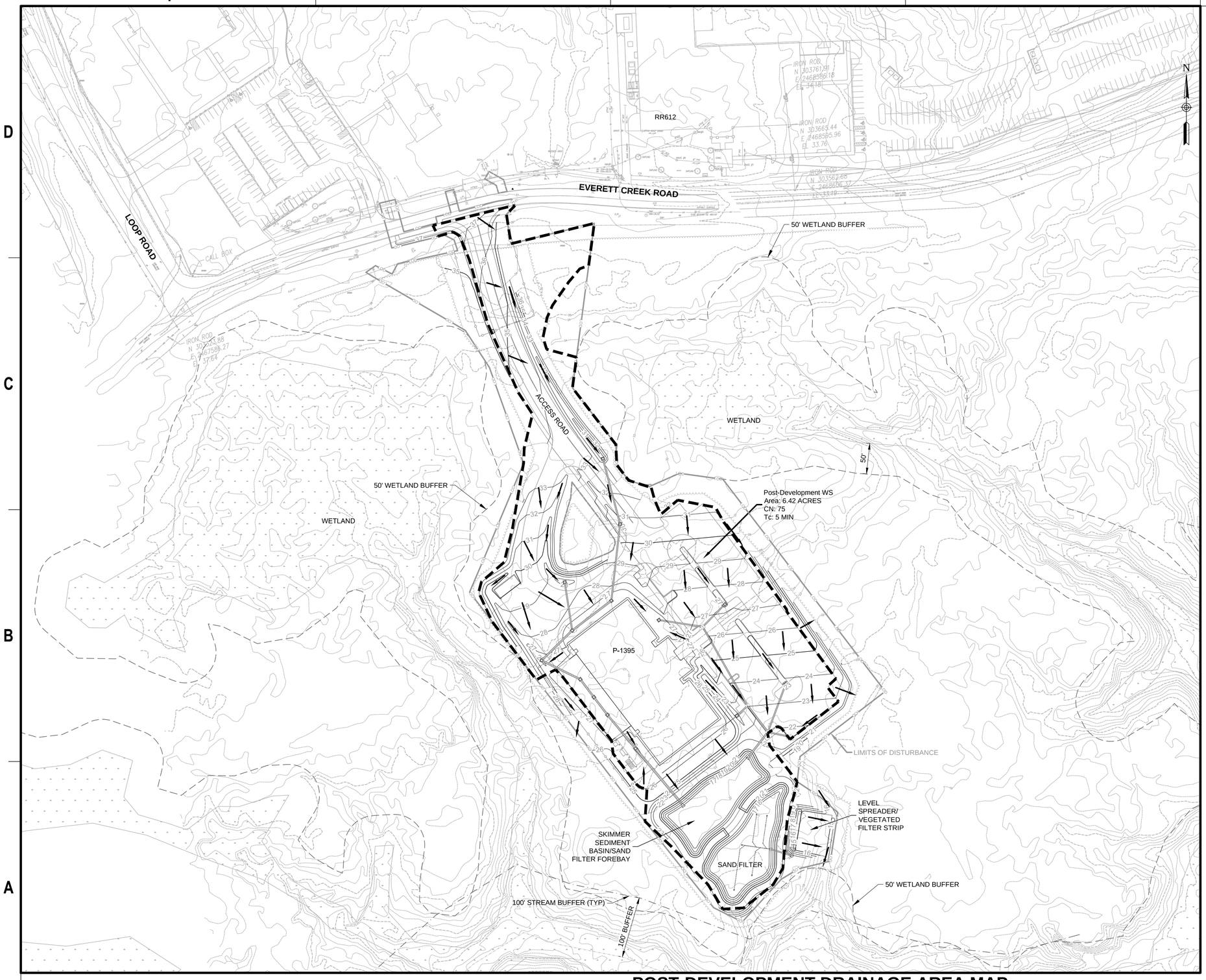
SCALE:	1" = 80'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794242
SHEET	23 OF 228

CG104

DRAWFORM REVISION: 17 APRIL 2018

UNCLASSIFIED

UNCLASSIFIED



POST-DEVELOPMENT DRAINAGE AREA MAP

1" = 80' 0' 40' 80' 160'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020

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A/E INFO

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SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

POST-DEVELOPMENT DRAINAGE AREA MAP

SCALE:	1" = 80'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794243
SHEET	24 OF 228

CG105

DRAWFORM REVISION: 17 APRIL 2018

UNCLASSIFIED

POST-DEVELOPMENT SUB-WATERSHED MAP

1" = 80' 0' 40' 80' 160'

SUB-WATERSHEDS FOR STORM STRUCTURES

1. SWS CB-B2 Area: 0.13 Acre C: 0.54
2. SWS DI-B2.1 Area: 0.32 Acre C: 0.73
3. SWS DI-B2.2 Area: 0.32 Acre C: 0.73
4. SWS CB-B3 Area: 0.18 Acre C: 0.81
5. SWS DI-B3.1 Area: 0.33 Acre C: 0.52
6. SWS CB-B4 Area: 0.23 Acre C: 0.86
7. SWS DI-B4.1 Area: 0.34 Acre C: 0.66
8. SWS DI-B5 Area: 0.22 Acre C: 0.74
9. SWS DI-A2 Area: 0.11 Acre C: 0.95
10. SWS DI-A3 Area: 0.05 Acre C: 0.95
11. SWS DI-A4 Area: 0.03 Acre C: 0.95
12. SWS DI-A5 Area: 0.41 Acre C: 0.95
13. SWS DI-A6 Area: 0.30 Acre C: 0.54
14. SWS CB-A7 Area: 0.33 Acre C: 0.58
15. SWS DI-A7.1 Area: 0.36 Acre C: 0.50
16. SWS DI-A8 Area: 0.25 Acre C: 0.53
17. SWS DI-A9 Area: 0.34 Acre C: 0.43
18. SWS DI-A10 Area: 1.08 Acres C: 0.54

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020
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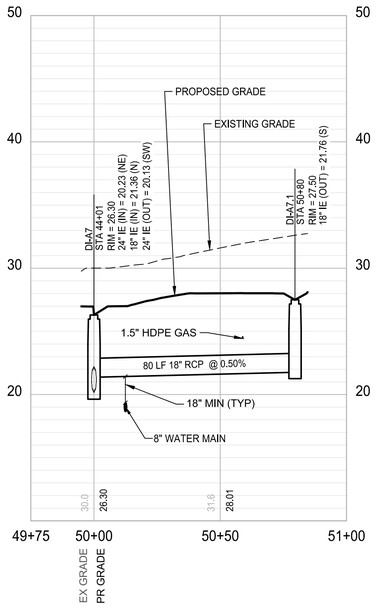
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
POST-DEVELOPMENT SUB-WATERSHED MAP

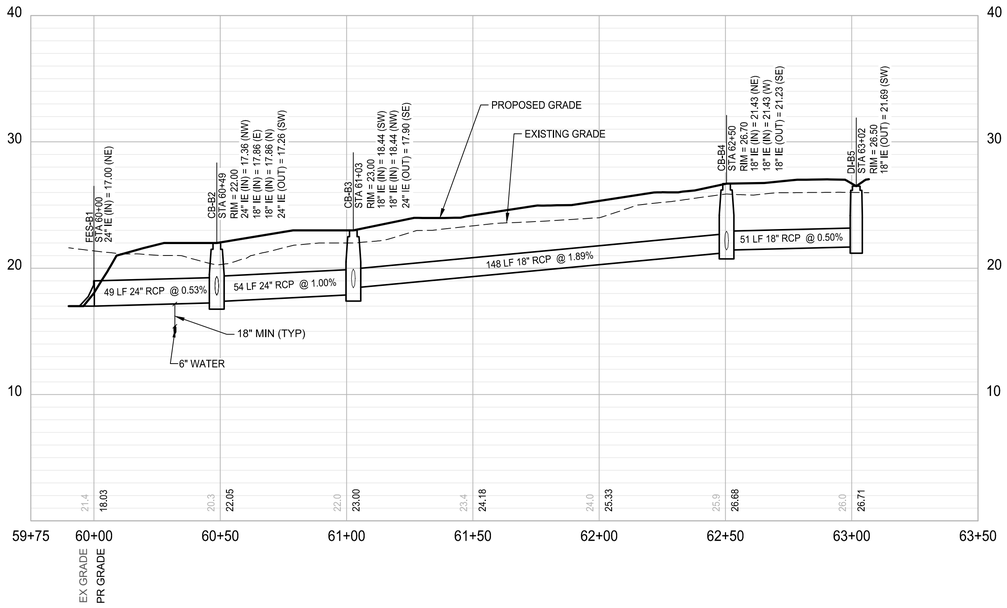
SCALE: 1" = 80'
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794244
SHEET 25 OF 228
CG106
DRAWFORM REVISION: 17 APRIL 2018

NOTE: ALL STORM DRAINAGE PIPE TO BE CLASS III RCP UNLESS OTHERWISE INDICATED.



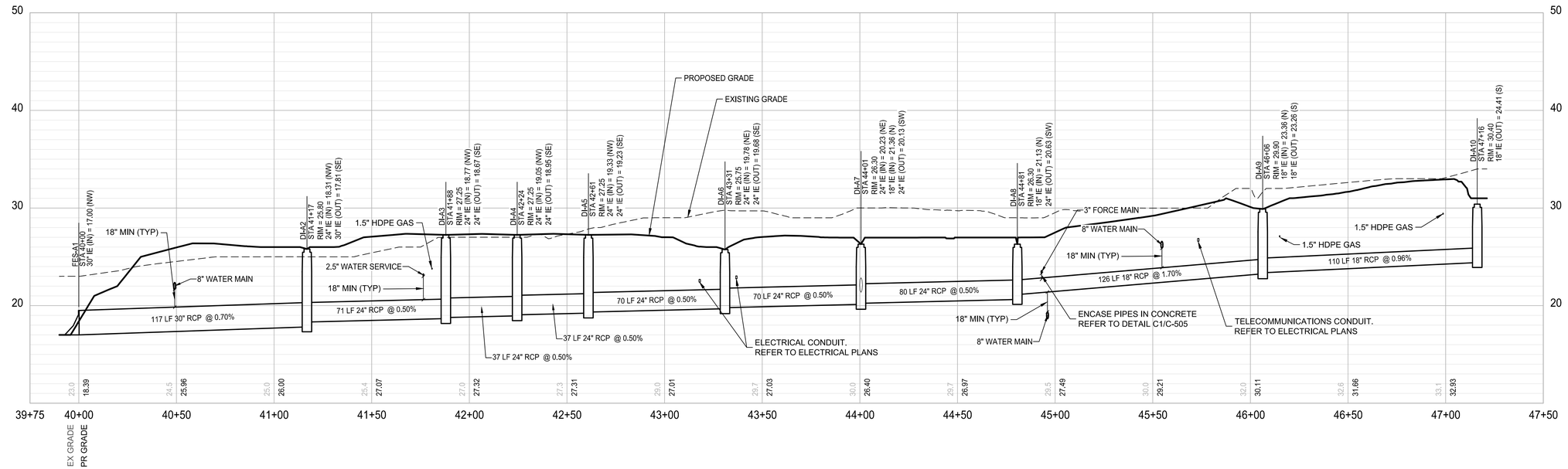
C1 STORM "A7" PROFILE

H: 1" = 30' V: 1" = 6'



C3 STORM "B" PROFILE

H: 1" = 30' V: 1" = 6'



A1 STORM "A" PROFILE

H: 1" = 30' V: 1" = 6'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	DRW	CHK

PMDM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

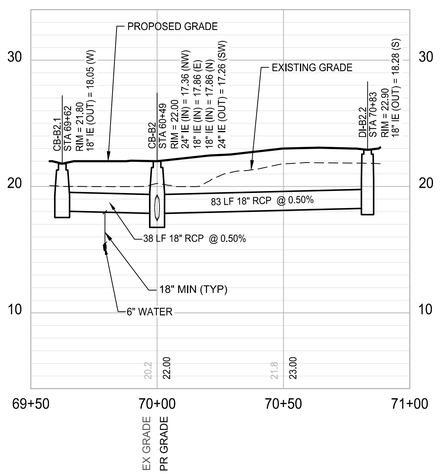
STORM SYSTEM PROFILES 1

SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794245
SHEET	26 OF 228

CG201

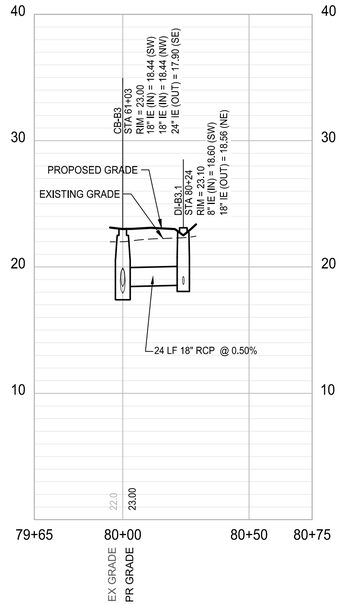
DRAWFORM REVISION: 17 APRIL 2018

NOTE: ALL STORM DRAINAGE PIPE TO BE CLASS III RCP UNLESS OTHERWISE INDICATED.



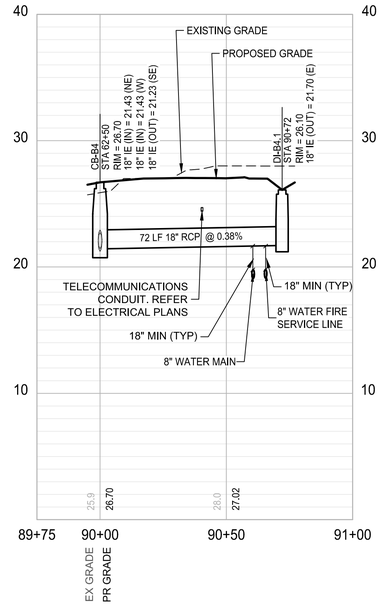
A1 STORM "B2" PROFILE

H: 1" = 30' V: 1" = 6'



A3 STORM "B3" PROFILE

H: 1" = 30' V: 1" = 6'



A4 STORM "B4" PROFILE

H: 1" = 30' V: 1" = 6'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

445 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	DRW	CHK

PMDM SGL/RMS

BRANCH MANAGER DLB

CHIEF ENG/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

STORM SYSTEM PROFILES 2

SCALE: AS NOTED

EPROJECT NO.: 1603164

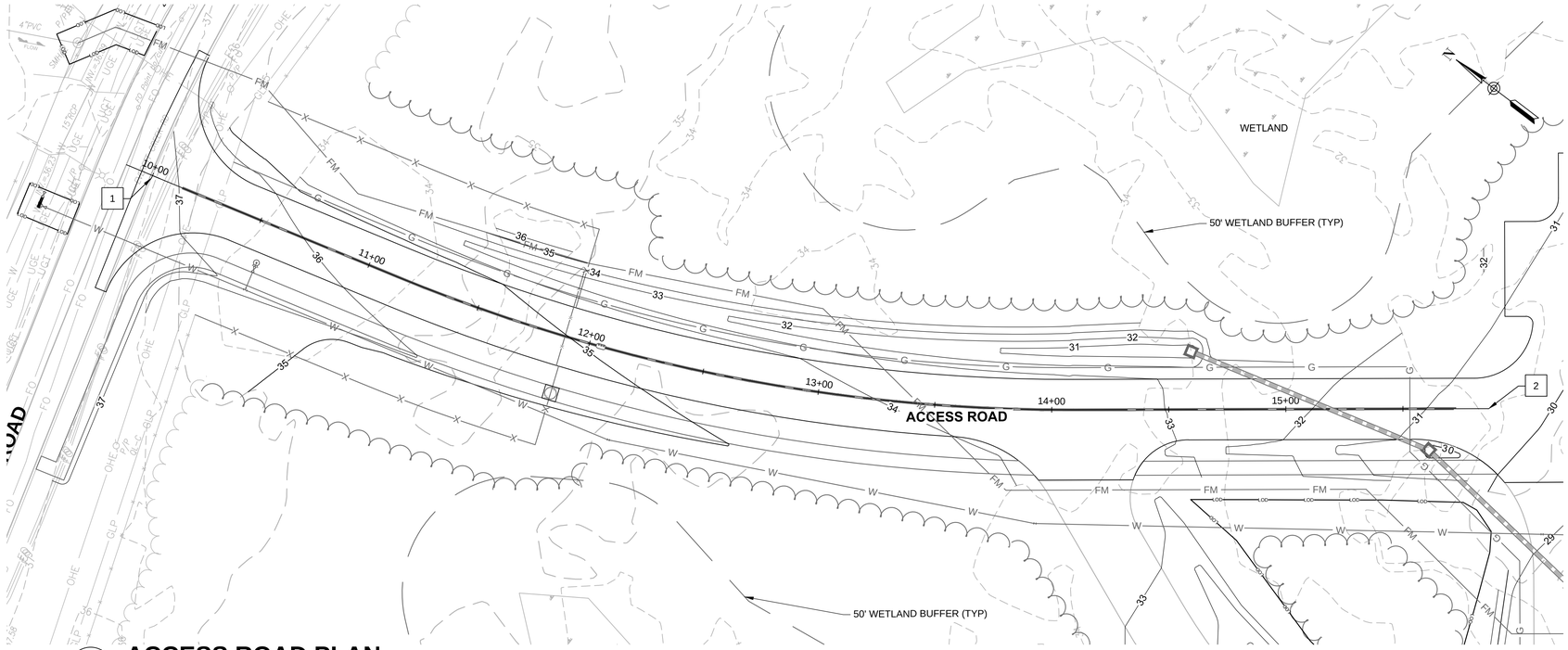
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12794246

SHEET 27 OF 228

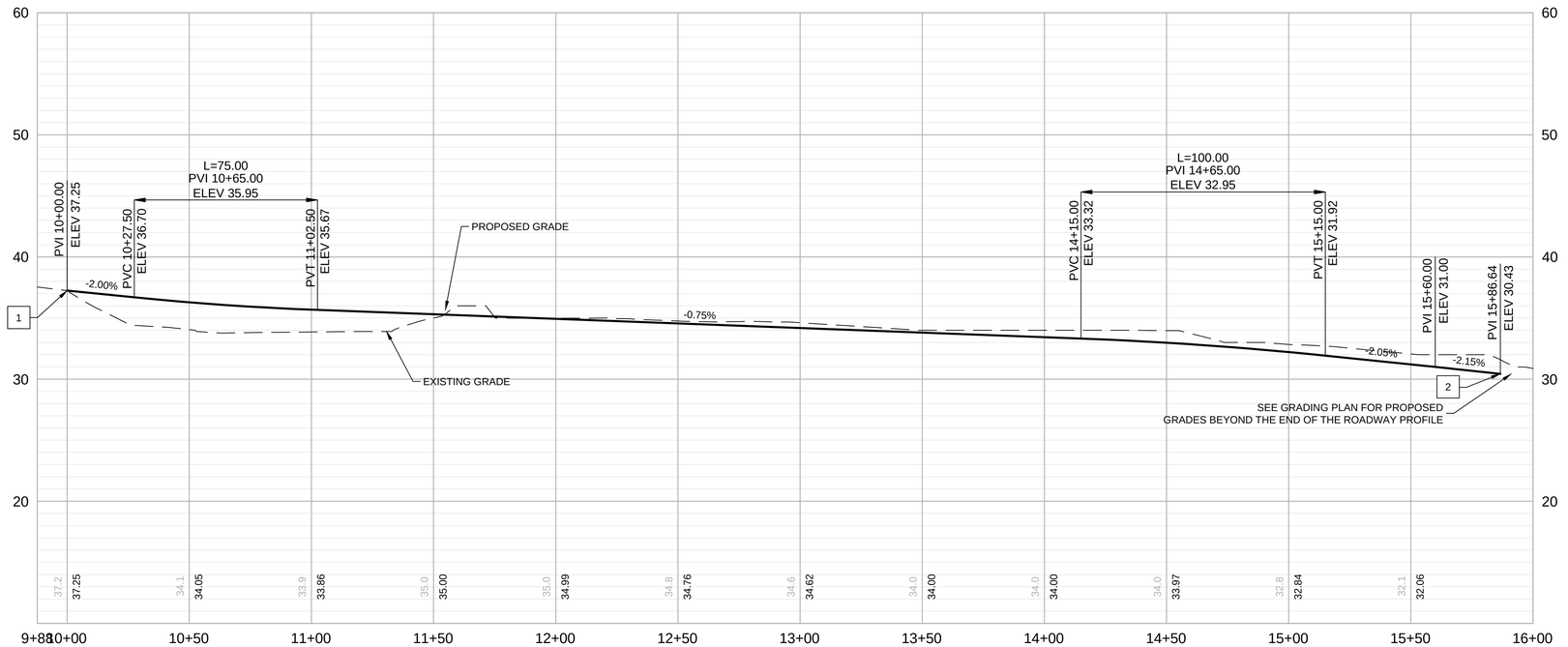
CG202

DRAWFORM REVISION: 17 APRIL 2018



C1 ACCESS ROAD PLAN

H: 1" = 30'



A1 ACCESS ROAD PROFILE

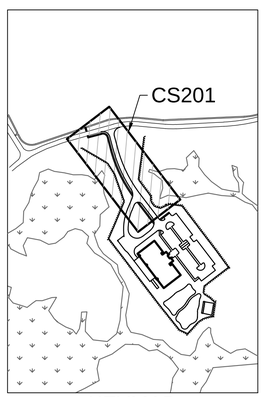
H: 1" = 30' V: 1" = 6'

GENERAL SHEET NOTES

A. SEE CIVIL LEGEND ON SHEET C-001.

NEW WORK KEYNOTES

1. START ROADWAY ALIGNMENT STA. 10+00.
2. END ROADWAY ALIGNMENT STA 15+86.64



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC
MIDLANT CI CORE
MARSOC
JACKSONVILLE, NORTH CAROLINA

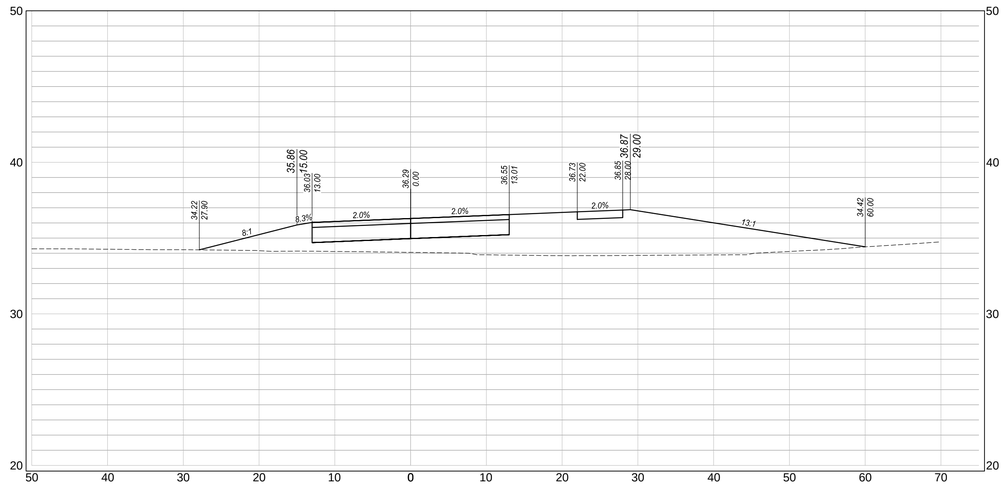
P1395 MARINE RAIDER HEADQUARTERS

ACCESS ROADWAY PLAN AND PROFILE 1

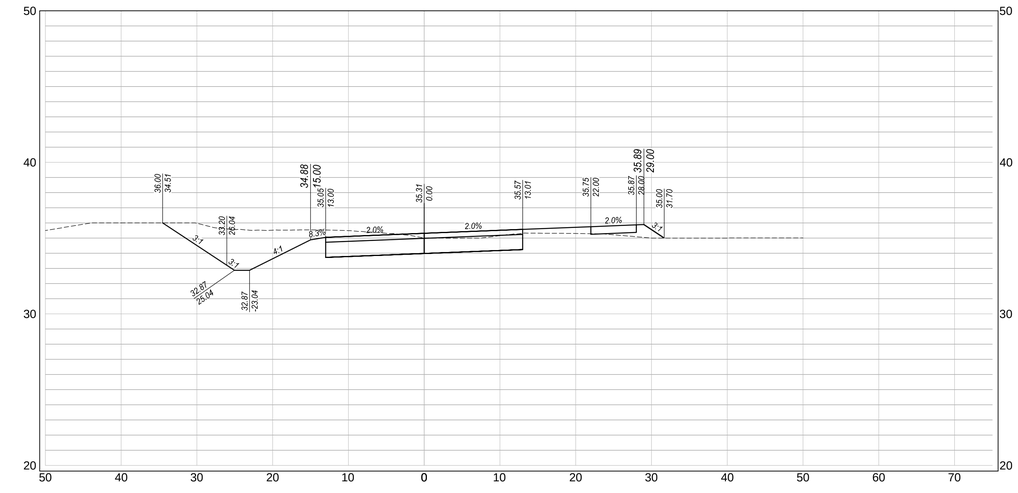
SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794247
SHEET	28 OF 228

CS201

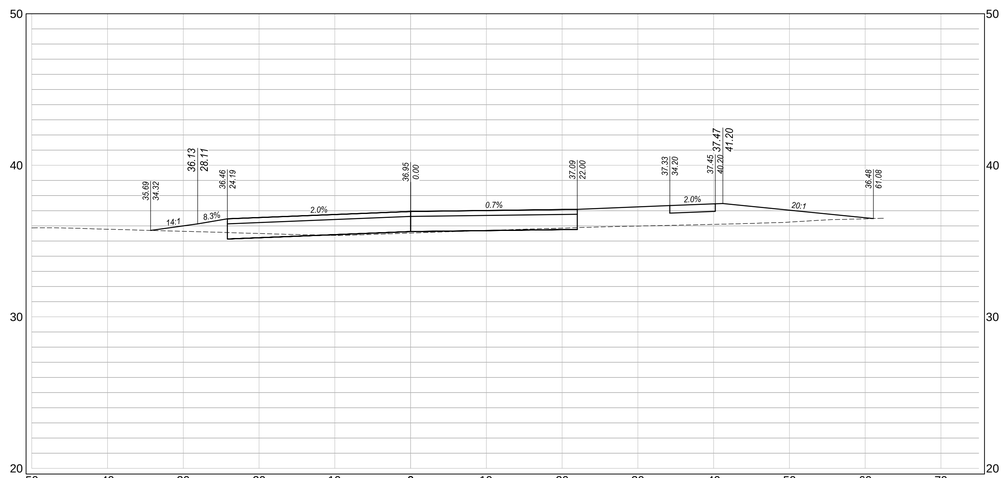
DRAWFORM REVISION: 17 APRIL 2018



10+50.00
H 1:10
V 1:5



11+50.00
H 1:10
V 1:5



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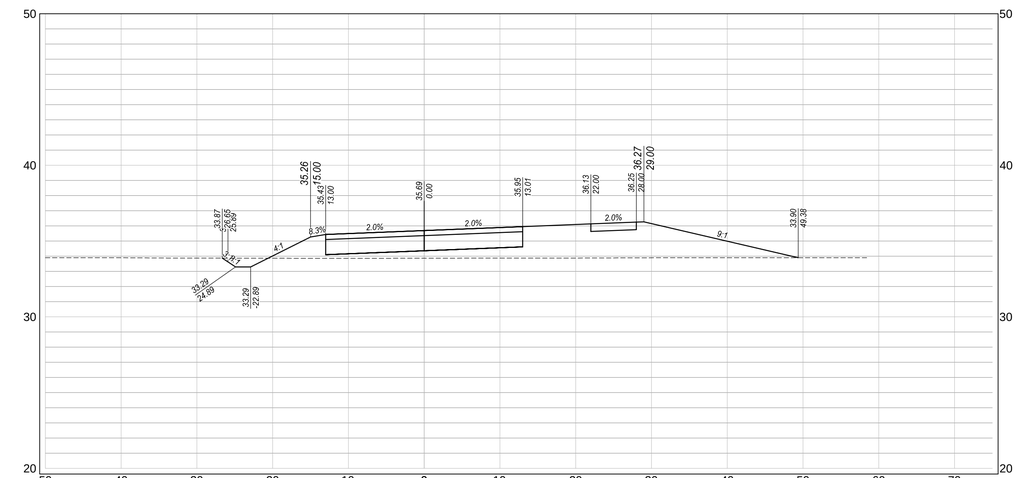
V 1:5



11+00.00
H 1:10
V 1:5

EXISTNG GRADE

PROPOSED GRADE

SYM	DESCRIPTION	DATE	APPR

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

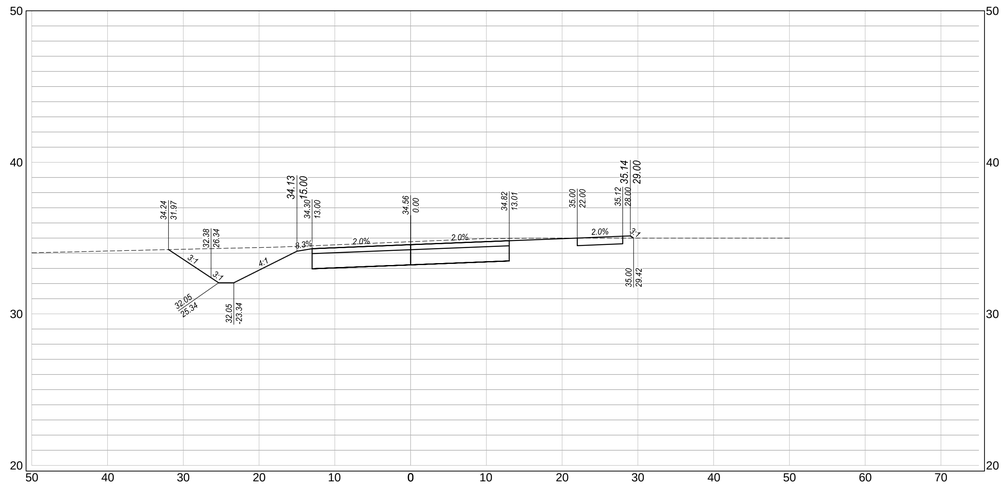
PM/DM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE · NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
ACCESS ROADWAY CROSS SECTIONS

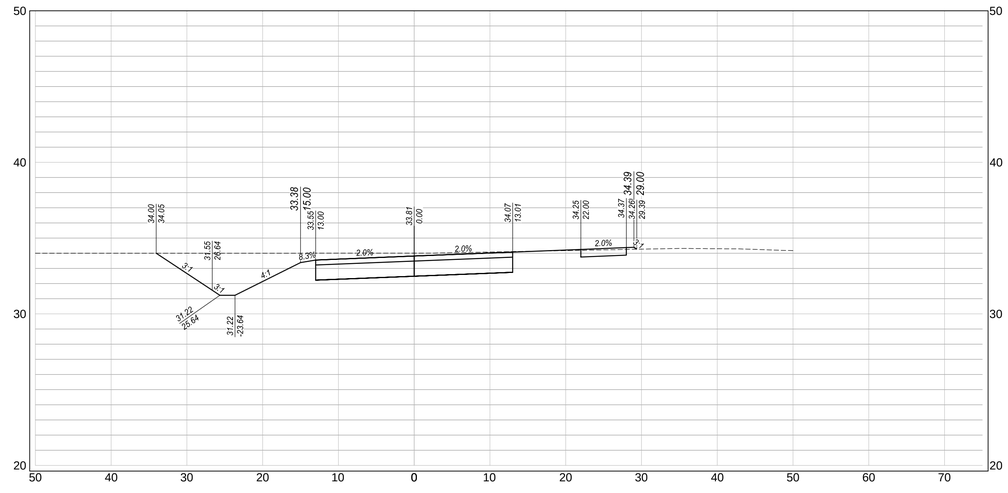
SCALE: 1" = 30'
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794248
SHEET 29 OF 228

CS301

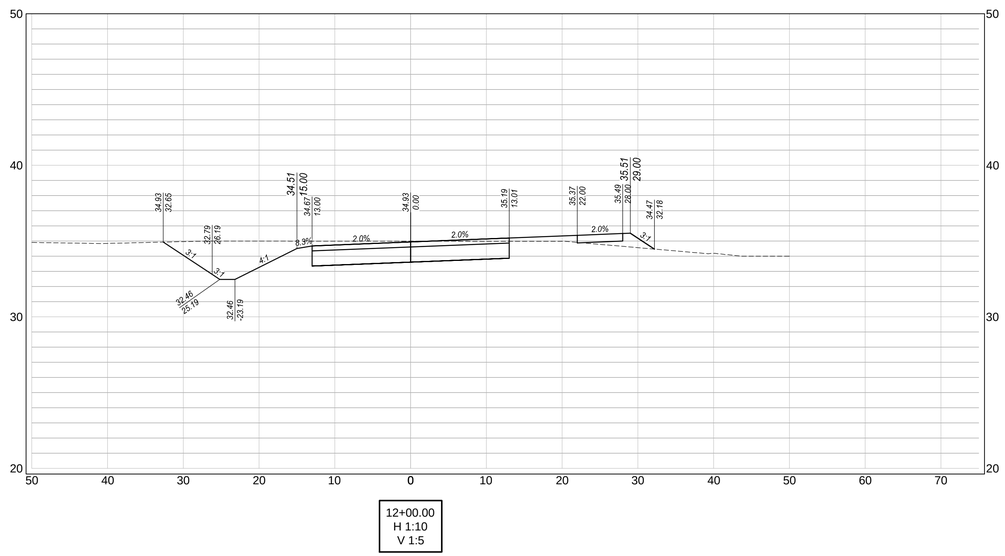
DRAWFORM REVISION: 17 APRIL 2018



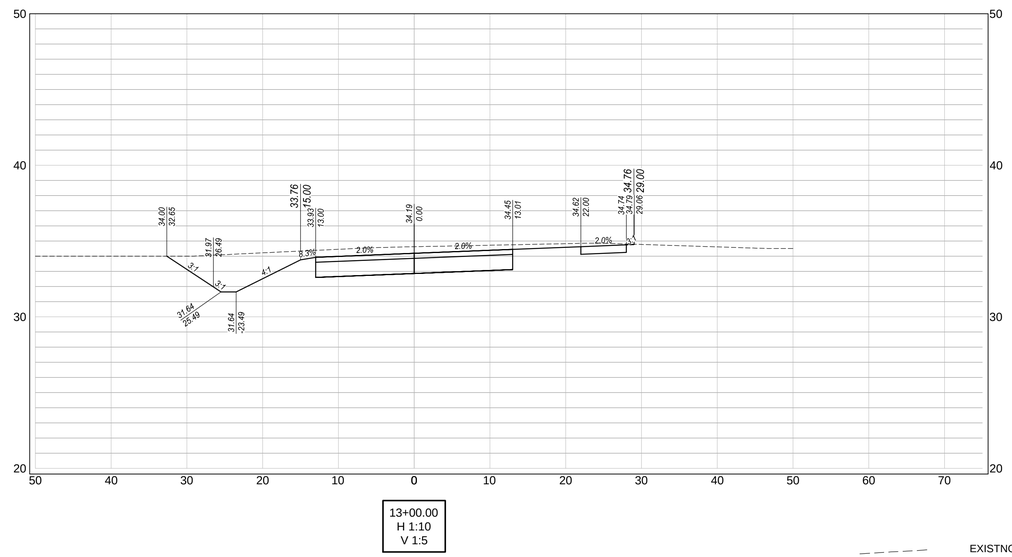
12+50.00
H 1:10
V 1:5



13+50.00
H 1:10
V 1:5



12+00.00
H 1:10
V 1:5



13+00.00
H 1:10
V 1:5

EXISTNG GRADE

PROPOSED GRADE

SYM	DESCRIPTION	DATE	APPR

440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO	DATE	06/19/2020
DES JCC	DRW ARM	CHK RMB
PM/DM	SGL/RMS	
BRANCH MANAGER	DLB	
CHIEF ENG/ARCH	EJA	
FIRE PROTECTION		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC

P1395 MARINE RAIDER HEADQUARTERS

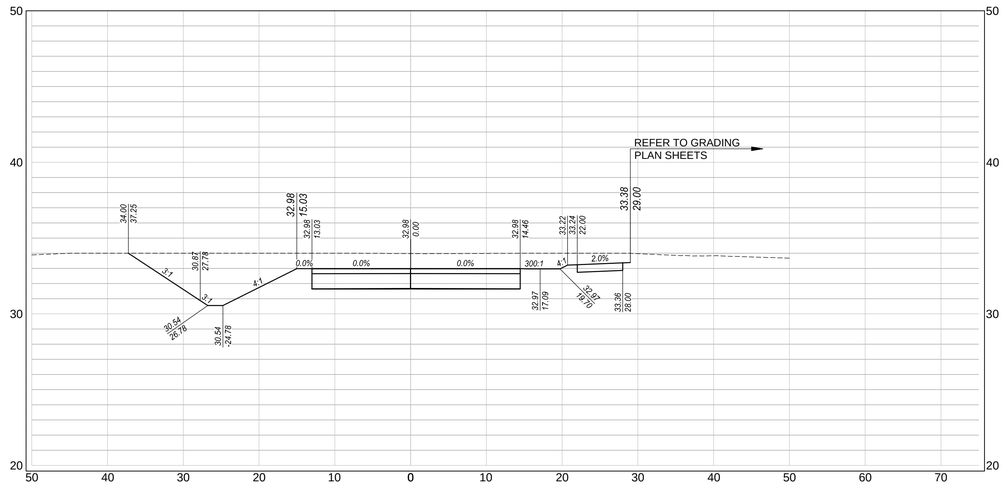
JACKSONVILLE, NORTH CAROLINA

ACCESS ROADWAY CROSS SECTIONS

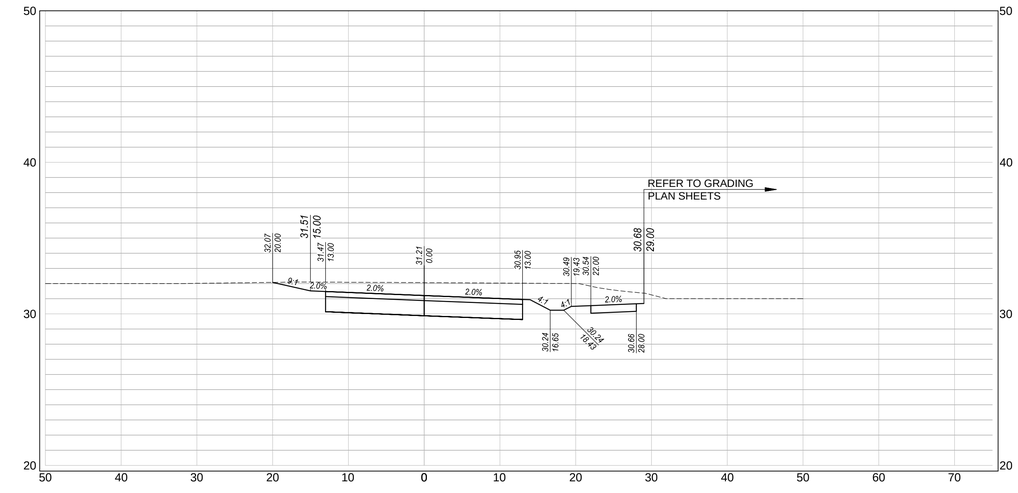
SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794249
SHEET	30 OF 228

CS302

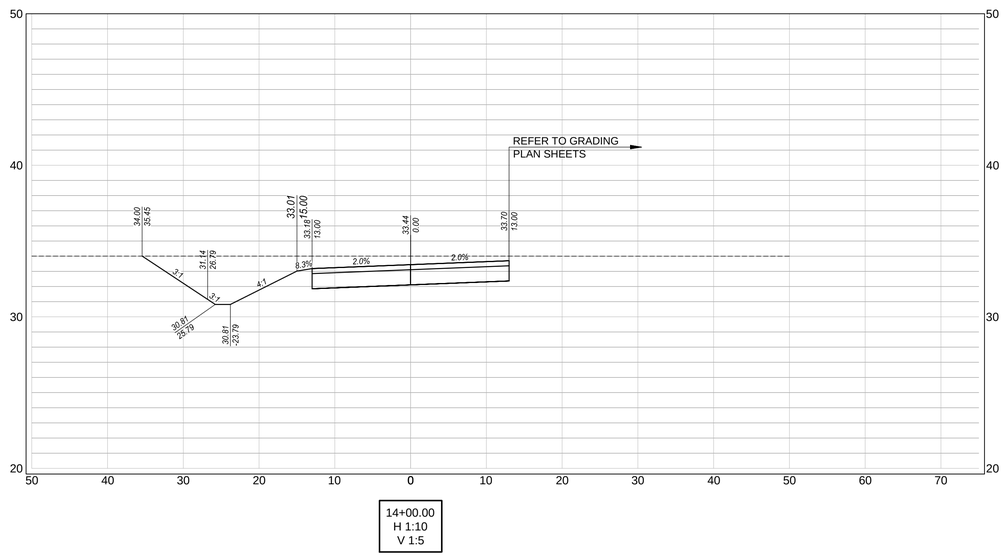
DRAWFORM REVISION: 17 APRIL 2018



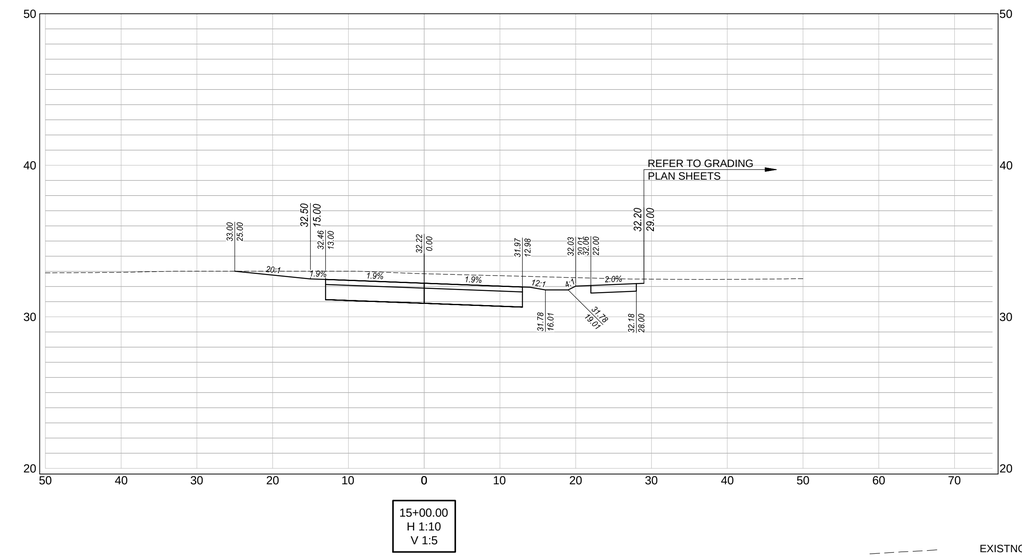
14+50.00
H 1:10
V 1:5



15+50.00
H 1:10
V 1:5



14+00.00
H 1:10
V 1:5



15+00.00
H 1:10
V 1:5

EXISTNG GRADE

PROPOSED GRADE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUBLE 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

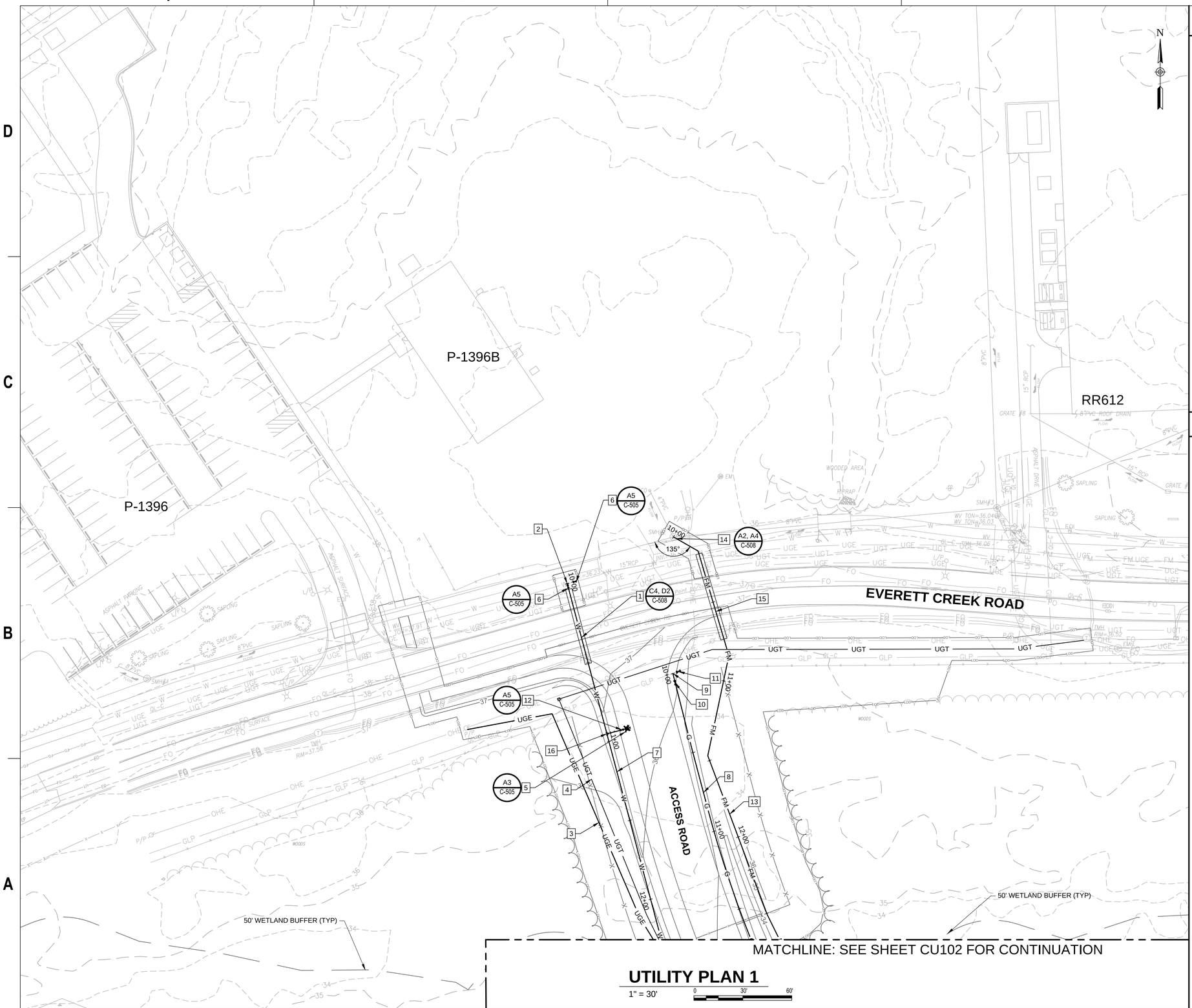
PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE · NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
ACCESS ROADWAY CROSS SECTIONS

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794250
SHEET	31 OF 228

CS303

DRAWFORM REVISION: 17 APRIL 2018



UTILITY PLAN 1

1" = 30'

0 30' 60'

GENERAL SHEET NOTES

A. SEE CIVIL LEGEND ON SHEET C-001.

B. PIPES SHALL MAINTAIN 3 FEET OF COVER UNLESS OTHERWISE NOTED.

C. ALL PIPE IS RESTRAINED JOINT UNLESS OTHERWISE NOTED.

D. PROVIDE VALVE BOX FOR ALL BURIED VALVES. REFER TO DETAIL A5/C-505.

E. SEE ELECTRICAL SHEETS FOR LAYOUT AND DETAILS OF POWER AND TELECOMMUNICATIONS. VERIFY THAT PROPER VERTICAL SEPARATION OF UTILITIES CAN BE ACHIEVED PRIOR TO START OF EACH SEGMENT. BRING ANY CONFLICTS TO THE ATTENTION OF THE CONTRACTING OFFICER.

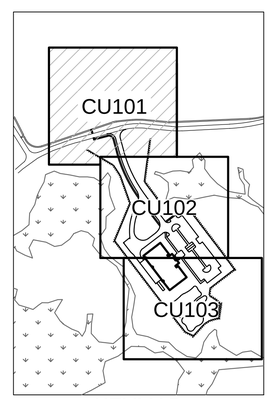
F. UTILITY PIPE MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS, UNLESS OTHERWISE NOTED ON PLAN.

G. EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND BASED ON FIELD SURVEYS, AVAILABLE RECORDS, VERBAL INFORMATION AND/OR PHYSICAL FEATURES. CONTRACTOR SHALL CONTACT CONTRACTING OFFICER OFFICER TO ALLOW MARKING OF EXISTING BURIED UTILITIES AT LEAST 15 DAYS PRIOR TO STARTING EXCAVATION WORK.

H. REFER TO PIPE BEDDING DETAILS B5 AND D5/C-505.

NEW WORK KEYNOTES

1. BORE AND JACK 8" WATER LINE CROSSING EVERETT CREEK ROAD. MAINTAIN TWO WAY TRAFFIC AT ALL TIMES. OPEN ALL LANES OF THE EXISTING ROADWAY AT THE END OF THE WORK DAY. COORDINATE INSTALLATION AND TRAFFIC CONTROL WITH CONTRACTING OFFICER.
2. 8"X8"X8" CUT IN TEE AND VALVE. COORDINATE WITH CONTRACTING OFFICER TO SHUT DOWN EXISTING WATER MAIN FOR TEE INSTALLATION. INSTALL TAPPING SLEEVE AND VALVE IN LIEU OF TEE AT CONTRACTING OFFICER'S REQUEST. CONTRACTING OFFICER TO WITNESS INSTALLATION.
3. UNDERGROUND ELECTRICAL CONDUIT, REFER TO ELECTRICAL SITE PLAN.
4. UNDERGROUND TELECOMMUNICATIONS CONDUIT, REFER TO ELECTRICAL SITE PLAN.
5. FIRE HYDRANT.
6. 8" GATE VALVE WITH BOX.
7. 8" C900 PVC WATER MAIN WITH RESTRAINED JOINTS.
8. 1.5" HDPE LIQUID PROPANE GAS SERVICE LINE.
9. TIE 1.5" HDPE LIQUID PROPANE GAS LINE TO EXISTING 2" LIQUID PROPANE GAS DISTRIBUTION MAIN.
10. PROVIDE 1.5" GAS VALVE IN BOX.
11. PROVIDE 2" GAS VALVE IN BOX.
12. 6" GATE VALVE WITH BOX.
13. 3" HDPE SEWER FORCE MAIN.
14. DISCHARGE FORCE MAIN INTO EXISTING MANHOLE.
15. HORIZONTAL DIRECTIONAL DRILL FORCE MAIN UNDER EVERETT CREEK ROAD.
16. 8" X 8" X 6" TEE.



KEYMAP

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO	DATE	06/19/2020	
DES	JCC	DRW	ARM / CHK RMB
PM/OM	SGL/RMS		
BRANCH MANAGER	DLB		
CHIEF ENG/ARCH	EJA		
FIRE PROTECTION			

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

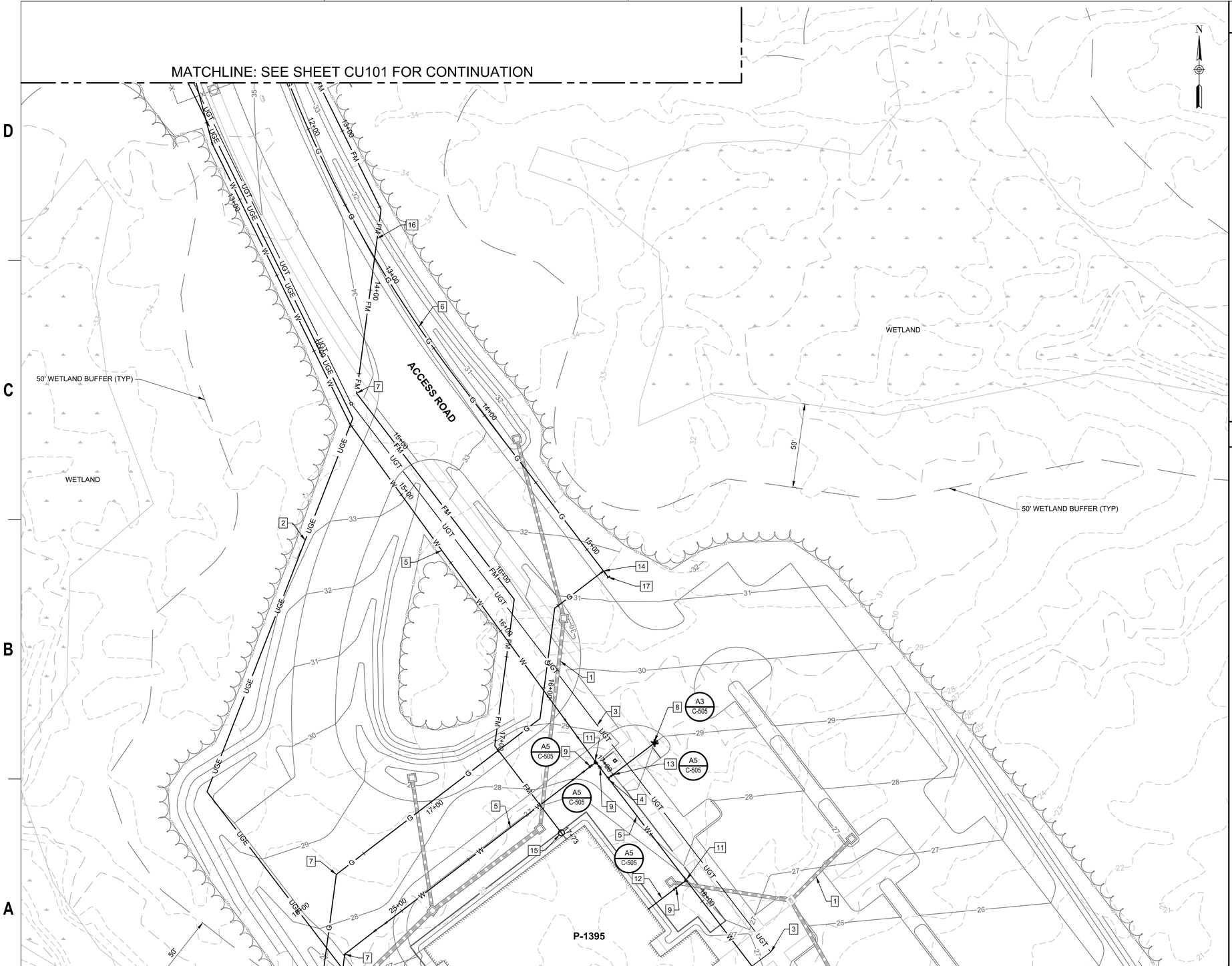
UTILITY PLAN 1

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794251
SHEET	32 OF 228

CU101

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CU101 FOR CONTINUATION



MATCHLINE: SEE SHEET CU103 FOR CONTINUATION

UTILITY PLAN 2

1" = 30'

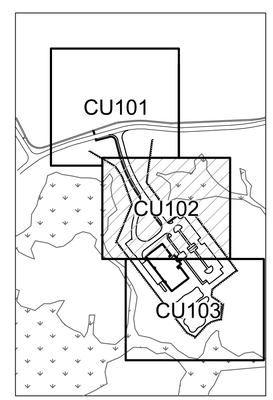
0 30' 60'

GENERAL SHEET NOTES

A. SEE SHEET CU101 FOR UTILITY NOTES.

NEW WORK KEYNOTES

1. SEE SHEETS CG201 AND CG202 FOR STORM SYSTEM PROFILES.
2. UNDERGROUND ELECTRICAL CONDUIT, REFER TO ELECTRICAL SITE PLAN.
3. UNDERGROUND TELECOMMUNICATIONS CONDUIT, REFER TO ELECTRICAL SITE PLAN.
4. 8"X8"X6" TEE
5. 8" C900 PVC WATER MAIN WITH RESTRAINED JOINTS.
6. 1.5" HDPE LIQUID PROPANE GAS SERVICE LINE.
7. 45° BEND (TYP.).
8. FIRE HYDRANT.
9. 8" GATE VALVE WITH BOX (TYP.).
10. 8" CROSS FITTING.
11. 8"X8"X8" TEE.
12. 8" WATER SERVICE LINE (FIRE LINE) - REFER TO FIRE PROTECTION DRAWINGS.
13. 6" GATE VALVE WITH BOX.
14. 1.5" HDPE TEE WITH GATE VALVES AS SHOWN.
15. SEWER PUMP. REFER TO MECHANICAL PLANS.
16. 3" HDPE SEWER FORCE MAIN.
17. CAP AND MARK 1.5" HDPE LIQUID PROPANE GAS LINE FOR FUTURE EXTENSION.



KEYMAP

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBEY 6/30/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PMOM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND – MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

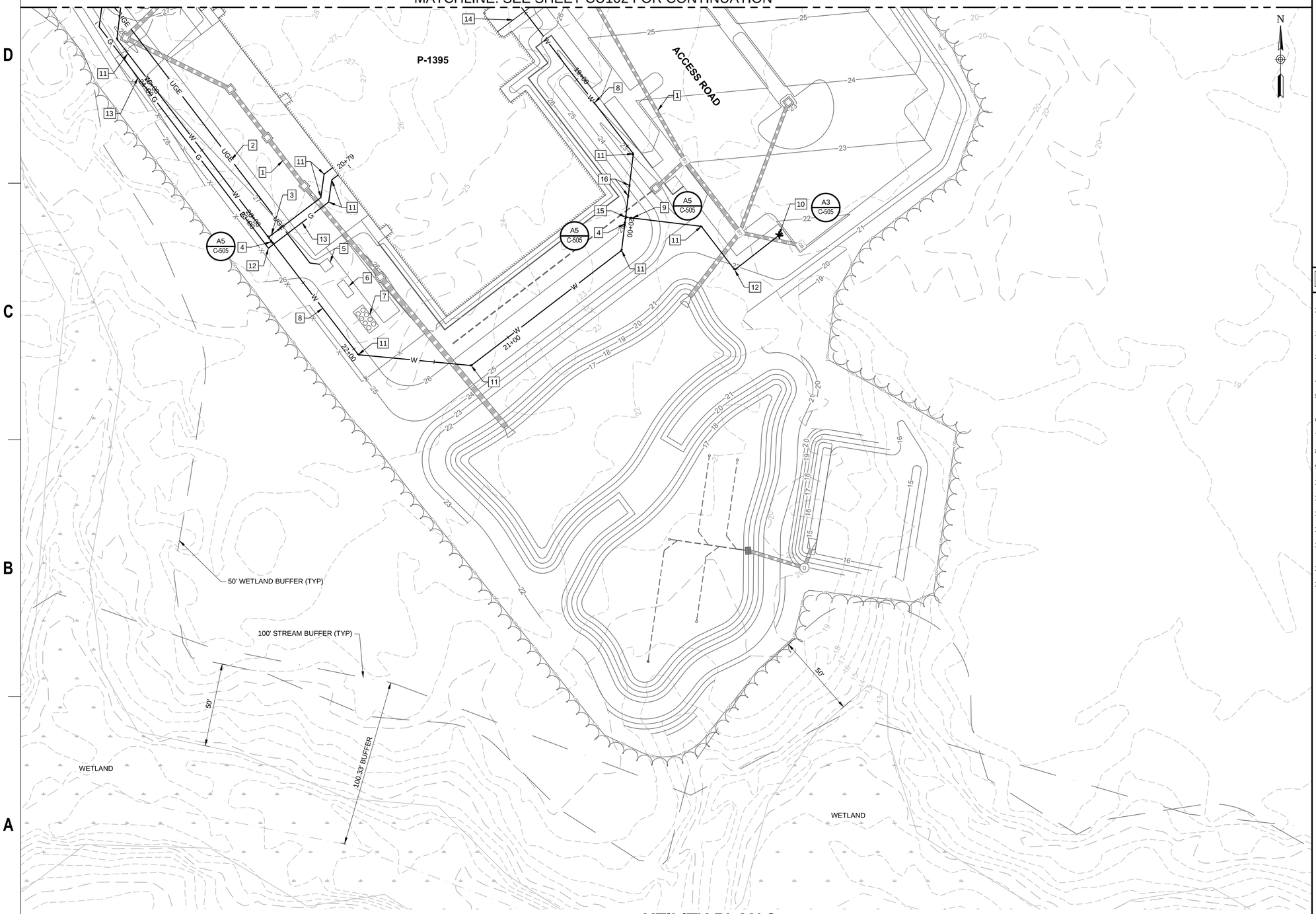
UTILITY PLAN 2

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794252
SHEET	33 OF 228

CU102

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CU102 FOR CONTINUATION



UTILITY PLAN 3

1" = 30'

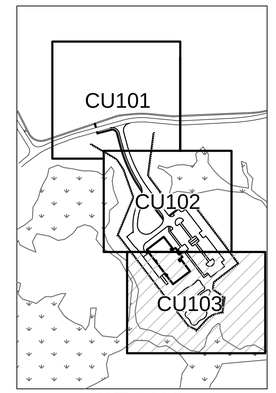
0 30' 60'

GENERAL SHEET NOTES

A. SEE SHEET CU101 FOR UTILITY NOTES.

NEW WORK KEYNOTES

1. SEE SHEETS CG201 AND CG202 FOR STORM SYSTEM PROFILES.
2. UNDERGROUND ELECTRICAL CONDUIT, REFER TO ELECTRICAL SITE PLAN.
3. 8" X 4" TEE, 4" X 2.5" REDUCER, 2.5" GATE VALVE W/ BOX, 2.5" PVC DOMESTIC WATER LINE.
4. 8" GATE VALVE WITH BOX.
5. ELECTRICAL TRANSFORMER, SEE ELECTRICAL PLANS.
6. GENERATOR PAD, SEE ELECTRICAL PLANS.
7. CHILLER PAD, SEE ELECTRICAL PLANS.
8. 8" C900 PVC WATER MAIN WITH RESTRAINED JOINTS.
9. 6" GATE VALVE WITH BOX.
10. FIRE HYDRANT.
11. 45° BEND (TYP).
12. 90° BEND (TYP).
13. 1.5" HDPE LIQUID PROPANE GAS SERVICE LINE.
14. UNDERGROUND TELECOMMUNICATIONS CONDUIT, REFER TO ELECTRICAL SITE PLAN.
15. 8" X 8" X 6" TEE.
16. 22.5° BEND (TYP).



KEYMAP

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/OM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC

JACKSONVILLE, NORTH CAROLINA

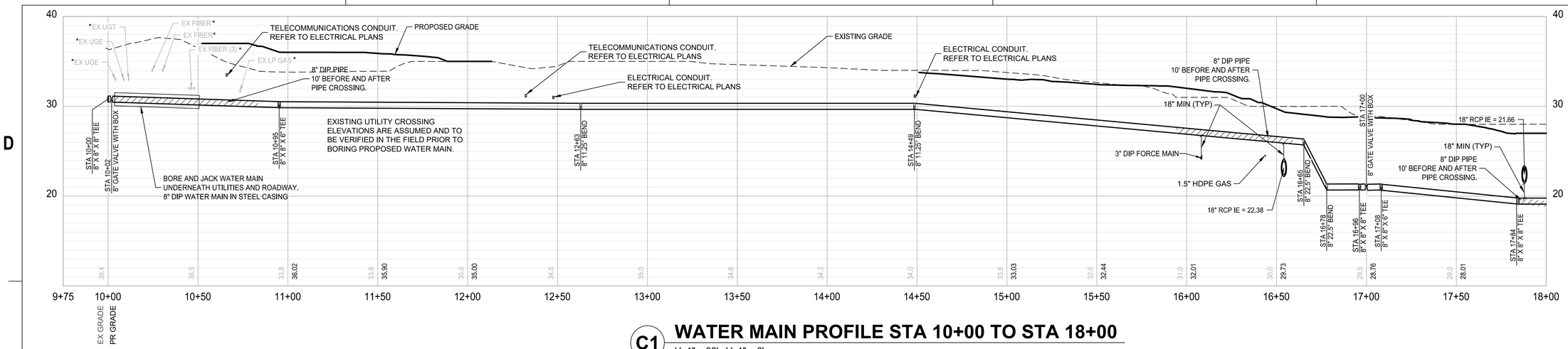
P1395 MARINE RAIDER HEADQUARTERS

UTILITY PLAN 3

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794253
SHEET	34 OF 228

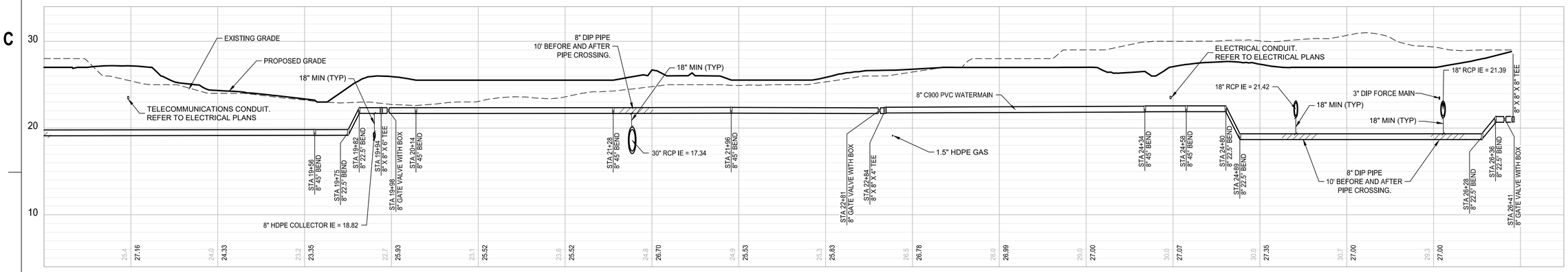
CU103

DRAWFORM REVISION: 17 APRIL 2018



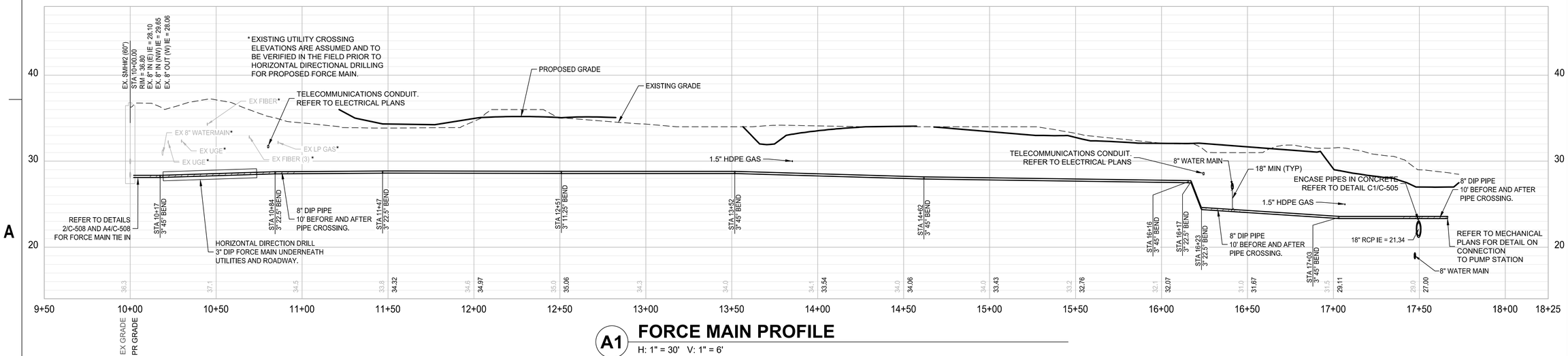
C1 WATER MAIN PROFILE STA 10+00 TO STA 18+00

H: 1" = 30' V: 1" = 6'



B1 WATER MAIN PROFILE STA 18+00 TO STA 26+75

H: 1" = 30' V: 1" = 6'



A1 FORCE MAIN PROFILE

H: 1" = 30' V: 1" = 6'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CALBEC 6/23/2020

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020
DES | DRW | CHK
PMDM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND
CAMP LEJEUNE · JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

WATER MAIN AND FORCE MAIN PROFILES

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794254
SHEET 35 OF 228

CU201

DRAWFORM REVISION: 17 APRIL 2018

STAKE POINT TABLE		
POINT #	N	E
2	303464.58	2468025.78
3	303328.58	2468074.65
4	303312.40	2468108.49
5	303134.42	2468188.76
6	302945.28	2468116.34
7	302933.02	2468097.66
8	302817.63	2468152.71
9	302649.35	2468281.33
10	302385.39	2468484.09
11	302374.80	2468506.79
12	302383.69	2468537.21
13	302422.38	2468569.45
14	302440.40	2468589.42
15	302468.59	2468595.07
16	302473.13	2468601.99
17	302466.10	2468664.52
18	302469.49	2468672.35
19	302504.98	2468677.32
20	302557.87	2468684.73
21	303062.82	2468420.98
22	303057.86	2468403.39

STAKE POINT TABLE		
POINT #	N	E
23	303501.68	2468276.17
24	302601.08	2468607.99
25	302642.04	2468612.68
26	302754.98	2468704.13
27	303063.26	2468456.34
28	303046.56	2468479.92
29	302532.28	2468367.02
30	303404.27	2468049.35
31	303346.20	2468072.47
32	303316.86	2468106.75
33	303297.88	2468112.08
34	303181.23	2468168.19
35	303089.40	2468242.45
36	303004.30	2468222.65
37	302975.21	2468220.04
38	302962.83	2468223.08
39	303047.51	2468276.55
40	302993.08	2468316.86
41	302918.51	2468088.06
42	302900.32	2468089.29
43	302863.31	2468113.99
44	302789.79	2468687.59
45	302882.52	2468617.79
46	302717.36	2468690.81

STAKE POINT TABLE		
POINT #	N	E
47	302674.06	2468633.06
48	303046.84	2468385.23
49	303061.60	2468357.34
50	303058.78	2468356.80
52	303091.86	2468320.91
54	303115.26	2468305.43
56	303133.10	2468307.18
57	303157.05	2468287.41
58	303155.28	2468291.70
59	303183.42	2468268.02
60	303220.34	2468242.91
61	303282.50	2468205.66
62	303333.81	2468180.64
63	303340.99	2468193.32
64	303348.56	2468200.88
65	303359.36	2468200.85
66	303367.00	2468198.64
67	303382.70	2468190.95
68	303431.56	2468176.13
69	303478.05	2468164.09
70	303486.14	2468270.15

P-1396B

RR612

P-1396

EVERETT CREEK ROAD

CONSTRUCTION TRAILER STAGING AREA

TEMPORARY CONSTRUCTION ENTRANCE

SEDIMENT TUBE (TYP)

DIVERSION SWALE (TYP)

SILT FENCE OUTLET (TYP)

SILT FENCE (TYP)

DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER

50' WETLAND BUFFER (TYP)

MATCHLINE: SEE SHEET CE102 FOR CONTINUATION

EROSION CONTROL PLAN PHASE 1 - PLAN 1

1" = 30'

0 30' 60'

GENERAL SHEET NOTES

A. SEE LEGEND AND GENERAL NOTES ON SHEET C-001 .

B. SEE EROSION CONTROL NOTES, CONSTRUCTION SEQUENCE, AND SEEDING SPECIFICATIONS ON SHEET C-514.

C. SEE SHEET C-515 FOR NCG01 GROUND STABILIZATION AND MATERIALS HANDLING, AND NCG01 SELF INSPECTION SHEET.

D. SEE SHEETS C-511 THROUGH C-515 FOR EROSION CONTROL NOTES AND DETAILS.

E. NO EARTHWORK/LAND DISTURBANCE SHALL BE PERFORMED UNTIL ALL PHASE EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE AND HAVE BEEN INSPECTED.

F. EQUIPMENT AND/OR TRUCK TIRE CLEANING STATIONS(S) SHALL BE ESTABLISHED AS NECESSARY TO ENSURE THAT NO MUD/SEDIMENT MIGRATES FROM THE CONSTRUCTION SITE TO THE BASE ROADS.

G. SOD (SAND BASED CENTIPEDE) ALL DISTURBED PERVIOUS AREAS WITHIN THE LIMITS OF DISTURBANCE ONCE BROUGHT TO FINISHED GRADE UNLESS OTHERWISE SPECIFIED. SEE LANDSCAPE PLANS FOR MORE INFORMATION.

H. TOTAL LAND DISTURBANCE = 8.0 ACRES

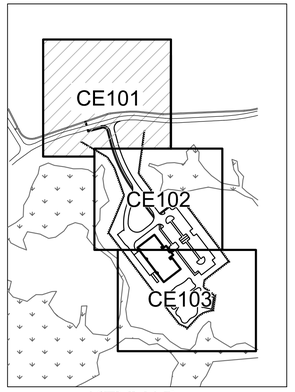
I. PLAN DOES NOT SHOW LOCATION OR DIMENSIONS OF GEOSYNTHETIC REINFORCED AGGREGATE HAUL ROADS AND WORKING PLATFORMS. LOCATION, DIMENSIONS AND DETAILS TO BE DETERMINED BY CONTRACTOR.

J. THIS PROJECT DRAINS INTO EVERETT CREEK WHICH DRAINS INTO THE NEW RIVER. THE PROJECT IS LOCATED IN THE WHITE OAK RIVER BASIN.

K. CONTRACTOR MUST ENSURE REQUIRED MAINTENANCE OF EROSION CONTROL MEASURES. CONTRACTING OFFICER WILL BE NCDEQ CONTACT FOR EROSION CONTROL MAINTENANCE.

EROSION AND SEDIMENT CONTROL LEGEND

CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
TD	TEMPORARY DIVERSION DITCH
ST	SEDIMENT TUBE
RO	SILT FENCE ROCK OUTLET
IP	INLET PROTECTION
	DROP INLET PROTECTION
	CATCH BASIN INLET PROTECTION
OP	OUTLET PROTECTION
SB	SEDIMENT BAFFLES
LS	LEVEL SPREADER/VEGETATED FILTER STRIP
	LIMITS OF DISTURBANCE
SD	SLOPE DRAIN



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGI/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND – MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

EROSION CONTROL PLAN PHASE 1 - PLAN 1

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794255
SHEET	36 OF 228

CE101

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CE101 FOR CONTINUATION

DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER (TYP)

C3 C-511 SF
SILT FENCE (TYP)

A1 C-511 RO
SILT FENCE OUTLET (TYP)

WETLAND

WETLAND

50'

50'

50' WETLAND BUFFER (TYP)

WOODED AREA WITH NO DISTURBANCE

CONSTRUCTION LAYDOWN AREA

SEDIMENT TUBE (TYP) ST A3 C-511

DIVERSION SWALE (TYP) TD A1 C-512

MATCHLINE: SEE SHEET CE103 FOR CONTINUATION

EROSION CONTROL PLAN PHASE 1 - PLAN 2

1" = 30' 0 30' 60'

GENERAL SHEET NOTES

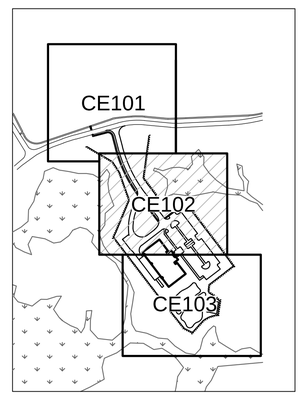
A. SEE LEGEND AND GENERAL NOTES ON SHEET C-001 .

B. SEE EROSION CONTROL NOTES ON SHEET CE101.

C. SEE SHEET CE101 STAKE POINT TABLE.

EROSION AND SEDIMENT CONTROL LEGEND

CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
TD	TEMPORARY DIVERSION DITCH
ST	SEDIMENT TUBE
RO	SILT FENCE ROCK OUTLET
IP	INLET PROTECTION
	DROP INLET PROTECTION
	CATCH BASIN INLET PROTECTION
OP	OUTLET PROTECTION
SB	SEDIMENT BAFFLES
LS	LEVEL SPREADER/VEGETATED FILTER STRIP
	LIMITS OF DISTURBANCE
SD	SLOPE DRAIN



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

EROSION CONTROL PLAN PHASE 1 - PLAN 2

SCALE: 1" = 30'
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794256
SHEET 37 OF 228

CE102

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CE102 FOR CONTINUATION

DIVERSION SWALE (TYP) TD A1 C-512

TEMPORARY SOIL STOCKPILE

APPROXIMATE LOCATION OF TEMPORARY SOIL STOCKPILE. SLOPE MUST NOT EXCEED 3:1 AND HEIGHT MUST NOT TO EXCEED 10'. MUST PROVIDE SILT FENCE AROUND PERIMETER OF STOCKPILE.

DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER (TYP)

A3 C-512 ST SEDIMENT TUBE (TYP)

C1 C-512 SD SLOPE DRAINS

C1 C-513 SKIMMER SEDIMENT BASIN

C1 C-512 SD SLOPE DRAIN

FOREBAY

C3 C-511 SF SILT FENCE (TYP)

SKIMMER A1 C-513

3" PVC SKIMMER OUTLET PIPE (DETAIL C1/C-510)

FOREBAY

SEDIMENT BASELINE (TYP) A4 C-513

50' WETLAND BUFFER (TYP)

A1 C-511 RO SILT FENCE OUTLET (TYP)

50'

100' STREAM BUFFER (TYP)

DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER (TYP)

50'

THALWEG (TYP)

WETLAND

100.33' BUFFER

WETLAND

EROSION AND SEDIMENT CONTROL LEGEND

CE		CONSTRUCTION ENTRANCE
SF	SF SF	SILT FENCE
TD	TS TS	TEMPORARY DIVERSION DITCH
ST		SEDIMENT TUBE
RO		SILT FENCE ROCK OUTLET
IP		INLET PROTECTION
		DROP INLET PROTECTION
		CATCH BASIN INLET PROTECTION
OP		OUTLET PROTECTION
SB		SEDIMENT BAFFLES
LS		LEVEL SPREADER/VEGETATED FILTER STRIP
	CO	LIMITS OF DISTURBANCE
SD		SLOPE DRAIN

EROSION CONTROL PLAN PHASE 1 - PLAN 3

1" = 30'

0 30' 60'

GENERAL SHEET NOTES

A. SEE LEGEND AND GENERAL NOTES ON SHEET C-001.

B. SEE EROSION CONTROL NOTES ON SHEET CE101.

C. AREA FLOWING TO SKIMMER BASIN:
DISTURBED = 7.24 ACRES
UNDISTURBED = 0.07 ACRE
TOTAL: 7.31 ACRES

D. SEE SHEET CE101 FOR STAKE POINT TABLE.

KEYMAP

NOT TO SCALE

CE101

CE102

CE103

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM SGL/RMS

BRANCH MANAGER DLB

CHIEF ENG/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC

MARSOC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

EROSION CONTROL PLAN PHASE 1 - PLAN 3

SCALE: 1" = 30'

EPROJECT NO.: 1603164

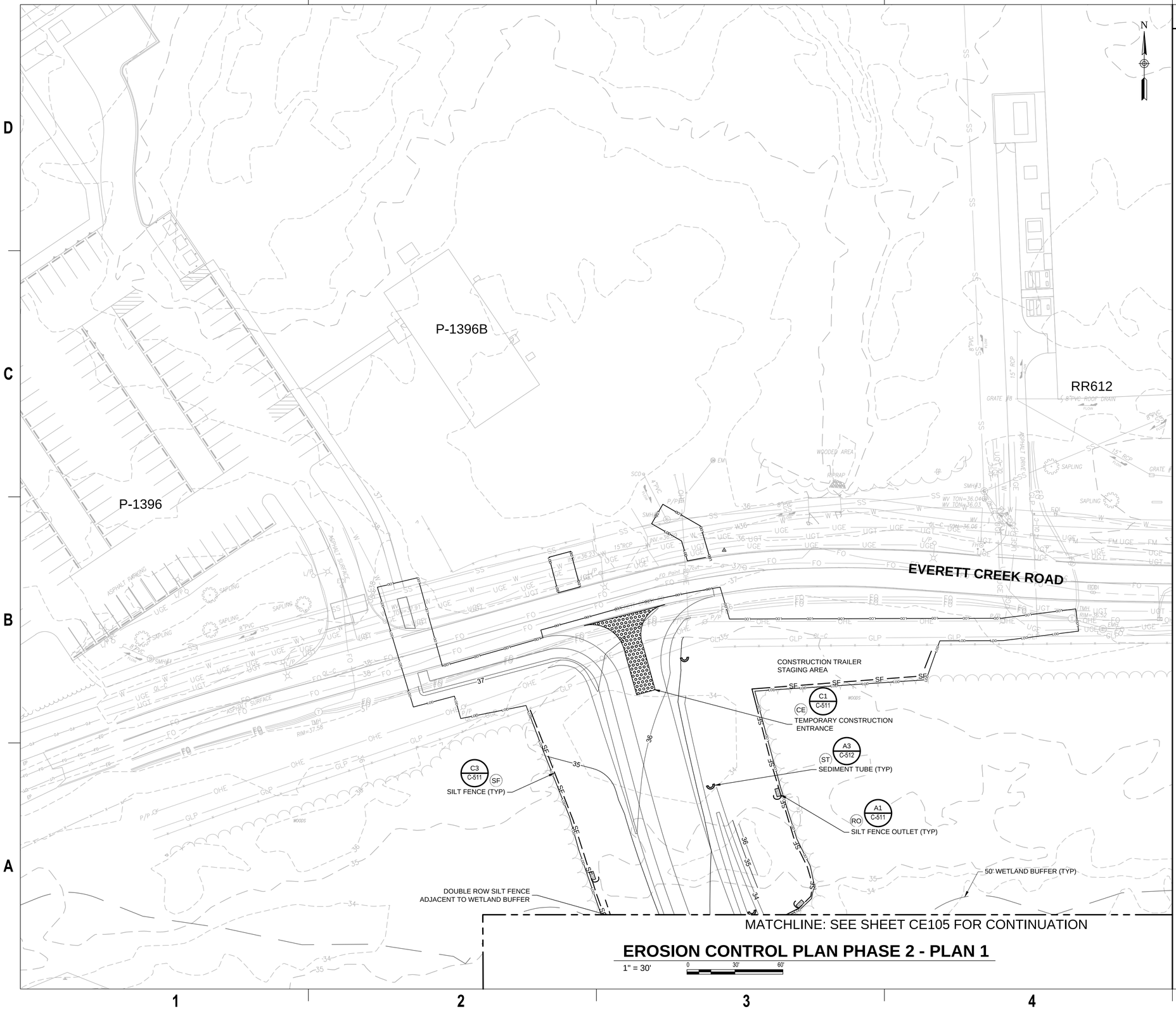
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12794257

SHEET 38 OF 228

CE103

DRAWFORM REVISION: 17 APRIL 2018



MATCHLINE: SEE SHEET CE105 FOR CONTINUATION

EROSION CONTROL PLAN PHASE 2 - PLAN 1

1" = 30' 0 30' 60'

GENERAL SHEET NOTES

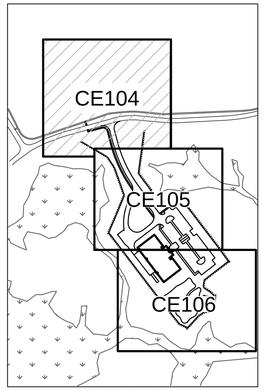
A. SEE LEGEND AND GENERAL NOTES ON SHEET C-001 .

B. SEE EROSION CONTROL NOTES ON SHEET CE101.

C. PLAN DOES NOT SHOW LOCATION OR DIMENSIONS OF GEOSYNTHETIC REINFORCED AGGREGATE HAUL ROADS AND WORKING PLATFORMS. LOCATION, DIMENSIONS AND DETAILS TO BE DETERMINED BY CONTRACTOR.

EROSION AND SEDIMENT CONTROL LEGEND

CE		CONSTRUCTION ENTRANCE
SF	SF SF	SILT FENCE
TD	TS TS	TEMPORARY DIVERSION DITCH
ST		SEDIMENT TUBE
RO		SILT FENCE ROCK OUTLET
IP		INLET PROTECTION
		DROP INLET PROTECTION
		CATCH BASIN INLET PROTECTION
OP		OUTLET PROTECTION
SB		SEDIMENT BAFFLES
LS		LEVEL SPREADER/VEGETATED FILTER STRIP
	LOD	LIMITS OF DISTURBANCE



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/22/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGI/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE - JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
EROSION CONTROL PLAN PHASE 2 - PLAN 1

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794258
SHEET	39 OF 228

CE104

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CG104 FOR CONTINUATION

DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER (TYP)

C3 C-511 SF SILT FENCE (TYP)

A1 C-511 RO SILT FENCE OUTLET (TYP)

A3 C-511 IP DROP INLET PROTECTION

WETLAND

50' WETLAND BUFFER (TYP)

TEMPORARY CONCRETE WASHOUT B1 C-512

CONSTRUCTION LAYDOWN AREA

BLOCK & GRAVEL CURB INLET SEDIMENT FILTER IP C4 C-511

MATCHLINE: SEE SHEET CG106 FOR CONTINUATION

EROSION CONTROL PLAN PHASE 2 - PLAN 2

1" = 30'

0 30' 60'

GENERAL SHEET NOTES

A. SEE LEGEND AND GENERAL NOTES ON SHEET C-001 .

B. SEE EROSION CONTROL NOTES ON SHEET CE101.

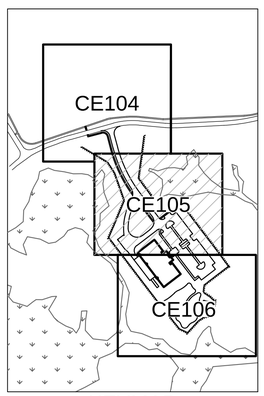
C. PLAN DOES NOT SHOW LOCATION OR DIMENSIONS OF GEOSYNTHETIC REINFORCED AGGREGATE HAUL ROADS AND WORKING PLATFORMS. LOCATION, DIMENSIONS AND DETAILS TO BE DETERMINED BY CONTRACTOR.

EROSION AND SEDIMENT CONTROL LEGEND

CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
TD	TEMPORARY DIVERSION DITCH
ST	SEDIMENT TUBE
RO	SILT FENCE ROCK OUTLET
IP	INLET PROTECTION
	DROP INLET PROTECTION
	CATCH BASIN INLET PROTECTION
OP	OUTLET PROTECTION
SB	SEDIMENT BAFFLES
LS	LEVEL SPREADER/VEGETATED FILTER STRIP
	LIMITS OF DISTURBANCE

NEW WORK KEYNOTES

1. STOCKPILE SLOPES NOT TO EXCEED 2:1 AND HEIGHT NOT TO EXCEED 10'.



KEYMAP
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUSEY 6/22/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY: Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	JCC	DRW	ARM	CHK	RMB

PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENG/ARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
EROSION CONTROL PLAN PHASE 2 - PLAN 2

SCALE:	1" = 30'
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794259
SHEET	40 OF 228

CE105

DRAWFORM REVISION: 17 APRIL 2018

MATCHLINE: SEE SHEET CE105 FOR CONTINUATION

DROP INLET PROTECTION (IP) A3 C-511
DROP INLET PROTECTION (IP) A3 C-511
DROP INLET PROTECTION (IP) A3 C-511
DROP INLET PROTECTION (IP) A3 C-511
DROP INLET PROTECTION (IP) A3 C-511
DROP INLET PROTECTION (IP) A3 C-511
DROP INLET PROTECTION (IP) A3 C-511
DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER (TYP)
CONSTRUCTION LAYDOWN AREA
BLOCK & GRAVEL CURB INLET SEDIMENT FILTER (IP) C4 C-511
BLOCK & GRAVEL CURB INLET SEDIMENT FILTER (IP) C4 C-511
BLOCK & GRAVEL CURB INLET SEDIMENT FILTER (IP) C4 C-511
C1 C-513 SKIMMER SEDIMENT BASIN
OUTLET PROTECTION (OP) A5 C-511
FOREBAY
3" PVC SKIMMER OUTLET PIPE
C3 C-511 (SF) SILT FENCE (TYP)
SKIMMER A1 C-513
FOREBAY
SEDIMENT BAFFLE (TYP) A4 C-513
A5 C-511 (OP) OUTLET PROTECTION
A1 C-511 (RO) SILT FENCE OUTLET (TYP)
D3 C-507 (LS) LEVEL SPREADER / VEGETATED FILTER STRIP
50' WETLAND BUFFER (TYP)
DOUBLE ROW SILT FENCE ADJACENT TO WETLAND BUFFER (TYP)
100' STREAM BUFFER (TYP)
50'
100' BUFFER
90'
WETLAND
WETLAND

N

GENERAL SHEET NOTES

A. SEE LEGEND AND GENERAL NOTES ON SHEET C-001 .

B. SEE EROSION CONTROL NOTES ON SHEET CE101.

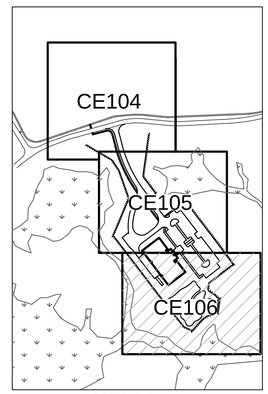
C. PLAN DOES NOT SHOW LOCATION OR DIMENSIONS OF GEOSYNTHETIC REINFORCED AGGREGATE HAUL ROADS AND WORKING PLATFORMS. LOCATION, DIMENSIONS AND DETAILS TO BE DETERMINED BY CONTRACTOR.

NEW WORK KEYNOTES

1. REFER TO CG103. BASINS ARE TO REMAIN SEPARATE UNTIL SITE HAS BEEN FULLY STABILIZED AND EXCESS SEDIMENT HAS BEEN REMOVED FROM THE SKIMMER BASIN. CONSULT WITH THE CONTRACTING OFFICER FOR A SITE INSPECTION BEFORE PROCEEDING WITH INSTALLING PIPES AND INTERCONNECTING BASINS.

EROSION AND SEDIMENT CONTROL LEGEND

CE	CONSTRUCTION ENTRANCE
SF	SILT FENCE
TD	TEMPORARY DIVERSION DITCH
ST	SEDIMENT TUBE
RO	SILT FENCE ROCK OUTLET
IP	INLET PROTECTION
	DROP INLET PROTECTION
	CATCH BASIN INLET PROTECTION
OP	OUTLET PROTECTION
SB	SEDIMENT BAFFLES
LS	LEVEL SPREADER/VEGETATED FILTER STRIP
	LIMITS OF DISTURBANCE



KEYMAP
NOT TO SCALE

EROSION CONTROL PLAN PHASE 2 - PLAN 3

1" = 30' 0 30' 60'

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C CAUBLE 6/29/2020
SEAL

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APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

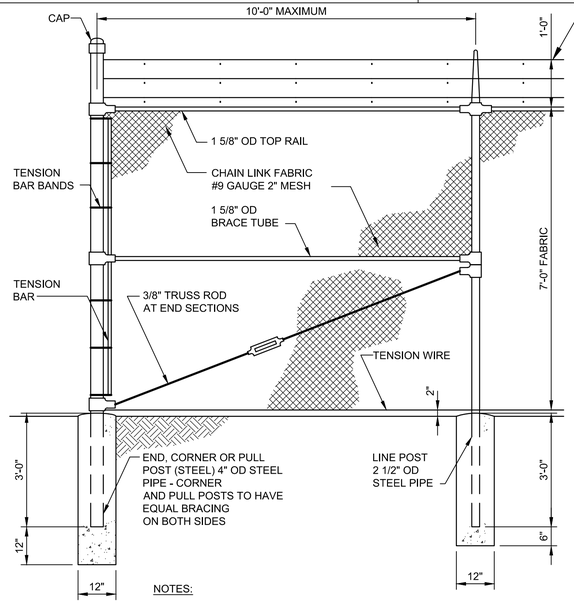
DES	JCC	DRW	ARM	CHK	RMB

PM/DM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENG/ARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC
MIDLANT CI CORE
MARSOC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
EROSION CONTROL PLAN PHASE 2 - PLAN 3

SCALE: 1" = 30'
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794260
SHEET 41 OF 228
CE106

DRAWFORM REVISION: 17 APRIL 2018

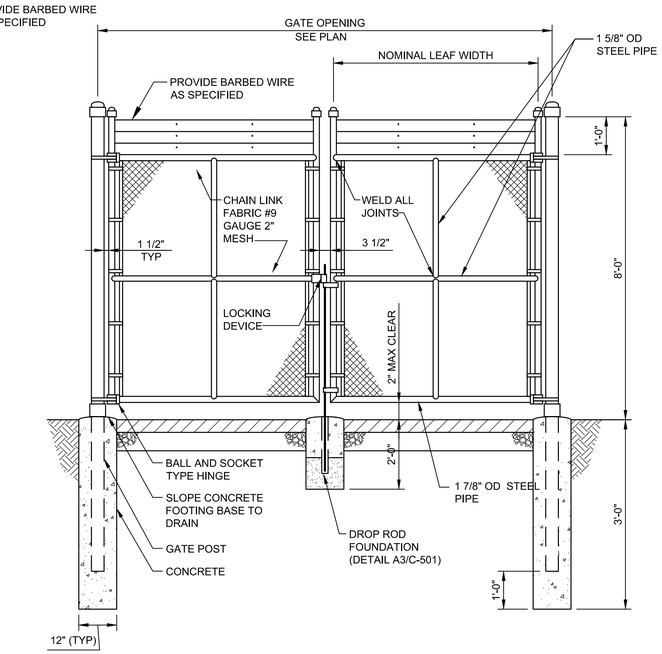


NOTES:

1. PULL POST SHALL BE USED AT SHARP BREAKS IN VERTICAL GRADES OR AT APPROXIMATELY 330' CENTERS ON STRAIGHT RUNS, OR AS DIRECTED BY THE ENGINEER.
2. SPLICES SHALL BE IN WOVEN WIRE FABRIC ONLY AT CORNER, GATE END, OR PULL POSTS.

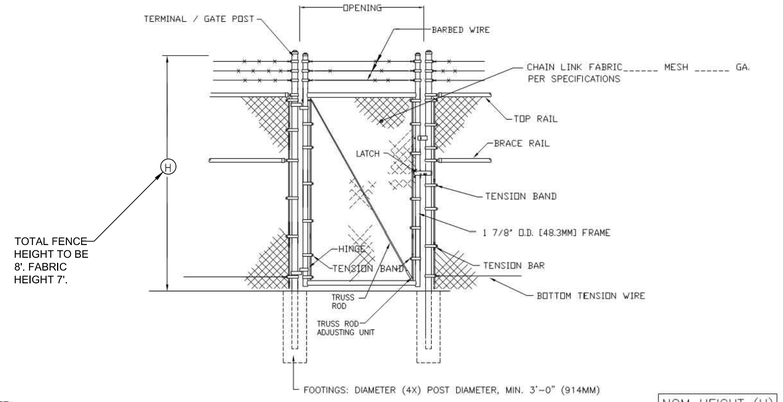
C1 CHAINLINK SECURITY FENCE DETAIL

NOT TO SCALE



C2 SWING GATE DETAIL

NOT TO SCALE



NOTE:
1. VERTICAL AND HORIZONTAL MEMBERS MAXIMUM 8' O.C.

GATE PLAN

NOM HEIGHT (H)
6'-0" OR 6+1=7'
7'-0" OR 7+1=8'
8'-0" OR 8+1=9'

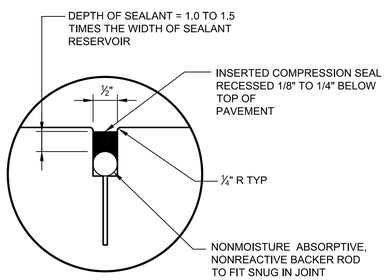
NOTE: MAN GATE TO HAVE TO HAVE ELECTRONIC CARD READER LOCKING DEVICE. REFER TO SPECIFICATIONS FOR MORE INFORMATION. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL.

C4 MAN GATE DETAIL

NOT TO SCALE

T = PAVEMENT THICKNESS

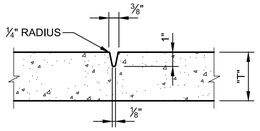
SAWCUT



COMPLETED SAWCUT JOINT

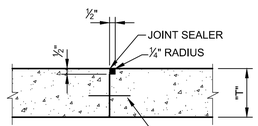
A1 CONCRETE SAWCUT DETAIL

NOT TO SCALE



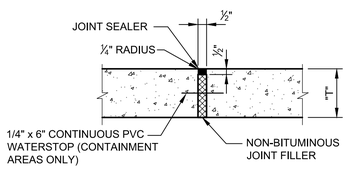
SPACING: 4'-0" WALK - 4'-0" C/C
5'-0" WALK - 5'-0" C/C
6'-0" WALK - 6'-0" C/C

CONTRACTION JOINT



USE ONLY WHERE CONTRACTION JOINTS WOULD OCCUR

CONSTRUCTION JOINT

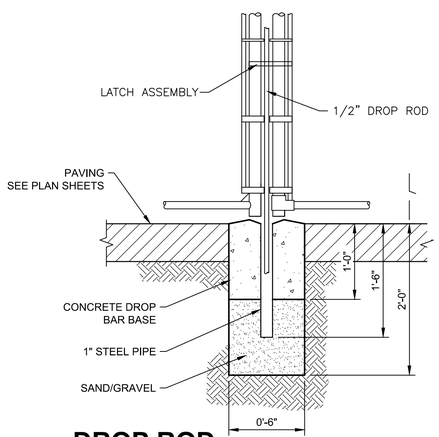


EXPANSION JOINT

"T" = THICKNESS PER PLAN (4" MIN)

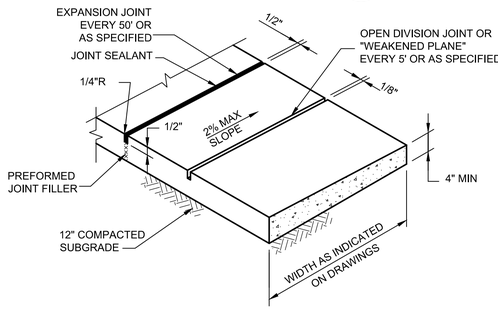
A2 CONCRETE WALK JOINT DETAILS

NOT TO SCALE



A3 DROP ROD FOUNDATION DETAIL

NOT TO SCALE

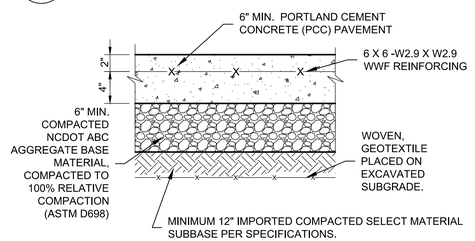


NOTES:

1. PROVIDE FULL DEPTH 3/8 INCH PREFORMED JOINT FILLER ALL AROUND AT ALL UTILITY POLES, METER BOXES, ETC.
2. PLACE PREFORMED JOINT FILLER FULL DEPTH THRU JOINTS AT POINT OF TANGENCY, ABUTTING BUILDINGS, CURBS, WALLS, STRUCTURES. AND AT MINIMUM 25 FOOT INTERVALS.
3. THICKNESS OF CONCRETE AS SHOWN ON DRAWINGS.
4. SEE DETAIL A2/C-501 FOR JOINT DETAILS.
5. WHERE A DRIVEWAY CROSSES A WALK, THE SIDEWALK SHALL HAVE A MINIMUM DEPTH OF 6" WITH ½" EXPANSION JOINT EACH SIDE OF WALK.
6. ALL CONCRETE SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE ACI.
7. CONCRETE COMPRESSIVE STRENGTH TO BE MINIMUM OF 3500 PSI.

B4 CONCRETE SIDEWALK DETAIL

NOT TO SCALE

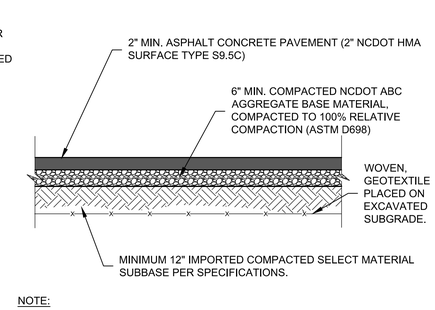


NOTES:

1. CONCRETE COMPRESSIVE STRENGTH TO BE MINIMUM OF 4000 PSI.
2. SEE DETAIL A1/C-501 FOR JOINT DETAILS.

A4 HEAVY DUTY PCC PAVEMENT DETAIL

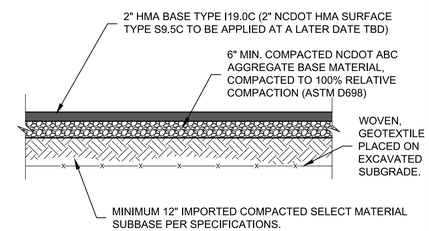
NOT TO SCALE



NOTE:
ASPHALT CONCRETE AND AGGREGATE BASE MATERIALS SHOULD CONFORM TO FM 5-472/NAVFAC MO 330 REQUIREMENTS FOR MATERIAL TESTING (2001).

B5 LIGHT DUTY ASPHALT PAVEMENT DETAIL

NOT TO SCALE



NOTE:
ASPHALT CONCRETE AND AGGREGATE BASE MATERIALS SHOULD CONFORM TO FM 5-472/NAVFAC MO 330 REQUIREMENTS FOR MATERIAL TESTING (2001).

A5 HEAVY DUTY ASPHALT PAVEMENT DETAIL

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

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APPROVED
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SATISFACTORY TO DATE 06/19/2020

DES	DRW	CHK
PM/DM	SGL/RMS	
BRANCH MANAGER	DLB	
CHIEF ENG/ARCH	EJA	
FIRE PROTECTION		

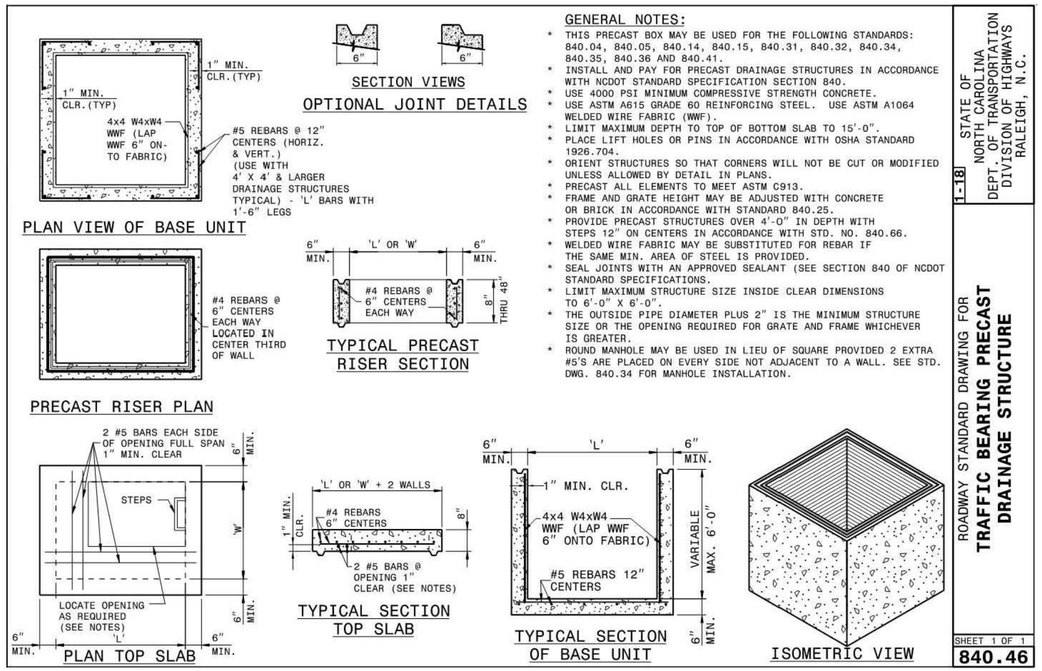
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794261
SHEET 42 OF 228
C-501

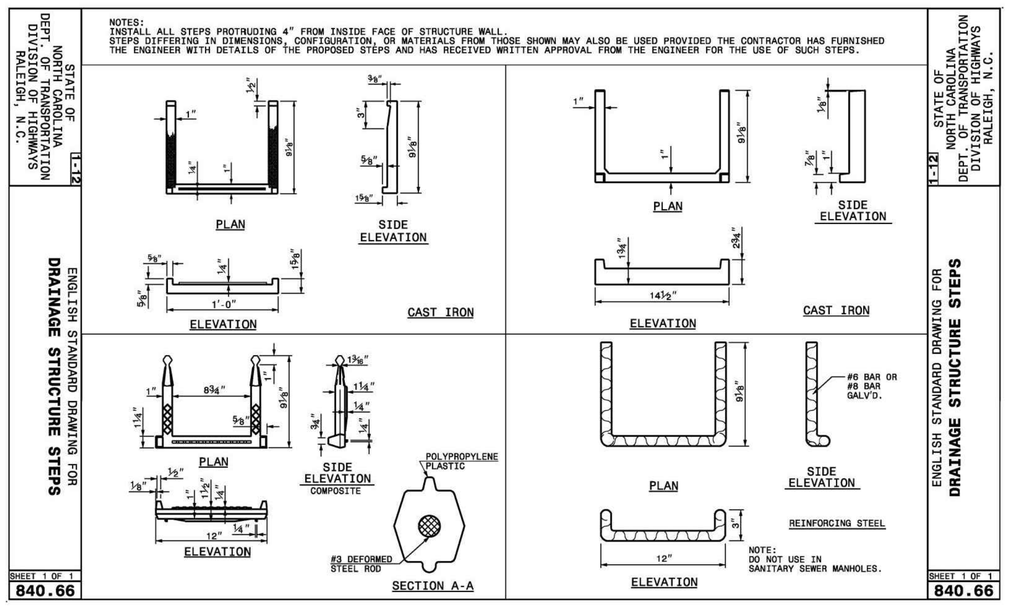
DRAWFORM REVISION: 17 APRIL 2018



NOTE: ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.

C1 PRECAST DRAINAGE STRUCTURE

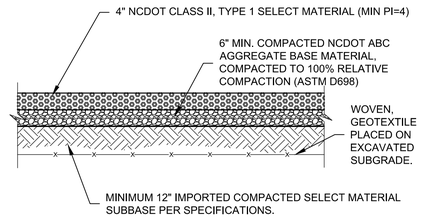
NOT TO SCALE



NOTE: ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.

A1 DRAINAGE STRUCTURE STEPS

NOT TO SCALE

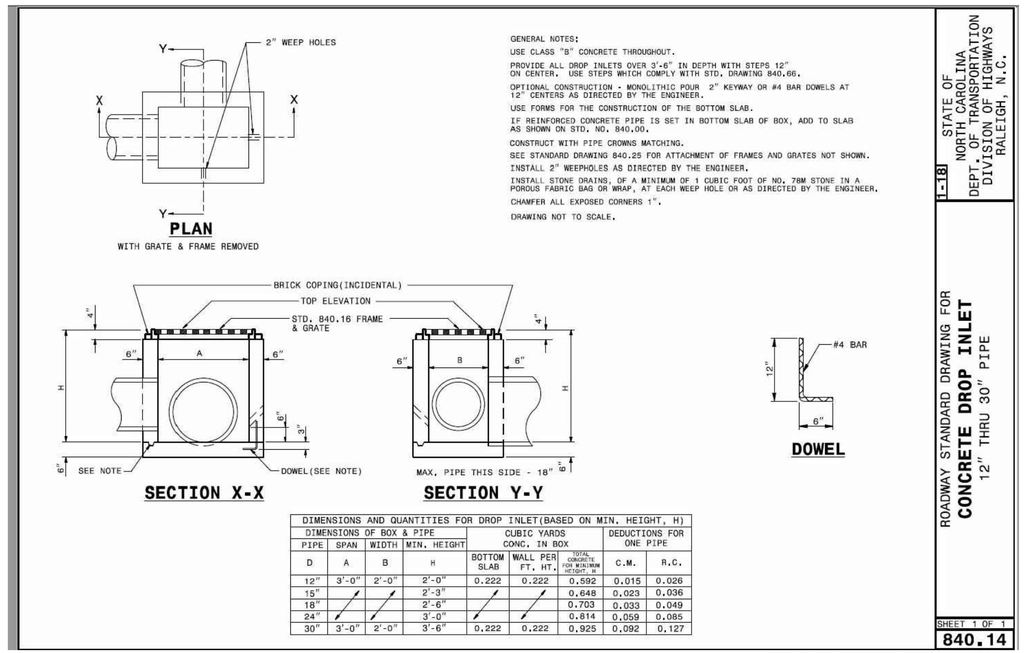


NOTE:

AGGREGATE BASE MATERIALS SHOULD CONFORM TO FM 5-472/NAVFAC MO 330 REQUIREMENTS FOR MATERIAL TESTING (2001).

C4 AGGREGATE TRUCK LOOP PAVEMENT DETAIL

NOT TO SCALE



NOTE: ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.

A4 CONCRETE DROP INLET

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 07/2020

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ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE 06/19/2020

DES	DRW	CHK

PM/OM SGL/RMS

BRANCH MANAGER DLB

CHIEF ENGR/ARCH EJA

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
MIDLANTCOM
CAMP LEJEUNE · JACKSONVILLE, NC
MARSOC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

SCALE: AS NOTED

EPROJECT NO.: 1603164

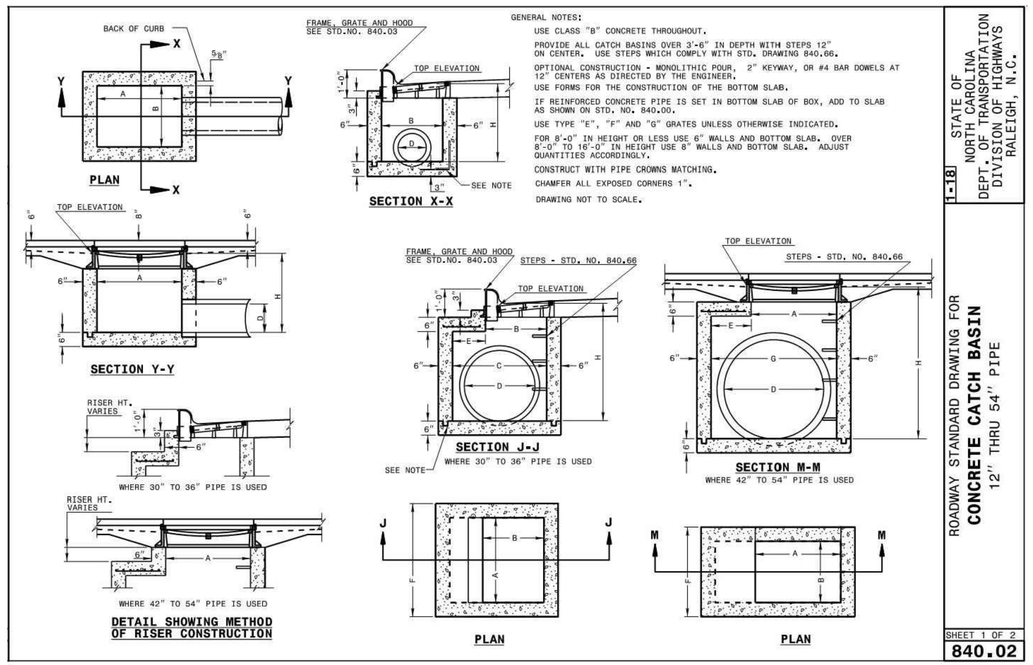
CONSTR. CONTR. NO.

NAVFAC DRAWING NO.
12794262

SHEET 43 OF 228

C-502

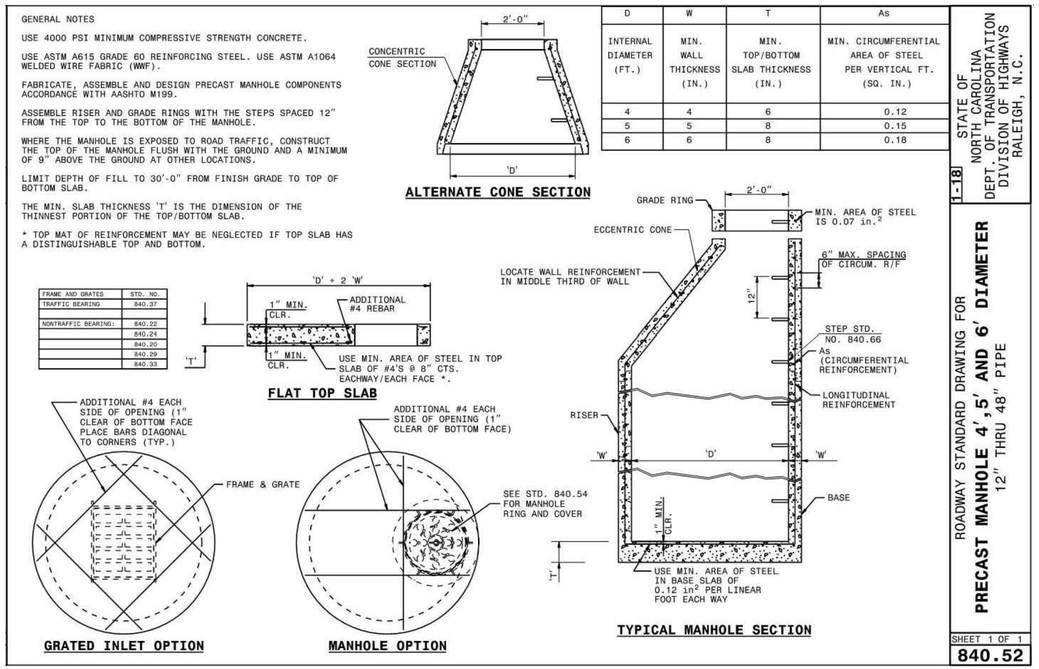
DRAWFORM REVISION: 17 APRIL 2018



C1 CONCRETE CATCH BASIN

NOT TO SCALE

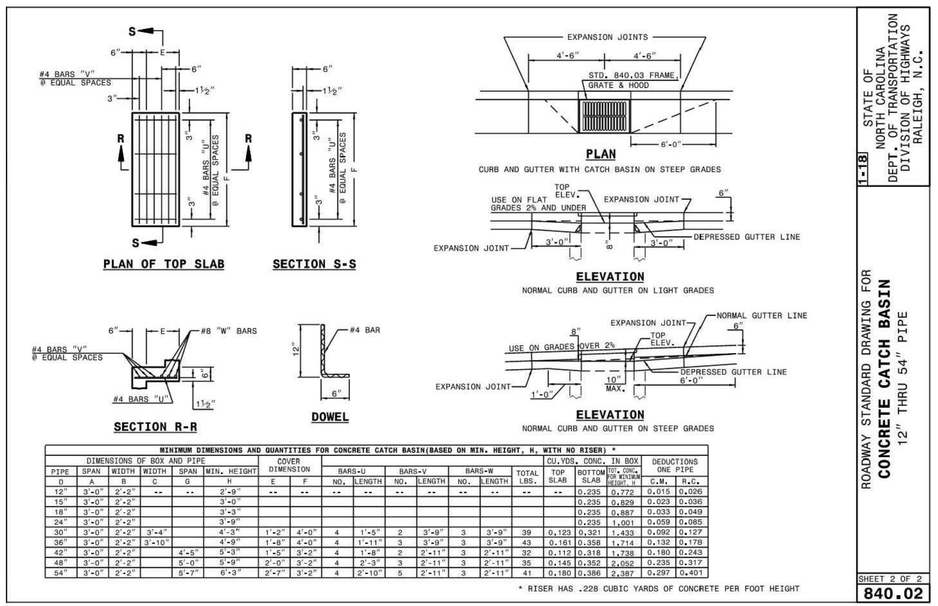
NOTE: ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.



C4 PRECAST DRAINAGE MANHOLE

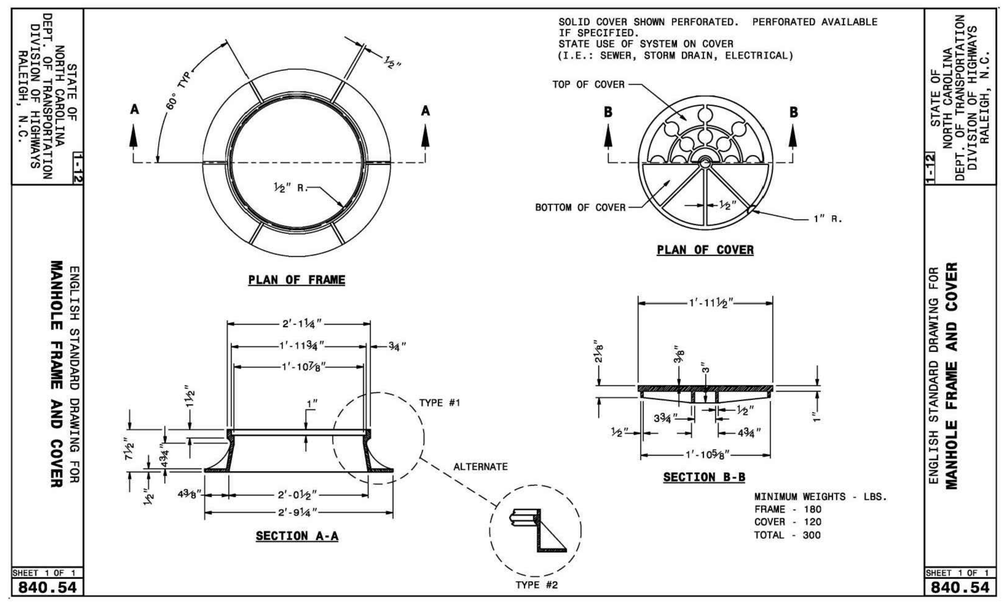
NOT TO SCALE

NOTE: ALL DRAINAGE STRUCTURES MUST BE SUPPORTED ON 12" MINIMUM BEDDING OF #57 STONE UNDERLAIN BY DRAINAGE GEOTEXTILE.



A1 CONCRETE CATCH BASIN

NOT TO SCALE



A4 DRAINAGE STRUCTURE MANHOLE FRAME AND COVER

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUDEY 6/19/2020
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FIRE PROTECTION

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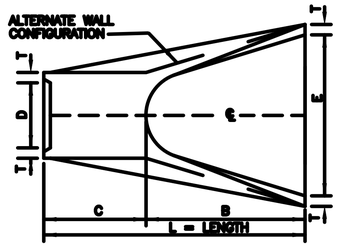
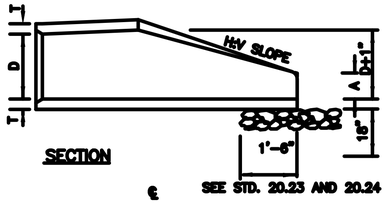
CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
CIVIL SITE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12794263
SHEET 44 OF 228
C-503
DRAWFORM REVISION: 17 APRIL 2018



PLAN



SECTION

SEE STD. 20.23 AND 20.24

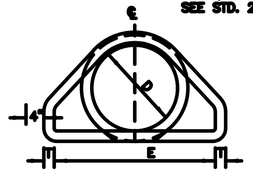


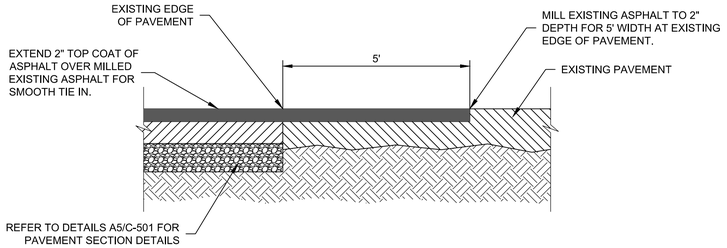
TABLE OF DIMENSIONS								
D	T	A	B	C	E	L	H&V	WT.
12"	2-1/4"	4"	2'-0"	4'-1"	2'-0"	6'-1"	3:1	730
18"	2-1/4"	6"	2'-3"	3'-10"	2'-6"	6'-1"	3:1	730
18"	2-1/2"	6"	2'-3"	3'-10"	3'-0"	6'-1"	3:1	1190
24"	3"	10"	3'-0"	2'-8"	4'-0"	6'-2"	3:1	1770
30"	3-1/2"	1'-0"	4'-6"	1'-8"	5'-0"	6'-2"	3:1	3390
36"	4"	1'-3"	5'-3"	2'-11"	6'-0"	6'-2"	3:1	5390
42"	4-1/2"	1'-6"	5'-3"	2'-11"	6'-6"	6'-2"	3:1	6930
48"	5"	2'-0"	6'-0"	2'-2"	7'-0"	6'-2"	3:1	7470
54"	5-1/2"	2'-3"	6'-0"	2'-10"	7'-6"	6'-4"	3:1	8610
60"	6"	2'-6"	6'-0"	3'-3"	8'-0"	6'-3"	3:1	11180
66"	6-1/2"	3'-0"	6'-0"	2'-3"	8'-6"	6'-3"	3:1	12830
72"	7"	3'-0"	6'-6"	1'-8"	9'-0"	6'-3"	3:1	13990

GENERAL NOTES:

1. SEE FORMER NCDOT STANDARD 310.01 FOR DETAILS.
2. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIPE OF LIKE DIAMENTER PER AASHTO M170, TABLE 2, WALL B.
3. ALL CONCRETE TO BE 4000 P.S.I COMPRESSIVE STRENGTH.
4. PROVIDE TONGUE OR SPIGOT JOINT AT INLET END SECTION.
5. PROVIDE GROOVE OR BELL JOINT AT OUTLET END SECTION.
6. THE DIMENSIONS FOR END SECTIONS SHALL SUBSTANTIALLY AGREE WITH THE TABLE. MINOR VARIATIONS WILL BE PERMITTED BASED ON THE MANUFACTURER'S STANDARD FORMS AND TEMPLATES.
7. NOT TO BE USED IN NCDOT MAINTAINED RIGHT OF WAY.

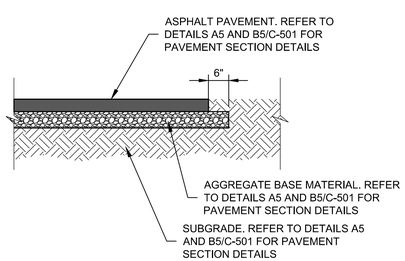
C1 FLARED END SECTION

NOT TO SCALE



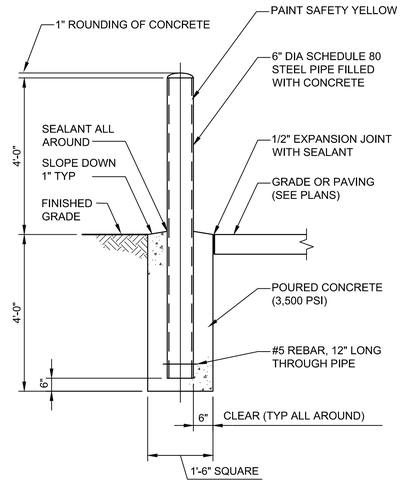
B1 PAVEMENT TIE IN DETAIL

NOT TO SCALE



A1 PAVEMENT EDGE DETAIL

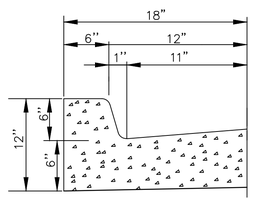
NOT TO SCALE



B3 BOLLARD DETAIL

NOT TO SCALE

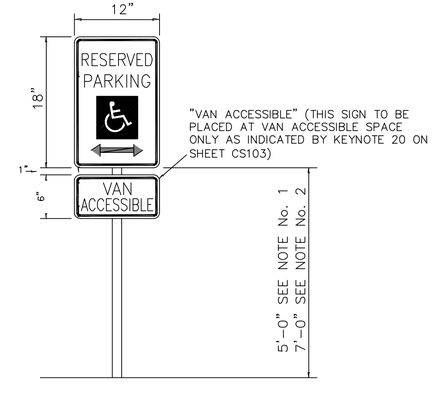
ACCEPTING GUTTER SLOPE



MIN. CONCRETE STRENGTH = 3500 P.S.I.

A3 CURB AND GUTTER

NOT TO SCALE



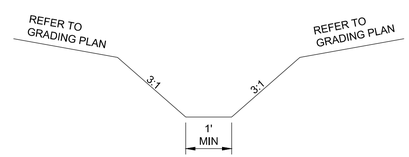
HANDICAP SIGN

NOTE NO. 1 THE PARKING SIGN HEIGHT SHALL BE 5'-0" IF THE PEDESTRIAN PATH DOES NOT PASS BY, UNDER OR AROUND THE SIGN.

NOTE NO. 2 ALL SIGN HEIGHTS SHALL BE 7'-0" IF THE PEDESTRIAN PATH PASSES BY, UNDER OR AROUND THE SIGN.

B4 HANDICAP SIGNAGE

NOT TO SCALE



NOTE: SWALES MUST BE SODDED

A4 TYPICAL GRASSED SWALE

NOT TO SCALE

APPR	DATE	DESCRIPTION	SYM

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 6/30/2020

SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
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A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

Approved by Emily Sylvester, Director of Installation Development Division

SATISFACTORY TO DATE	06/19/2020
DES	DRW CHK
PM/DM	SGL/RMS
BRANCH MANAGER	DLB
CHIEF ENGARCH	EJA
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MIDLANT CI CORE
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA

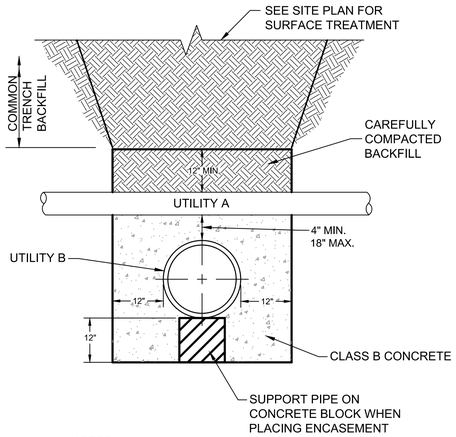
P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794264
SHEET	45 OF 228

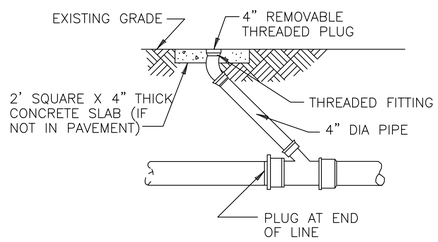
C-504

DRAWFORM REVISION: 17 APRIL 2018

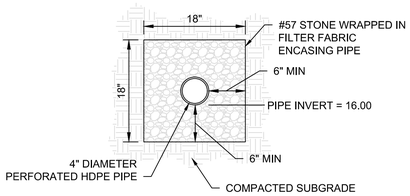


NOTES:
1. UTILITIES A AND B CAN BE EITHER NEW OR EXISTING.
2. ENCASEMENT EXTENDS 10'-0" ON EACH SIDE OF THE CENTERLINE OF UTILITY A.
3. PIPE MUST BE BRACED VERTICALLY AND HORIZONTALLY TO PREVENT FLOATATION DURING PLACEMENT OF CONCRETE.
4. CONCRETE ENCASEMENT NOT REQUIRED IF CLEAR DISTANCE BETWEEN PIPES IS 18" OR GREATER.

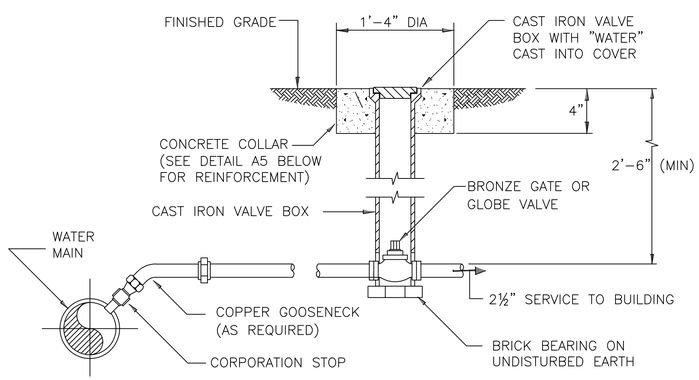
C1 CONCRETE ENCASEMENT
NOT TO SCALE



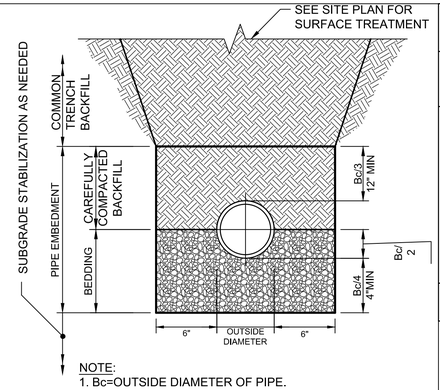
D2 CLEANOUT DETAIL
NOT TO SCALE



C2 BMP UNDERDRAIN
NOT TO SCALE

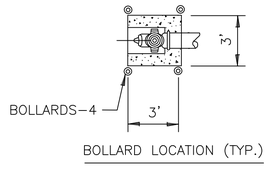


D4 WATER CONNECTION DETAIL
NOT TO SCALE



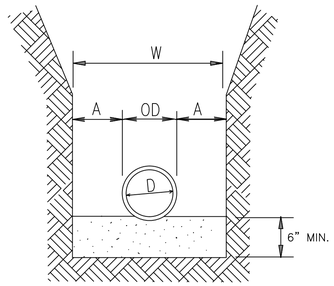
NOTE:
1. Bc=OUTSIDE DIAMETER OF PIPE.

D5 TRENCH SECTION, PLASTIC PIPE
NOT TO SCALE



BOLLARD LOCATION (TYP.)

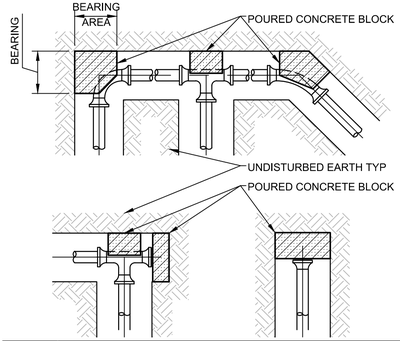
PIPE DIA "D"	MAXIMUM "A"
6" TO 15"	8"
16" TO 21"	10"
24" TO 30"	12"
33" TO 42"	15"
48" & LARGER	18"



MAXIMUM TRENCH WIDTH "W" TAKEN AT TOP OF PIPE

NOTE: PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.

B5 TRENCH SECTION, FOR NON PLASTIC PIPE
NOT TO SCALE



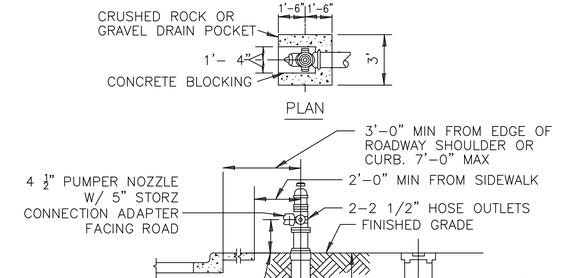
BEARING AREAS ARE BASED UPON AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF AND A PIPE TEST PRESSURE OF 150 PSI.
NOTES:

1. PLACE 4 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING.
2. CONSTRUCT BLOCK SUCH THAT CONCRETE DOES NOT INTERFERE WITH THE ADJACENT PIPE JOINT.
3. THE HORIZONTAL DIMENSION OF THE BEARING AREA SHALL BE BETWEEN 0.8 AND 1.25 TIMES THE VERTICAL DIMENSION.
4. THRUST BLOCK ORIENTATION SHALL BE SUCH THE CENTER OF THE FITTING CORRESPONDS WITH THE CENTER OF THE THRUST BLOCK.
5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
6. LISTED AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING STRESS OF 2,000 POUNDS PER SQUARE FOOT. IF ADDITIONAL PIPE SIZES OR FITTINGS ARE REQUIRED DURING CONSTRUCTION, OR THE SOILS ENCOUNTERED HAVE ALLOWABLE BEARING STRESS LESS THAN 2,000 POUNDS PER SQUARE FOOT, USE THE FOLLOWING TO DETERMINE BEARING AREA:

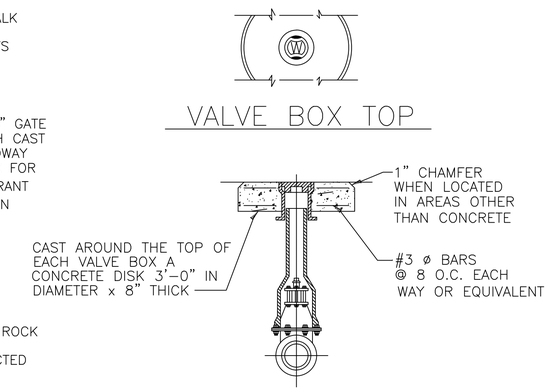
FITTING SIZES	BEARING AREA OF BLOCK IN SQ. FT.				
	TEE & END	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	1.0	1.4	1.0	-	-
6"	2.1	3.0	1.6	1.0	-
8"	3.8	5.3	2.9	1.5	1.0
10"	5.9	8.4	4.6	2.4	1.2
12"	8.5	12.0	6.6	3.4	1.7
14"	11.5	16.3	8.8	4.5	2.3
16"	15.0	21.3	11.6	6.0	3.0
18"	19.0	27.0	14.6	7.6	3.8
20"	23.5	33.3	18.1	9.4	4.7

NOMINAL PIPE DIAMETER INCHES	MINIMUM CONCRETE BLOCKING (C.Y.) *				
	TEES & DEAD ENDS	90° BEND	45° BEND	22½° BEND	11¼° BEND
4	1/3	1/3	1/3	1/3	1/3
6	1/3	1/3	1/3	1/3	1/3
8	1/3	1/2	1/3	1/3	1/3
10	2/3	3/4	1/2	1/3	1/3
12	3/4	1.0	2/3	1/3	1/3
14	1.0	1 1/2	3/4	1/2	1/3
16	1 1/3	2.0	1.0	1/2	1/3
18	1 2/3	2 1/3	1 1/3	2/3	1/3
20	2.0	3.0	1 2/3	3/4	1/2

A1 STANDARD THRUST BLOCK DETAIL
NOT TO SCALE



A3 FIRE HYDRANT
NOT TO SCALE



A5 VALVE BOX DETAIL
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 06/19/2020
SEAL

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NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.: 12794265
SHEET 46 OF 228

C-505

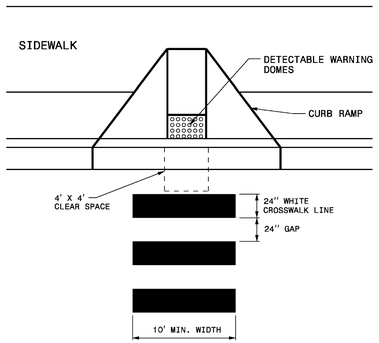
DRAWFORM REVISION: 17 APRIL 2018

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-12

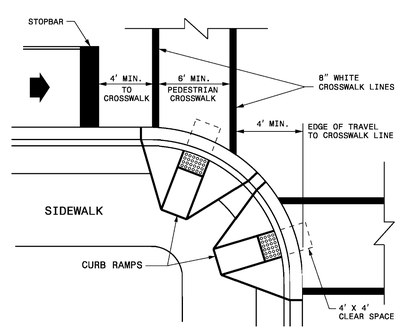
ENGLISH STANDARD DRAWING FOR
PAVEMENT MARKINGS
PEDESTRIAN CROSSWALKS

SHEET 1 OF 1
1205.07

HI-VISIBILITY CROSSWALK



STANDARD CROSSWALK



1- THE MINIMUM WIDTH OF STANDARD CROSSWALKS IS 6 FEET. THE MINIMUM WIDTH OF HI-VISIBILITY CROSSWALKS IS 10 FEET.

2- SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.

3- BEYOND THE CURB FACE, A CLEAR SPACE OF 4' X 4' FEET MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE CROSSWALK.

4- PLACE STOP BARS A MINIMUM OF 4 FEET FROM NEAREST CROSSWALK LINE. STOP BARS AT SIGNALIZED INTERSECTIONS SHOULD BE COORDINATED WITH THE SIGNAL DESIGN SECTION OR AS DIRECTED BY THE ENGINEER.

5- CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

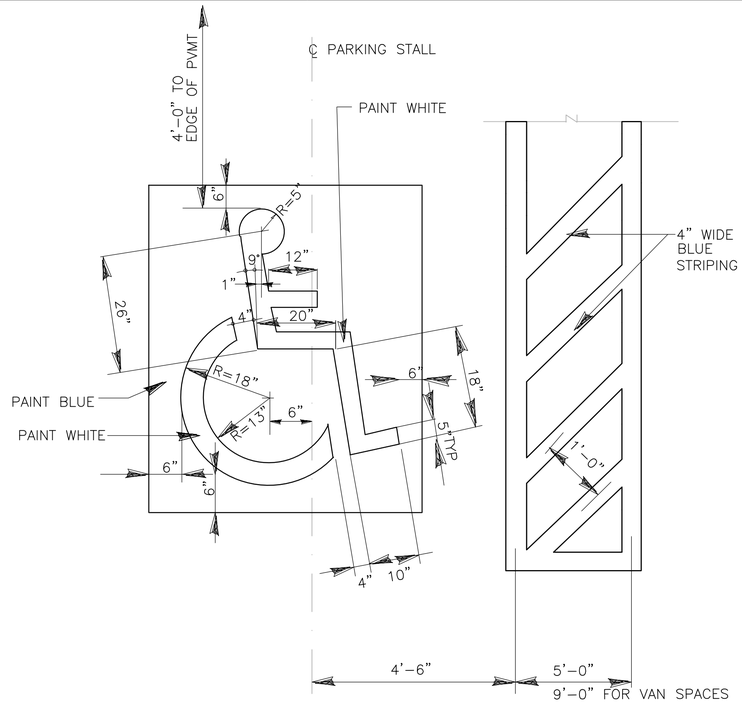
LEGEND
- DIRECTION OF TRAFFIC FLOW
- CURB RAMP WITH DETECTABLE WARNING DOMES

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-12

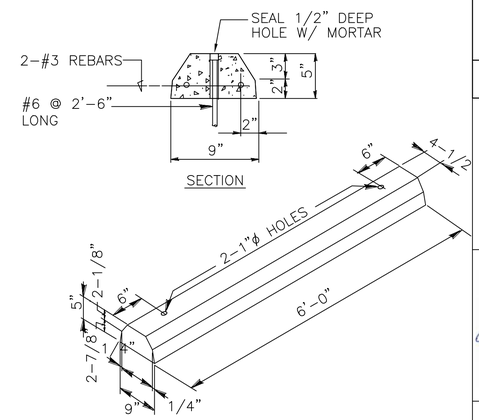
ENGLISH STANDARD DRAWING FOR
PAVEMENT MARKINGS
PEDESTRIAN CROSSWALKS

SHEET 1 OF 1
1205.07

C1 PEDESTRIAN CROSSWALK PAVEMENT MARKING DETAIL
NOT TO SCALE

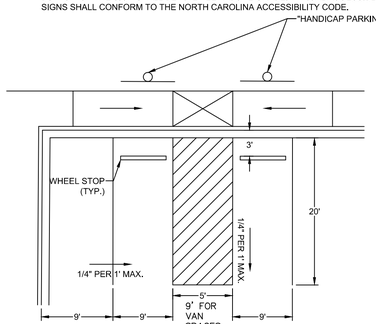


C3 HANDICAP PAVEMENT MARKING DETAIL
NOT TO SCALE

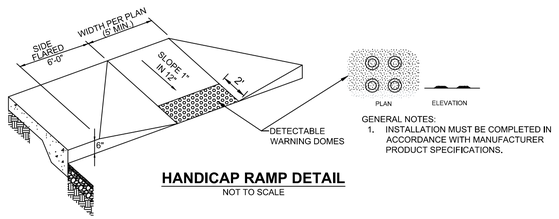


C5 REINFORCED CONCRETE WHEEL STOP DETAIL
NOT TO SCALE

NOTE
HANDICAP SPACES FOR PHYSICALLY HANDICAPPED PERSONS SHALL BE IDENTIFIED BY ABOVE-GRADE SIGNS STATING "RESERVED PARKING". PROVIDE ONE R7-8 SIGN AT EACH HANDICAP PARKING, AS INDICATED ON THE SITE PLAN, ON EITHER A FACING WALL OR ON A 1-1/2" DIAMETER, STEEL POST, PAINTED BLACK, AND SET IN A 12" CONCRETE FOOTING, AS SHOWN BELOW. THE SIGN WILL BE ALUMINUM (PAINTED WHITE), WITH GREEN LETTERS AND INTERNATIONAL WHEELCHAIR SYMBOL. THE BOTTOM OF THE SIGN SHALL BE FIVE FEET ABOVE GRADE. TYPICAL ACCESSIBLE SIGNS SHALL CONFORM TO THE NORTH CAROLINA ACCESSIBILITY CODE.



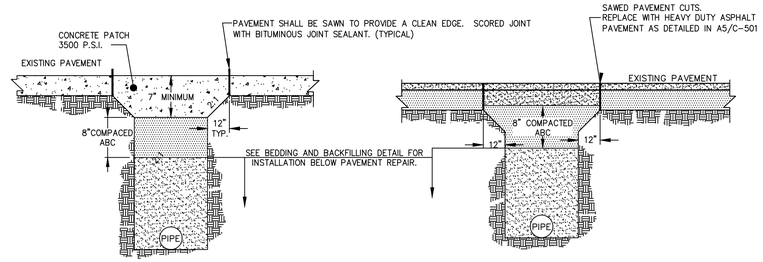
HANDICAP PARKING DETAIL
NOT TO SCALE



GENERAL NOTES:
1. INSTALLATION MUST BE COMPLETED IN ACCORDANCE WITH MANUFACTURER PRODUCT SPECIFICATIONS.

HANDICAP RAMP DETAIL
NOT TO SCALE

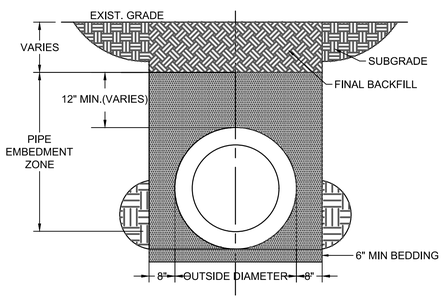
A1 ACCESSIBLE PARKING, RAMP, AND SIGN DETAIL
NOT TO SCALE



CONCRETE PAVEMENT ASPHALT PAVEMENT

NOTES:
1. ALL PAVEMENT CUTS SHALL BE REPAIRED WITHIN A MAXIMUM OF THREE (3) DAYS FROM THE DATE THE CUT IS MADE. IF CONDITIONS DO NOT PERMIT A PERMANENT REPAIR WITHIN THE GIVEN TIME LIMIT, PERMISSION TO MAKE A TEMPORARY REPAIR MUST BE OBTAINED FROM THE CONTRACTING OFFICER..
2. CONCRETE TRENCH CAP ON ASPHALT STREETS SHALL BE USED ONLY DURING INCLEMENT WEATHER WHEN ASPHALT PLANTS ARE NOT OPERATING.
3. IN ALL OPEN TRENCHES, BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING COMPACTION REQUIREMENTS BY SOILS TESTING CERTIFIED BY A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER.
4. BACKFILL WITH A HIGH CLAY CONTENT, HIGH SHRINK–SWELL POTENTIAL, OR HIGH MOISTURE CONTENT THAT CANNOT MEET COMPACTION REQUIREMENTS SHALL BE DEEMED UNSUITABLE AND SHALL BE REPLACED WITH SUITABLE BACKFILL MATERIAL.
5. ALL PAVEMENT PATCHES SHALL PROVIDE A UNIFORM AND SMOOTH DRIVING SURFACE.

A2 STANDARD TRENCH AND PAVEMENT REPAIR DETAIL
NOT TO SCALE



NOTES:
1. TRENCH SIDES MAY BE SLOPED PROVIDED THAT A MINIMUM WIDTH IS MAINTAINED AT A POINT 12" ABOVE THE TOP OF PIPE.
2. REFERENCE TRENCHING, EXCAVATION, BEDDING AND BACK FILLING IN PROJECT SPECIFICATIONS.

A4 DRAINAGE PIPE BEDDING AND BACKFILL DETAIL
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 6/19/2020
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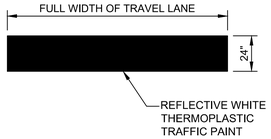
CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA
MARSOC

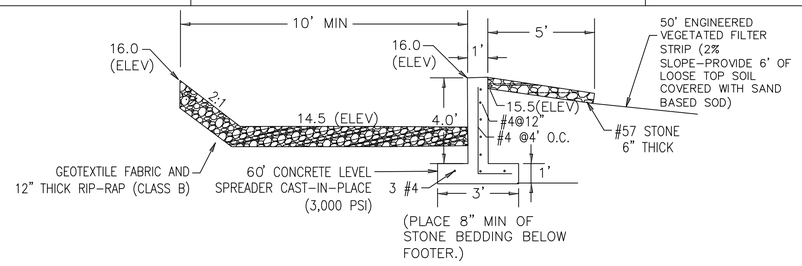
P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

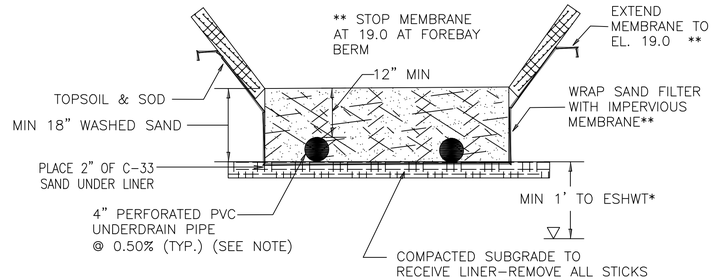
SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794266
SHEET 47 OF 228
C-506
DRAWFORM REVISION: 17 APRIL 2018



D1 STOP BAR
NOT TO SCALE



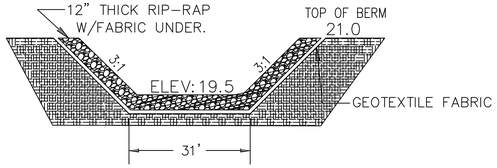
D3 LEVEL SPREADER - SECTION
NOT TO SCALE



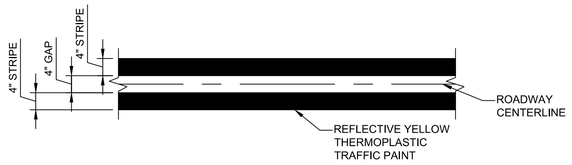
*NOTE: ESTIMATED SEASONAL HIGH WATER TABLE

**IMPERVIOUS MEMBRANE TO BE 24 MIL POLYETHYLENE. HEAT WELD JOINTS TO B WATER TIGHT––PROVIDE WATER TIGHT PIPE BOOTS WHERE PIPE CROSS THROUGH MEMBRANE. JOINTS AND MEMBRANE INSTALLATION MUST BE APPROVED BY MANUFACTURER'S QUALITY CONTROL INSPECTOR.

D4 SAND FILTER BASIN - SECTION
NOT TO SCALE



C1 EMERGENCY SPILLWAY
NOT TO SCALE



C3 DOUBLE YELLOW CENTERLINE
NOT TO SCALE

PERFORMED UNDERDRAIN PIPE NOTE:

A MINIMUM OF 4 ROWS OF PERFORATIONS SHALL BE PROVIDED AROUND THE DIAMETER OF THE PIPE. THE PERFORATIONS SHALL BE 3/8 INCHES IN DIAMETER AND PLACED 6 INCHES ON CENTER FOR THE ENTIRE LENGTH OF THE LATERAL. PIPE SHALL BE PVC SCHEDULE 40.

FILTER SAND NOTE:

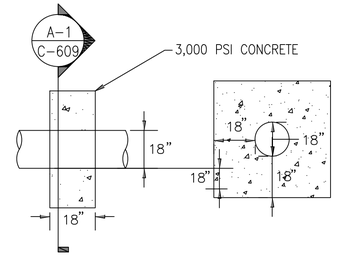
THE FILTER SAND SHALL BE CLEANED, WASHED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM C33.

CLEANOUT NOTE:

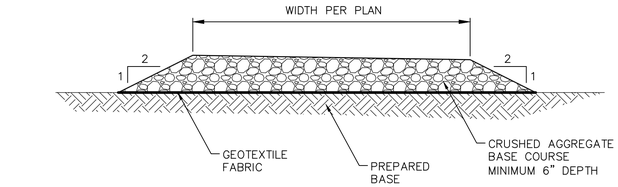
ALL CLEANOUTS SHALL HAVE A SCREWED CAP THAT IS SET 3" ABOVE THE SAND SURFACE ELEVATION.

KEY TRENCH & EMBANKMENT CONSTRUCTION NOTES:

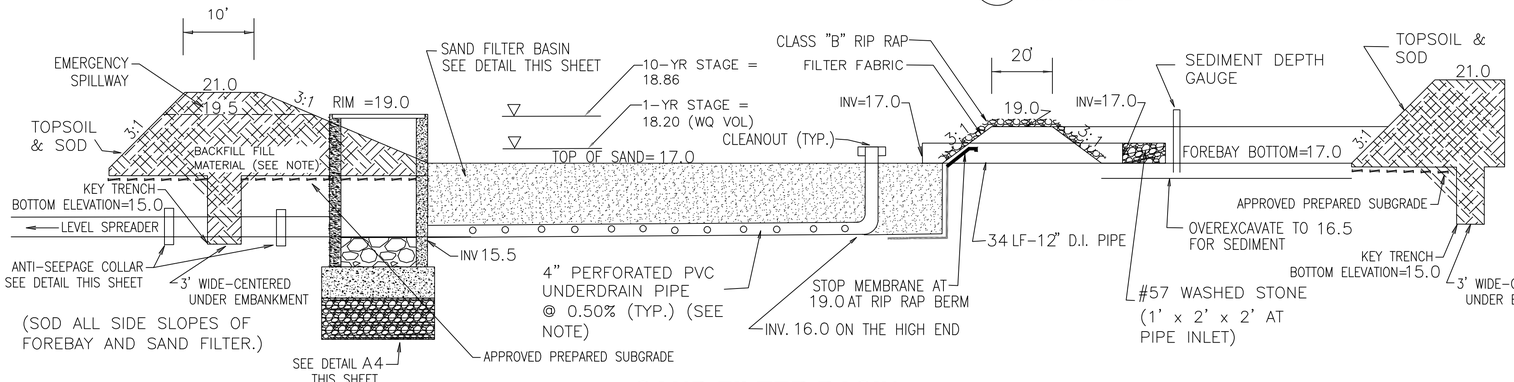
KEY TRENCH BACKFILL & EMBANKMENT FILL MATERIAL SHALL MEET UNIFIED SOIL CLASSIFICATION SYSTEM CLASSIFICATION CL OR SC WITH A MINIMUM OF 30% FINES. EACH LIFT OF KEY TRENCH BACKFILL & EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95% OF ASTM D–698. THE PLACEMENT AND COMPACTION OF THE KEY TRENCH BACKFILL AND EMBANKMENT FILL SHALL BE MONITORED BY THE CONTRACTOR'S INDEPENDENT TESTING AGENCY(CITA) ON A FULL TIME BASIS. THE CITA SHALL PERFORM A MINIMUM OF 10 FIELD DENSITY TESTS PER EACH DAY OF BACKFILL/FILL PLACEMENT AND COMPACTION AND A MINIMUM OF 6 FIELD DENSITY TEST PER LIFT PER DAY. THE CITA SHALL PREPARE A FINAL REPORT INDICATING THAT THE BACKFILL & FILL MATERIALS, MATERIAL PLACEMENT, AND COMPACTION FOR THE KEY & TRENCH EMBANKMENT WAS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.



B3 ANTI-SEEPAGE COLLAR
NOT TO SCALE

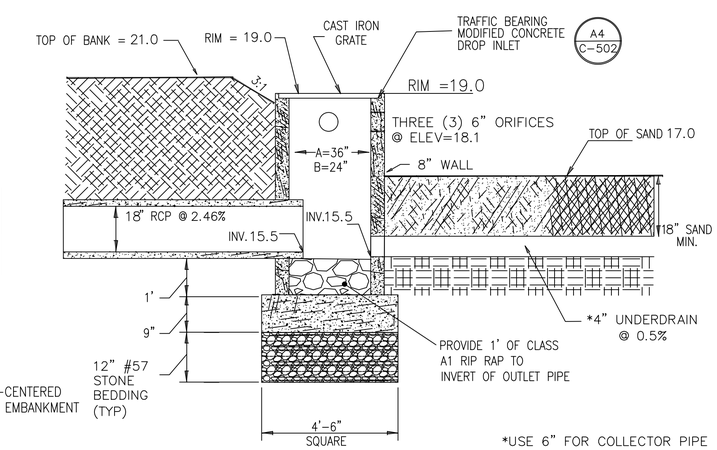


B5 AGGREGATE ROAD
NOT TO SCALE



BACKFILL MATERIAL FOR BERM TO RESTRICT SEEPAGE THROUGH BERM. DO NOT USE SANDY MATERIAL

A2 SAND FILTER BASIN
NOT TO SCALE



A4 OUTLET STRUCTURE
NOT TO SCALE

440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700

A/E INFO

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MARSOC
CAMP LEJEUNE – JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

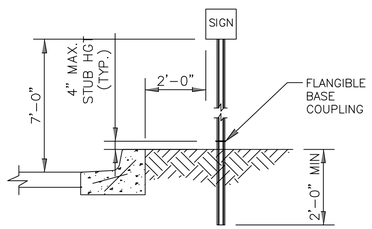
CIVIL SITE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794267
SHEET 48 OF 228

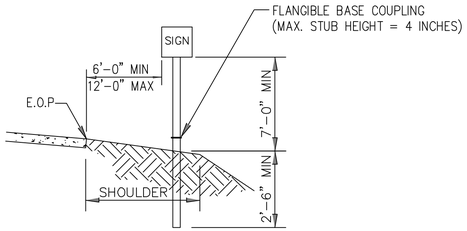
C-507

DRAWFORM REVISION: 17 APRIL 2018

SYM	DESCRIPTION	DATE	APPR



SIGN AT CURB LOCATION



SIGN AT SHOULDER LOCATION

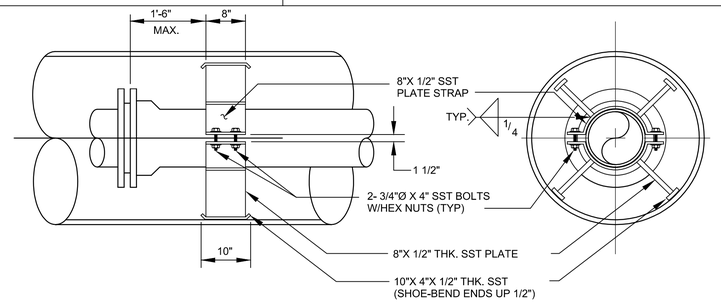
C1 SIGN INSTALLATION

NOT TO SCALE

SIGN QUANTITY TABLE			
MUTCD STANDARD	SIZE	QUANTITY	DISPLAY
R1-1	24"x24"	6	STOP
R5-11	18"x12"	2	AUTHORIZED VEHICLES ONLY
R1-3	12"x6"	4	4-WAY
R2-1	24"x30"	2	SPEED LIMIT 25
W3-1	24"x24"	2	
R7-1	12"x18"	1	NO PARKING ANY TIME
W1-7	18"x36"	1	
R7-5-16	12"x18"	1	MOTORCYCLE PARKING ONLY

A1 SIGN TABLE

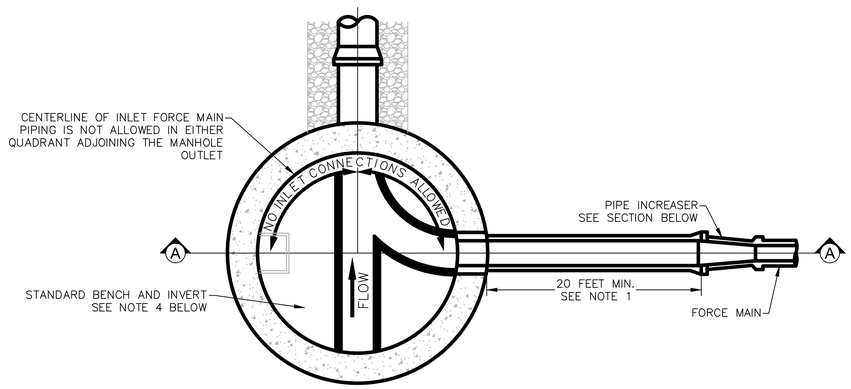
NOT TO SCALE



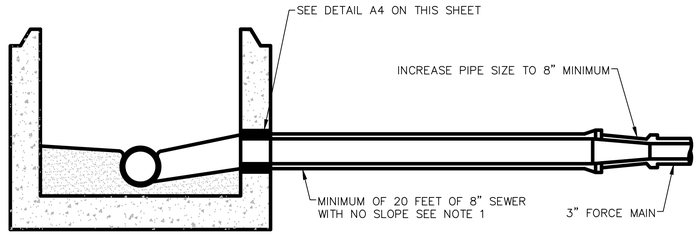
CASING SECTION END ELEVATION

D2 CASING SPACER

NOT TO SCALE



SECTIONAL PLAN

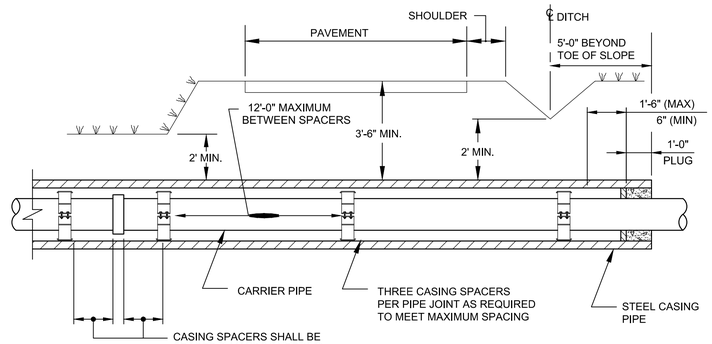


SECTION A-A

1. THIS DETAIL DEPICTS THE TYPICAL ACCEPTABLE METHOD FOR CONNECTING FORCE MAINS TO EXISTING OR NEW MANHOLES ON THE GRAVITY PORTION OF THE SYSTEM. THE LAST 20 FEET (MINIMUM) OF SEWER (INCREASED TO 8" MINIMUM FROM THE 3" FORCE MAIN DIAMETER) SHALL BE INSTALLED WITH NO SLOPE WITH THE INTENT OF KEEPING THE FORCE MAIN FULL DURING ALL OPERATING CONDITIONS AND SLOWING THE WASTEWATER PRIOR TO ENTERING THE MANHOLE TO REDUCE TURBULENCE AND TO FACILITATE A SMOOTH, UNIFORM FLOW PASSING THROUGH THE MANHOLE AND JOINING ANY OTHER GRAVITY FLOW.
2. FOR SMALLER FORCE MAINS WITH LITTLE FLOW, IT MAY BE NECESSARY TO PROVIDE A POSITIVE SLOPE TO THE MANHOLE TO MAKE SURE THAT SOLIDS WILL PASS TO THE MANHOLE AND NOT SETTLE OUT. IN THESE CASES, THE CONTRACTOR SHALL PROVIDE ENGINEER WITH DETAILS OF THE DESIGN FOR REVIEW.
3. OTHER ALTERNATE DESIGNS FOR CONNECTING FORCE MAINS TO RECEIVING MANHOLES MAY BE SUBMITTED TO ENGINEER FOR REVIEW AND CONSIDERATION. ANY SUCH ALTERNATE SHALL MINIMIZE TURBULENCE THROUGH THE MANHOLE AND PROVIDE FOR A SMOOTH, UNIFORM FLOW PATH.
4. THE HEIGHT OF THE BENCHING SHALL BE INCREASED FROM THE SPECIFIED CROWN OF THE PIPE AS NECESSARY TO KEEP ALL WASTEWATER IN THE INVERT CHANNEL AS IT PASSES THROUGH THE MANHOLE. THE HEIGHT OF THE BENCH/INVERT CHANNEL MAY HAVE TO BE UP TO 2 TIMES THE LARGEST PIPE CONNECTING TO THE MANHOLE.

A2 SEWER FORCE MAIN TIE IN

NOT TO SCALE

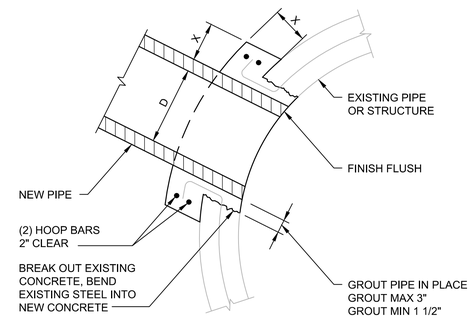


CASING END PLUGS

1. CASING SHALL BE PLUGGED ON BOTH ENDS BEFORE BACKFILLING. PLUGS SHALL CONSIST OF MINIMUM OF 1 LINEAR FOOT OF LOW STRENGTH GROUT (1,500 PSI MIN).
2. PROVIDE SIX-1/2" DIAMETER WEEP HOLES ON DOWNSLOPE SIDE OF CASING.

C4 BORE AND JACK PIPE CROSSING

NOT TO SCALE



D	X	HOOP BARS
18" OR SMALLER	6"	#3
LARGER THAN 18"	9"	#4

A4 EXISTING SANITARY SEWER MANHOLE PIPE TAP DETAIL

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 6/19/2020

SEAL

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A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020

DES	DRW	CHK

PM/DM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENGARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC
MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA

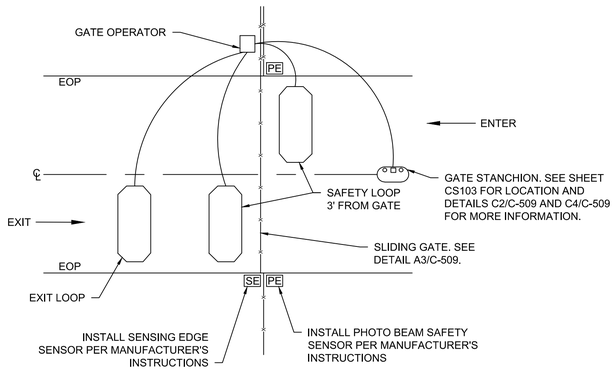
P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

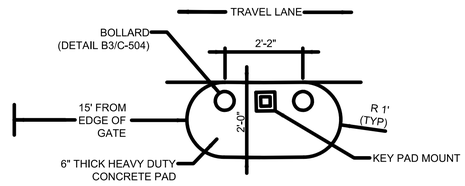
SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794268
SHEET 49 OF 228

C-508

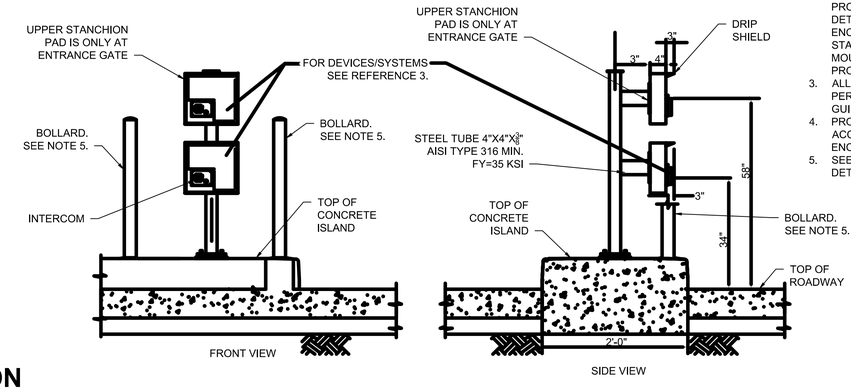
DRAWFORM REVISION: 17 APRIL 2018



C1 SLIDING GATE LOOP LAYOUT
NOT TO SCALE

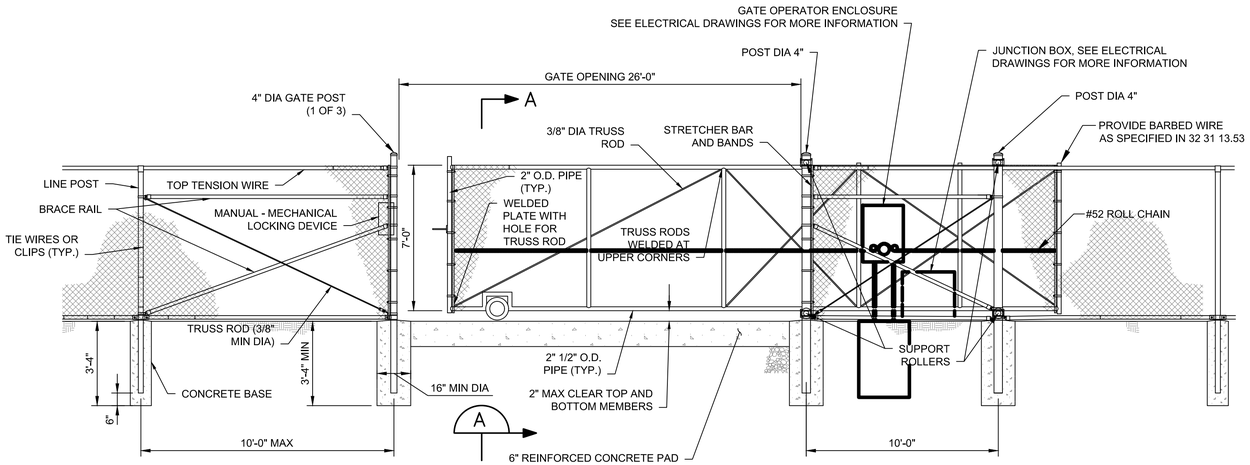


C2 KEYPAD/CARD READER STANCHION
NOT TO SCALE

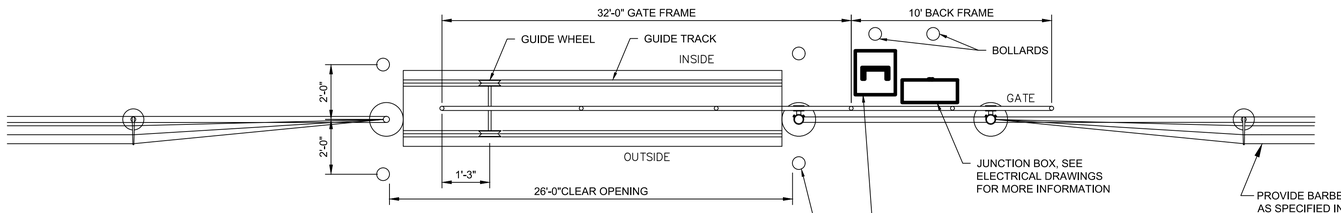


NOTES:
1. MOUNT ALL DEVICES IN LOCATIONS SHOWN.
2. ALL DIMENSIONS ARE CONCEPTUAL. PROVIDE PRODUCT SUBMITTALS AND DETAILED SHOP DRAWINGS OF ENCLOSURE LAYOUT AND VEHICLE STANCHION INCLUDING DEVICE MOUNTING DETAILS PRIOR TO PROCUREMENT AND INSTALLATION.
3. ALL DEVICES MUST BE INSTALLED AS PER THE EQUIPMENT MANUFACTURERS GUIDELINES.
4. PROVIDE SECURED AND LOCKABLE ACCESS TO INSIDE VEHICLE STANCHION ENCLOSURE.
5. SEE DETAIL B3/C-504 FOR BOLLARD DETAIL.

C4 TYPICAL STANCHION DETAIL
NOT TO SCALE

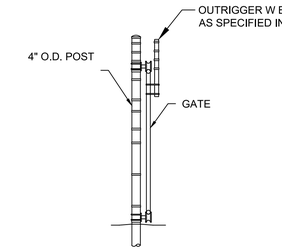


ELEVATION

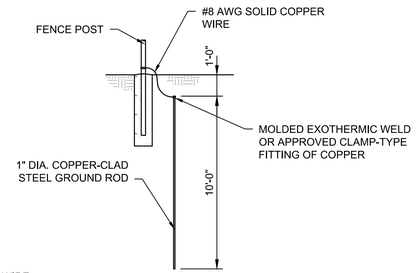


PLAN

NOTES:
1. GUIDE TRACK TO BE INSTALLED ABOVE PAVEMENT, NOT INSET INTO THE PAVEMENT.
2. SEE DETAIL B3/C-504 FOR BOLLARDS.
3. SEE SHEET CS103 FOR STANCHION LOCATION AND DETAILS C2/C-509 AND C4/C-509 FOR STANCHION DETAIL.
4. SEE DETAIL C1/C-509 FOR PAVEMENT LOOP LAYOUT.
5. PROVIDE PRODUCT SUBMITTALS AND DETAILED SHOP DRAWINGS PRIOR TO PROCUREMENT AND INSTALLATION.



A SECTION



GROUNDING DETAIL

A3 SLIDING GATE DETAILS
NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 6/30/2020
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JACKSONVILLE, NORTH CAROLINA

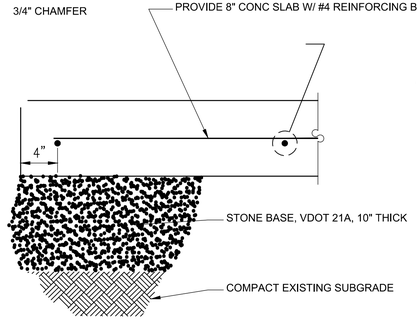
P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794269
SHEET 50 OF 228

C-509

DRAWFORM REVISION: 17 APRIL 2018



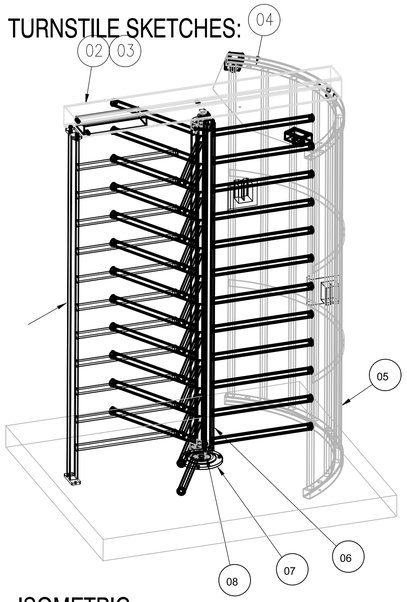
TURNSTILE MOUNTING SLAB

NTS

TURNSTILE NOTES:

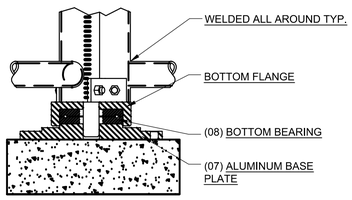
1. TURNSTILE SHALL BE COMPOSED OF CARBON STEEL. ALL MATERIALS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123.
2. TURNSTILE SHALL HAVE BI-DIRECTIONAL CONTROLS: IN THE CASE OF A POWER FAILURE, OUTBOUND TRAFFIC SHALL BE SET TO "FAIL SAFE"; THE INBOUND TRAFFIC WILL HAVE A "FAIL LOCK" MECHANISM (UNLESS OTHERWISE DIRECTED BY THE ACTIVITY VIA THE CONTRACTING OFFICER).
3. PROVIDE CARD READER MOUNTING PLATES FOR BOTH SIDES (INBOUND & OUTBOUND) OF TURNSTILE. CARD READER WILL BE INSTALLED BY THE ACTIVITY AT A LATER DATE.
4. BRACE BARRIER POST AT TOP TO ADJACENT VERTICAL SURFACE.
5. ALLOW 5 INCH CLEARANCE ABOVE TOP OF TURNSTILE TO REMOVE LIFT-OFF TYPE TOP COVER.
6. CONCRETE MOUNTING SLAB MUST BE LEVEL WITHIN 1/4". SEE DETAIL C2 THIS SHEET FOR CONC MOUNTING PAD.
7. CONTRACTOR SHALL PROVIDE AN ELECTRICAL 3-ROTOR FULL HEIGHT TURNSTILE AS MANUFACTURED BY TOMSED, MODEL THT-100ECP(3), OR APPROVED EQUAL.
8. TURNSTILE SHALL HAVE FINISH TO MATCH ADJACENT FENCEWORK: POWDER COATED BLACK FOR ORNAMENTAL FENCE AND GALVANIZED FOR CHAIN-LINK.
9. INSTALL 3 STRANDS BARBED WIRE OR CONCERTINA WIRE OVER TOP CHANNEL OF TURNSTILE (BETWEEN ADJACENT FENCE POSTS) TO HINDER SCALING UNIT.

TURNSTILE SKETCHES:



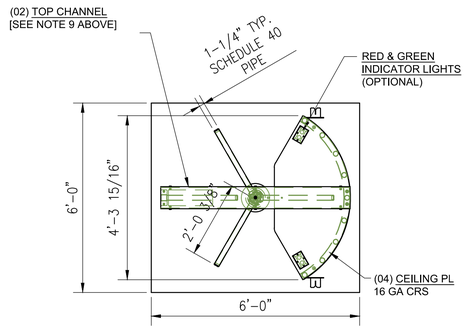
ISOMETRIC

NOT TO SCALE



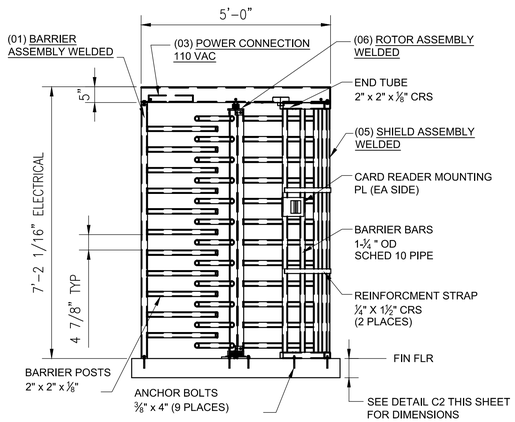
BOTTOM BEARING DETAIL

NOT TO SCALE



PLAN VIEW

NOT TO SCALE



ELEVATION VIEW

NOT TO SCALE

A1 TURNSTILE DETAILS

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBEY 6/22/2020

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FIRE PROTECTION		

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NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE ~ JACKSONVILLE, NC

JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

CIVIL SITE DETAILS

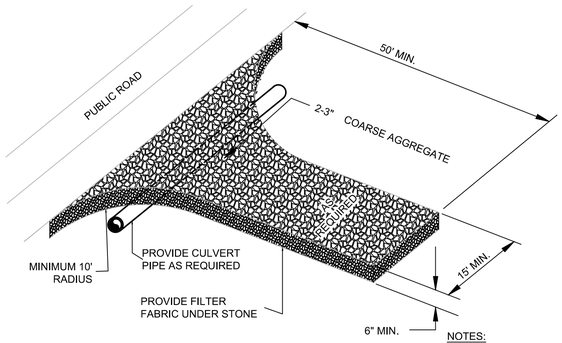
SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794270
SHEET	51 OF 228

C-510

DRAWFORM REVISION: 17 APRIL 2018

MAINTENANCE

MAINTAIN ENTRANCE CONDITION. THIS MAY REQUIRE REPLACEMENT OF STONE.

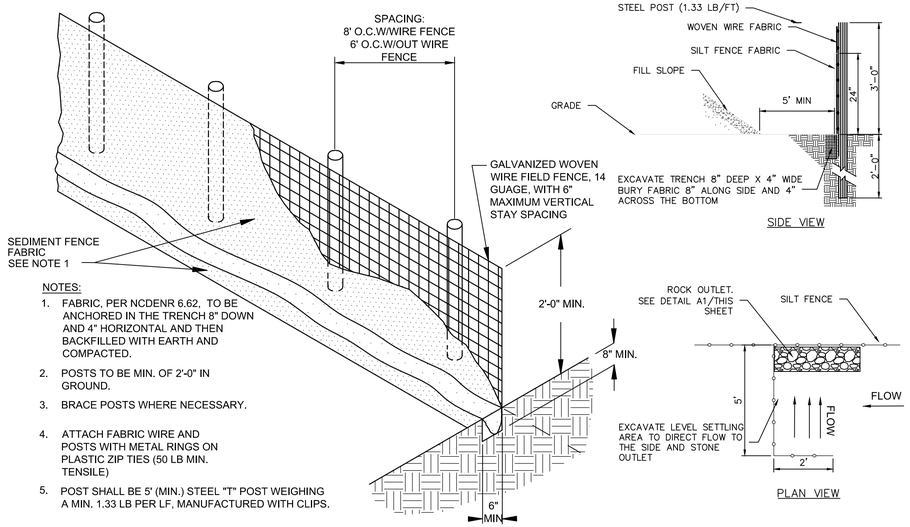


NOTES:

1. LOCATION OF ENTRANCE MAY VARY DURING CONSTRUCTION PERIOD.

C1 TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE

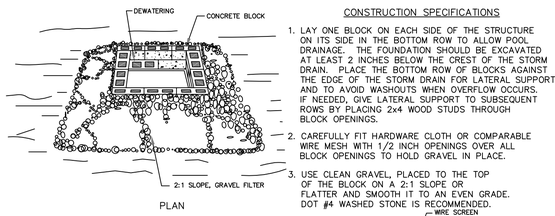


NOTES:

1. FABRIC, PER NCDENR 6.62, TO BE ANCHORED IN THE TRENCH 8" DOWN AND 4" HORIZONTAL AND THEN BACKFILLED WITH EARTH AND COMPACTED.
2. POSTS TO BE MIN. OF 2'-0" IN GROUND.
3. BRACE POSTS WHERE NECESSARY.
4. ATTACH FABRIC WIRE AND POSTS WITH METAL RINGS ON PLASTIC ZIP TIES (50 LB MIN. TENSILE)
5. POST SHALL BE 5' (MIN.) STEEL "T" POST WEIGHING A MIN. 1.33 LB PER LF, MANUFACTURED WITH CLIPS.
6. WATER SHALL NOT BE IMPOUNDED TO A DEPTH GREATER THAN 1.5 FT AT ANY POINT ALONG FENCE. CONTRACTOR SHALL INSTALL A FENCE IMPOUNDMENT OUTLET, SEE DETAILS.

C3 TEMPORARY SILT FENCE

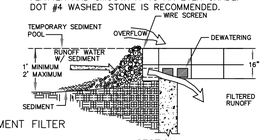
NOT TO SCALE



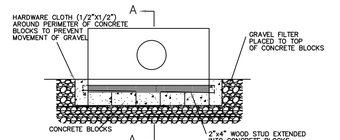
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.
2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2 INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.
3. USE CLEAN GRAVEL, PLACED TO THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #4 WASHED STONE IS RECOMMENDED.

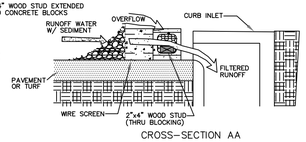
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE



STANDARD BLOCK & GRAVEL DROP INLET SEDIMENT FILTER



THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLET WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE



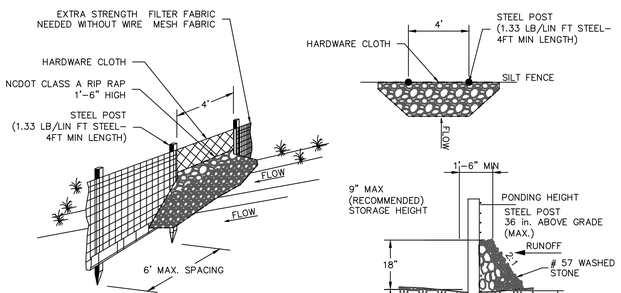
STANDARD BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

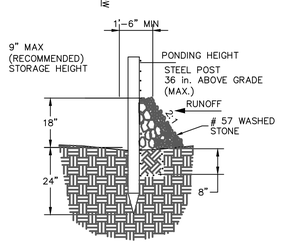
C4 BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

NOT TO SCALE

MAINTENANCE NOTES:

1. INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½ INCH OR GREATER)RAINFALL EVENT.
2. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS.
3. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.



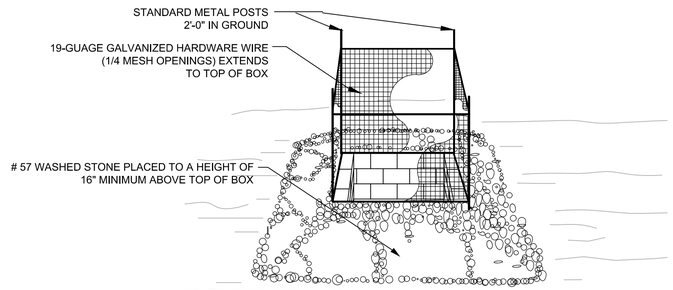


ROCK SECTION DETAIL
TRENCH WITH GRAVEL

DESIGN TYPE	DRAINAGE AREA (APPROX.)	WEIR LENGTH (L) MIN.
1/4	1/2 ACRE	4.0 FT

A1 SILT FENCE ROCK OUTLET

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.

MAINTENANCE

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½ INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

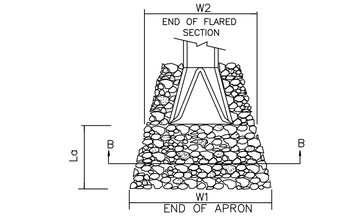
ADDITIONAL MEASURE: STABILIZE THE AREAS DRAINING TO INLETS DAILY.

A3 DROP INLET AND SEDIMENT FILTER

NOT TO SCALE

NOTES:

1. CLASS OR MEDIAN SIZE OF RIP RAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE SHOWN ON PLANS.
2. RIP RAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
3. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIP RAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
4. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
5. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
6. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEVIGING CHANNEL SHALL NOT BE ALLOWED.
7. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON UNLESS OTHERWISE SHOWN.
8. TYPE 2 GEOTEXTILE FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
9. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.



LOCATION	W1	W2	La	CLASS	T
FES-A1	24.0'	8.0'	16.0'	B	1.5'
FES-B1	17.0'	6.0'	11.0'	B	1.5'

1. FES = FLARED END SECTION
2. CLASS = NCDOT CLASS RIP RAP
3. CLASS B RIP RAP MIDRANGE = 8"

A5 RIP RAP AT OUTLET DETAIL

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 07/2020

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A/E INFO

APPROVED

Approved by Emily Sylvester, Director of Installation Development Division

FOR COMMANDER NAVFAC 7/9/2020

ACTIVITY

SATISFACTORY TO	DATE
	06/19/2020

DES	DRW	CHK

PM/OM	SGL/RMS
BRANCH MANAGER	DLB
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FIRE PROTECTION	

DEPARTMENT OF THE NAVY
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CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA
MARSOC
JACKSONVILLE, NORTH CAROLINA

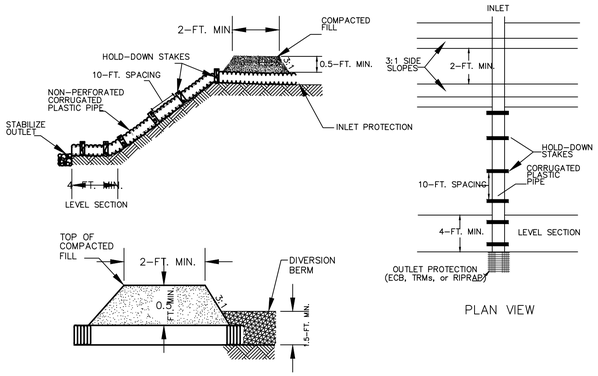
P1395 MARINE RAIDER HEADQUARTERS

EROSION CONTROL DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794271
SHEET	52 OF 228

C-511

DRAWFORM REVISION: 17 APRIL 2018



TYPICAL PIPE SLOPE DRAIN LAYOUT

PIPE SLOPE DRAIN

Installation:

Typical pipe slope drains are made of non–perforated corrugated plastic pipe.

Slope drain sections should be securely fastened together, have gasket watertight fittings, and be securely anchored into the soil.

Diversion berms or dikes should direct runoff to slope drains. The minimum depth of these dikes or berms should be 1.5–feet. The height of the berm around the pipe inlet should be a minimum of 1.5–feet high and at least 0.5–feet higher than the top of the pipe. The berm at the pipe inlet shall be compacted around the pipe. The area around the inlet shall be properly stabilized with ECBs, TRMs, riprap or other applicable stabilization techniques.

The area below the outlet must be properly stabilized with ECBs, TRMs, riprap or other applicable stabilization technique.

If the pipe slope drain is conveying sediment–laden water, direct all flows into the sediment trapping facility.

Inspection and Maintenance:

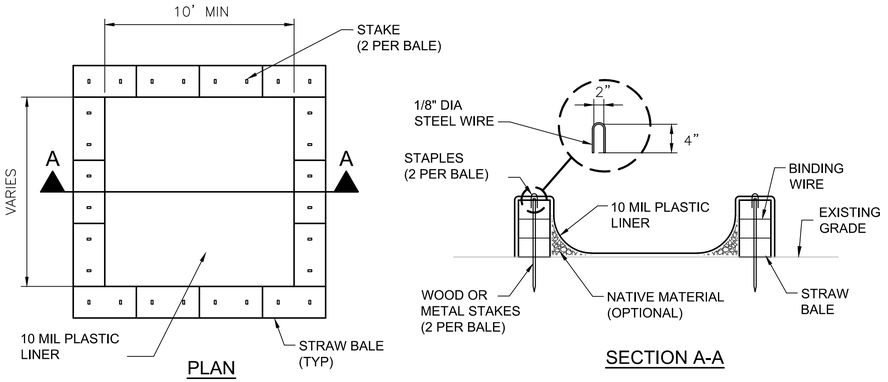
Inspect pipe slope drain inlet and outlet points every seven (7) calendar days and within 24–hours after each rainfall event that produces ½–inches or more of precipitation.

The inlet should be free from undercutting, and no water should be going around the point of entry. If there are problems, the headwall should be reinforced with compacted earth or sandbags. The outlet point should be free of erosion and installed with appropriate outlet protection.

All temporary pipe slope drains should be removed within 30 days after final site stabilization is achieved or after the temporary BMP is no longer needed. Disturbed soil areas resulting from removal should be permanently stabilized.

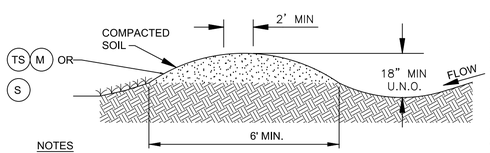
C1 TEMPORARY SLOPE DRAIN DETAIL

NOT TO SCALE



B1 TEMPORARY CONCRETE WASHOUT DETAIL

NOT TO SCALE



MAINTENANCE

PERIODICALLY INSPECT RIGHT-OF-WAY DIVERSIONS FOR WATER AND AFTER EVERY HEAVY RAINFALL FOR EROSION DAMAGE, IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA, AND REPAIR THE DIKE, CHECK OUTLET AREAS, AND MAKE TIMELY REPAIRS AS NEEDED. WHEN PERMANENT ROAD DRAINAGE IS ESTABLISHED AND THE AREA ABOVE THE TEMPORARY RIGHT-OF-WAY DIVERSIONS IS PERMANENTLY STABILIZED, REMOVE THE DIKE, AND FILL THE CHANNEL TO BLEND WITH THE NATURAL GROUND, AND APPROPRIATELY STABILIZED THE DISTURBED AREA.

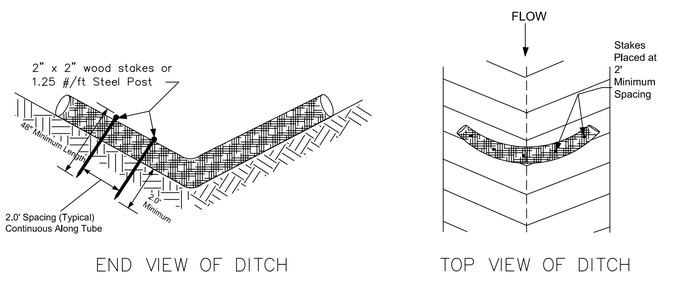
NOTES

1. CONSTRUCT TEMPORARY DIVERSION CHANNELS AT A 1.0% SLOPE TOWARD OUTLET, UNLESS NOTED OTHERWISE.

2. SIDE SLOPES SHALL NOT EXCEED A 5:1 (H:V) SLOPE IN AREAS WHERE VEHICLES MUST CROSS, 2:1 SLOPE (MAX.) IN ALL OTHER AREAS.

A1 TEMPORARY DIVERSION DITCH DETAIL

NOT TO SCALE



END VIEW OF DITCH

TOP VIEW OF DITCH

SEDIMENT TUBE

DESCRIPTION
SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW, PINE NEEDLE AND LEAF MULCH–FILLED
SEDIMENT TUBES ARE NOT PERMITTED UNDER THIS SPECIFICATION.

WHEN AND WHERE TO USE IT:
INSTALL SEDIMENT TUBES ALONG CONTOURS, IN DRAINAGE CONVEYANCE SWALES, AND AROUND INLETS TO HELP REDUCE THE EFFECTS OF SOIL EROSION BY ENERGY DISSIPATION AND RETAIN SEDIMENT.

MATERIALS
SEDIMENT TUBES FOR DITCH CHECKS AND TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:

- PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
- COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
- STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED UNDER THIS SPECIFICATION.
- UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH–DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH–DENSITY
- POLYETHYLENE NON–DEGRADABLE MATERIALS. DIAMETER RANGING FROM 18–INCHES TO 24–INCHES.
- CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPS) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED UNDER THIS SPECIFICATION.

INSTALLATION:
INSTALL OVER BARE SOIL, MULCHED AREAS OR EROSION CONTROL BLANKETS.
BE COMPOSED OF GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH ENCLOSED BY A FLEXIBLE NETTING MATERIAL. STRAW, STRAW FIBER, STRAW BALES,
PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED.

THE MINIMUM DIAMETER SHOULD BE 18 INCHES.
SEDIMENT TUBES SHOULD BE STAKED USING WOODEN STAKES (2–INCH X 2–INCH) OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25
POUNDS PER FOOT) A MINIMUM OF 48–INCHES IN LENGTH PLACED ON 2–FOOT CENTERS.

STAKES SHOULD BE INTERTWINED WITH THE OUTER MESH ON THE DOWNSTREAM SIDE AND DRIVEN IN THE GROUND TO A MINIMUM DEPTH OF 1.5 FEET LEAVING LESS THAN 1 FOOT OF STAKE
EXPOSED ABOVE THE SEDIMENT TUBE. ALWAYS REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE STAKING DETAIL,
INSTALL ALL SEDIMENT TUBES INSURING THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE SEDIMENT TUBE. THE ENDS OF ADJACENT SEDIMENT TUBES SHOULD BE LAPPED
6–INCH TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT.IN NO SITUATIONS SHOULD SEDIMENT TUBES BE STACKED ON TOP OF ONE ANOTHER.

CONSTUCT A TRENCH THAT IS 20% OF THE TUBE DIAMATER TO INTALL THE TUBE IN.
AVOID DAMAGE TO SEDIMENT TUBES WHILE INSTALLING THEM. IF THE SEDIMENT TUBE BECOMES DAMAGED DURING INSTALLATION, A STAKE SHOULD BE PLACED ON BOTH SIDES OF THE
DAMAGED AREA TERMINATING THE TUBE SEGMENT AND A NEW TUBE SEGMENT SHOULD BE INSTALLED.SHOULD BE INSTALLED IN SWALES OR DRAINAGE DITCHES PERPENDICULAR TO THE
FLOW OF WATER. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW
DEPTH. SEDIMENT TUBES SHOULD BE SPACED ACCORDING TO THE FOLLOWING TABLE.

SEDIMENT TUBE

SEDIMENT TUBE LENGTH SELECTED SHOULD MINIMIZE THE NUMBER OF SEDIMENT TUBES NEEDED TO SPAN THE WIDTH OF THE DRAINAGE CONVEYANCE.

IF THE DITCH CHECK LENGTH (PERPENDICULAR TO THE WATER FLOW) IS 15 FEET, THEN ONE 15 FOOT SEDIMENT TUBE IS PREFERRED COMPARED TO TWO OVERLAPPING 10 FOOT SEDIMENT TUBES.

SEDIMENT TUBES FOR DITCH CHECKS SHOULD REMAIN IN PLACE UNTIL FULLY ESTABLISHED VEGETATION AND ROOT SYSTEMS HAVE COMPLETELY DEVELOPED AND CAN SURVIVE ON THEIR OWN.

INSPECTION AND MAINTENANCE:

CHECK DAMS SHOULD BE INSPECTED EVERY 7 CALENDAR DAYS AND WITHIN 24–HOURS AFTER EACH STORM THAT PRODUCES ½–INCHES OR MORE OF RAIN TO ENSURE CONTINUED
EFFECTIVENESS.

LARGE DEBRIS, TRASH, AND LEAVES SHOULD BE REMOVED.

IF EROSION CAUSES THE EDGES TO FALL TO A HEIGHT EQUAL TO OR BELOW THE HEIGHT OF THE CENTER, REPAIRS SHOULD BE MADE IMMEDIATELY.

REMOVE ACCUMULATED SEDIMENT FROM THE UPSTREAM SIDE OF THE SEDIMENT TUBE WHEN
THE SEDIMENT HAS REACHED A HEIGHT OF APPROXIMATELY ONE–THIRD OF THE EXPOSED HEIGHT OF THE TUBE (MEASURED AT THE CENTER).

ACCUMULATED SEDIMENT SHOULD BE REMOVED PRIOR TO REMOVING SEDIMENT TUBES.

SEDIMENT TUBE REMOVAL SHOULD BE COMPLETED ONLY AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETELY STABILIZED. PERMANENT VEGETATION SHOULD REPLACE AREAS FROM WHICH GRAVEL, STONE, SEDIMENT TUBES, OR OTHER MATERIALS HAVE BEEN REMOVED.

SEDIMENT TUBE SPACING

SLOPE	MAXIMUM SEDIMENT TUB SPACING
LESS THAN 2%	150-FEET
2%	100-FEET
3%	75-FEET
4%	50-FEET
5%	40-FEET
6%	30-FEET
GREATER THAN 6%	25-FEET

A3 SEDIMENT TUBE DETAIL

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 06/19/2020
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FIRE PROTECTION		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
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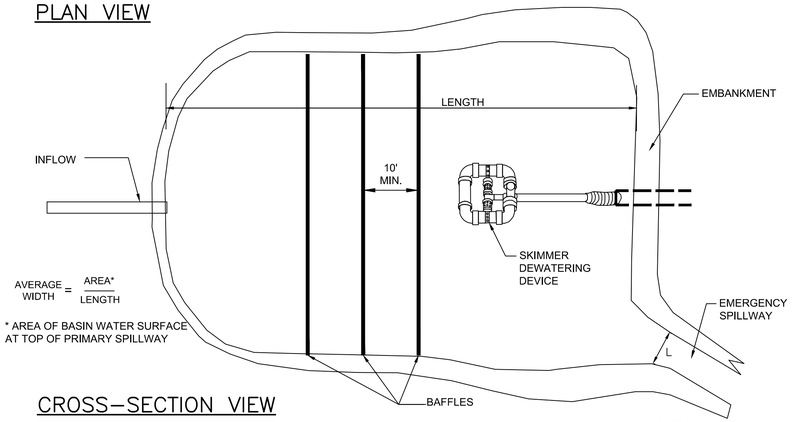
CAMP LEJEUNE · JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
EROSION CONTROL DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794272
SHEET 53 OF 228
C-512
DRAWFORM REVISION: 17 APRIL 2018

SKIMMER SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 5 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	325 (SQ. FT. PER CFS Q10)

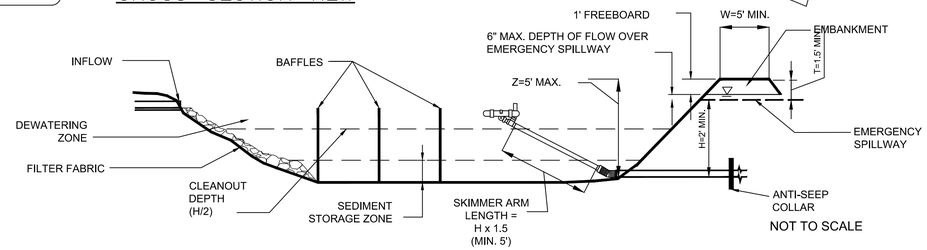
PLAN VIEW



AVERAGE WIDTH = AREA* / LENGTH

* AREA OF BASIN WATER SURFACE AT TOP OF PRIMARY SPILLWAY

CROSS–SECTION VIEW



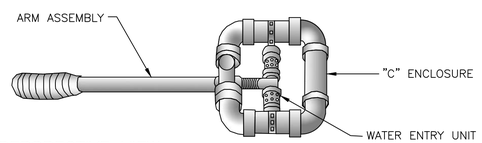
NOT TO SCALE

NOTES:

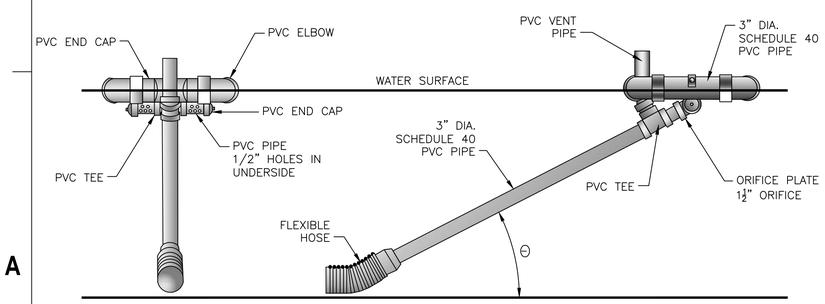
1. REFER TO NCESCPDM SECTION #6.64 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SKIMMER SEDIMENT BASINS.
2. REFER TO NCESCPDM SECTION #6.65 FOR BAFFLE SPACING AND INSTALLATION.
3. H = SPILLWAY ELEVATION - SKIMMER INVERT ELEVATION.
4. USE FOR DRAINAGE AREAS NOT EXCEEDING 10 ACRES.
5. EARTH BERM SHALL BE STABILIZED WITH SEEDING ACCORDING TO SPECIFICATIONS.

C1 SKIMMER SEDIMENT BASIN

NOT TO SCALE



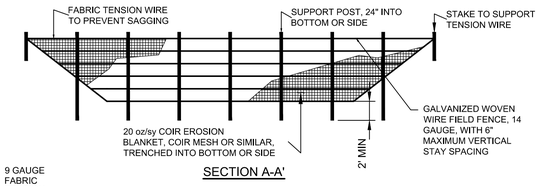
PERSPECTIVE VIEW



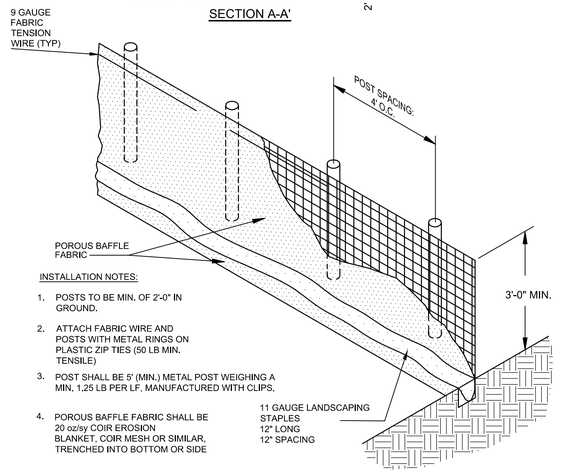
END VIEW FRONT VIEW

A1 SKIMMER

NOT TO SCALE



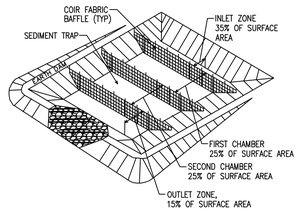
SECTION A-A'



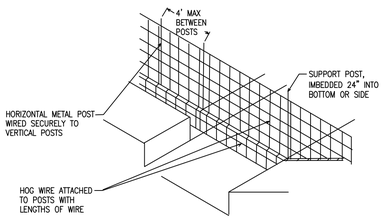
INSTALLATION NOTES:

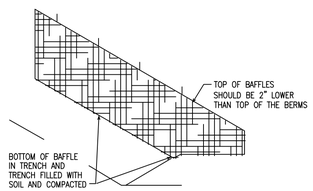
1. POSTS TO BE MIN. OF 2'-0" IN GROUND.
2. ATTACH FABRIC WIRE AND POSTS WITH METAL RINGS ON PLASTIC ZIP TIES (50 LB MIN. TENSILE)
3. POST SHALL BE 5' (MIN.) METAL POST WEIGHING A MIN. 1.25 LB PER LF, MANUFACTURED WITH CLIPS.
4. POROUS BAFFLE FABRIC SHALL BE 20 oz/sy COIR EROSION BLANKET, COIR MESH OR SIMILAR, TRENCHED INTO BOTTOM OR SIDE

FABRIC INSTALLATION



PROSPECTIVE VIEW





BAFFLE INSTALLATION –STEP 1

BAFFLE INSTALLATION –STEP 2

BAFFLE NOTES:

1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.
2. DRIVE STEEL FENCE POST AT LEAST 24" INTO SOLID GROUND.
3. WOOD POSTS ARE NOT ACCEPTABLE.
4. WHEN USING POSTS, ADD SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.
5. USE STAPLES 1" APART TO ATTACH FABRIC TO "HOG WIRE" BAFFLE.
6. INSTALL AT LEAST 3 ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT. SPACED AS PER APPROVED PLAN.
7. THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8-INCH EROSION CONTROL MATTING STAPLES.
8. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.
9. MATTING: PROVIDE MATTING TO MEET THE FOLLOWING REQUIREMENTS: 100% COCONUT FIBER (COIR) TWINE WOVEN INTO HIGH STRENGTH MATRIX

THICKNESS	0.3 IN. MINIMUM
TENSILE STRENGTH	1248 X 626 LB/FT MINIMUM
ELONGATION	34% X 38% MAXIMUM
FLEXIBILITY (MG-CM)	65030 X 29590
FLOW VELOCITY	OBSERVED 11 FT/SEC
WEIGHT	20 OZ/SY
SIZE	6.6 X 164 FT (120 SY)
"C" FACTOR	0.002
OPEN AREA (MEASURED)	50%

A4 SEDIMENT BAFFLE

NOT TO SCALE

MAINTENANCE NOTES:

1. INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL, TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES.
4. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT, AND REPLACE IF DAMAGED.
5. DURING CLEANOUT OPERATIONS. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
6. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT

NOTES:

1. BAFFLE FABRIC SHALL CONSIST OF 700 G/M COIR EROSION CONTROL BLANKET OR APPROVED SUBSTITUTE. A SINGLE CONTINUOUS LENGTH OF FABRIC SHALL EXTEND ACROSS THE FULL WIDTH OF THE BASIN.
2. POSTS SHALL BE STEEL, MINIMUM 5 FEET LONG, AND OF THE SAME GENERAL TYPE AS THOSE SPECIFIED FOR SILT FENCE CONSTRUCTION.
3. THE TOP EDGE OF THE BAFFLE FABRIC SHALL BE SUPPORTED BY A TENSIONED CABLE OR ROPE EXTENDING ACROSS THE WIDTH OF THE BASIN AND ANCHORED ON EACH END.
4. THE BOTTOM EDGE OF THE BAFFLE FABRIC SHALL BE EMBEDDED IN A TRENCH EXCAVATED ALONG THE BASIN BOTTOM AND SIDE SLOPES.
5. BAFFLE FABRIC SHALL BE ATTACHED TO SUPPORT POSTS WITH HEAVY-DUTY PLASTIC CABLE TIES, OR SIMILAR MEANS.
6. BAFFLES SHALL BE SPACED IN THE DIRECTION OF FLOW TO PROVIDE THE SURFACE AREAS SHOWN.
7. THE BASIN SLOPES SHALL BE SEEDED AND THE SLOPES SHALL BE MATTED IMMEDIATELY AFTER THE BASIN IS CONSTRUCTED.
8. SEE THIS SHEET FOR ADDITIONAL BASIN INFORMATION.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUBLEY 6/19/2020

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A/E INFO

APPROVED

FOR COMMANDER NAVFAC 7/9/2020

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DEPARTMENT OF THE NAVY
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MARSOC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

EROSION CONTROL DETAILS

SCALE:	AS NOTED
EPROJECT NO.:	1603164
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12794273
SHEET	54 OF 228

C-513

DRAWFORM REVISION: 17 APRIL 2018

GENERAL EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES AND DEVICES NECESSARY TO COMPLY WITH THE STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NC DEQ) AND APPLICABLE STATE AND LOCAL LAWS AND ORDINANCES, AND PREVENT STANDING WATER WITHIN PROJECT LIMITS, UNLESS OTHERWISE DIRECTED.
2. INSTALL CONSTRUCTION ENTRANCES AND ACCESS ROADS IN LOCATIONS SHOWN, IN ACCORDANCE WITH STATE STANDARDS AND WITH MINIMAL DISTURBANCE TO SURROUNDING VEGETATION AND TREES. CONTRACTOR SHALL RECEIVE PRIOR APPROVAL FROM ENGINEER BEFORE TREE REMOVAL FOR ACCESS ROAD CONSTRUCTION. WITHIN 30 DAYS AFTER CONSTRUCTION IS COMPLETED FOR WHICH ACCESS ROAD IS USED, AND UNLESS OTHERWISE APPROVED, CONTRACTOR SHALL REMOVE ALL REMNANTS OF THE ACCESS ROADS AND RETURN AREA TO AS GOOD AS OR BETTER CONDITION. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BASED ON CONTRACTOR'S PRACTICES OR BY THE CONTRACTING OFFICER AND WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS.
3. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE OR SITE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED.
4. ALL DITCH LINES DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED BY THE CONTRACTOR. ON ALL NEW OR UNDISTURBED, UNPAVED DITCHES INSTALL EROSION CONTROL MATTING (NAG SC150, SC150BN OR APPROVED EQUAL) A TEMPORARY DITCH LINER OF FIBERGLASS ROVING ON THE DITCH BOTTOM AND SIDE SLOPES.
5. PROVIDE SILT FENCE ADJACENT TO DITCHES AND AT THE TOE OF FILL SLOPES. ALSO, PROVIDE ADEQUATE MEASURES IN AREAS WHERE NATURAL VEGETATION DOES NOT PROVIDE A SUFFICIENT BUFFER AND AS DIRECTED BY THE ENGINEER. WHERE SILT FENCE AND TREE PROTECTION CONFLICT, STOP SILT FENCE AT TREE PROTECTION.
6. PROVIDE INLET SEDIMENT FILTER AT ALL NEW STORM INLETS. INLET PROTECTION MAY BE REQUIRED AT EXISTING INLETS IN THE EVENT SEDIMENT WILL RUN DOWNSTREAM TO AN EXISTING INLET.
7. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY:
   a. THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, FENCING, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
   b. ALL TREE PROTECTION FENCING SHALL BE INSTALLED, INSPECTED AND APPROVED BY THE INSPECTOR. TREES WITHIN THE PROTECTION AREAS MAY ONLY BE REMOVED WITH APPROVAL BY THE INSPECTOR.
8. COMPLY WITH THE FOLLOWING CONSTRUCTION SEQUENCE FOR EACH CONSTRUCTION PHASE:
   a. GRUBBING SHALL BE PERFORMED DURING PREDICTED PERIODS OF DRY WEATHER.
   b. EROSION CONTROL DEVICES AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION AND WITHIN 24 HOURS OF GRUBBING. THIS MAY REQUIRE GRUBBING IN STAGES TO ENSURE EROSION CONTROL MEASURES ARE PUT IN PLACE PRIOR TO RAIN EVENT. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER.
   c. SILT FENCE SHALL BE INSTALLED WITHIN 24 HOURS OF GRUBBING ALL PERIMETERS. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE UTILIZED FOR EROSION CONTROL.
9. THE CONSTRUCTION OF THE SITE WILL COMMENCE WITH INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION.
10. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED TO NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS.
11. A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE WHENEVER LAND DISTURBANCE ACTIVITY IS IN PROGRESS.
12. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND ANY DEFICIENCIES NOTED WILL BE CORRECTED BY THE END OF EACH DAY. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.
13. ON-SITE STOCKPILING OF SOIL IS ALLOWED WITHIN THE LIMITS OF DISTURBANCE SUBJECT TO PLACING APPROPRIATE EROSION CONTROL DEVICES TO PREVENT SOIL LOSS DURING RAIN EVENTS. LOCATIONS SHALL BE PRE-APPROVED BY THE INSPECTOR.
14. GROUND STABILIZATION SHALL BE ACHIEVED CONSISTENT WITH NCDEQ GENERAL PERMIT NCG01000 EFFECTIVE AS OF AUGUST 2, 2011. WHERE LAND DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, ALL DISTURBED AREAS SHALL BE PROVIDED WITH TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY EXCEPT FOR ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1 (H:V), WHICH SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER WITHIN 7 CALENDAR DAYS FROM THE LAND DISTURBING ACTIVITY. THE CONTRACTOR SHALL REFER TO GENERAL PERMIT NCG01000 FOR SPECIFIC CONDITIONS, EXEMPTIONS, AND DEFINITIONS FOR MEETING THESE STABILIZATION REQUIREMENTS, SEE TABLE 1.
15. SITE DISTURBED AREA = 8.0 ACRES.
16. PROVIDE NOTIFICATION TO ALL AFFECTED PROPERTY OWNERS PRIOR TO CONSTRUCTION, AS APPLICABLE.
17. EFFECTIVE OCTOBER 1, 2010, PERSONS RESPONSIBLE FOR LAND DISTURBING ACTIVITIES MUST INSPECT THE SEDIMENT AND EROSION CONTROL MEASURES ON A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. SELF-INSPECTION REPORTS ARE REQUIRED. A SAMPLE SELF-INSPECTION REPORT AS WELL AS DETAILS OF THE SELF-INSPECTION PROGRAM CAN BE FOUND ON THE LAND QUALITY WEB SITE: http://deq.nc.gov/about/divisions/energy-mineral-lan-resources/erosion-sediment-control/forms.
18. ANY OFF-SITE BORROW OR WASTE REQUIRED FOR THIS PROJECT MUST COME FROM AN APPROVED EROSION CONTROL SITE PLAN REGULATED UNDER THE MINING ACT OF 1971 OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. DEBRIS FROM DEMOLITION ACTIVITIES SHOULD BE DISPOSED OF AT AN APPROVED FACILITY.

EROSION MAINTENANCE REQUIREMENTS

1. SEDIMENT FENCE (SILT FENCE):
   a. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
   b. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
   c. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE.
   d. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEAN OUT.
   e. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE. STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
2. SEDIMENT TUBES:
   a. INSPECT CHANNELS FOR DAMAGE AFTER EACH RUNOFF EVENT.
   b. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE WATTLE AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE WATTLE. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN WATTLES, INSTALL A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL.
   c. REMOVE SEDIMENT ACCUMULATED BEHIND THE WATTLES AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION. ALLOW THE CHANNEL TO DRAIN THROUGH THE STRAW WATTLE AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE WATTLE.
3. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT:
   a. INSPECT ON LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.
4. ROCK OUTLET PROTECTION:
   a. INSPECT STONE ARRANGEMENT WEEKLY AND AFTER EVERY RAINFALL EVENT.
   b. MAINTAIN SPECIFIED DIMENSIONS AND REMOVE SEDIMENT BUILDUP WHEN THE SEDIMENT LEVEL IS ½ THE HEIGHT OF THE ROCKS.
5. INLET PROTECTION:
   a. INSPECT STONE ARRANGEMENT WEEKLY AND AFTER EVERY RAINFALL EVENT.
   b. REPLACE STONE AS NEEDED TO MAINTAIN SPECIFIED DIMENSIONS
   c. REMOVE SEDIMENT BUILDUP WHEN THE SEDIMENT LEVEL IS ½ THE HEIGHT OF THE ROCKS. TAKE ARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL.
6. TEMPORARY DIVERSIONS:
   a. INSPECT WEEKLY AND, AFTER EVERY RAINFALL, REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGES. ALSO CHECK AND MAINTAIN OUTLETS.
   b. WHEN THE PROTECTED AREA IS PERMANENTLY STABILIZED, REMOVE THE RIDGES AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE SITE.
7. CHECK DAM:
   a. INSPECT CHECK DAMS AND CHANNELS FOR DAMAGE AFTER EACH RUNOFF EVENT.
   b. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL.
   c. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

TEMPORARY NON LAWN SEEDING MEASURES

A. GENERAL:

1. AFTER CONSTRUCTION IS COMPLETE IN ANY AREA OR PHASE OF THE PROJECT, THE DISTURBED AREAS SHALL RECEIVE A PERMANENT GROUND COVER. SEEDING AND MULCHING SHALL BE PERFORMED IMMEDIATELY BEHIND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE PERMANENT SEEDING IN ALL DISTURBED AREAS AS INDICATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ADAPT PERMANENT SEEDING OPERATIONS TO PROTECT AND TO ACCOMMODATE ANY TEMPORARY SEEDING AND SOIL AND EROSION CONTROL MEASURES THAT MAY ALREADY BE IN PLACE DURING THE WORK PERIOD.
2. WHEN SEEDING MUST TAKE PLACE OUT OF SEASON FOR PERMANENT GRASS THE APPROPRIATE TEMPORARY SEEDING SHALL BE DONE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERMANENT SEEDING AS SPECIFIED IN SEASON AT NO ADDITIONAL COST TO OWNER.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR TURF MAINTENANCE THROUGH SUBSTANTIAL COMPLETION. SLOPES MUST BE AT 90% COVERAGE AT SUBSTANTIAL COMPLETION REVIEW TO BE ACCEPTED. IF NOT AT 90% COVERAGE, SUBSTANTIAL COMPLETION WILL BE DELAYED UNTIL 90% COVERAGE IS ACHIEVED AND/OR UNTIL THE FOLLOWING GROWING SEASON.

B. SITE PREPARATION AND INSTALLATION:

1. GROUND COVER: ALL DISTURBED AREAS SHALL BE DRESSED TO A DEPTH OF SIX (6) INCHES. THE TOP THREE (3) INCHES SHALL BE PULVERIZED TO PROVIDE A UNIFORM SEEDBED. RAKE OR HARROW THE SITE TO ESTABLISH A SMOOTH AND LEVEL FINAL GRADE. SOIL PARTICLES SHOULD BE NO LARGER THAN MARBLE SIZE, AND PEA GRAVEL SIZE IS EVEN BETTER. AGRICULTURAL LIME SHALL BE APPLIED AT THE RATE OF 1 TONS/ACRE IMMEDIATELY BEFORE PLOWING. GRASS SEED SHALL BE APPLIED AT THE RATES OUTLINED IN TABLES 2A AND 2B.
2. 10-10-10 FERTILIZER SHALL BE APPLIED TO ALL DISTURBED AREAS AT A RATE OF 750 LBS./ACRE. MULCHING SHALL CONSIST OF SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS/ACRE. MULCHED AREAS SHALL BE TACKED WITH ASPHALT OR OTHER APPROVED METHOD SUFFICIENT TO HOLD THE STRAW IN PLACE, AT A RATE OF 150 TO 200 GALLONS PER TON OF STRAW.
3. SOME AREAS MAY REQUIRE TEMPORARY SEEDING DUE TO AN INTERRUPTION OF WORK OR SEASONAL RESTRICTIONS AS SPECIFIED IN THE PERMANENT SEEDING SCHEDULE, OR A COMBINATION THEREOF. THESE AREAS SHALL BE RE-SEEDED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE. IF TEMPORARY SEEDING IS REQUIRED DUE TO CONTRACTOR DELAYS, THERE WILL BE NO COMPENSATION FOR THE TEMPORARY SEEDING. TEMPORARY SEEDING SHALL BE PERFORMED ONLY AT THE DIRECTION OF THE ENGINEER OR INSPECTOR.

C. CLEANUP AND INSPECTION:

1. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EQUIPMENT AND OTHER ARTICLES USED. ALL EXCESS SOIL, STONE, AND DEBRIS SHALL BE REMOVED AND LEGALLY DISPOSED OF AT NO ADDITIONAL COST TO THE OWNER. ALL WORK AREAS SHALL BE LEFT IN A CLEAN AND NEAT CONDITION. ALL DAMAGE TO EXISTING CONSTRUCTION CAUSED BY LANDSCAPING OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE TOWN AT THE CONTRACTOR'S EXPENSE.
2. SEEDED AREAS SHALL BE PROTECTED AND REPLANTED AS NECESSARY TO ESTABLISH A UNIFORM STAND OF SPECIFIED GRASS. SCATTERED BARE SPOTS, NONE OF WHICH SHALL BE LARGER THAT ONE (1) SQUARE FOOT, WILL BE ALLOWED UP TO A MAXIMUM OF 3% OF THE SEEDED AREA FOR EACH PROPERTY. WHEN SEEDED AREAS ARE READY FOR INSPECTION, THE MAINTAINED TURF AREAS SHALL BE NEATLY MOWED TO THE UNIFORM HEIGHT OF APPROXIMATELY TWO AND ONE-HALF (2.5) INCHES. THE LAWNS SHALL BE CONSIDERED ESTABLISHED ONLY WHEN THE SPECIFIED GRASS IS VIGOROUS AND GROWING WELL IN ADDITION TO MEETING THE OTHER REQUIREMENTS SPECIFIED.
3. AN INSPECTION OF THE COMPLETED SEEDING SHALL BE MADE AT THE CONCLUSION OF THE LANDSCAPE WORK UPON WRITTEN NOTICE REQUESTING SUCH INSPECTION SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED DATE OF INSPECTION.
4. A FINAL INSPECTION SHALL BE PERFORMED WHEN A SATISFACTORY STAND OF SEEDED TURF GRASS HAS BEEN PRODUCED, UPON WRITTEN NOTICE REQUESTING SUCH INSPECTION SUBMITTED BY THE CONTRACTOR TO THE ENGINEER, AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED DATE OF INSPECTION. IF A SATISFACTORY STAND OF TURF HAS NOT BEEN PRODUCED AT THE TIME OF FINAL INSPECTION, NECESSARY REPAIRS SHALL BE PERFORMED IN CONFORMANCE WITH THE REQUIREMENTS OF THIS SECTION. UPON COMPLETION OF THESE REPAIRS, THE SEEDED GRASS SHALL BE REINSPECTED UPON WRITTEN NOTICE AS ABOVE.

TABLE 2A
SHOULDERS, SIDE DITCHES, SLOPES
(For Slopes Between 2:1 and 3:1)

Date	Type	Planting Rate
Mar 1 - June 1	Sericea Lespedeza (scarified) and	50 lbs./acre
Mar 1 - Apr 15	Add Tall Fescue or	120 lbs./acre
Mar 1 - June 30	Add Hulled Common Bermudagrass	25 lbs./acre
June 1 - Sept 1	***Tall Fescue and ***Browntop Millet or ***Sorghum-Sudan Hybrids	120 lbs./acre 35 lbs./acre 30 lbs./acre
Sept 1 - Mar 1	Sericea Lespedeza (unhulled/unscarified) and Tall Fescue	70 lbs./acre 120 lbs./acre
Nov 1 - Mar 1	Add Abruzzi Rye	25 lbs./acre

TABLE 2B
SHOULDERS, SIDE DITCHES, SLOPES
(For Slopes 3:1 and Flatter)

Date	Type	Planting Rate
Aug 15 - Nov 1	Tall Fescue	300 lbs./acre
Nov 1 - Mar 1	Tall Fescue and Abruzzi Rye	300 lbs./acre
Mar 1 - Apr 15	Tall Fescue	300 lbs./acre
Apr 15 - June 30	Hulled Common Bermudagrass	25 lbs./acre
July 15 - Aug 15	Tall Fescue and ***Browntop Millet or ***Sorghum-Sudan Hybrids	35 lbs./acre

TABLE 1
NCDEQ Stabilization Timeframes

Site Area Description	Stabilization	Timeframe Exceptions
Perimeter Dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes Steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 3:1 or Flatter	14 days	7 days for slopes greater than 50' in length
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW zones

EROSION CONTROL CONSTRUCTION SEQUENCE

1. OBTAIN AND MAINTAIN ON SITE THE LAND-DISTURBING PERMIT FROM NCDEQ.
2. CALL NCDEQ WILMINGTON REGIONAL OFFICE AT 910-796-7215 TO SCHEDULE A PRE-CONSTRUCTION MEETING AT LEAST 48 HOURS PRIOR TO PROJECT ACTIVATION.
3. PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITY, CLEARLY AND ACCURATELY DEMARCATE THE LIMITS OF THE LAND DISTURBANCE WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE PRIOR TO ANY LAND DISTURBANCE ACTIVITIES (CLEARING, GRADING, GRUBBING, OR EXCAVATION). CLEAR ONLY AS NECESSARY TO INSTALL THE SKIMMER BASIN AS SHOWN ON THE PHASE I EROSION CONTROL PLANS.
5. CONTACT THE INSPECTOR (910-796-7215) FOR AN ON-SITE INSPECTION OF THE INSTALLED MEASURES. WHEN APPROVED, INSTALL REMAINING EROSION CONTROL DEVICES (TEMPORARY DIVERSION DITCHES, STRAW WATTLES, ETC.).
6. INSPECT ALL EROSION CONTROL DEVICES AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EVENT EXCEEDING ½" TO VERIFY THAT THEY ARE FUNCTIONING PROPERLY. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND PLACED IN A DESIGNATED SPOIL DISPOSAL AREA APPROVED BY THE INSPECTOR. CONDUCT PERIODIC INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AND MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
7. BEGIN REMAINDER OF CLEARING, GRUBBING, AND GRADING OF SITE.
8. STABILIZE SITE PER EROSION CONTROL NOTES AND SEEDING SCHEDULE AS AREAS ARE BROUGHT TO FINISHED GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. PER GENERAL PERMIT NCG010000. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1 SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
9. THE STORM DRAINAGE NETWORK MUST BE CONSTRUCTED TO DISCHARGE INTO THE SKIMMER BASIN AS INDICATED ON THE PHASE II EROSION CONTROL PLANS. ONCE STORM NETWORK IS COMPLETELY CONSTRUCTED, ALL INLETS ARE PROPERLY PROTECTED, AND VEGETATION HAS BEEN ESTABLISHED ON A MAJORITY OF THE SITE, THE SKIMMER BASIN CAN BE CLEANED OF ACCUMULATED SEDIMENT AND SODDED. PIPES INTERCONNECTING THE FORMER SKIMMER BASIN TO THE SAND FILTER CAN BE INSTALLED AS SHOWN ON SHEET CG103 WHEN DEEMED APPROPRIATE BY THE CONTRACTING OFFICER.
10. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION.
11. CONTACT THE INSPECTOR (910-796-7215) FOR AN INSPECTION WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE FULLY PLANTED AND STABILIZED.
12. WHEN FINAL SITE STABILIZATION IS APPROVED, REMOVE ALL EROSION CONTROL DEVICES AND STABILIZE THESE AND ANY RESULTING BARE AREAS.
13. CONTACT THE INSPECTOR (910-796-7215) FOR A FINAL SITE INSPECTION WHEN VEGETATION HAS BECOME ESTABLISHED.

SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUDEY 6/30/2020

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020
DES | DRW | CHK
PM/OM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENGARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND – MID ATLANTIC
MIDLANT CI CORE
MARSOC
NAVAL FACILITIES ENGINEERING COMMAND
CAMP LEJEUNE - JACKSONVILLE, NC
JACKSONVILLE, NORTH CAROLINA

P1395 MARINE RAIDER HEADQUARTERS

EROSION CONTROL DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12794274
SHEET 55 OF 228
C-514
DRAWFORM REVISION: 17 APRIL 2018

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during *construction, selecting from the NC DWR List of Approved PAMS/Flocculants.*
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

NCG01 SELF INSPECTION SHEET

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&SC Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC Plan.	Initial and date each E&SC Measure on a copy of the approved E&SC Plan or complete, date and sign an inspection report that lists each E&SC Measure shown on the approved E&SC Plan. This documentation is required upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC Plan.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC Measures.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation

In addition to the E&SC Plan documents above, the following items shall be kept on the site and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This general permit as well as the certificate of coverage, after it is received.

(b) Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

(c) All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that must be reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(a) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(b) Anticipated bypasses and unanticipated bypasses.

(c) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6).
	• Division staff may waive the requirement for a written report on a case-by-case basis.

APPR | DATE | DESCRIPTION | SYM

NAVFAC

NORTH CAROLINA PROFESSIONAL SEAL 041670 ENGINEER JOEL C. CAUSEY 6/19/2020
SEAL

HDR
440 S. CHURCH STREET, SUITE 1000
CHARLOTTE, NC 28202
TEL (704)338-6700
A/E INFO

APPROVED
FOR COMMANDER NAVFAC 7/9/2020
ACTIVITY
Approved by Emily Sylvester, Director of Installation Development Division
SATISFACTORY TO DATE 06/19/2020
DES | DRW | CHK
PMDM SGL/RMS
BRANCH MANAGER DLB
CHIEF ENGARCH EJA
FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
MID-LANT CI CORE
MARSOC
NAVAL FACILITIES ENGINEERING COMMAND ~ MID ATLANTIC
CAMP LEJEUNE · JACKSONVILLE, NORTH CAROLINA
P1395 MARINE RAIDER HEADQUARTERS
EROSION CONTROL DETAILS

SCALE: AS NOTED
EPROJECT NO.: 1603164
CONSTR. CONTR. NO.
NAVFAC DRAWING NO.
12794275
SHEET 56 OF 228
C-515
DRAWFORM REVISION: 17 APRIL 2018