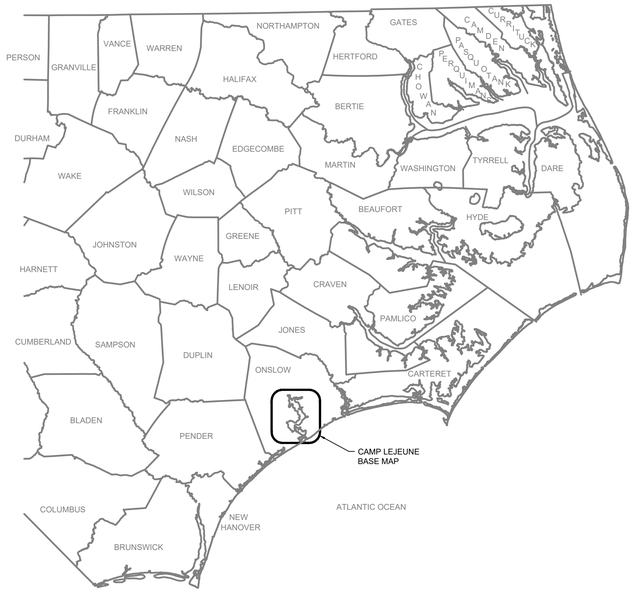
REVISIONS			
SYM		DATE	APPROVED

CAMP LEJEUNE

HOME OF
EXPEDITIONARY
FORCES IN READINESS

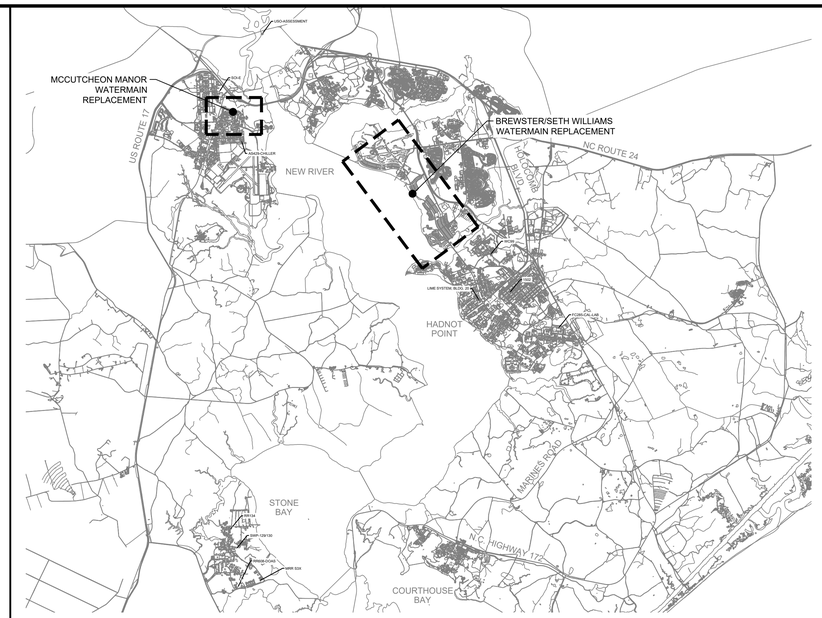
22-0043 WATER MAIN REPAIRS, MULTIPLE LOCATIONS
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
MCB, CAMP LEJEUNE

FINAL



PLAN NORTH

1 **LOCATION MAP**
NOT TO SCALE



PLAN NORTH

2 **BASE MAP**
NOT TO SCALE

PLAN NORTH

3 **ENLARGED BASE MAP**
NOT TO SCALE

DISCLOSURE OF INFORMATION:

CONTRACTOR SHALL COMPLY AS FOLLOWS:

A. THE CONTRACTOR SHALL NOT RELEASE TO ANYONE OUTSIDE THE CONTRACTOR'S ORGANIZATION ANY UNCLASSIFIED INFORMATION, REGARDLESS OF MEDIUM (E.G. FILM, TAPE, DOCUMENT), PERTAINING TO ANY PART OF THIS CONTRACT OR ANY PROGRAM RELATED TO THIS CONTRACT, UNLESS-

1. THE CONTRACTING OFFICER HAS GIVEN PRIOR WRITTEN APPROVAL; OR
2. THE INFORMATION IS OTHERWISE IN THE PUBLIC DOMAIN BEFORE THE DATE OF THE RELEASE.

B. REQUESTS FOR APPROVAL SHALL IDENTIFY THE SPECIFIC INFORMATION TO BE RELEASED, THE MEDIUM TO BE USED, AND THE PURPOSE FOR THE RELEASE. THE CONTRACTOR SHALL SUBMIT ITS REQUEST TO THE CONTRACTING OFFICER AT LEAST 45 DAYS BEFORE THE PROPOSED DATE FOR RELEASE.

C. THE CONTRACTOR AGREES TO INCLUDE A SIMILAR REQUIREMENT IN EACH SUBCONTRACT UNDER THIS CONTRACT. SUBCONTRACTORS SHALL SUBMIT REQUESTS FOR AUTHORIZATION TO RELEASE THROUGH THE PRIME CONTRACTOR TO THE CONTRACTING OFFICER.

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 049893 ENGINEER MICHAEL R. HOWARD 5/4/23

FINAL 05-02-2023			G-001
	DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		
DES. MRH	REPLACE WATERLINES BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR		
DR. WEB			
CHK. MTH	COVER SHEET		
SUBMITTED BY:			
DESIGN DIR. J. FRANKLIN ORR, PE			
APPROVED: PWO OR OICC DATE	SIZE E1 / CODE IDENT. NO 80091	NAVFAC DRAWING NO. 60038607	
SATISFACTORY TO: DATE		CONST. CONTR.	
	SCALE: NOTED	SPEC. 05-22-0043	SHEET 01 OF 41

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G-002	60038608	2	INDEX AND GENERAL NOTES
CIVIL			
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CU102	60038612	6	BREWSTER BOULEVARD STA. 21+50 TO 36+50
CU103	60038613	7	BREWSTER BOULEVARD STA. 36+50 TO 50+50
CU104	60038614	8	BREWSTER BOULEVARD STA. 50+50 TO 63+51
CU105	60038615	9	SETH WILLIAMS BOULEVARD (SOUTH) STA. 10+00 TO 11+92 SETH WILLIAMS BOULEVARD (NORTH) STA. 10+00 TO 22+50
CU106	60038616	10	SETH WILLIAMS BOULEVARD STA. 22+50 TO 37+50
CU107	60038617	11	SETH WILLIAMS BOULEVARD STA. 37+50 TO 53+50
CU108	60038618	12	SETH WILLIAMS BOULEVARD STA. 53+50 TO 69+00
CU109	60038619	13	SETH WILLIAMS BOULEVARD STA. 69+00 TO 84+00
CU110	60038620	14	SETH WILLIAMS BOULEVARD STA. 84+00 TO 100+00
CU111	60038621	15	SETH WILLIAMS BOULEVARD STA. 100+00 TO 113+00
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CU113	60038623	17	CHARLES STREET STA. 10+00 TO 17+97
CU114	60038624	18	SCOUT LOOP STA. 10+00 TO 23+00
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CU201	60038628	22	BAXTER STREET STA. 10+00 TO 23+50
CU202	60038629	23	BAXTER STREET STA. 23+50 TO 29+06 JONES STREET STA. 10+00 TO 15+50
CU203	60038630	24	JONES STREET STA. 15+50 TO 29+70
CU204	60038631	25	LANGTRY STREET STA. 10+00 TO 17+77
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CU206	60038633	27	OFFSITE WATERLINE #1 STA. 10+00 TO 17+60 OFFSITE WATERLINE #2 STA. 10+00 TO 14+20
CU207	60038634	28	COMPTON STREET STA. 10+00 TO 21+08 OFFSITE WATERLINE #3 STA. 10+00 TO 11+26
CU208	60038635	29	GRIER STREET STA. 10+00 TO 25+00
CU209	60038636	30	GRIER STREET STA. 25+00 TO 32+90
CU210	60038637	31	MCAVOY STREET STA. 10+00 TO 26+00
CU211	60038638	32	MCAVOY STREET STA. 26+00 TO 40+00
CU212	60038639	33	MCAVOY STREET STA. 40+00 TO 43+27 MONTEITH STREET STA. 10+00 TO18+32
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REVISIONS

SYM		DATE	APPROVED

GENERAL DESIGN AND CONSTRUCTION NOTES:

1. ANY REFERENCES TO STATE GOVERNMENT, FEDERAL GOVERNMENT, OR INDUSTRY STANDARDS OR SPECIFICATION MADE HEREIN SHALL FORM A PART OF THE WORK TO THE EXTENT REFERENCED THERETO AND ALL MATERIALS AND WORKMANSHIP UNDER THE CONTRACT SHALL COMPLY WITH OR EXCEED THESE STANDARDS AND REFERENCE. ALL REFERENCED STANDARDS SHALL BE THE LATEST EDITION.
2. ALL MANUFACTURED EQUIPMENT AND PRODUCTS SHALL BE NEW MATERIALS IN UNDAMAGED CONDITION AND INSTALLED AS PER MANUFACTURER'S LATEST PRINTED INSTRUCTIONS, UNLESS SPECIFIED OTHERWISE HEREIN.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF EXISTING FACILITIES AND EQUIPMENT FROM DAMAGE DURING INSTALLATION AND TESTING OPERATIONS.
4. CONTRACTOR SHALL TAKE INTO ACCOUNT THE SPECIAL TREATMENT OF ANY HAZARDOUS WASTE, AS WELL AS THE RELATED ENVIRONMENTAL IMPLICATIONS. COORDINATE WITH CONTRACTING OFFICER REGARDING AVAILABLE TEST REPORTS ON ANY EXISTING CONDITIONS. REFER ALSO TO GEOTECHNICAL REPORT WHICH IS AVAILABLE UPON REQUEST. EVERY EFFORT SHALL BE MADE TO RECYCLE ELIGIBLE MATERIALS, AND THOSE NOT SUITABLE, SHALL BE DISPOSED OF OFF BASE IN ACCORDANCE WITH THE REQUIREMENTS OF THE (NCDEQ) NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY.
5. ANY REFRIGERANT AMOUNTS REMOVED OR INSTALLED SHALL BE DOCUMENTED AND THE INFORMATION SHALL BE PROVIDED TO THE BASE.
6. ENSURE THAT ANY DEMOLITION, UTILITY CUT AND CAPPING, AND DEBRIS REMOVAL SERVICE PERFORMED AT THE BASE IS COMPLETED IN SUCH A MANNER THAT WILL RESTORE A NEAT AND PROFESSIONAL APPEARANCE OF BASE AREAS.
7. THE FACILITY/AREA SHALL BE CLEANED IN ITS ENTIRETY, INCLUDING EXTERIOR AREAS, BEFORE BEING RETURNED TO THE GOVERNMENT.

WARRANTY:

1. CONTRACTOR SHALL FURNISH A MINIMUM ONE YEAR WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP STARTING ON THE BENEFICIAL OCCUPANCY DATE.

GENERAL INFORMATION:

1. THE CONTRACTOR SHALL PROVIDE ALL MANAGEMENT, TOOLS, SUPPLIES, EQUIPMENT, LABOR, AND APPLICABLE LICENSES AND PERMITS NECESSARY TO COMPLETE REQUIREMENTS WITHIN. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE STATEMENT OF WORK AND SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT AND IN ACCORDANCE WITH (UFC) UNITED FACILITIES CRITERIA, UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS), THE INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL PLUMBING CODE (IPC), NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE (NESC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), EPA 402-K-01-001 (2008), NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT), NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ), BASE DESIGN AND CONSTRUCTION STANDARDS INCLUDING BASE EXTERIOR ARCHITECTURAL PLAN (BEAP), AND ALL OTHER APPLICABLE CODES.

WORKING CONDITIONS:

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO INSURE THAT OPERATIONS ARE CONDUCTED IN A MANNER AS TO MINIMALLY INTERFERE WITH THE NORMAL OPERATIONS OF THE BASE AND THE SAFETY AND CONVENIENCE OF THE BASE PERSONNEL. THE CONTRACTOR SHALL COORDINATE UTILITY OUTAGES WITH THE APPROPRIATE BASE UTILITY SERVICE OFFICE AND THE USER.

GENERAL PROJECT NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, QUANTITIES AND SQUARE FOOTAGES. ALL DIMENSIONS, QUANTITIES AND SQUARE FOOTAGES INCLUDED ARE APPROXIMATIONS. CONSTRUCTION AND DEMOLITION SHALL BE IN STRICT ACCORDANCE WITH THE BASE DESIGN AND CONSTRUCTION STANDARDS. THE INFORMATION PROVIDED IN THE STATEMENT OF WORK (SOW), THE PROVIDED DRAWINGS, AND THE REQUIREMENTS OF THE BASE DESIGN AND CONSTRUCTION STANDARDS SHALL BE DETERMINED TO BE THE MINIMUM STANDARDS REQUIRED IN THIS PROJECT.
2. THE CONTRACTOR SHALL VIDEO ALL AREAS IN WHICH WORK SHALL OCCUR PRIOR TO STARTING WORK TO INCLUDE INTERIOR AND EXTERIOR JOB SITE AND SURROUNDING AREA. UFC'S TAKE PRECEDENCE OVER ALL STANDARDS, CODES AND BASE DESIGN STANDARDS AND REQUIREMENTS THAT PERTAIN TO THE WORK WITHIN THIS SOW.
3. DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE EXISTING STRUCTURES, ETC. THAT WILL NOT BE REPLACED AS PART OF THIS CONTRACT. CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY SUPPORT OF ALL DEVICES AS REQUIRED TO PERFORM WORK. ANY DEMOLITION WORK THAT NEEDS TO BE ACCOMPLISHED TO COMPLETE THE CONTRACT IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL MATERIAL SHALL BE INSTALLED PER MANUFACTURERS' RECOMMENDATIONS. ALL ITEMS LISTED IN THE SOW ARE TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
4. A PRE-CONSTRUCTION MEETING WILL BE HELD AT THE BASE TO INCLUDE THE CONTRACTOR AND GOVERNMENT REPRESENTATIVES. THE GOVERNMENT SHALL SET UP THIS MEETING WITH THE CONTRACTOR AND GOVERNMENT REPRESENTATIVES, TO DISCUSS ALL PERTINENT PROJECT REQUIREMENTS, AS WELL AS ANY OTHER CONSTRUCTION ISSUES THE CONTRACTOR MAY HAVE. ALL FINISHES SHALL BE PRESENTED TO THE CONTRACTING OFFICER AS ONE SUBMITTAL FOR SELECTION AND APPROVAL PRIOR TO INSTALLATION. ALL MATERIAL THAT COULD BE DISCONTINUED SHALL BE ON-SITE, I.E. CARPET AND TILE PRIOR TO STARTING PROJECT SO THERE WILL BE NO DIFFERENCE IN COLOR.
5. WHERE SPECIFIC PART NUMBERS OR MANUFACTURER'S ARE REFERENCED, IT SHALL BE UNDERSTOOD THAT THE CONTRACTOR MAY SUBMIT A PROPOSED EQUAL.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

G-002

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 048880 ENGINEER MICHAEL R. HOUSE 5/2/23

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

INDEX & GENERAL NOTES

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038608
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 02 OF 41

GENERAL PROJECT NOTES:

1. WHERE SPECIFIC PART NUMBERS OR MANUFACTURERS ARE REFERENCED, IT SHALL BE UNDERSTOOD THAT THE CONTRACTOR MAY SUBMIT A PROPOSED EQUAL.
2. THE TERMS "OWNER" & "GOVERNMENT" WILL BE CONSIDERED TO BE THE SAME/ INTERCHANGEABLE FOR THIS PROJECT.
3. THE TERM "SHALL" WHERE USED IS EQUIVALENT TO "MUST". ALL WORK AND MATERIALS NOTED ARE NEW UNLESS NOTED OTHERWISE.
4. THE TERM "INSTALL" WHERE USED IS EQUIVALENT TO "PROVIDE", (FURNISH AND INSTALL COMPLETE)

CIVIL GENERAL NOTES:

1. REFER TO THE PROJECT SPECIFICATIONS IN ALL SITUATIONS. BRING CONFLICTS BETWEEN PROJECT SPECIFICATIONS AND PLANS TO THE ATTENTION OF THE CONTRACTING OFFICER AND/OR ENGINEER FOR RESOLUTION. ALL MATERIALS AND WORKMANSHIP MUST CONFORM TO THE PROJECT SPECIFICATIONS.
2. THE CONTRACTOR SHALL PROVIDE ALL MANAGEMENT, TOOLS, SUPPLIES, EQUIPMENT, LABOR, AND APPLICABLE LICENSES AND PERMITS NECESSARY TO COMPLETE REQUIREMENTS WITHIN. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE STATEMENT OF WORK AND SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT AND IN ACCORDANCE WITH (UFC) UNITED FACILITIES CRITERIA, UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS), THE INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL PLUMBING CODE (IPC), NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE (NESC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), EPA 402-K-01-001 (2008), NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT), NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ), BASE DESIGN AND CONSTRUCTION STANDARDS INCLUDING BASE EXTERIOR ARCHITECTURAL PLAN (BEAP), AND ALL OTHER APPLICABLE CODES
3. ANY REFERENCES TO STATE GOVERNMENT, FEDERAL GOVERNMENT, OR INDUSTRY STANDARDS OR SPECIFICATION MADE HEREIN SHALL FORM A PART OF THE WORK TO THE EXTENT REFERENCED THERETO AND ALL MATERIALS AND WORKMANSHIP UNDER THIS CONTRACT SHALL COMPLY WITH OR EXCEED THESE STANDARDS AND REFERENCES. ALL REFERENCED STANDARDS SHALL BE THE LATEST EDITION.
4. ALL MANUFACTURED EQUIPMENT AND PRODUCTS SHALL BE NEW MATERIALS IN UNDAMAGED CONDITION AND INSTALLED AS PER MANUFACTURER'S LATEST PRINTED INSTRUCTIONS, UNLESS SPECIFIED OTHERWISE HEREIN
5. EXISTING UTILITY INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. LOCATION, VERIFICATION, SUPPORT AND PROTECTION OF ALL ABOVE GROUND AND UNDERGROUND UTILITIES TO REMAIN IN PLACE, INCLUDING ANY UTILITIES NOT INDICATED ON CONTRACT DRAWINGS IS REQUIRED. ANY CONFLICTS OR DISCREPANCIES MUST BE BROUGHT TO THE CONTRACTING OFFICER'S AND/OR ENGINEER'S ATTENTION IMMEDIATELY.
6. PRIOR TO ANY EXCAVATION, CONTRACTOR MUST HAVE THE EXISTING UNDERGROUND LINES MARKED ON THE GROUND SURFACE IN THE AREAS OF CONSTRUCTION. CONTRACTOR MUST CALL 811 AND CONTRACT WITH PRIVATE UTILITY LOCATOR FOR UTILITY LOCATES. 811 WILL NOT BE RESPONSIBLE FOR LOCATING UTILITIES THAT BELONG TO THE BASE AND BASE UTILITIES WILL NOT BE RESPONSIBLE FOR LOCATING UTILITIES FOR THE CONTRACTOR.
7. POTHOLE AND PHYSICALLY VERIFY DEPTH AND LOCATION OF ALL UTILITY LINES IN THE WORK AREA THAT REQUIRE COORDINATION WITH WORK ITEMS. POTHOLE VERIFICATION MUST BE DONE WELL IN ADVANCE OF ACTUAL WORK SO THAT POTENTIAL UTILITY CONFLICTS CAN BE VERIFIED AND RESOLVED WITHOUT CAUSING SCHEDULE DELAYS.
8. PROTECT ALL EXISTING STRUCTURES, TREES, PAVEMENT, UTILITIES, AND OTHER PROPERTY UNLESS THEY ARE TO BE DEMOLISHED. ANY PROPERTY NOT AUTHORIZED FOR REMOVAL, BUT DAMAGED BY THE CONTRACTOR MUST BE RESTORED BY THE CONTRACTOR TO THEIR PRE-CONSTRUCTION CONDITION OR BETTER AT NO ADDITIONAL EXPENSE TO THE OWNER.
9. MAKE EVERY EFFORT TO SAVE PROPERTY IRONS, MONUMENTS, OTHER PERMANENT POINTS AND LINES OF REFERENCE AND CONSTRUCTION STAKES. PROPERTY IRONS, MONUMENTS, AND OTHER PERMANENT POINTS OF REFERENCE DESTROYED BY THE CONTRACTOR MUST BE REPLACED AT THE CONTRACTOR'S EXPENSE.
10. WORK PERFORMED UNDER THIS CONTRACT MUST NOT IMPACT THE OPERATION OF ANY ADJACENT PROPERTIES UNLESS A UTILITY OUTAGE HAS BEEN APPROVED IN ADVANCE.
11. SEQUENCE WORK AS NECESSARY TO ENSURE THAT ALL UTILITY SERVICES, INCLUDING FIRE HYDRANTS, REMAIN OPERATIONAL DURING CONSTRUCTION. CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO INSURE THAT OPERATIONS ARE CONDUCTED IN A MANNER AS TO MINIMALLY INTERFERE WITH THE NORMAL OPERATIONS OF THE BASE AND THE SAFETY AND CONVENIENCE OF THE BASE PERSONNEL. THE CONTRACTOR SHALL COORDINATE UTILITY OUTAGES WITH THE APPROPRIATE BASE UTILITY SERVICE OFFICE AND THE USER.
12. CONTRACTOR SHALL PROVIDE OWNER WITH CUT OVER PLAN TO MINIMIZE OUTAGE TIME. SEE DIVISION 1 SPECIFICATIONS FOR REQUIREMENTS INCLUDING NOTIFICATIONS.
13. RESTORE ANY ACCESS ROADS AND STAGING AREAS USED BACK TO THEIR PRE-CONSTRUCTION CONDITION OR BETTER. VEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
14. TAKE ADEQUATE PROTECTIVE MEASURES TO ENSURE THAT EXISTING PAVEMENT SURFACES ARE NOT DAMAGED FROM TRACKED CONSTRUCTION EQUIPMENT OR ANY OTHER POSSIBLE SOURCE WHEN EQUIPMENT IS BEING MOVED. REPAIR ANY PAVED AREAS DAMAGED DURING CONSTRUCTION TO THEIR PRE-CONSTRUCTION CONDITION OR BETTER.
15. EXISTING PAVEMENTS AND ALL OTHER AREAS ADJACENT TO THE SITE MUST BE KEPT CLEAN AT ALL TIMES. DO NOT ALLOW BUILD UP OF SOIL, MUD, DUST OR OTHER DEBRIS. AREA IS TO BE CLEANED IN ITS ENTIRETY BEFORE BEING RETURNED TO THE GOVERNMENT.
16. CONTRACTOR IS RESPONSIBLE FOR ALL SURVEYING AND STAKING TO COMPLETE THE WORK.
17. ANY AND ALL MATERIAL QUANTITIES INDICATED ON THIS PLAN SET ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, QUANTITIES AND SQUARE FOOTAGES. ALL DIMENSIONS, QUANTITIES AND SQUARE FOOTAGES INCLUDED ARE APPROXIMATIONS. CONSTRUCTION AND DEMOLITION SHALL BE IN STRICT ACCORDANCE WITH THE BASE DESIGN AND CONSTRUCTION STANDARDS. THE INFORMATION PROVIDED IN THE STATEMENT OF WORK (SOW), THE PROVIDED DRAWINGS, AND THE REQUIREMENTS OF THE BASE DESIGN AND CONSTRUCTION STANDARDS SHALL BE DETERMINED TO BE THE MINIMUM STANDARDS REQUIRED IN THIS PROJECT.
18. KEEP REDLINE MARK-UPS OF ANY CHANGES MADE FROM THE APPROVED PLAN AND PROVIDE COPY OF REDLINES TO ENGINEER UPON PROJECT COMPLETION.
19. THERE ARE NO KNOWN SURFACE WATERS LOCATED WITHIN THE PROJECT BOUNDARY.

WARRANTY:

1. CONTRACTOR SHALL FURNISH A MINIMUM ONE YEAR WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP STARTING ON THE BENEFICIAL OCCUPANCY DATE.

EXISTING CONDITION NOTES:

1. HORIZONTAL CONTROL BASED ON NAD83, U.S. SURVEY FEET. DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCE IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
2. VERTICAL DATUM BASED ON NAVD 88.
3. SURVEY CONTROL BASED ON EXISTING BASE MONUMENT C-5 AND ADDITIONAL CONTROL POINTS BY CAPE FEAR ENGINEERING, INC SET JUNE 2021.
4. UTILITIES SHOWN ARE BASED ON A COMBINATION OF UTILITY LOCATES AND GIS INFORMATION. UTILITIES SHOULD NOT BE CONSIDERED EXACT OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION, VERIFICATION, AND PROTECTION OF ALL UTILITIES.

PT 25 (C-25)	PT 200 (NAIL)	PT 300 (RBC)	PT 301 (RBC)
N-355019.9400	N-354124.4024	N-352957.0609	N-352721.3053
E-2488278.1600	E-2482088.9813	E-2483234.6363	E-2486679.2142
Z-20.79'	Z-13.92'	Z-16.16'	Z-20.12'

PT 302 (RBC)	PT 303 (RBC)	PT 304 (RBC)
N-350635.8231	N-346561.7638	N-342673.2447
E-2488392.9327	E-2491163.0456	E-2493795.6896
Z-18.78'	Z-12.97'	Z-10.79'

DEMOLITION PLAN NOTES:

1. LOCATE UNDERGROUND UTILITIES AND COORDINATE DEMOLITION AND / OR RELOCATION WORK. SPECIFICALLY TAKE EXTRA CAUTIONARY MEASURES TO PREVENT DISRUPTION OF ANY TELECOM FIBER IN THE PROJECT AREA. ONCE LOCATED IN THE FIELD, POSITIVE VERIFICATION BY POTHOLING IS REQUIRED. REPORT ANY CONFLICTS OR DISCREPANCIES TO ENGINEER.
2. LIMITS OF DEMOLITION AND DIMENSIONS ARE SHOWN FOR GENERAL REFERENCE. CONTRACTOR MUST BE RESPONSIBLE FOR REMOVAL OF ALL ITEMS, INCLUDING ALL EXCAVATED MATERIALS NECESSARY TO COMPLETE WORK WITHIN THIS CONTRACT.
3. WHERE ASPHALT/CONCRETE DEMOLITION IS REQUIRED, USE A SAW CUT AT THE LIMITS OF DEMOLITION OR NEAREST JOINT TO OBTAIN A CLEAN VERTICAL EDGE.
4. DEDICATED DEMOLITION AND OTHER WASTE AREAS/EARTHEN MATERIAL STOCKPILES MUST BE LOCATED AT LEAST 50' FROM STORMDRAINS, STREAMS, OR WETLANDS.
5. REPORT ANY UNSUITABLE SOILS, CONTAMINATED SOILS, AND BURIED CONCRETE AND DEBRIS TO THE CONTRACTING OFFICER.
6. CONTRACTOR MUST PROVIDE TEMPORARY THRUST BLOCKS AND TEMPORARILY CAP WATERLINES FOR SEQUENCING OF WATERLINE DEMOLITION AND INSTALLATION OF NEW TEES AND FITTINGS..
7. CONTRACTOR MUST SEQUENCE INSTALLATION, TESTING, AND CERTIFICATION OF NEW MAINS AND DEMOLITION OF EXISTING WATER INFRASTRUCTURE TO ENSURE ALL SYSTEMS REMAIN ONLINE AND WITH WATER SERVICE DURING WORK. CONTRACTOR MUST PROVIDE TEMPORARY CAPS AND PLUGS FOR SEQUENCING OF DEMOLITION AND NEW WORK.
8. UNDERGROUND UTILITIES SHOWN ON THE DEMOLITION PLANS MAY EXTEND FURTHER THAN SHOWN. CONTRACTOR IS RESPONSIBLE FOR COMPLETE REMOVAL OF UTILITIES WITHIN THE ENTIRE PROJECT SITE UNLESS OTHERWISE NOTED.
9. ASBESTOS CONCRETE PIPING (ACP) MAY BE ENCOUNTERED WITHIN THE SCOPE OF WORK OUTLINED. PRIOR TO PERFORMANCE OF WORK, CONTRACTOR SHALL PROVIDE PROJECT OWNER WITH A WRITTEN PLAN FOR REMOVAL, TRANSPORT AND DISPOSAL OF ANY ACP IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS. SEE TECHNICAL SPECIFICATION DIVISION 2 SECTION 02 82 16 AND ENSURE COMPLIANCE. SEE PLAN SHEETS CU101, CU113 AND CU114 FOR AREAS WHERE ACP IS MOT LIKELY TO BE ENCOUNTERED.
10. CONTRACTOR SHALL CONTACT AND COORDINATE WITH BASE UTILITIES FOR BASE CONTRACTING TO CLOSE ANY EXISTING VALVES AS NECESSARY. CONTRACTOR SHALL NOT CLOSE ANY VALVES INDEPENDENTLY.
11. IN ALL LOCATIONS EXCEPT THOSE NOTED BELOW, EXISTING WATER MAIN SHALL BE DEMOLISHED AND REMOVED ALONG WITH ALL APPURTENANCES. WHERE SIDEWALK OR DRIVEWAY PAVEMENT DEMOLITIONS IS REQUIRED, PAVEMENT SECTIONS SHALL BE REPLACED IN LIKE KIND.
   - 11.1. WHERE EXISTING WATERLINE IS LOCATED SUBSTANTIALLY WITHIN THE DRIP LINE OF EXISTING TREES OVER 6" CALIPER IN SIZE AND IT IS DEEMED THAT REMOVAL OF THE EXISTING LINE POSES SIGNIFICANT THREAT TO ROOTS AND TREE SURVIVAL, EXISTING WATERLINE MAY BE FILLED WITH FLOWABLE FILL, CAPPED AND ABANDONED IN PLACE.
   - 11.2. WHERE EXISTING WATERLINE IS LOCATED UNDERNEATH EXISTING ASPHALT WITHIN ROADWAYS, EXISTING WATER LINE MAY BE FILLED WITH FLOWABLE FILL, CAPPED AND ABANDONED IN PLACE SO THAT ROADS MAY REMAIN IN SERVICE.
   - 11.3. EXISTING WATERLINE LOCATED WITHIN OR IN CLOSE PROXIMITY TO WETLANDS SHALL BE CUT, CAPPED AND ABANDONED IN PLACE. NO DISTURBANCE TO WETLAND AREAS IS PERMITTED.

STORMWATER AND GRADING NOTES:

1. PROJECT REQUIRES SWG040000 GENERAL PERMIT TO CONSTRUCT A LINEAR UTILITY LINE AND ASSOCIATED INCIDENTAL BUILT-UPON AREA APPROVAL TO BE ISSUED BY NCDEQ.
2. ALL CUT OR FILL SLOPES MUST BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. DURING CONSTRUCTION, PERFORM GRADING IN A MANNER AND SEQUENCE THAT WILL PROVIDE PROPER DRAINAGE AT ALL TIMES.
4. ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
5. UPON THE COMPLETION OF CONSTRUCTION AND SITE STABILIZATION, ALL NEW PIPES AND EXISTING PIPES IMPACTED BY CONSTRUCTION MUST BE CLEANED TO REMOVE ALL ACCUMULATED SILT, SEDIMENT AND DEBRIS.

GENERAL UTILITY NOTES:

1. ALL UTILITY MATERIALS, CONSTRUCTION, TESTING AND WORKMANSHIP MUST CONFORM TO THE PROJECT SPECIFICATIONS, UFC STANDARDS, AND MUST MEET OR EXCEED NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY AND CAMP LEJEUNE STANDARDS AND SPECIFICATIONS.
2. A NORTH CAROLINA LICENSED UTILITY CONTRACTOR MUST PERFORM ALL UTILITY WORK INVOLVED IN CONSTRUCTING THIS PROJECT.
3. COORDINATE WITH THE UTILITY PROVIDERS FOR REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS.
4. ISOLATE ALL NEW PIPING FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN TESTED, CERTIFIED TO UTILITY PROVIDER AND ACCEPTED FOR SERVICE.
5. FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITY LINES PRIOR TO THE INSTALLATION OF ANY NEW LINES.
6. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF UTILITIES. IF NOT, CONTRACTOR MUST ENSURE THAT MINIMUM COVER REQUIREMENTS ARE MET AND THAT UTILITIES ARE ADEQUATELY PROTECTED.
7. ADJUST ALL UTILITY STRUCTURE RIM ELEVATIONS AS NECESSARY TO MATCH FINAL ELEVATIONS.
8. NOTIFY THE UTILITY PROVIDER'S INSPECTORS AND CONTRACTING OFFICER, AND ENGINEER AT LEAST 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE AND/OR BEGINNING UTILITY LINE INSTALLATION.
9. NOTIFY AND RECEIVE APPROVAL FROM THE UTILITY PROVIDER'S INSPECTORS AND CONTRACTING OFFICER AT LEAST 15 DAYS PRIOR TO ANY UTILITY DISRUPTIONS.
10. THE UTILITY DRAWINGS DO NOT SHOW EVERY OFFSET, TRANSITION, AND FITTING THAT MAY BE REQUIRED. DETERMINE AND PROVIDE FITTINGS AND CONCRETE THRUST BLOCKS NECESSARY FOR COMPLETION OF THE SYSTEM.
11. ALL UNDERGROUND UTILITIES MUST BE INSTALLED A MINIMUM OF 10 FEET FROM NEW OR EXISTING STRUCTURES.

WATER NOTES:

1. A NCDEQ WATER EXTENSION PERMIT IS REQUIRED FOR THIS PROJECT. NO WATERLINE SHALL BE CONNECTED TO THE EXISTING SYSTEM PRIOR TO THE PERMIT APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL WORK IS PERFORMED IN COMPLIANCE WITH CONDITIONS SET FORTH IN THE NCDEQ WATER EXTENSION PERMIT.
2. MINIMUM UTILITY SEPARATIONS
   SANITARY SEWER - 10-FEET (LATERALLY)
   - 18-INCHES (VERTICAL - WATER OVER SEWER)
   STORM SEWER - 18-INCHES (VERTICAL)
3. WHERE A WATER MAIN PASSES OVER A SEWER, AND THE VERTICAL SEPARATION IS LESS THAN 18" OR WHERE WATER PASSES UNDER SEWER, THE SEWER AND WATERMAIN MUST BOTH BE DUCTILE IRON PIPE FOR A DISTANCE OF 10' ON EACH SIDE OF THE CROSSING (20' LENGTH CENTERED AT CROSSING - NO JOINTS).
4. ALL WATERLINES MUST HAVE A MINIMUM OF 36-INCHES OF COVER FROM FINISHED GRADE, UNLESS DUCTILE IRON IS SPECIFIED.
5. ALL WATERLINES MUST HAVE A MINIMUM OF 18-INCHES OF SEPARATION BETWEEN UNDERGROUND POWER AND COMMUNICATION LINES. COORDINATE WITH THE SITE ELECTRICAL/COMMUNICATIONS CONTRACTOR.
6. WHERE A WATERLINE PASSES UNDER A STORM DRAIN PIPE, THE WATERLINE MUST MAINTAIN A MINIMUM OF 18-INCHES OF VERTICAL SEPARATION FOR A DISTANCE OF 10' ON EACH SIDE OF THE CROSSING (20' LENGTH CENTERED AT CROSSING - NO JOINTS).
7. ALL WATERLINES MUST HAVE A MINIMUM OF 18-INCHES OF SEPARATION FROM GAS LINES. COORDINATE WITH PROVIDER AS REQUIRED.
8. PIPE, FITTINGS, FIXTURES, SOLDER OR FLUX MATERIALS SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT (RLDWA). INSTALLATION OR REPAIR OF ANY PIPING, FITTINGS, FIXTURES, SOLDER OR FLUX MUST BE "LEAD FREE" AS CURRENTLY DEFINED UNDER RLDWA, WHICH ALLOWS FOR A WEIGHTED AVERAGE OF 0.25% OF THE WETTED SURFACE OF PLUMBING PRODUCTS AND 0.2% LEAD FOR SOLDER AND FLUX. A METHODOLOGY FOR CALCULATING THE WEIGHTED AVERAGE OF WETTED SURFACES CAN BE FOUND AT <HTTP://WWW.EPA.GOV>
9. PRIOR TO PLUMBING CONNECTION FROM METERS TO RESIDENTIAL STRUCTURES, CONTRACTOR TO VERIFY EXISTING PLUMBING MATERIALS AND ENSURE APPROPRIATE FITTINGS, ADAPTORS, ETC. ARE READILY AVAILABLE ONSITE.

HORIZONTAL DIRECTIONAL DRILL NOTES:

1. CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS AS REQUIRED FOR COMPLETE HORIZONTAL DIRECTIONAL DRILL INSTALLATION.
2. ALL BENDS, FITTINGS, AND APPURTENANCES SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, THRUST BLOCKS, TRANSITIONS AND APPURTENANCES REQUIRED FOR COMPLETE WATERLINE INSTALLATION.
3. RESTRAINED JOINTS SHOWN FOR REFERENCE ONLY. PROVIDE RESTRAINED JOINTS PER PROJECT SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS AT ALL FITTINGS, BENDS AND TRANSITIONS.
4. DRILLING MUD CANNOT BE DISPOSED OF ON THE PROJECT SITE. UTILITY CONTRACTOR SHALL COMPLY WILL ALL APPLICABLE LAWS AND REGULATIONS REGARDING THE TRANSPORT AND OFF-SITE DISPOSAL OF DRILLING MUD AND EXCESS EXCAVATED MATERIALS.
5. UTILITY CONTRACTOR SHALL ESTABLISH BERMED OR SANDBAGGED PITS OF SUFFICIENT SIZE ACCOMMODATE THE VOLUME OF DRILLING MUD ANTICIPATED WITH 2' FREEBOARD PROVIDED. THE BERMED AREAS SHALL BE DESIGNED AND MAINTAINED BY THE UTILITY CONTRACTOR TO ENSURE CONTAINMENT AND PREVENT LOSS OF DRILLING MUD.
6. TEMPORARY SLOPES ON BORE/SLURRY PITS SHALL NOT EXCEED LOCAL, STATE, OR FEDERAL SAFETY REGULATIONS IN HEIGHT, SLOPE, INCLINATION, EXCAVATION DEPTH, ETC.
7. IF TEMPORARY SLOPES AS SPECIFIED ARE NOT FEASIBLE OR STABILITY OF ADJOINING STRUCTURES, PAVEMENTS, OR OTHER IMPROVEMENTS IS ENDANGERED BY EXCAVATION OPERATIONS, SUPPORT SYSTEMS SUCH AS BRACING, SHORING, OR UNDERPINNING MAY BE REQUIRED. SYSTEM DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGNED BY A LICENSED, PROFESSIONAL ENGINEER.
8. ALL EXCAVATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA GUIDELINES AND EM 385 SAFETY AND HEALTH REQUIREMENTS MANUAL. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND CONSTRUCTING STABLE, TEMPORARY EXCAVATIONS AND SHOULD SHORE, SLOPE, OR BENCH THE SIDES OF EXCAVATIONS AS REQUIRED TO MAINTAIN STABILITY OF BOTH THE EXCAVATION SIDES AND BOTTOM.

WETLAND AND SURFACE WATERS IMPACT NOTES:

1. CONTRACTOR SHALL TAKE NECESSARY MEASURES TO ENSURE THAT THE WETLAND AREAS AND SURFACE WATERS ARE NOT IMPACTED BY ADJACENT WORK.
2. SILT FENCING SHALL BE INSTALLED AT THE EDGE OF THE WETLANDS AS MAY BE NECESSARY TO PREVENT LOSS OF SEDIMENT/IMPACTS. ANY EROSION CONTROL MEASURES REQUIRED FOR PROTECTION OF THE WETLAND AREAS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR SHALL ENSURE ADJACENT WETLAND AREAS ARE NOT DEWATERED DURING CONSTRUCTION ACTIVITIES.
4. IN ALL LOCATIONS, CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PERMITS FOR WORK ADJACENT TO AND WITHIN THE WETLAND AREAS AND SURFACE WATERS.

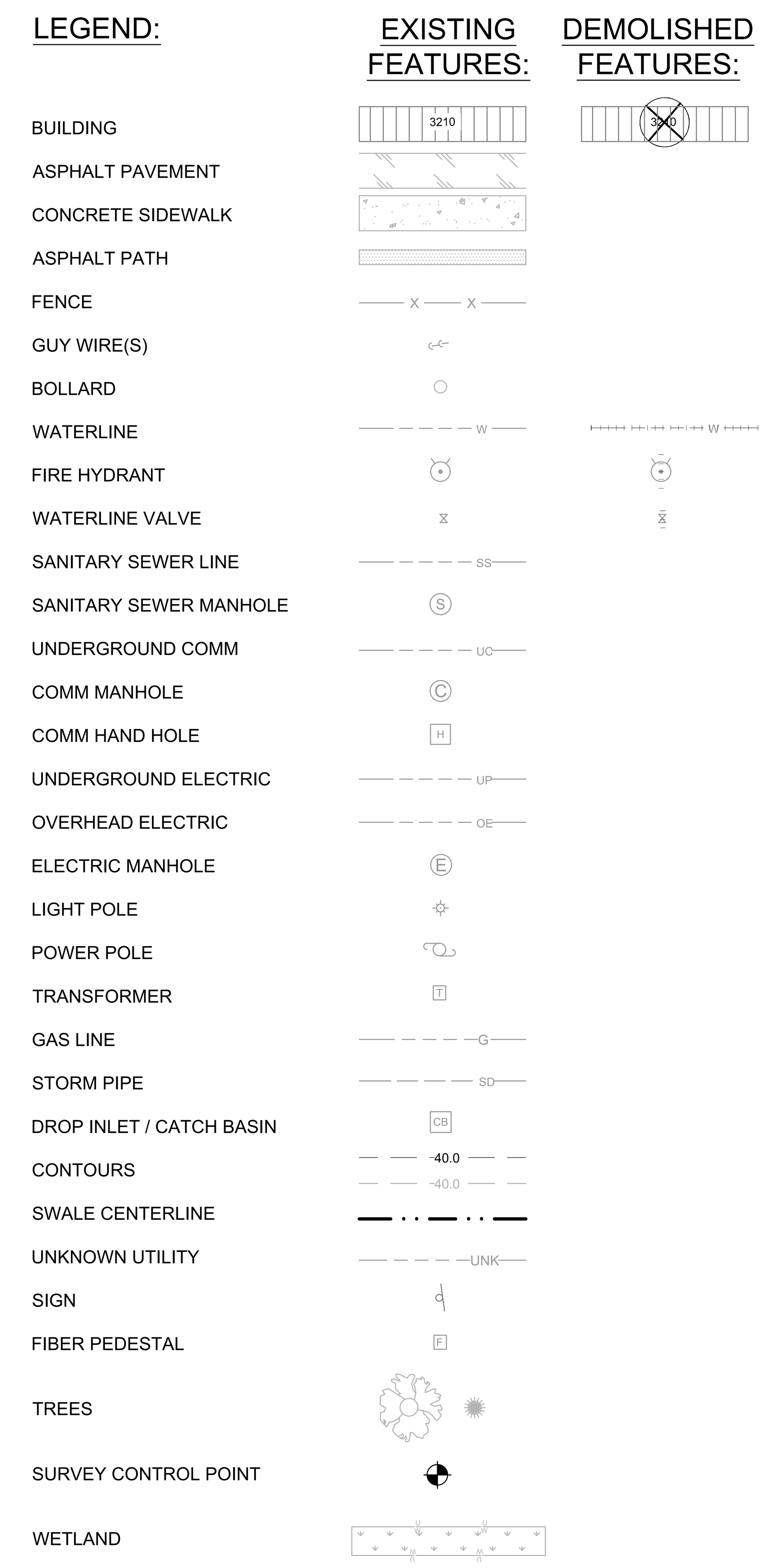
EROSION CONTROL NOTES:

1. AN NCDEQ SEDIMENT AND EROSION CONTROL PERMIT IS REQUIRED FOR THIS PROJECT. NO LAND DISTURBING ACTIVITIES SHALL BE PERFORMED PRIOR TO THE PERMIT APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL WORK IS PERFORMED IN COMPLIANCE WITH CONDITIONS SET FORTH IN THE NCDEQ WATER EXTENSION PERMIT.
2. CONTRACTOR SHALL COMPLY WITH CURRENT NC DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ) "EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL" FOR ALL EROSION CONTROL WORK.
3. DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IF DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES.
4. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL CLEAR AND GRUB ALL DISTURBED AREAS AS REQUIRED FOR WATERLINE INSTALLATION.
5. IF UNFORESEEN EROSIVE CONDITIONS DEVELOP DURING CONSTRUCTION AS THE RESULT OF INCREASED RUNOFF OR SEDIMENT DISPLACEMENT, THE CONTRACTOR SHALL TAKE ACTION TO REMEDY SUCH CONDITIONS AND PREVENT DAMAGE TO ADJACENT PROPERTIES AT HIS OWN EXPENSE.
6. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN NECESSARY, AND SHALL BE CHECKED FOR STABILITY AND PROPER FUNCTIONING AFTER EVERY RAINFALL EVENT.
7. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM THE SITE AT ALL TIMES.
8. CONTRACTOR SHALL ENSURE THAT NO MATERIAL IS STORED/STOCKPILED IN ROADWAYS AT ANY TIME.

SEQUENCE OF LAND DISTURBANCE:

1. PRE-CONSTRUCTION CONFERENCE TO BE HELD PRIOR TO THE BEGINNING OF WORK.
2. DETERMINE AND MARK LIMITS OF DISTURBANCE. INSTALL SILT FENCE AS NEEDED TO PREVENT TRANSPORT OF SEDIMENT OFFSITE.
3. BEGIN LAND CLEARING AND GRUBBING FOR UTILITY INSTALLATION AS SOON AS KEY EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE.
4. INSTALL UTILITIES AND BACKFILL TRENCH TO MATCH THE GRADE PRIOR TO DISTURBANCE.
5. PLACE TEMPORARY SEEDING, INCLUDING MULCHING AND CRIMPING, ON ALL DISTURBED AREAS, WITHIN 7 DAYS.
6. PERMANENT GRASS SHALL BE INSTALLED PER PROJECT SPECIFICATIONS FOR ALL AREAS AT FINAL GRADE AND IN SEASON. FERTILIZE, WATER AND REPLACE AS REQUIRED TO ESTABLISH A VIGOROUS STAND OF GRASS. TEMPORARY IRRIGATION MAY BE REQUIRED UNTIL GRASS IS FULLY ESTABLISHED.
7. INSPECT AND MAINTAIN ALL EROSION CONTROL DEVICES EVERY 7 DAYS AND AFTER EACH SIGNIFICANT RAINFALL EVENT (0.5" OR GREATER). CONTRACTOR IS RESPONSIBLE FOR KEEPING RECORDS OF THE INSPECTIONS AND MAINTENANCE OF ALL EROSION CONTROL DEVICES IN COMPLIANCE WITH THE LAND DISTURBANCE PERMIT.
8. AFTER COMPLETION OF CONSTRUCTION AND THE SITE IS STABILIZED, REMOVE ALL ACCUMULATED SEDIMENT FROM SILT FENCE AND OTHER EROSION CONTROL MEASURES AND SPREAD EVENLY ACROSS THE SITE. GRASS THESE AREAS IMMEDIATELY AND REMOVE ALL EROSION CONTROL MEASURES.
9. NO SEDIMENT MAY BE TRANSPORTED OFFSITE.

LEGEND:



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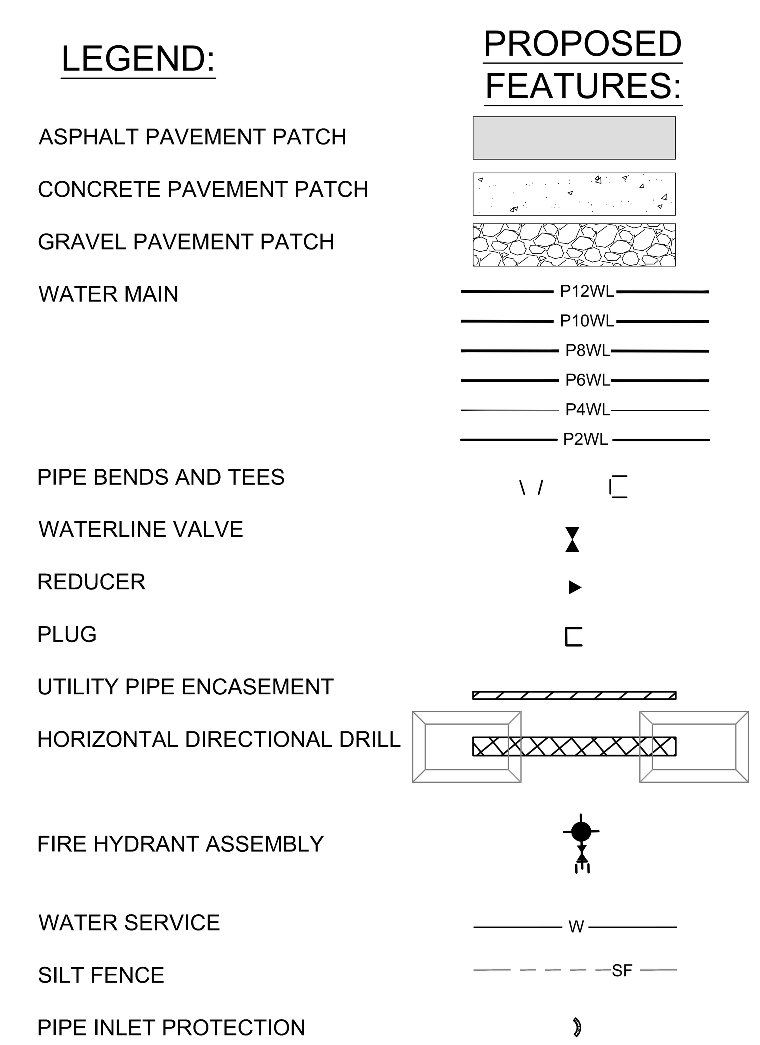
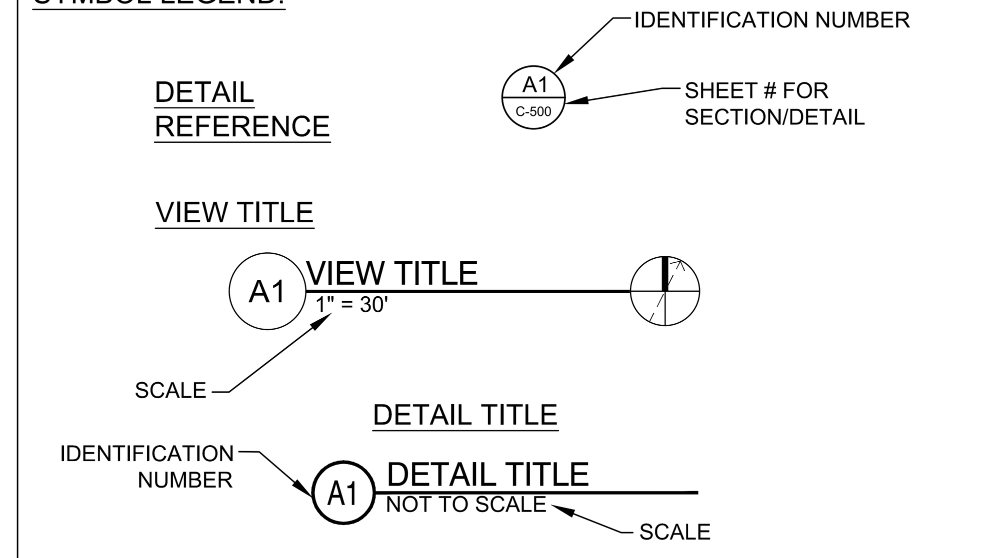


REVISIONS			
SYM		DATE	APPROVED

A/C	AIR CONDITIONER
ATFP	ANTI TERRORISM FORCE PROTECTION
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
BW	BARBED WIRE
C&G	CURB AND GUTTER
CB	CATCH BASIN
CC	CONCRETE CURB
CI	CURB DROP INLET
CJ	CONTRACTION JOINT
CLF	CHAIN LINK FENCE
CMH	COMMUNICATION MANHOLE
CONC	CONCRETE
D/B	DESIGN/BUILD
DCJ	DOWELED CONSTRUCTION JOINT
DI	DROP INLET
DUMP	DUMPSTER
E	EAST
EHH	ELECTRICAL HANDHOLE
EG	EXISTING GAS
EJ	EXPANSION JOINT
ELEC	ELECTRIC
EMH	ELECTRICAL MANHOLE
EL	ELEVATION
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FL	FLOW LINE
GFGI	GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
IE	INVERT ELEVATION
LP	LIGHT POLE
LSA	LANDSCAPE STONE
MAT	MATERIAL
MH	MANHOLE
MOF	METAL ORNAMENTAL FENCE
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH
NCDEQ	NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
NCDOT	NORTH CAROLINA DIVISION OF TRANSPORTATION
NE	NORTHEAST
NIC	NOT IN CONTRACT
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NW	NORTHWEST
PNG	PIEDMONT NATURAL GAS
PP	POWER POLE
PT	PHYSICAL TRAINING
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
S	SOUTH
SCM	STORMWATER CONTROL MEASURE
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SEP	SEPARATION
SMH	SANITARY SEWER MANHOLE
STA	STATION
STY	STORY
SW	SOUTHWEST
TC	TOP OF CURB
TD	TRENCH DRAIN
TE	THICKENED EDGE
TEJ	THICKENED EDGE EXPANSION JOINT
THH	TELECOMMUNICATION HANDHOLE
TMH	TELECOMMUNICATION MANHOLE
TRANS	TRANSFORMER
TSB	TEMPORARY SEDIMENT BASIN
TYP	TYPICAL
UG	UNDERGROUND
UNK	UNKNOWN
W	WEST
W/BW	WITH BARBED WIRE
WV	WATER VALVE

SYMBOL LEGEND:



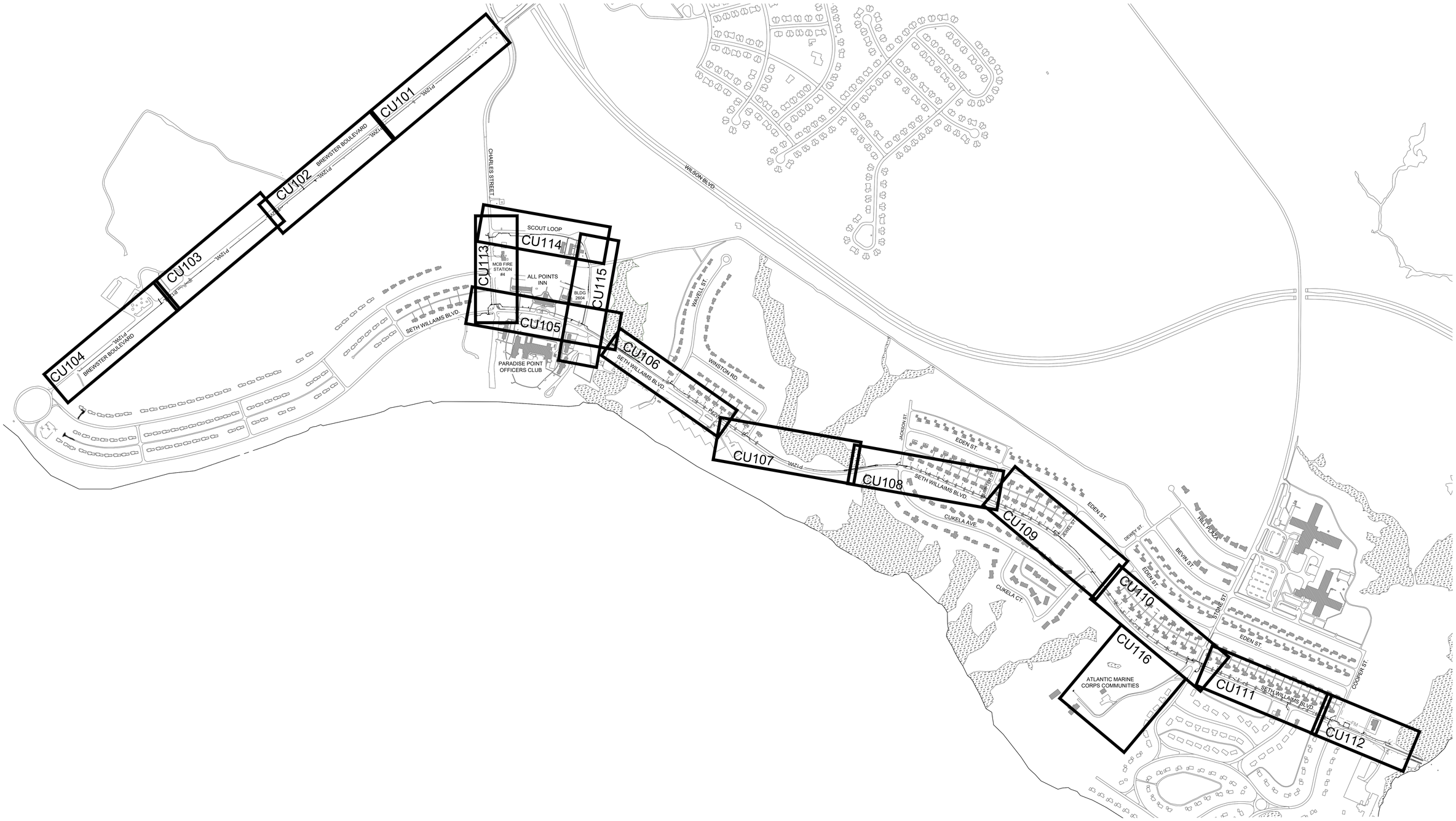
SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046980 MICHAEL R. HOUSE 5/2/23

FINAL 05-02-2023		C-001	
	DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		
DES. MRH	REPLACE WATERLINES BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR		
DR. WEB			
CHK. MTH			
SUBMITTED BY:	CIVIL GENERAL NOTES, LEGEND AND ABBREVIATIONS		
DESIGN DIR. J. FRANKLIN ORR, PE			
APPROVED: PWO OR OICC DATE	SIZE E1	CODE IDENT. NO 80091	NAVFAC DRAWING NO. 60038609
SATISFACTORY TO: DATE			CONST. CONTR.
	SCALE: NOTED	SPEC. 05-22-0043	SHEET 03 OF 41

REVISIONS			
SYM		DATE	APPROVED



SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

1 UTILITY INDEX
1" = 400'

PLAN NORTH

0 400' 800' 1200'
SCALE: 1"=400'

FINAL
05-02-2023

CU100

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

BREWSTER/SETH WILLAIMS UTILITY INDEX

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038610
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 04 OF 41

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151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
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NORTH CAROLINA PROFESSIONAL SEAL 046980 ENGINEER MICHAEL R. HOWARD 5/2/23

REVISIONS			
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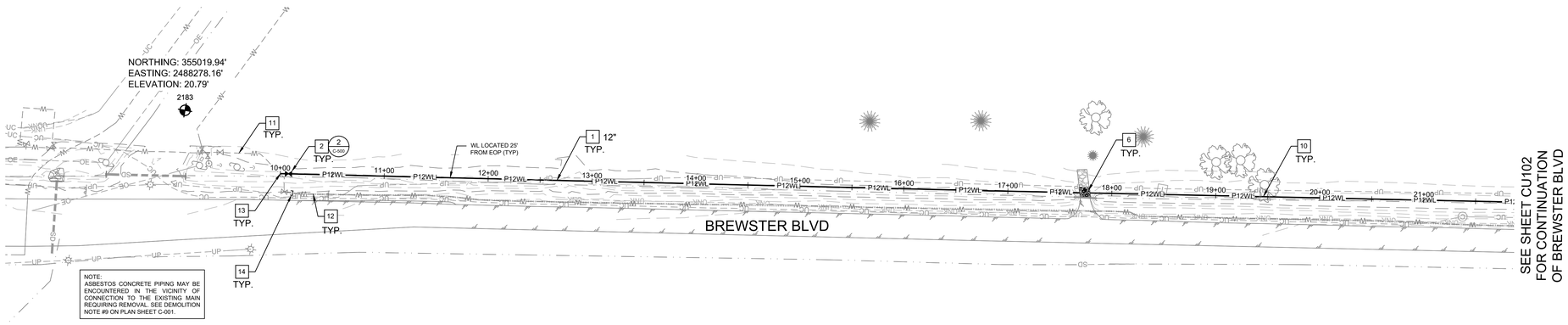
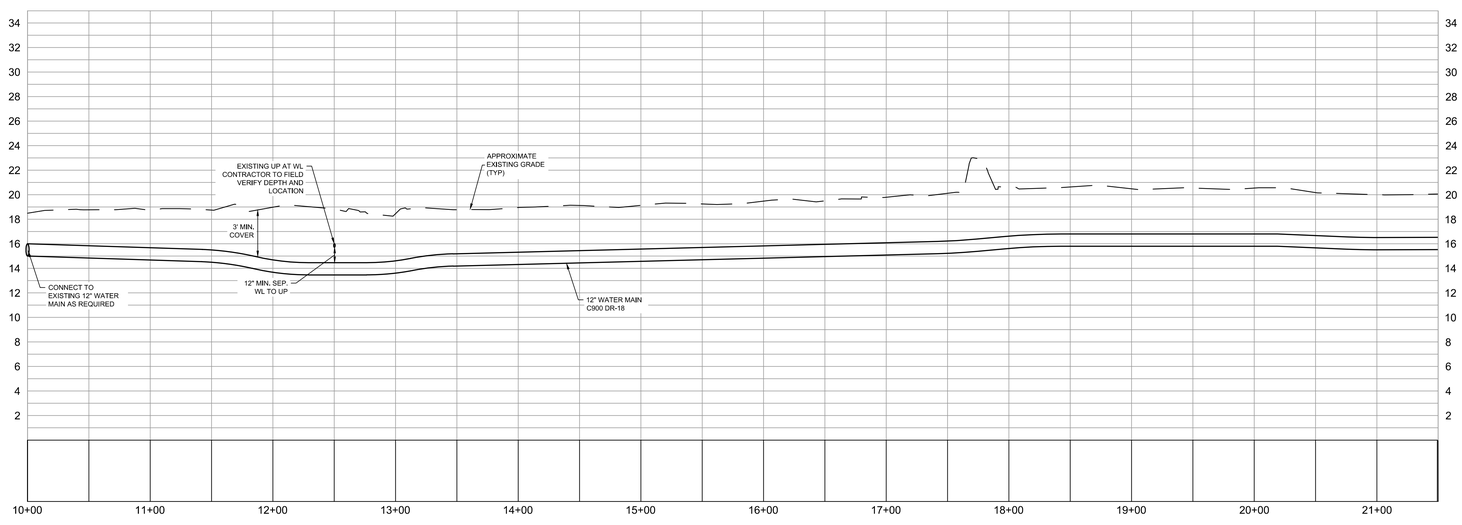


NOTE:
ASBESTOS CONCRETE PIPING MAY BE ENCOUNTERED IN THE VICINITY OF CONNECTION TO THE EXISTING MAIN REQUIRING REMOVAL. SEE DEMOLITION NOTE #9 ON PLAN SHEET C-001.



BREWSTER BLVD

1 BREWSTER BOULEVARD STA 10+00 TO 21+50
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE, STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
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www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 048080 ENGINEER MICHAEL R. HUNTER 5/4/23

FINAL
05-02-2023

CU101

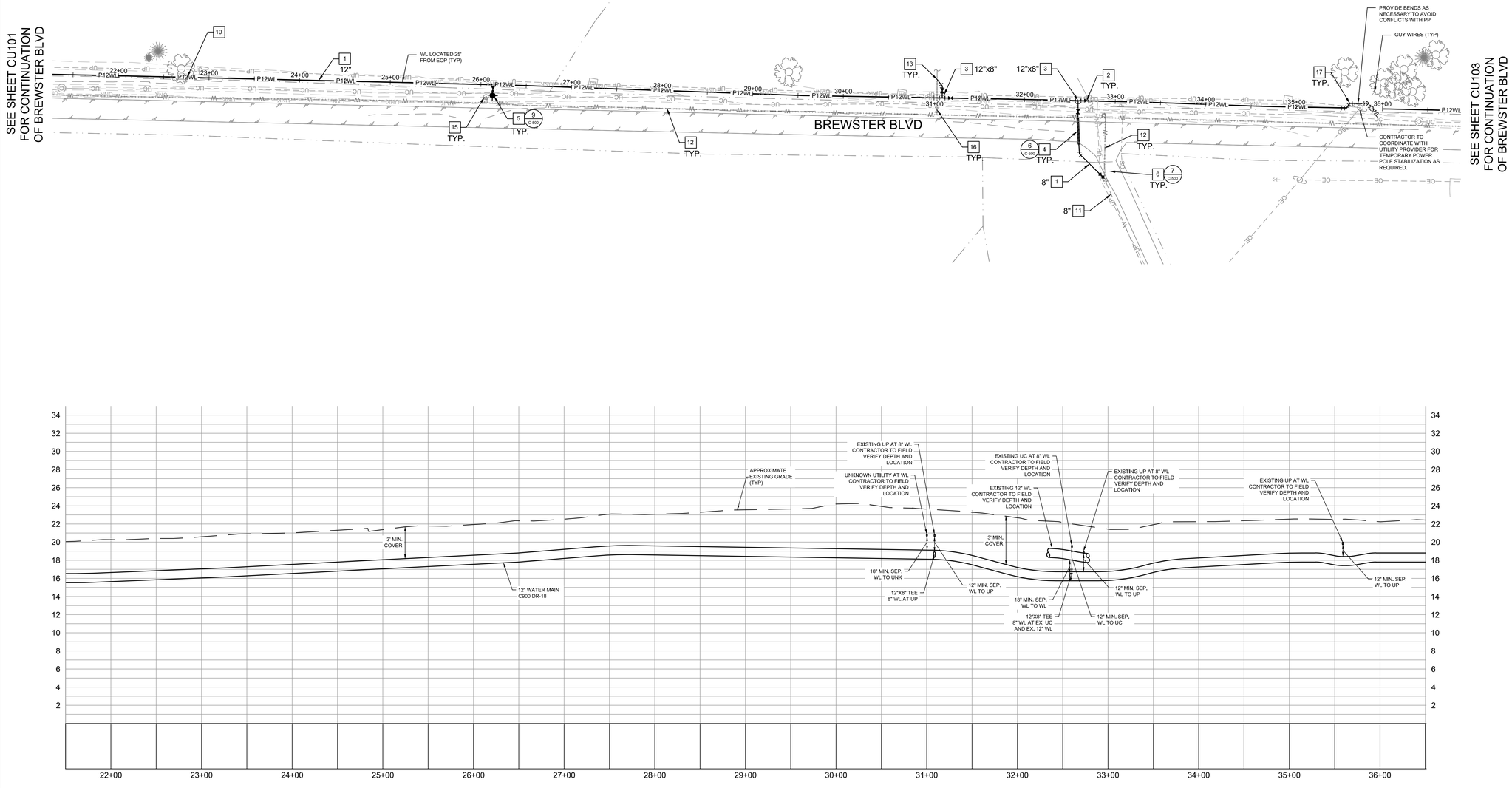
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
BREWSTER BOULEVARD
STA 10+00 TO 21+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038611
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 05 OF 41

REVISIONS			
SYM		DATE	APPROVED



1 BREWSTER BOULEVARD STA 21+50 TO 36+50
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
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SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. HOUSER 6/2/23

FINAL
05-02-2023

CU102

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
BREWSTER BOULEVARD
STA 21+50 TO 36+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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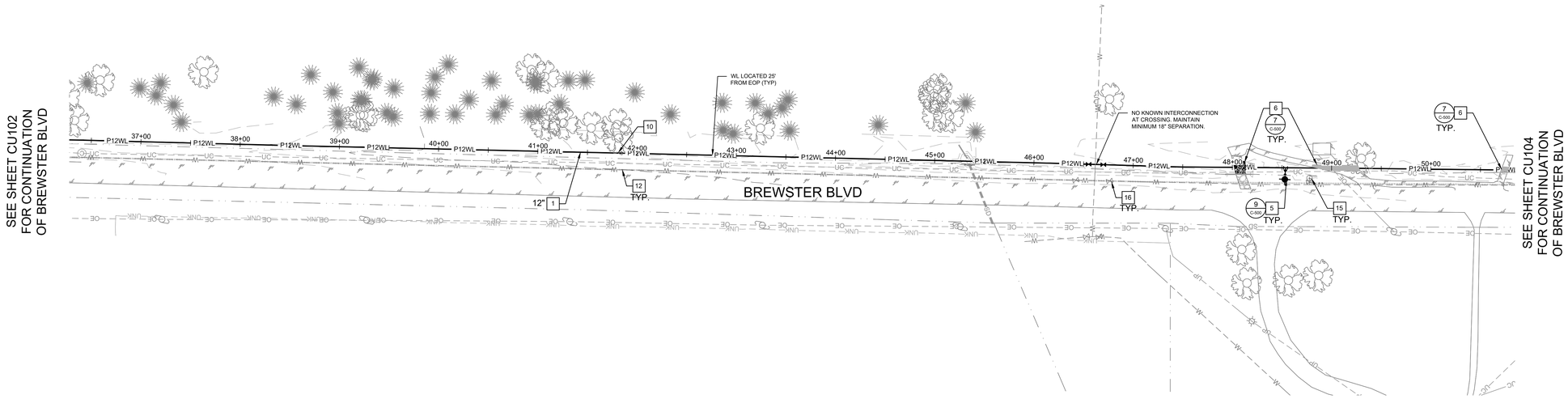
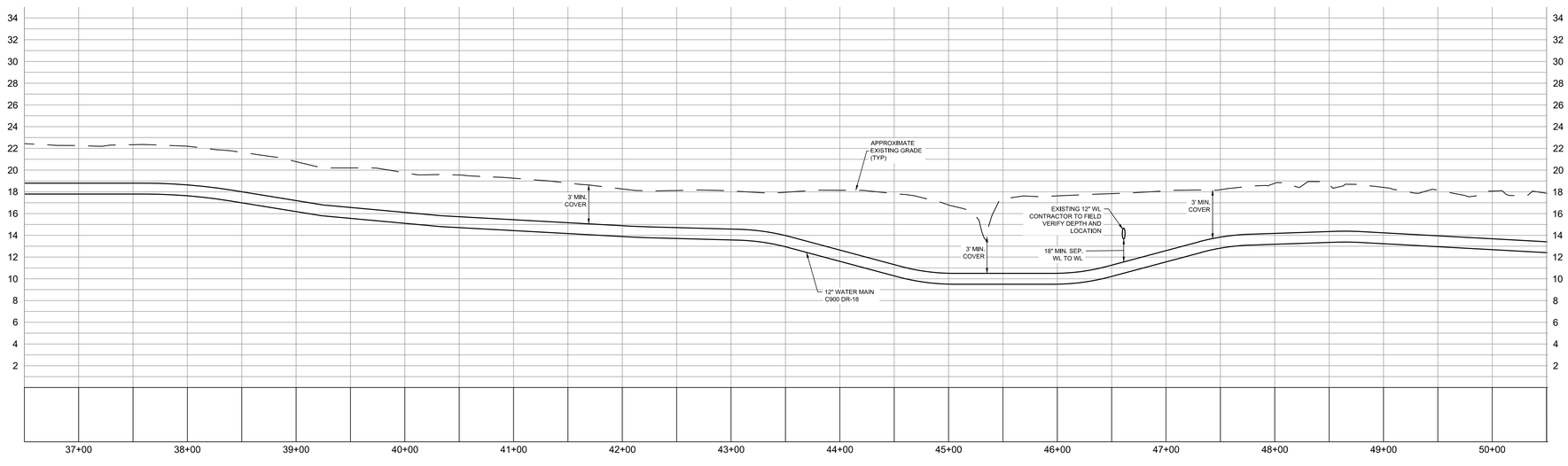
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 06 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 BREWSTER BOULEVARD STA 36+50 TO 50+50
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-501)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE, STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 / C-501)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
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23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. HOUSE 5/2/23

FINAL
05-02-2023

CU103

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

BREWSTER BOULEVARD
STA 36+50 TO 50+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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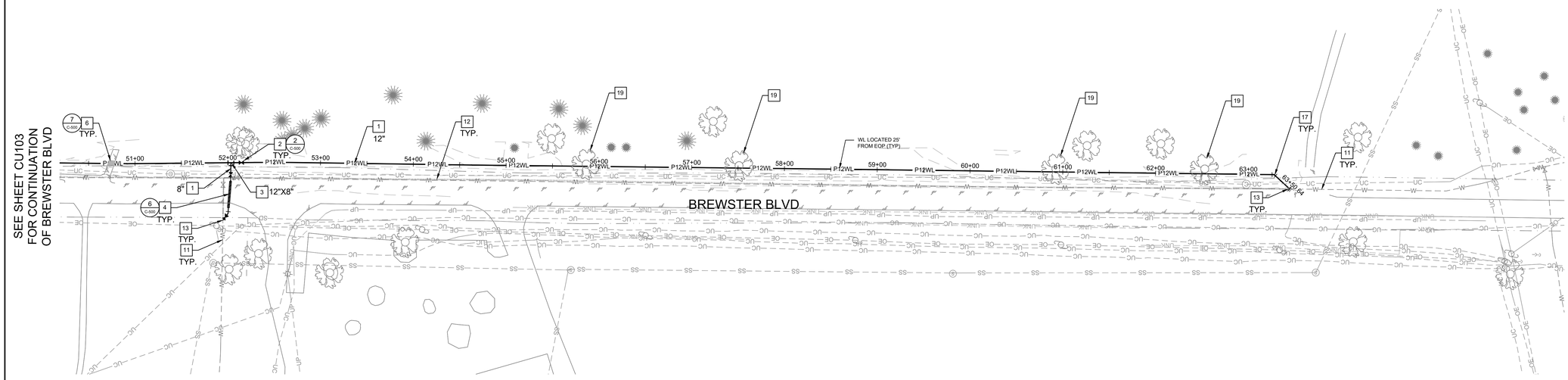
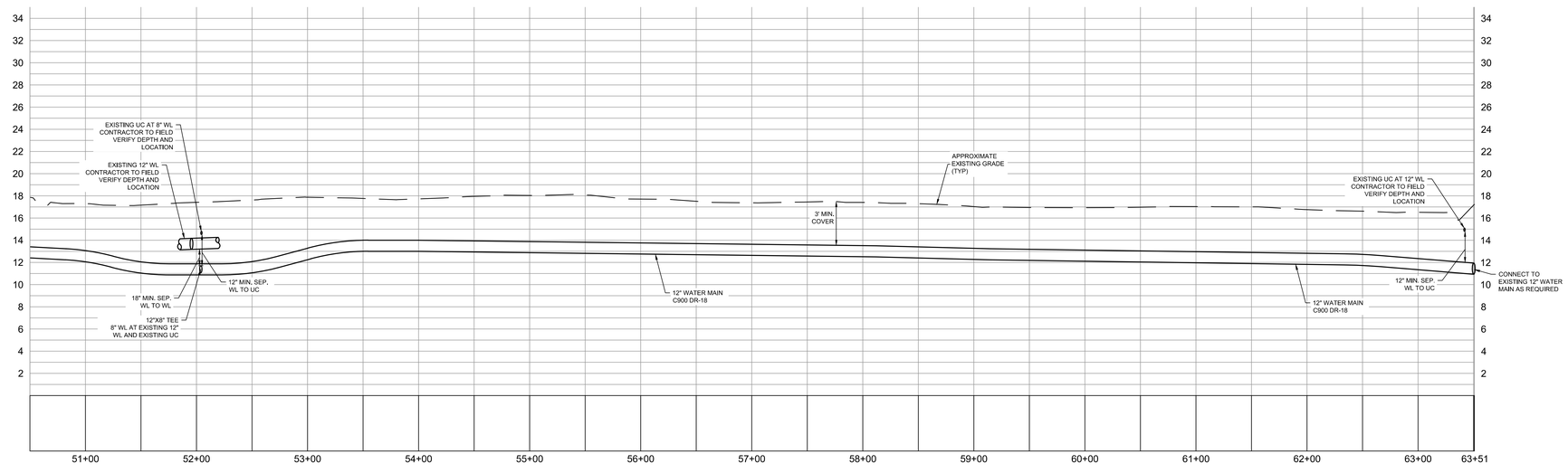
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 07 OF 41

REVISIONS			
SYM		DATE	APPROVED





BREWSTER BLVD

1 BREWSTER BOULEVARD STA 50+50 TO 63+51
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE. STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 / C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
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12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
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19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. HOUSE 6/2/23

FINAL
05-02-2023

CU104

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

BREWSTER BOULEVARD
STA 50+50 TO 63+51

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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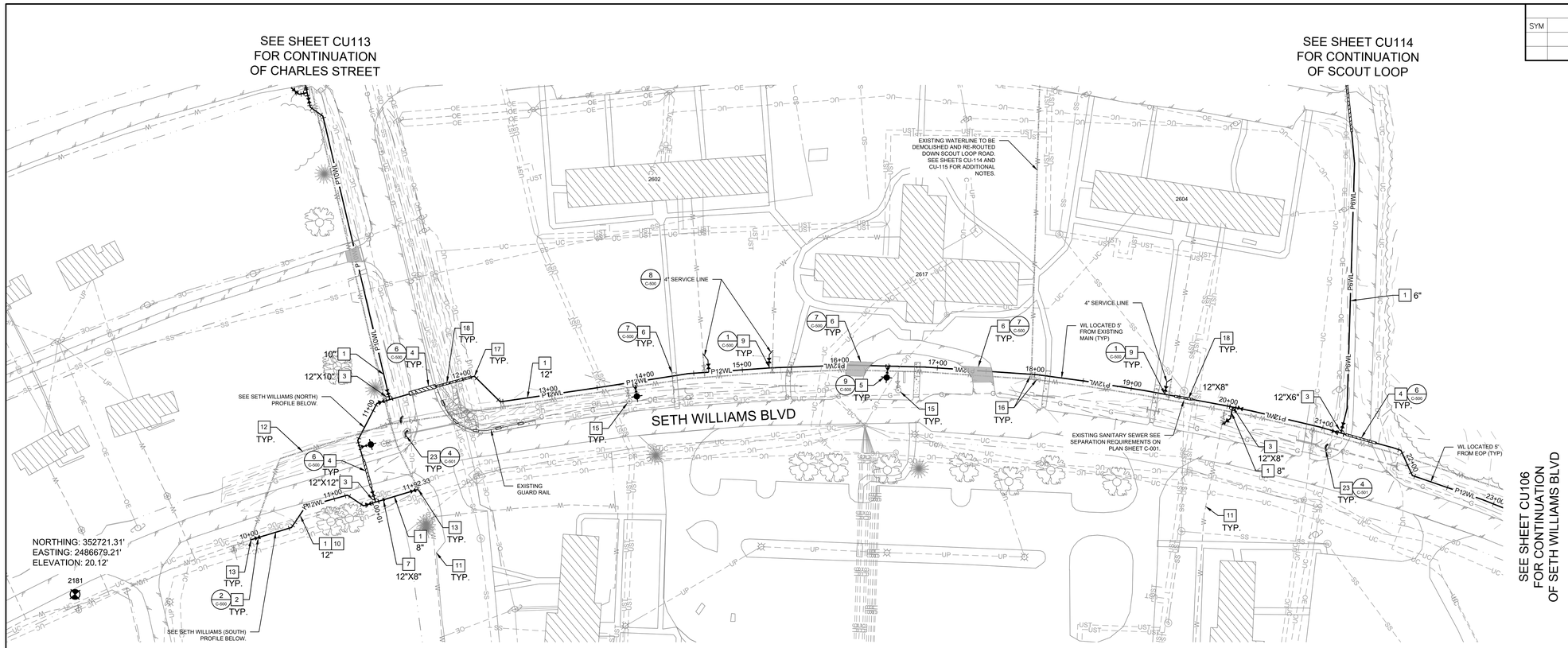
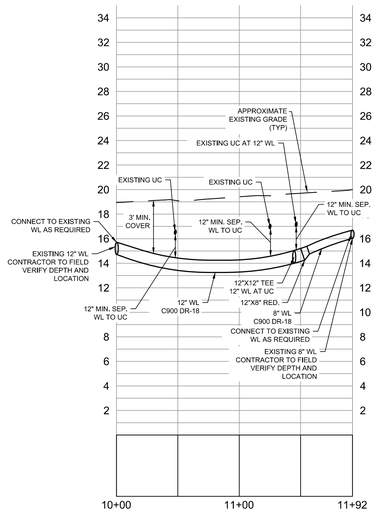
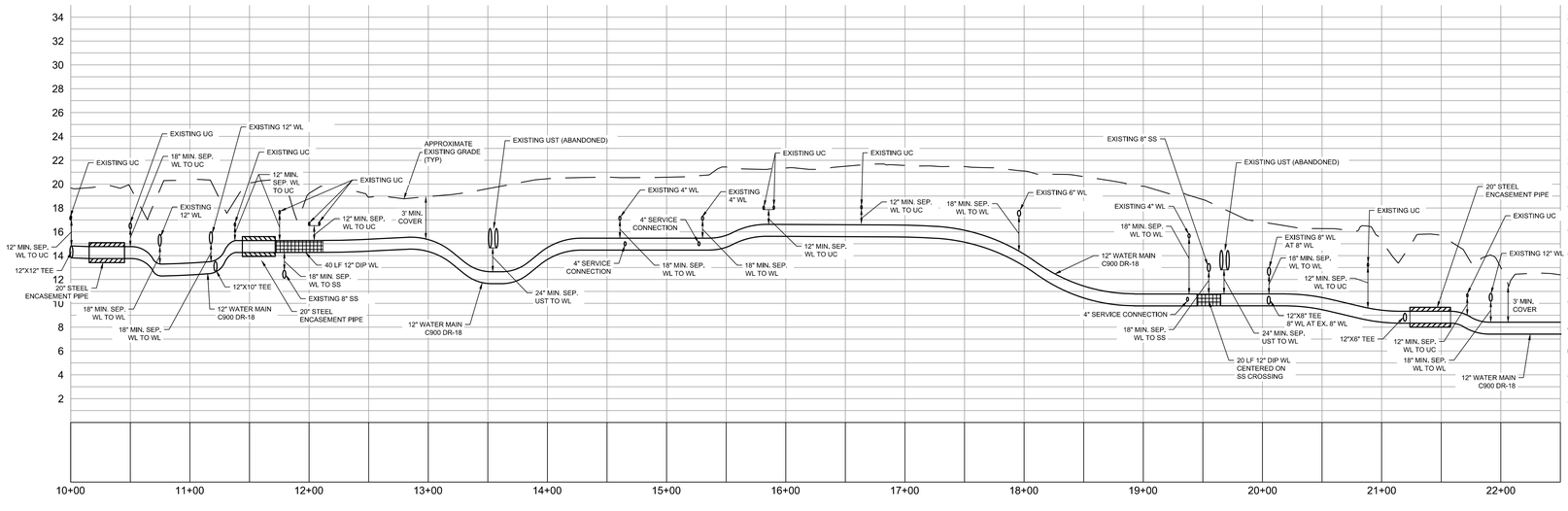
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 08 OF 41

REVISIONS			
SYM		DATE	APPROVED





SETH WILLIAMS BLVD (SOUTH)



SETH WILLIAMS BLVD (NORTH)

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1/C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE, STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3/C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
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24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

1 SETH WILLIAMS BLVD (SOUTH) STA 10+00 TO 11+79
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

2 SETH WILLIAMS BLVD (NORTH) STA 10+00 TO 22+50
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. HOUSE 6/2/23

FINAL
05-02-2023

CU105

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

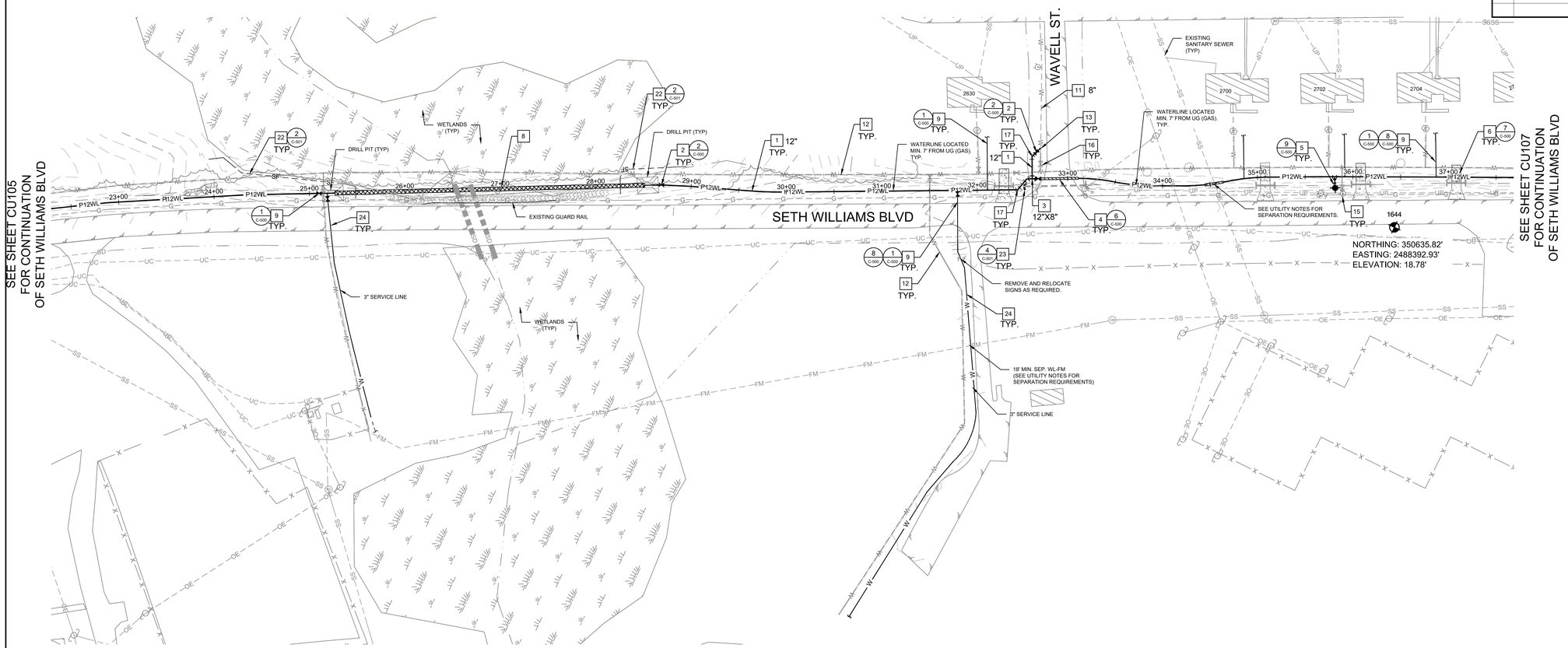
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

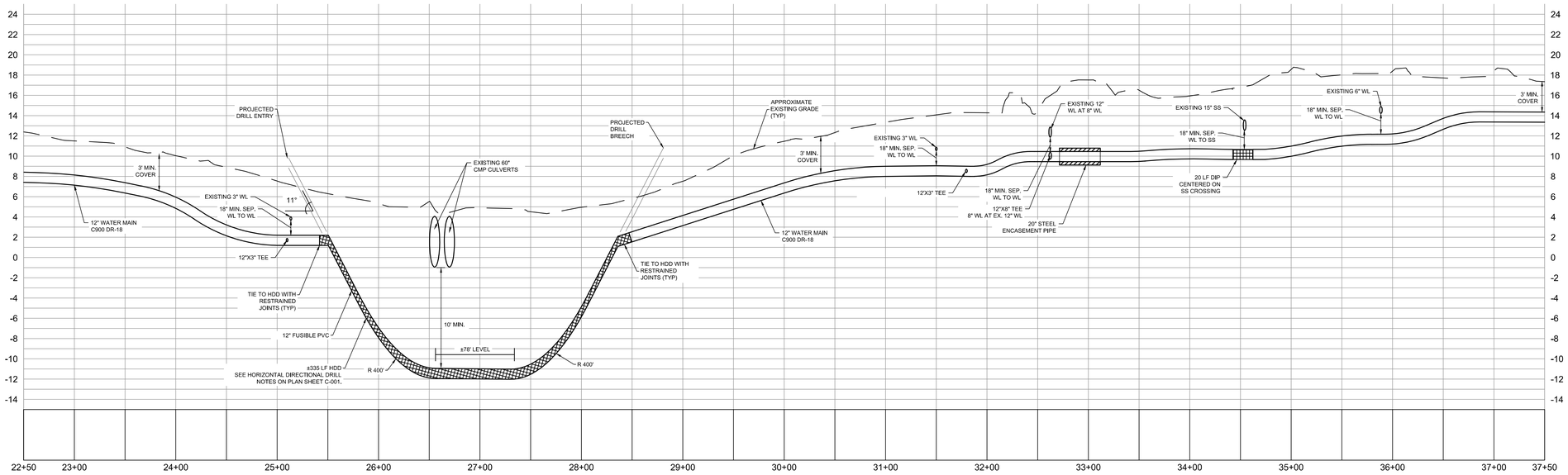
SETH WILLIAMS BOULEVARD (SOUTH) STA. 10+00 TO 11+92
SETH WILLIAMS BOULEVARD (NORTH) STA. 10+00 TO 22+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038615
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 09 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 SETH WILLIAMS BLVD STA 22+50 TO 37+50
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE, STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
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11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
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17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU106

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 22+50 TO 37+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038616
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 10 OF 41

CAPE FEAR ENGINEERING
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TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 046980 5/5/23 ENGINEER MICHAEL R. HOMBURG

REVISIONS			
SYM		DATE	APPROVED

SETH WILLIAMS BLVD

1 SETH WILLIAMS BLVD STA 37+50 TO 53+50
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

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SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU107

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 37+50 TO 53+50

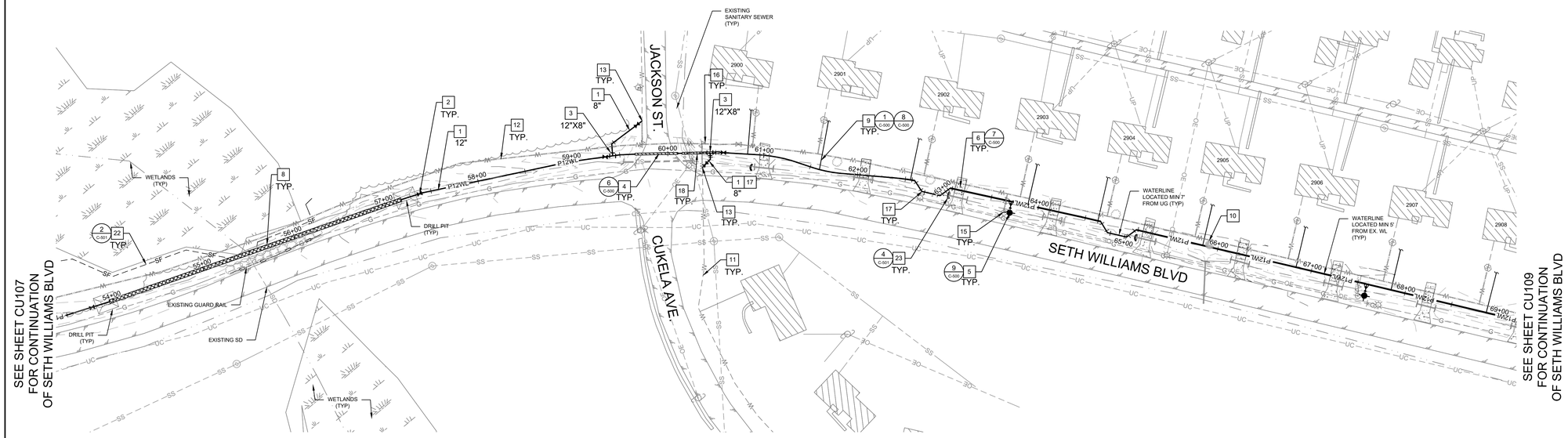
DES. MRH
DR. WEB
CHK. MTH
SUBMITTED BY:
DESIGN DIR. J. FRANKLIN ORR, PE
APPROVED: PWO OR OICC DATE
SATISFACTORY TO: DATE

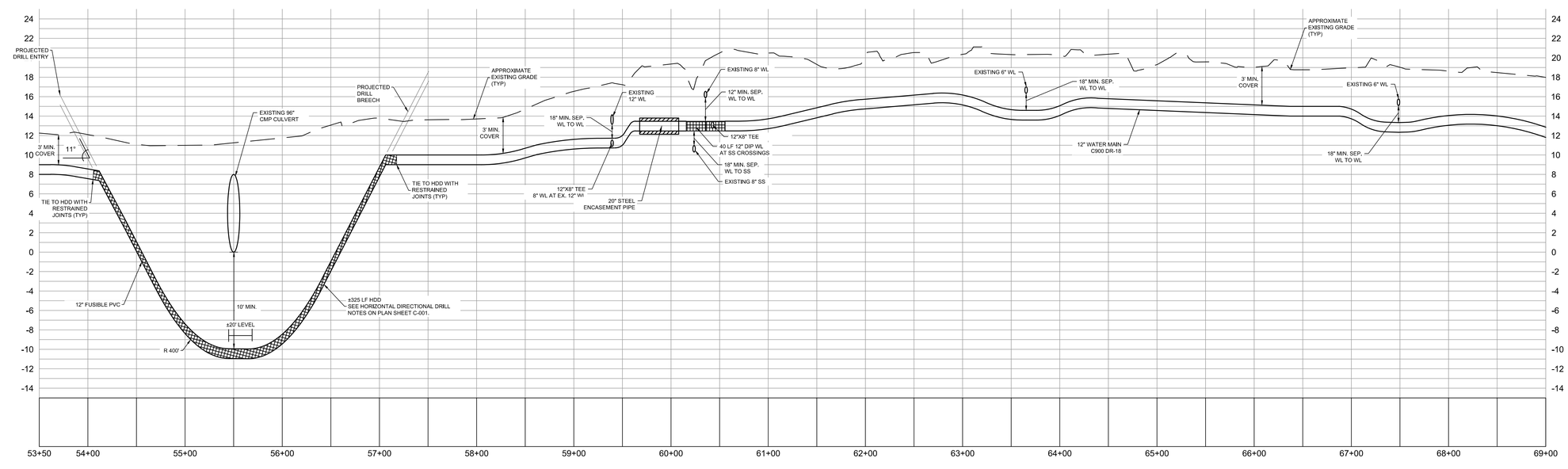
SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038617
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 11 OF 41

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 049590 ENGINEER MICHAEL R. KOUSH 6/5/23

REVISIONS			
SYM		DATE	APPROVED





SETH WILLIAMS BLVD

1 SETH WILLIAMS BLVD STA 53+50 TO 69+00
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-501)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE. STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 / C-501)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
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3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU108

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 53+50 TO 69+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038618
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 12 OF 41

CAPE FEAR ENGINEERING
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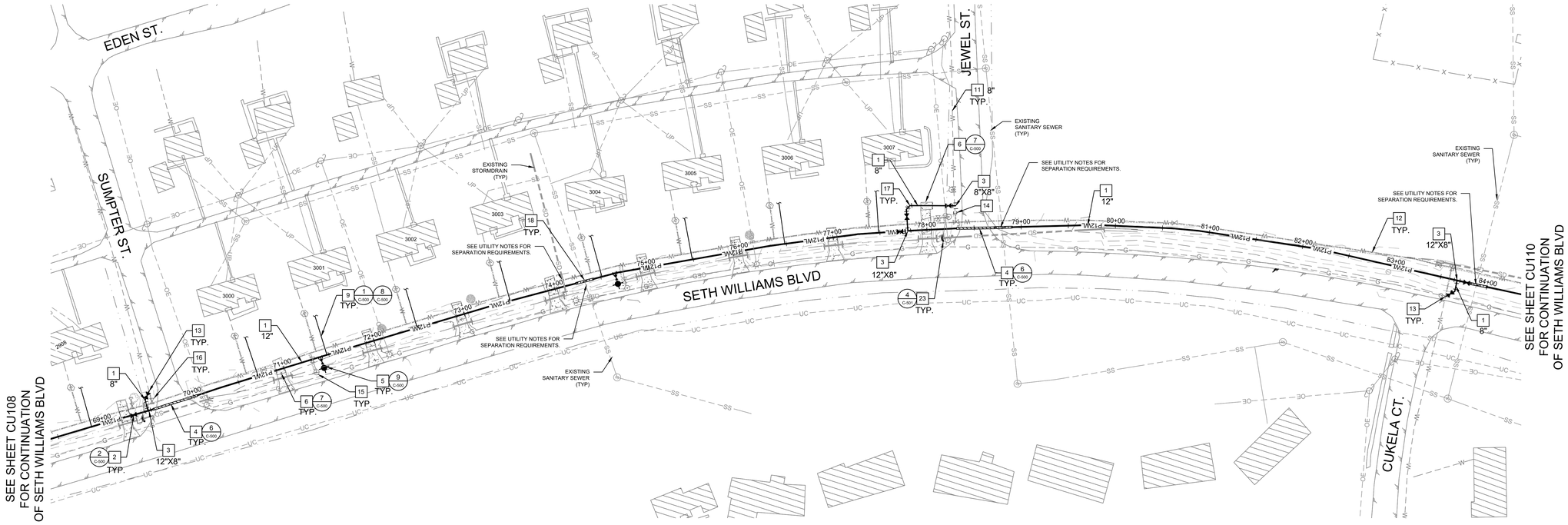
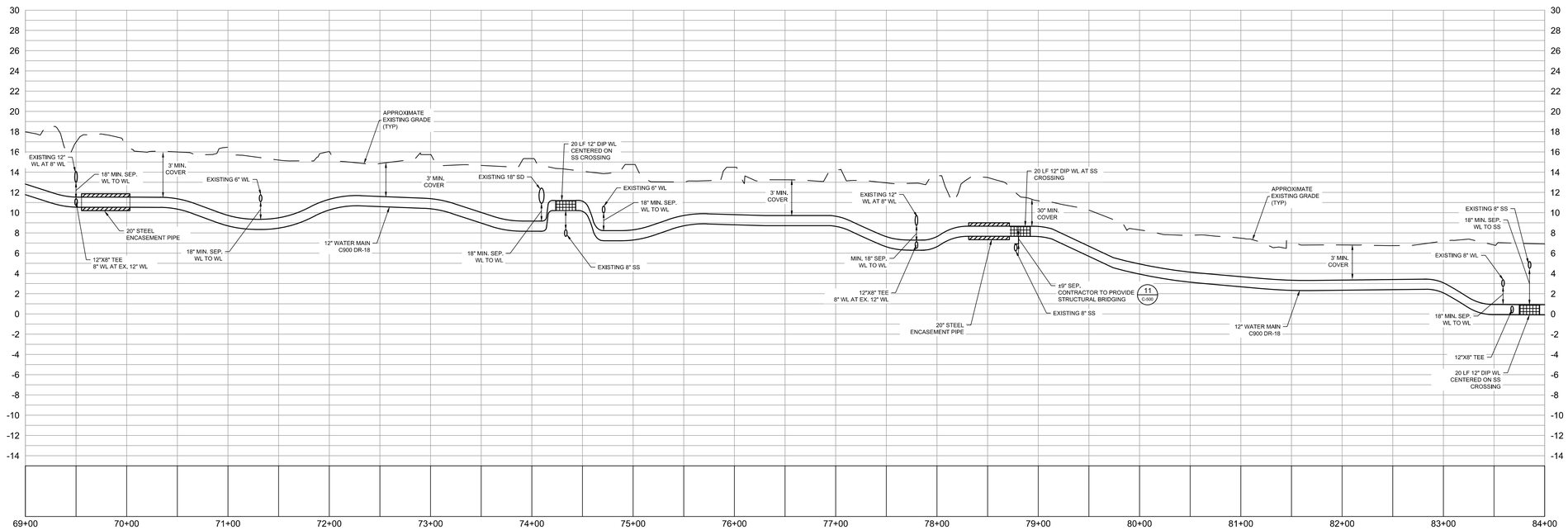
NORTH CAROLINA PROFESSIONAL SEAL 040990 ENGINEER MICHAEL B. HOULE 6/5/23

REVISIONS			
SYM		DATE	APPROVED





GENERAL SHEET NOTES

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SHEET KEYNOTES

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2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

1 SETH WILLIAMS BLVD STA 69+00 TO 84+00
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

CAPE FEAR ENGINEERING
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NORTH CAROLINA PROFESSIONAL SEAL 049990 ENGINEER MICHAEL R. HOUSE 6/2/23

FINAL
05-02-2023

CU109

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 69+00 TO 84+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC DATE	
SATISFACTORY TO: DATE	

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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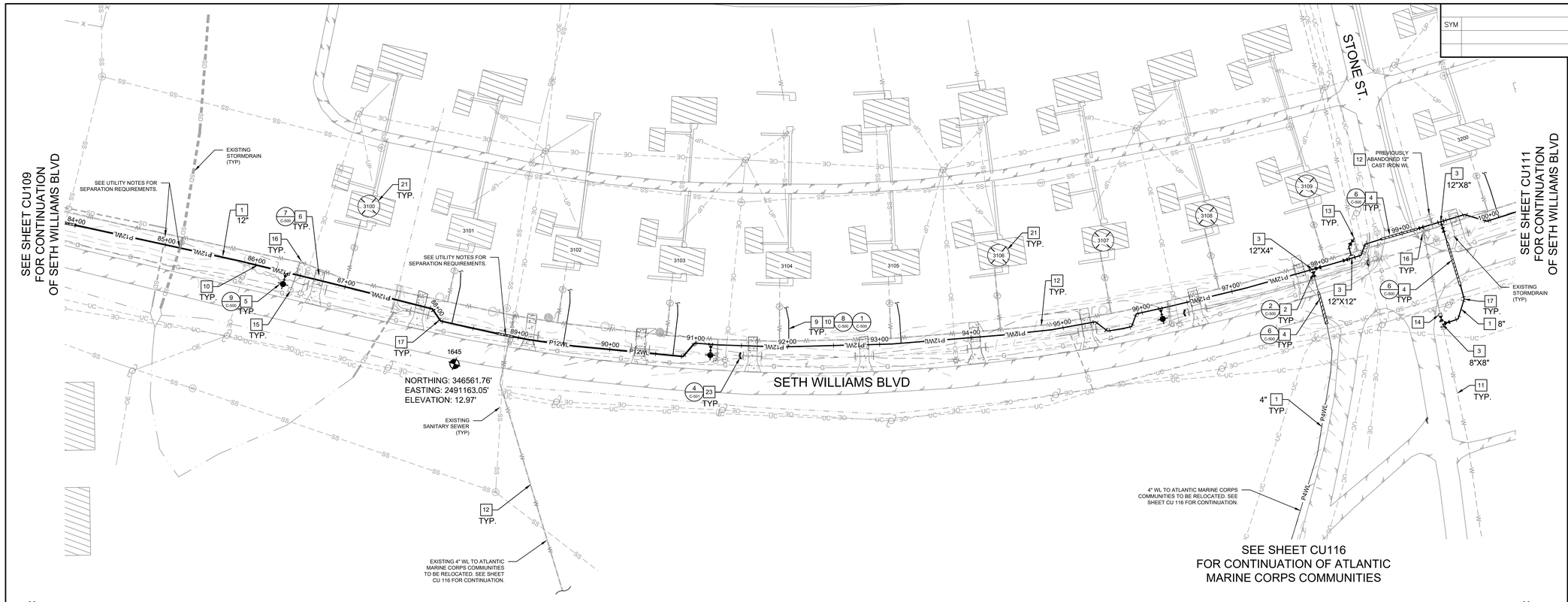
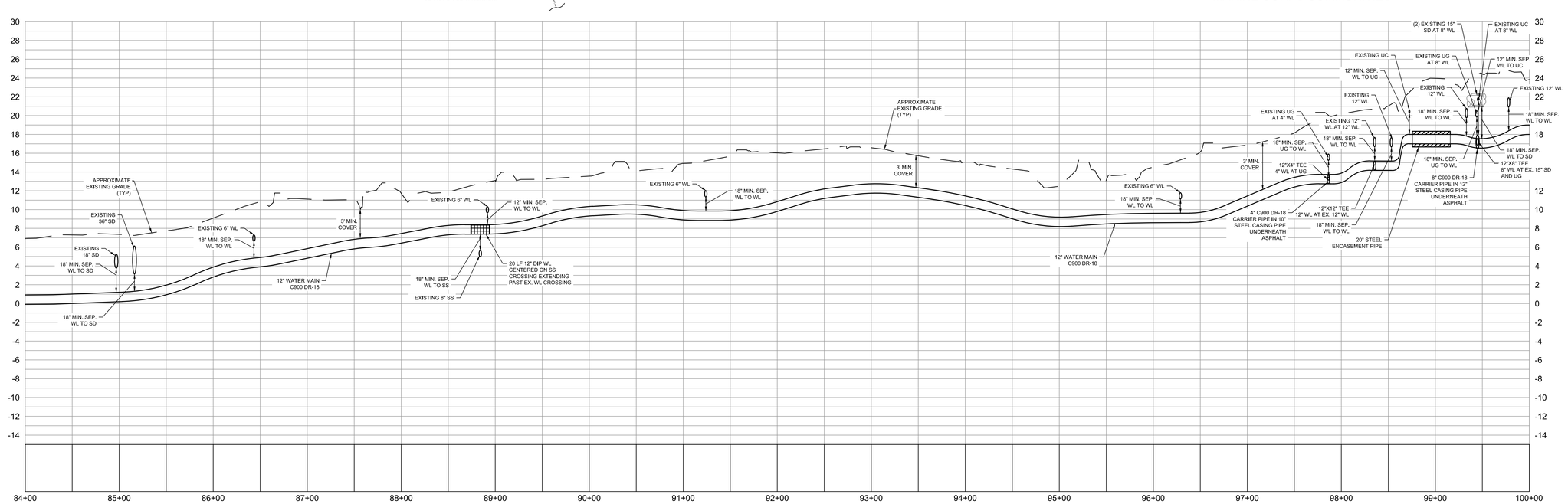
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 13 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 SETH WILLIAMS BLVD STA 84+00 TO 100+00
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

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SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
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NORTH CAROLINA PROFESSIONAL SEAL 046980 ENGINEER MICHAEL R. HOUSE 6/8/23

FINAL
05-02-2023

CU110

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 84+00 TO 100+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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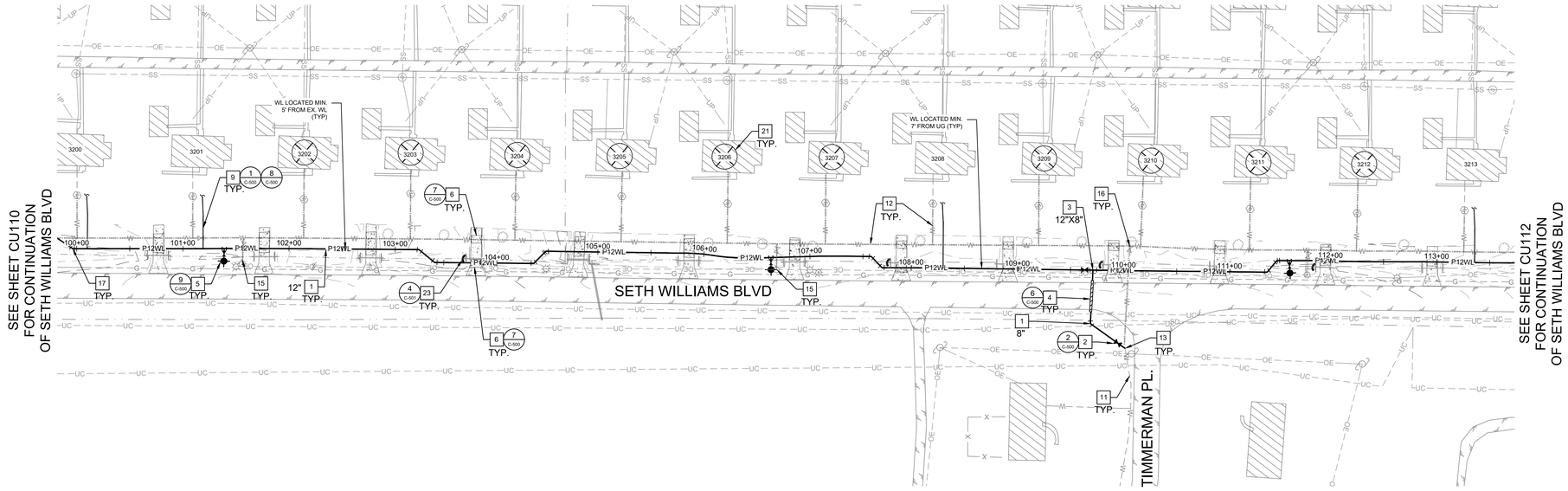
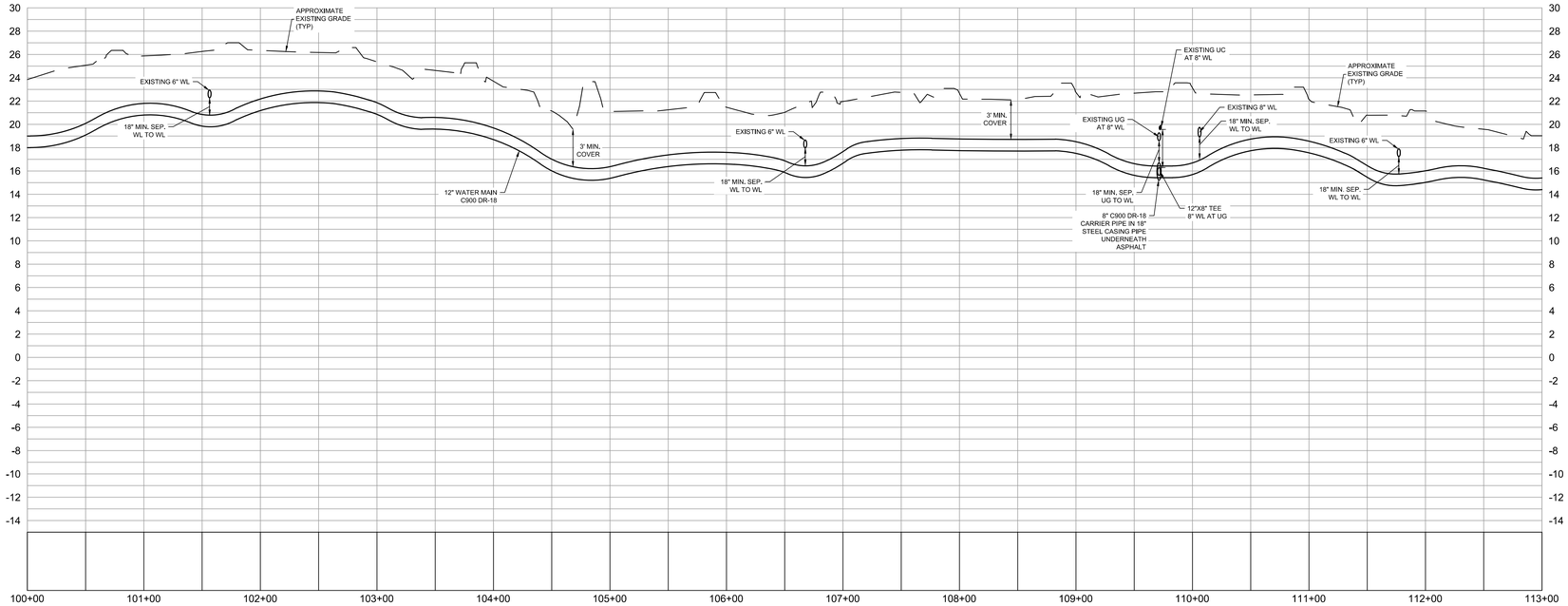
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 14 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 SETH WILLIAMS BLVD STA 100+00 TO 113+00
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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NORTH CAROLINA PROFESSIONAL SEAL 049980 ENGINEER MICHAEL R. HOWIE

FINAL
05-02-2023

CU111

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 100+00 TO 113+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
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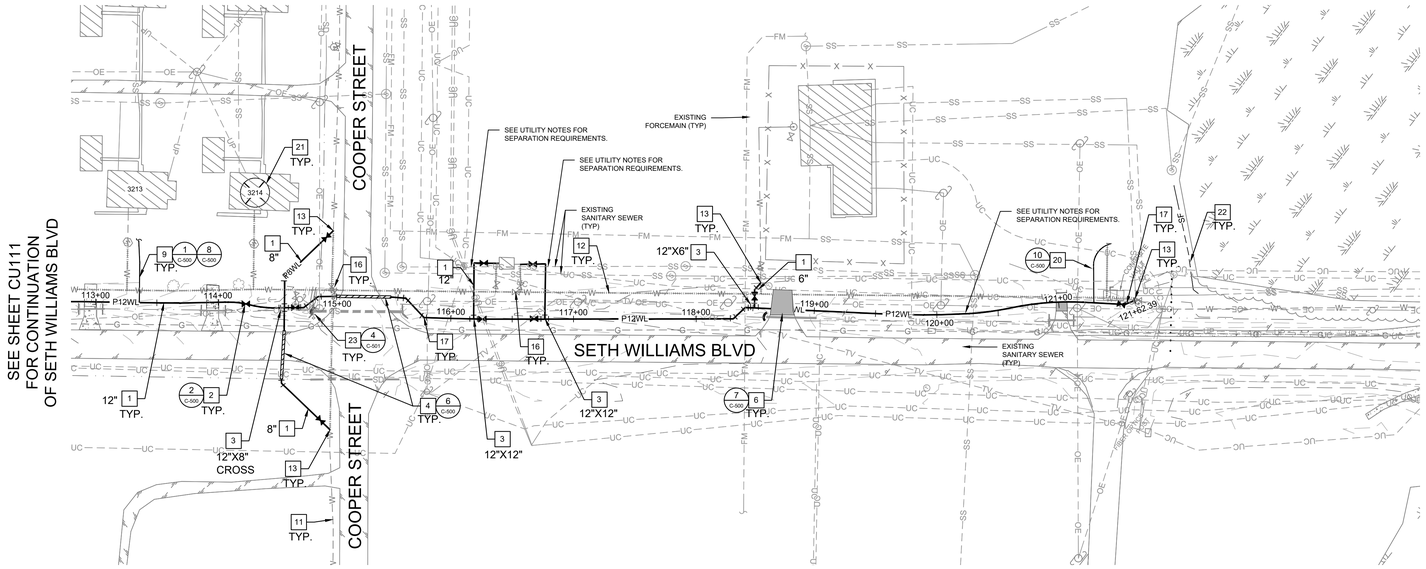
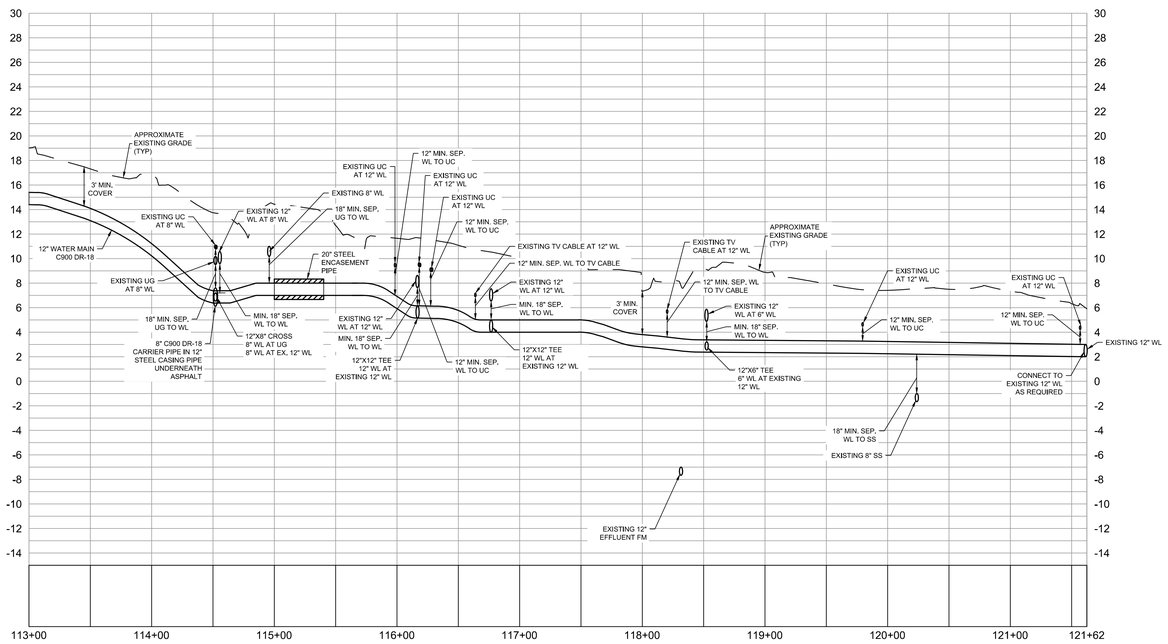
SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038621
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 15 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 SETH WILLIAMS BLVD STA 113+00 TO 121+62
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-001)
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SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
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10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
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18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
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TEL (910) 383-1044 | FAX (910) 383-1045
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NORTH CAROLINA PROFESSIONAL SEAL 046980 ENGINEER MICHAEL R. HOLDE 5/5/23

FINAL
05-02-2023

CU112

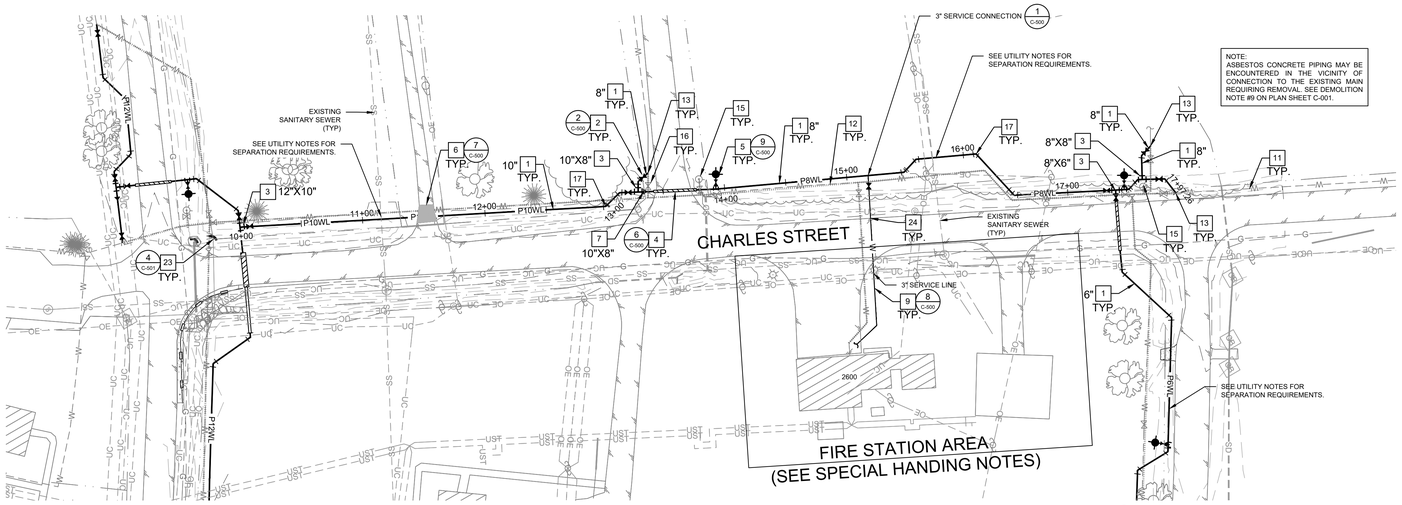
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SETH WILLIAMS BOULEVARD
STA 113+00 TO 121+62

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038622
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 16 OF 41

REVISIONS			
SYM		DATE	APPROVED



SEE SHEET CU105
FOR CONTINUATION
OF SETH WILLIAMS BLVD

SEE SHEET CU114
FOR CONTINUATION
OF SCOUT LOOP

HAZARDOUS AND OTHER MATERIAL SPECIAL HANDLING NOTES:

1. IF SUSPECTED AREAS OF SOIL OR GROUNDWATER CONTAMINATION ARE ENCOUNTERED DURING DEMOLITION ACTIVITIES, WORK IN THE AFFECTED AREA MUST STOP AND THE CONTRACTING OFFICER MUST BE NOTIFIED IMMEDIATELY TO CONFIRM SITE CONDITIONS.

2. THE FIRE STATION AREA IS SUSPECTED OF BEING CONTAMINATED WITH PFAS (PER- AND POLYFLUOROALKYL SUBSTANCES).

3. ALL SOILS GENERATED BY CONSTRUCTION ACTIVITIES MUST REMAIN ON SITE. THE CONTRACTOR MUST DISTRIBUTE AND GRADE EXCESS SOILS IN THE IMMEDIATE AREA OF THE CONSTRUCTION AND SHALL VEGETATE DISTURBED AREAS IN ACCORDANCE WITH THE PROJECT VEGETATION PLAN.

4. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER A MINIMUM OF 14 DAYS PRIOR TO EXCAVATION IF IT IS ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED.

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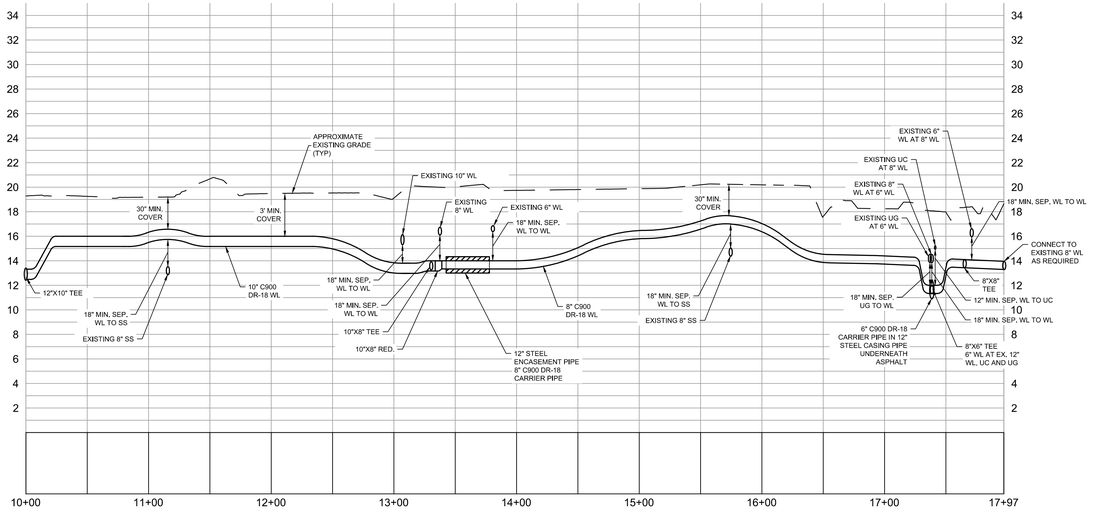
SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001



CHARLES STREET

1 CHARLES STREET STA 10+00 TO 17+97
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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NORTH CAROLINA PROFESSIONAL SEAL 049980 ENGINEER MICHAEL R. HOUSE 6/2/23

FINAL
05-02-2023

CU113

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

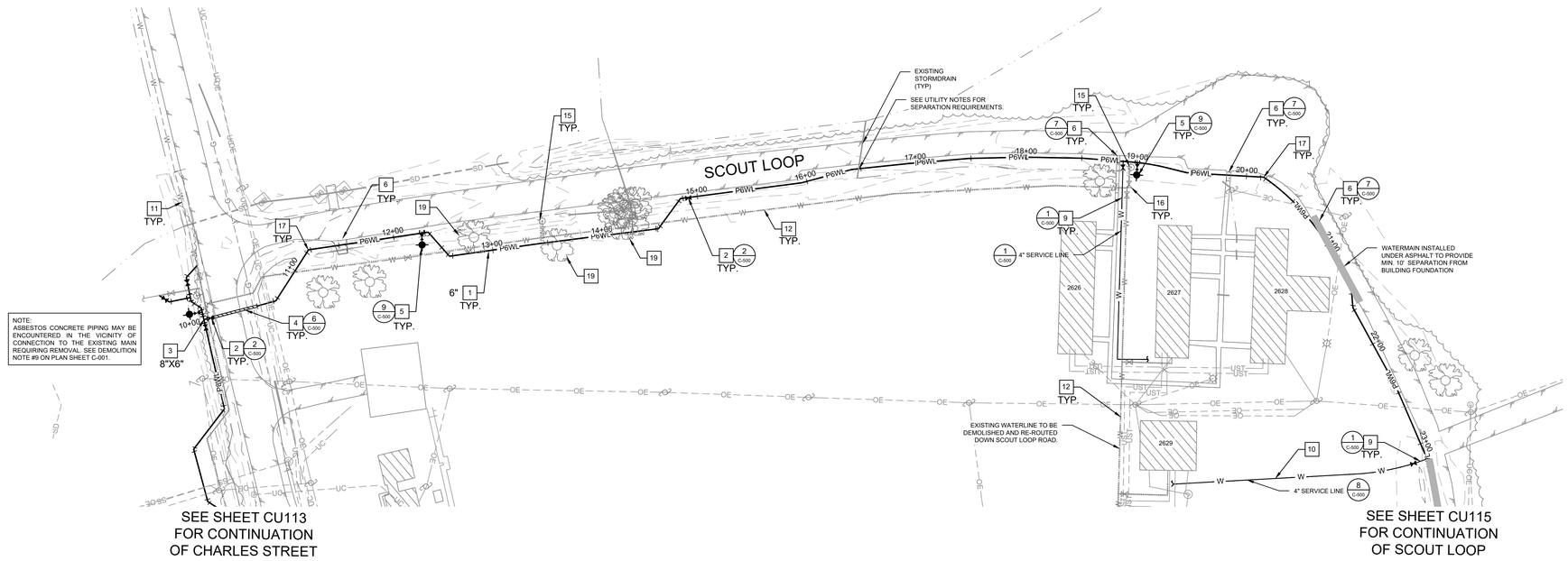
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

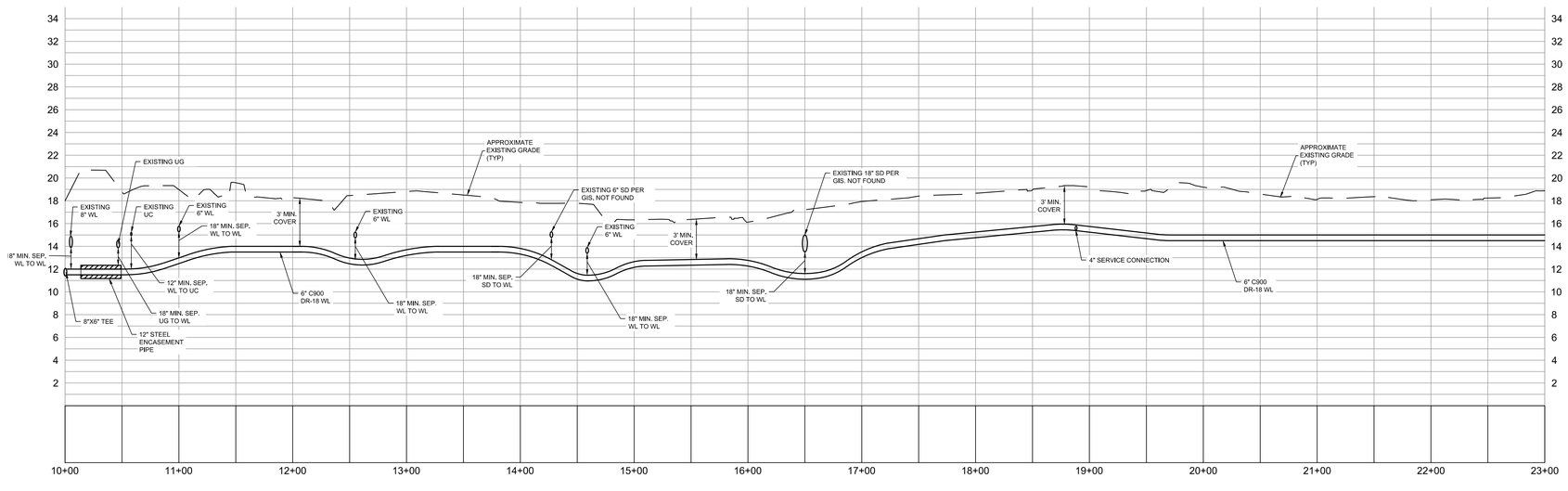
CHARLES STREET
STA 10+00 TO 17+97

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038623
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 17 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 SCOUT LOOP STA 10+00 TO 23+00
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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SHEET KEYNOTES

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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. MOORE 6/2/23

FINAL
05-02-2023

CU114

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
SCOUT LOOP
STA 10+00 TO 23+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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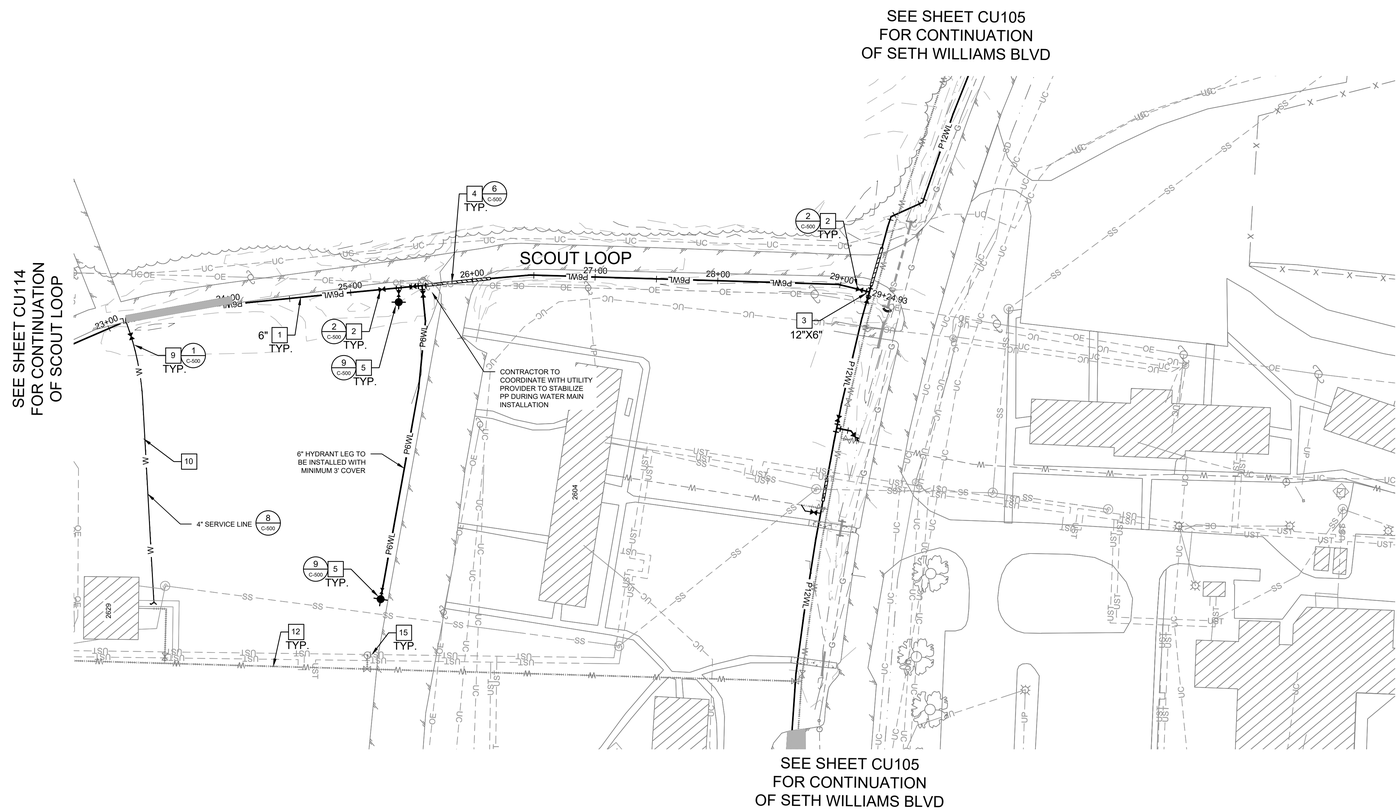
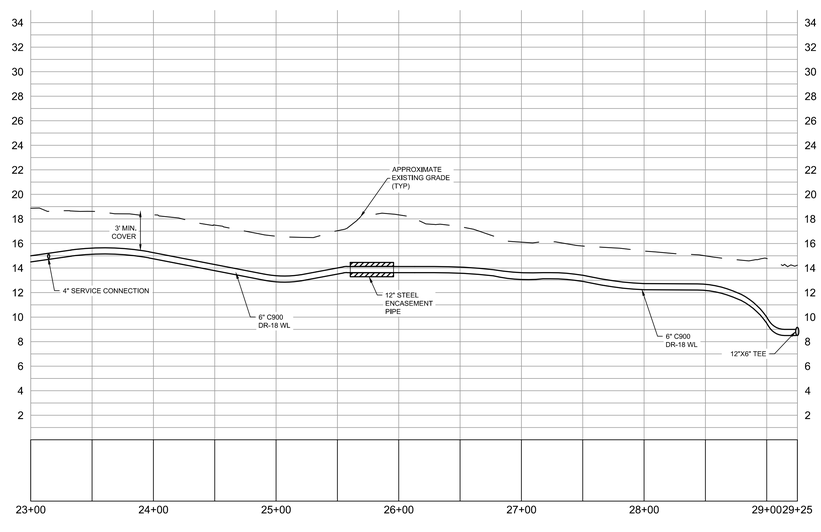
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 18 OF 41

REVISIONS			
SYM		DATE	APPROVED





1 SCOUT LOOP STA 23+00 TO 29+25
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

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FINAL
05-02-2023

CU115

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

SCOUT LOOP
STA 23+00 TO 29+25

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
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E1	80091	60038625
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SCALE: NOTED	SPEC. 05-22-0043	SHEET 19 OF 41

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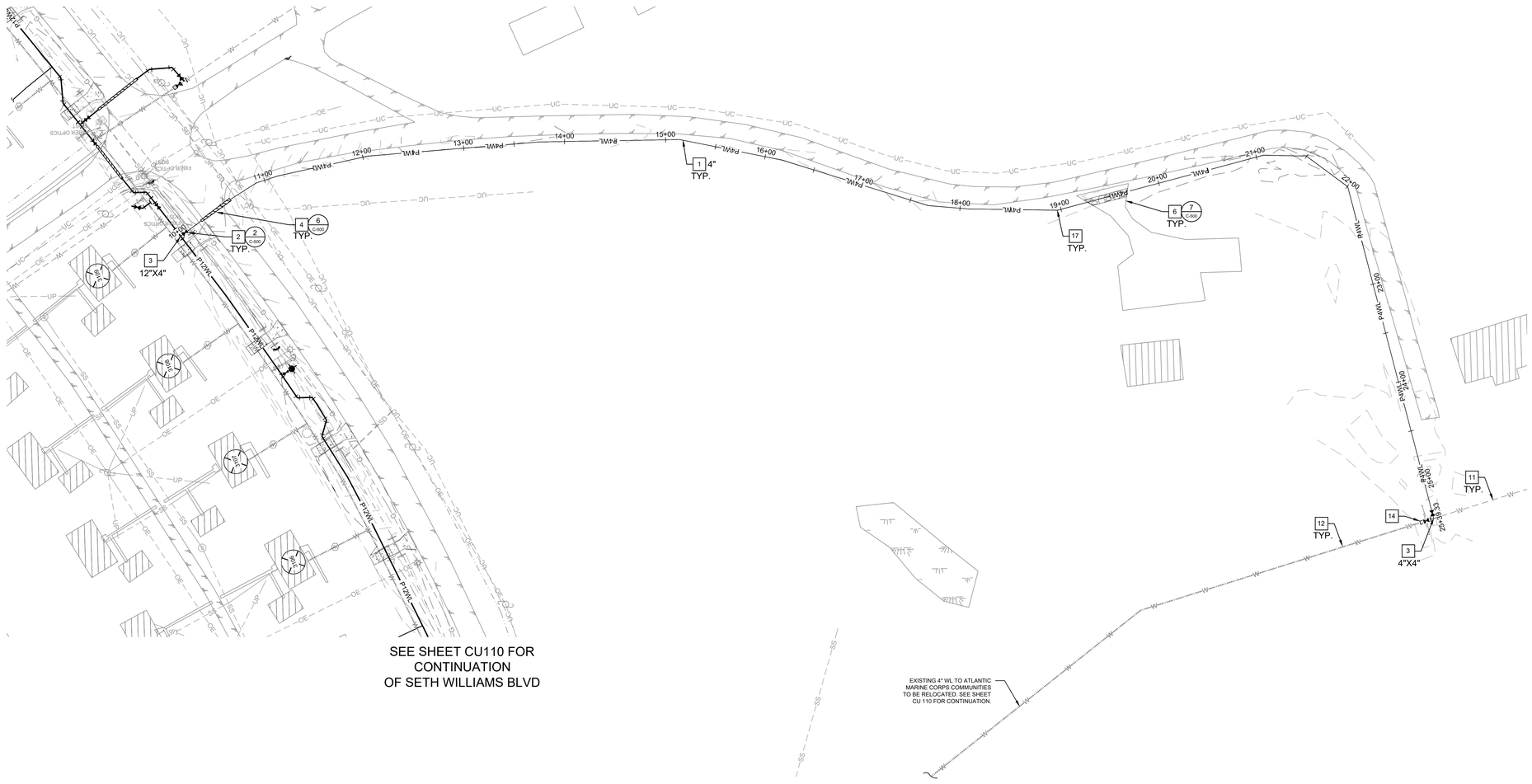
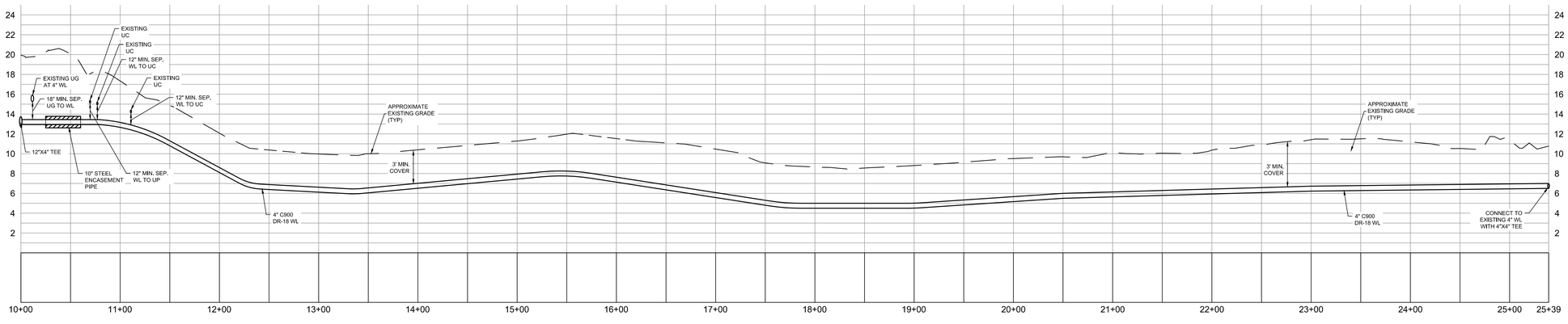
REVISIONS			
SYM		DATE	APPROVED





1 ATLANTIC MARINE CORPS COMMUNITIES STA 10+00 TO 25+39
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU116

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
ATLANTIC MARINE CORPS COMMUNITIES
STA 10+00 TO 25+39

DES. MRH
DR. WEB
CHK. MTH
SUBMITTED BY:
DESIGN DIR. J. FRANKLIN ORR, PE
APPROVED: PWO OR OICC DATE
SATISFACTORY TO: DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038626
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 20 OF 41

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 046993 5/4/23 ENGINEER MICHAEL R. HOWARD

REVISIONS			
SYM		DATE	APPROVED

1 UTILITY INDEX
1" = 150'

PLAN NORTH

0 150' 300' 450'
SCALE: 1"=150'

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU200

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

MCCUTCHEON MANOR UTILITY INDEX

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038627
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 21 OF 41

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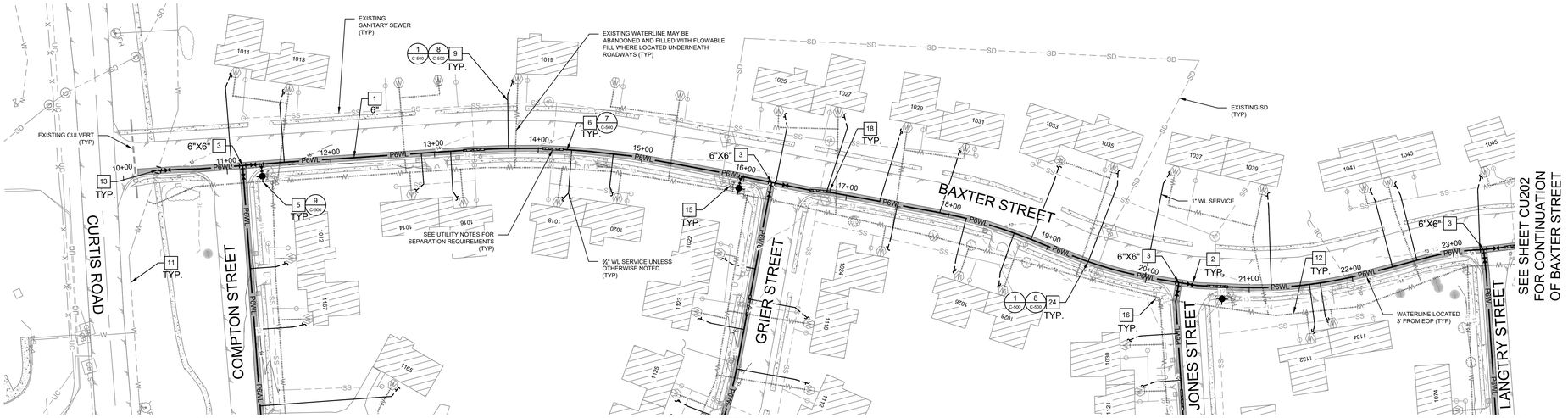
NORTH CAROLINA PROFESSIONAL SEAL 046980 5/4/23 ENGINEER MICHAEL R. HOWARD

REVISIONS			
SYM		DATE	APPROVED

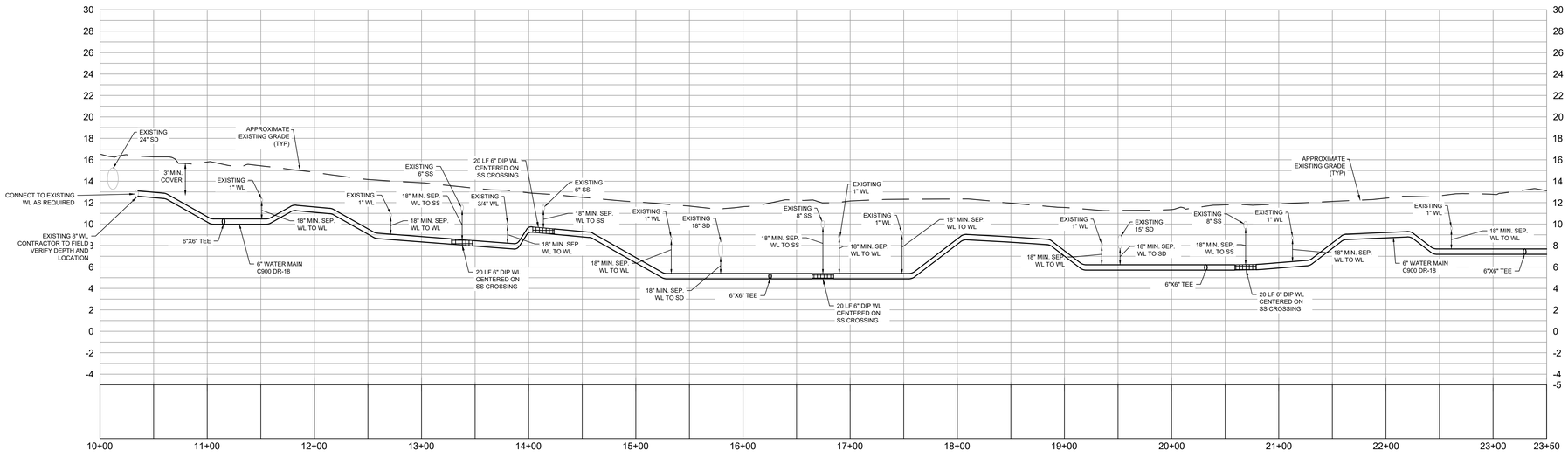


SEE SHEET CU207 FOR CONTINUATION OF COMPTON STREET

SEE SHEET CU208 FOR CONTINUATION OF GRIER STREET

SEE SHEET CU202 FOR CONTINUATION OF JONES STREET

SEE SHEET CU204 FOR CONTINUATION OF LANGTRY STREET



BAXTER STREET

1 BAXTER ST STA 10+00 TO 23+50
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1/C-001)
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4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3/C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU201

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

BAXTER STREET
STA 10+00 23+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038628
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 22 OF 41

CAPE FEAR ENGINEERING
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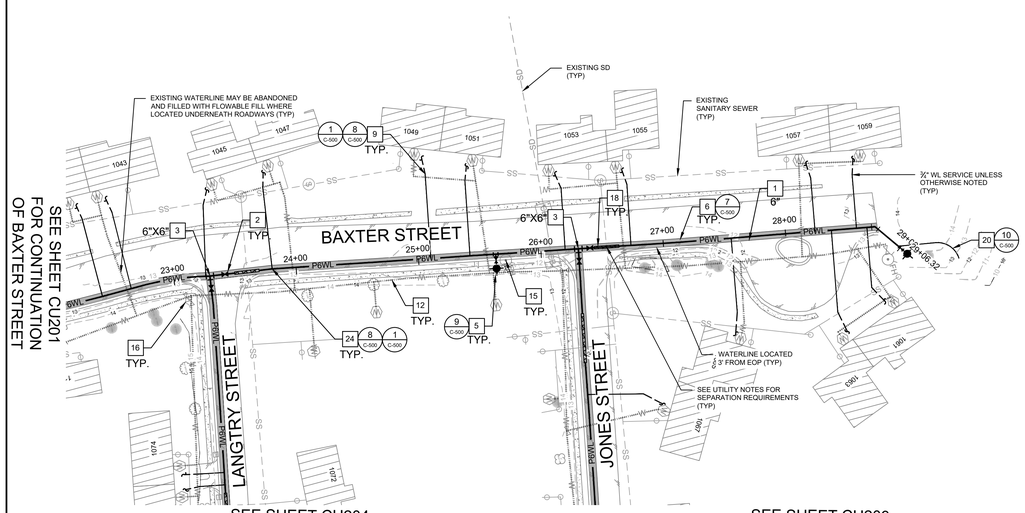
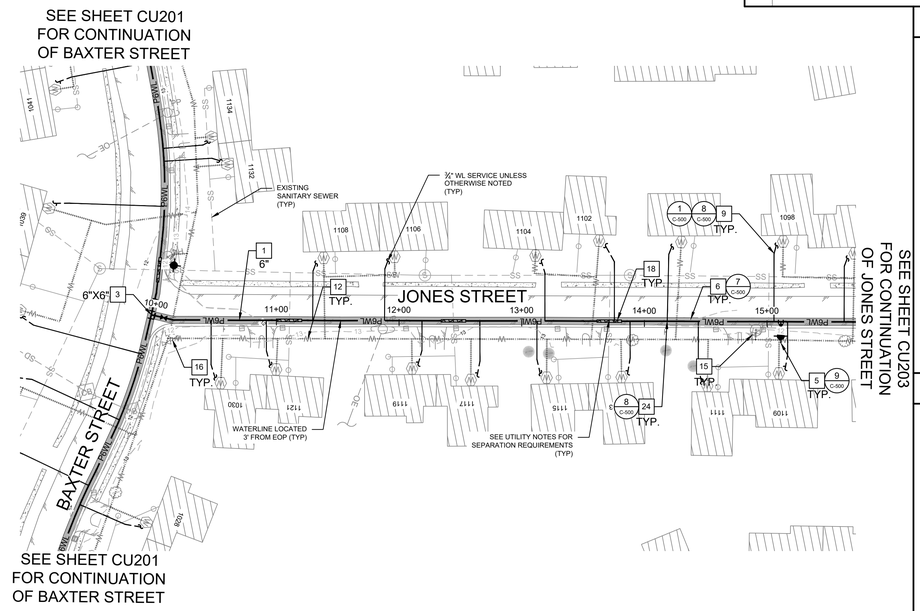
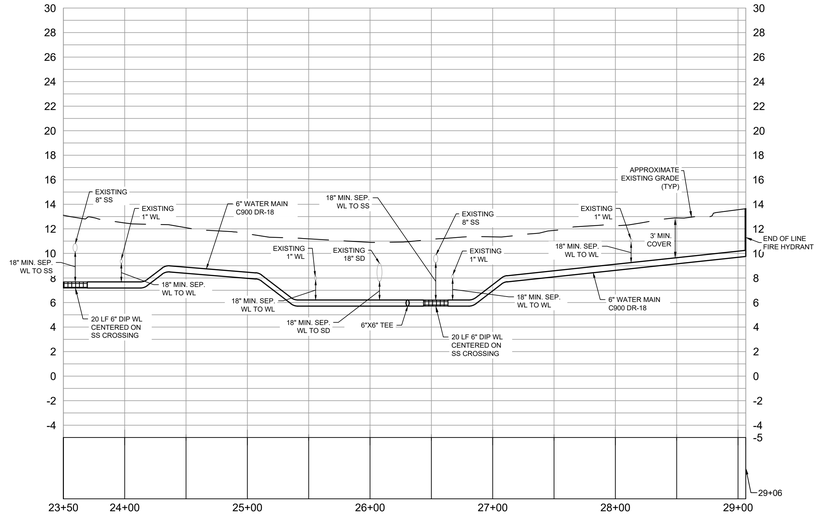
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 048880 ENGINEER MICHAEL R. KOHLER
6/5/18

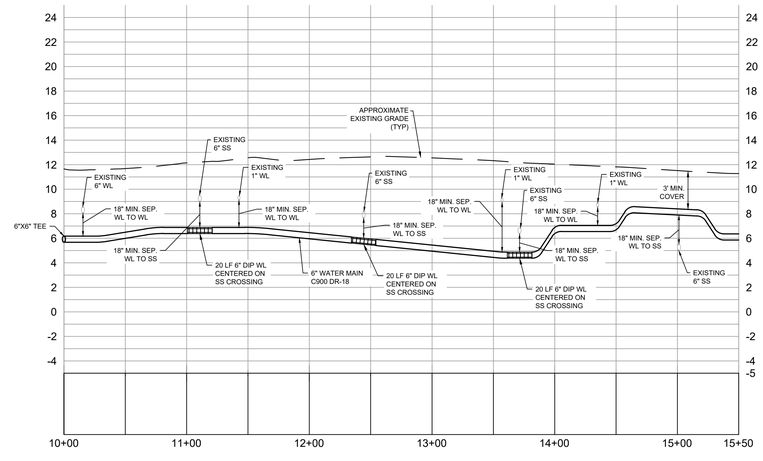
REVISIONS			
SYM		DATE	APPROVED







BAXTER STREET



JONES STREET

GENERAL SHEET NOTES

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SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

1 BAXTER STREET STA 23+50 TO 29+06
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

2 JONES STREET STA 10+00 TO 15+50
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

CAPE FEAR ENGINEERING
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NORTH CAROLINA PROFESSIONAL SEAL 046980 ENGINEER MICHAEL R. HOUSE 6/5/23

FINAL
05-02-2023

CU202

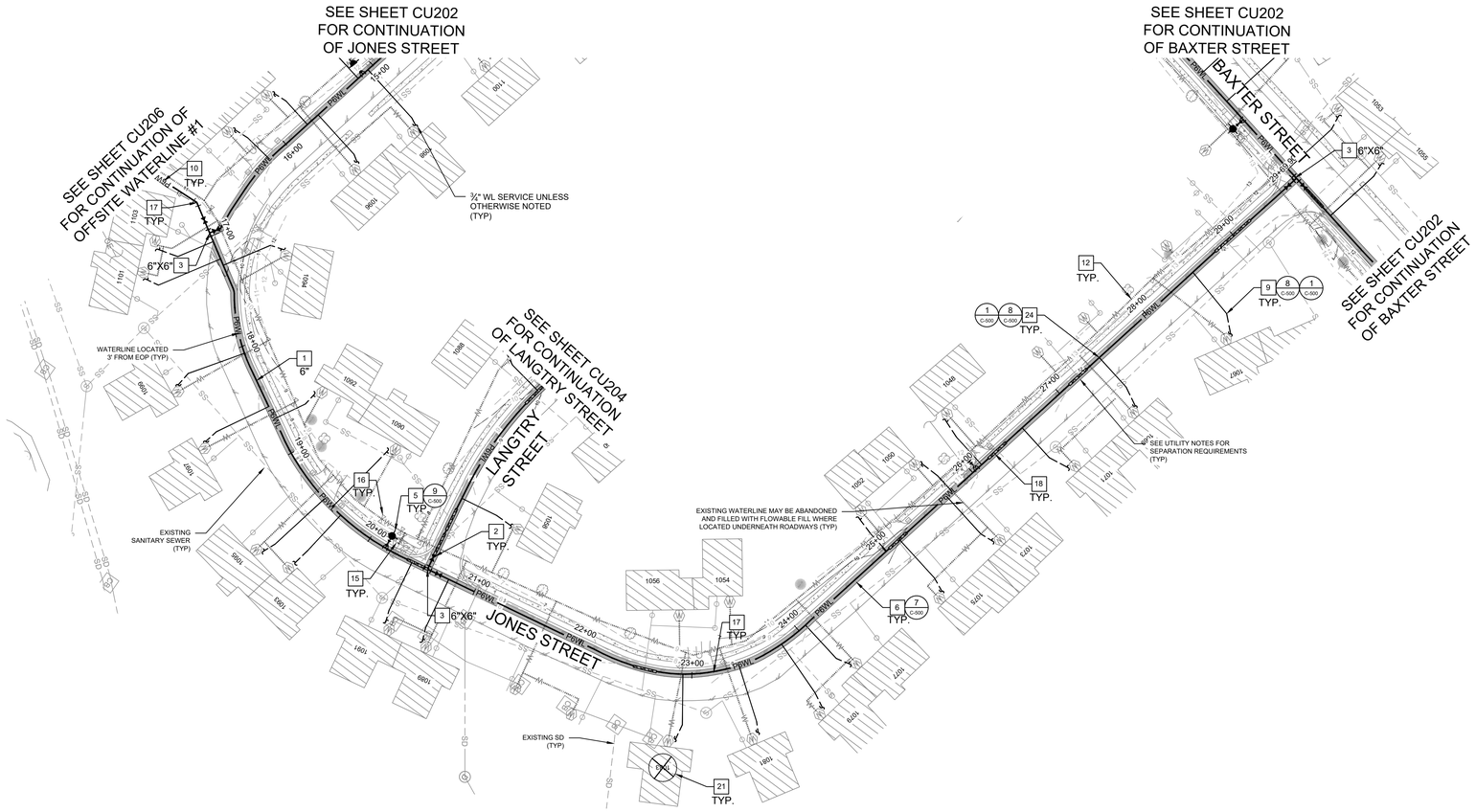
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

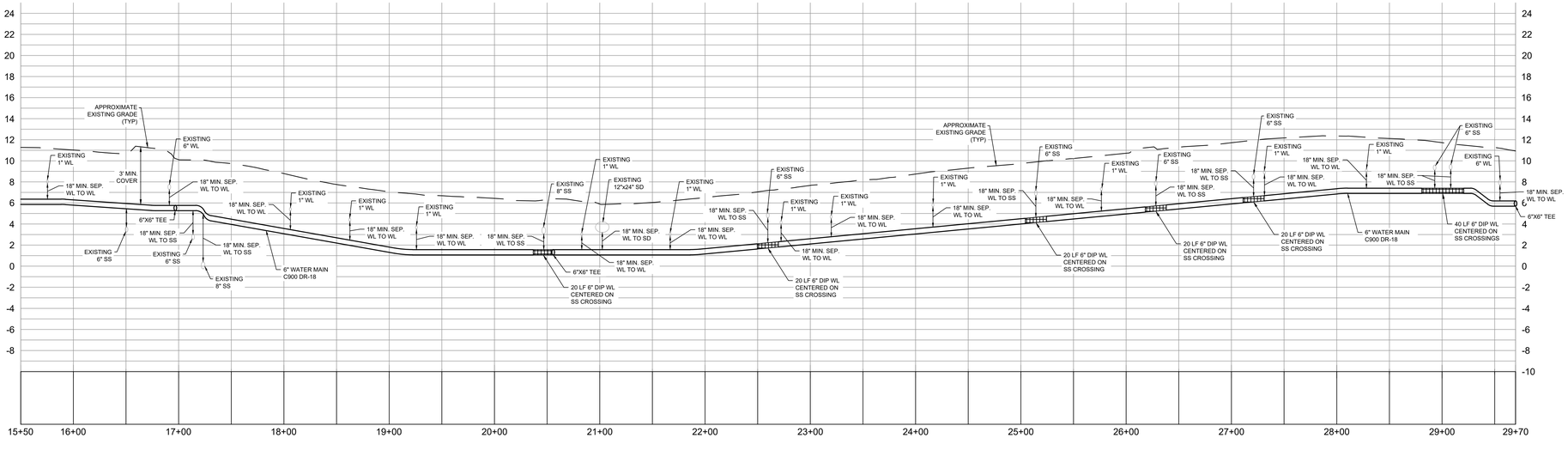
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
BAXTER STREET STA 23+50 TO 29+06
JONES STREET STA 10+00 TO 15+50

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR.	J. FRANKLIN ORR, PE
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038629
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 23 OF 41

REVISIONS			
SYM		DATE	APPROVED





JONES STREET

1 JONES ST STA 15+50 TO 29+70
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

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2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-001)
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SHEET KEYNOTES

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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

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NORTH CAROLINA PROFESSIONAL SEAL 048880 6/4/18 ENGINEER MICHAEL R. HOWARD

FINAL
05-02-2023

CU203

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

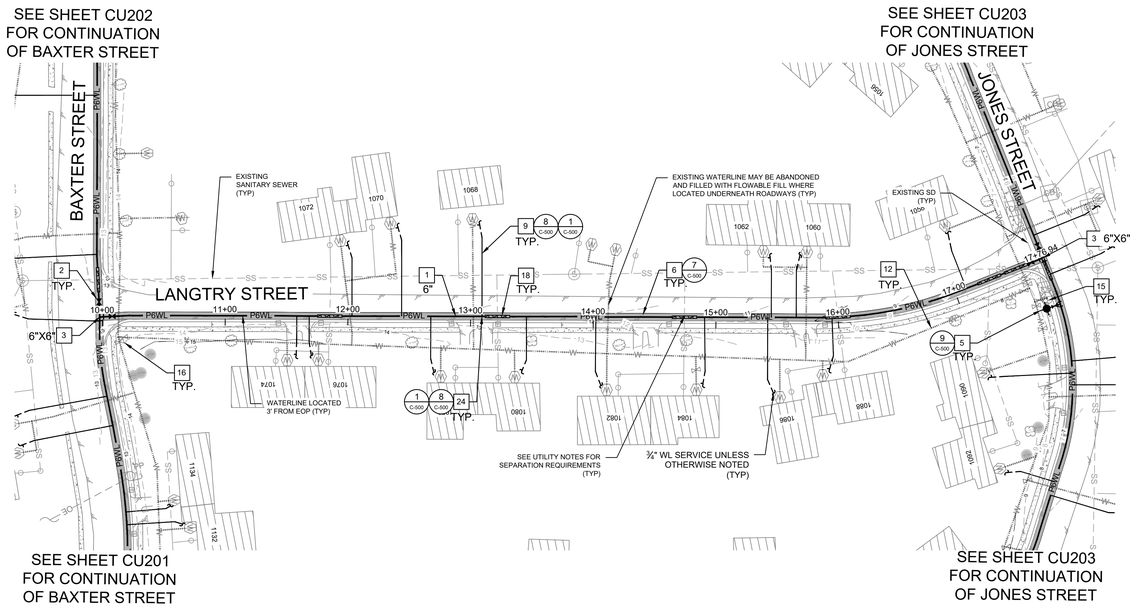
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

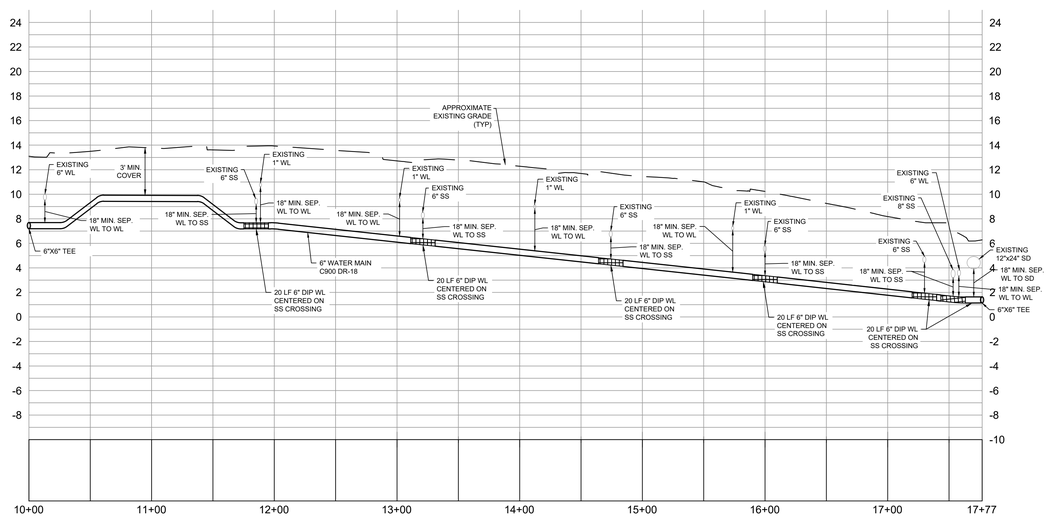
JONES STREET
15+50 TO 29+70

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038630
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 24 OF 41

REVISIONS			
SYM		DATE	APPROVED





LANGTRY STREET

1 LANGTRY ST STA 10+00 TO 17+77
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

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22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU204

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. MOORE 6/5/23

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

LANGTRY STREET STA 10+00 TO 17+77

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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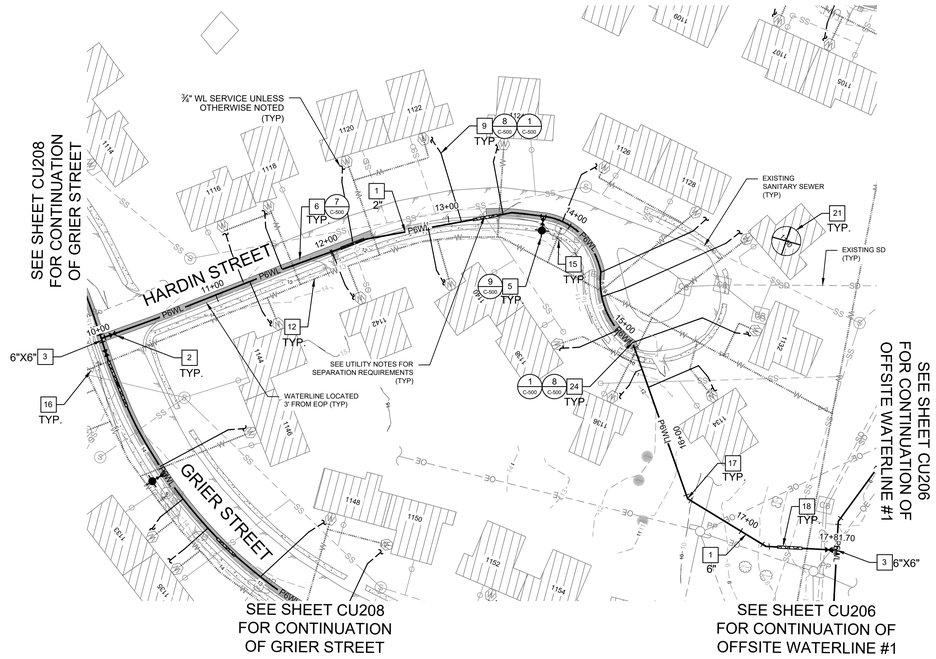
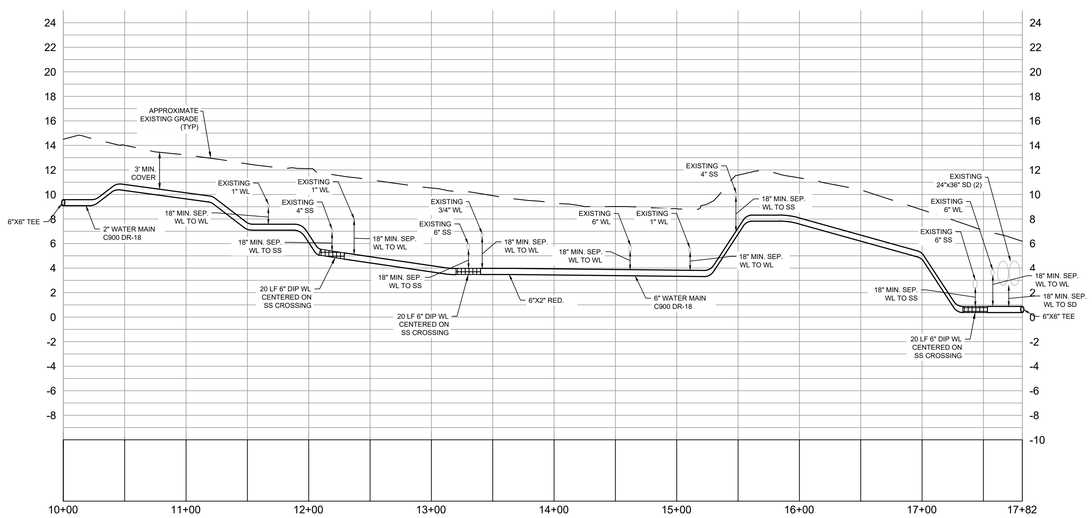
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 25 OF 41

REVISIONS			
SYM		DATE	APPROVED





HARDIN STREET

1 HARDIN STREET STA 10+00 TO 17+82
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1/C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE. STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3/C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU205

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL B. HOUSER 6/2/23

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
HARDIN STREET
STA 10+00 TO 17+82

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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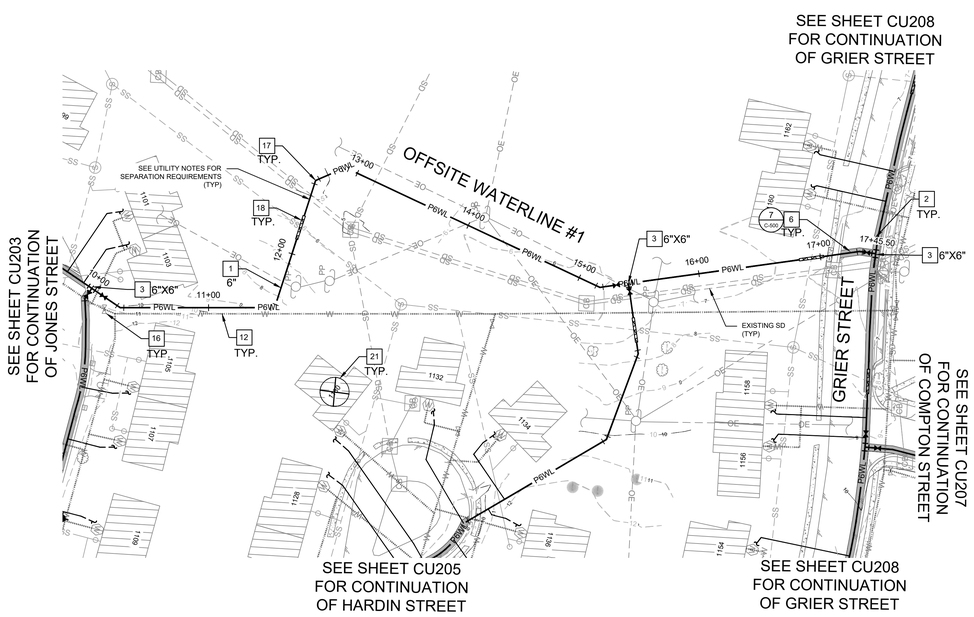
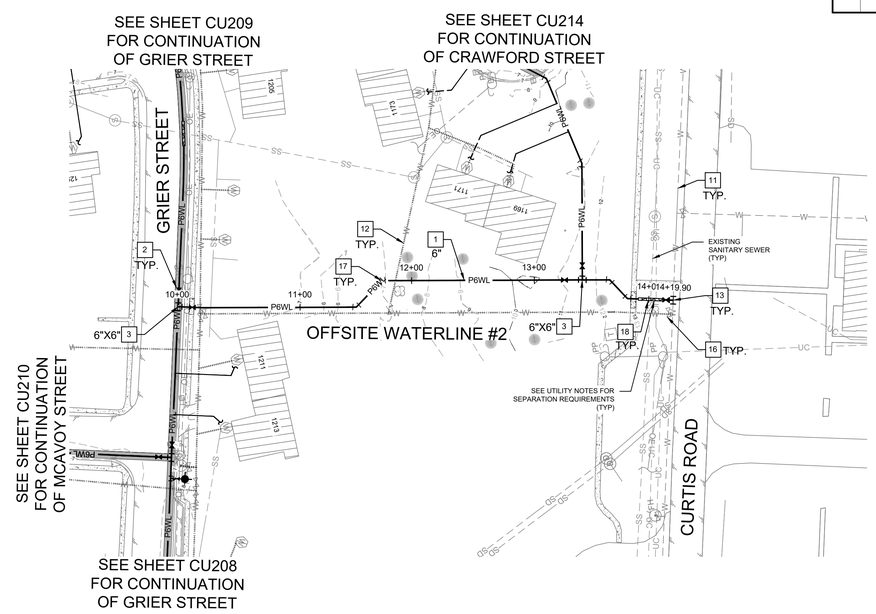
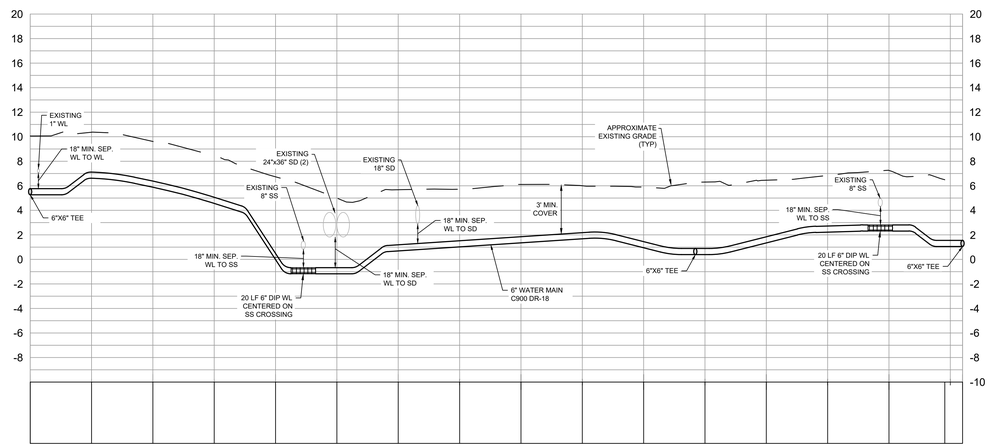
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 26 OF 41

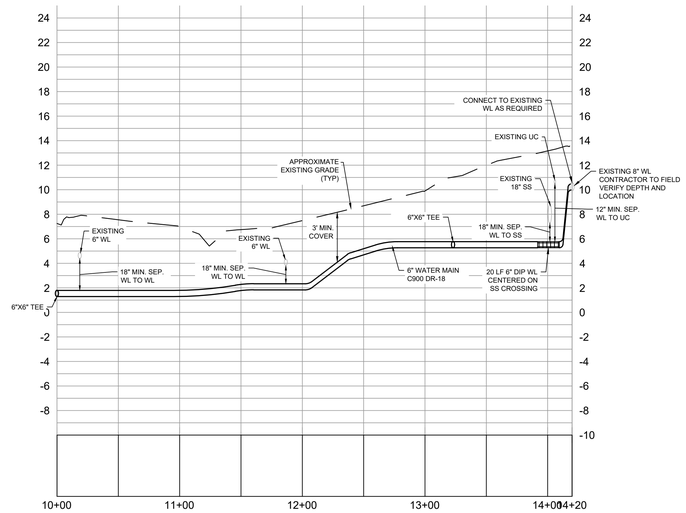
REVISIONS			
SYM		DATE	APPROVED







OFFSITE WATERLINE #1



OFFSITE WATERLINE #2

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE. STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 / C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
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17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
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24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

1 OFFSITE WATERLINE #1 STA 10+00 TO 17+60
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

2 OFFSITE WATERLINE #2 STA 10+00 TO 14+20
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. HOUSE 6/2/23

FINAL
05-02-2023

CU206

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

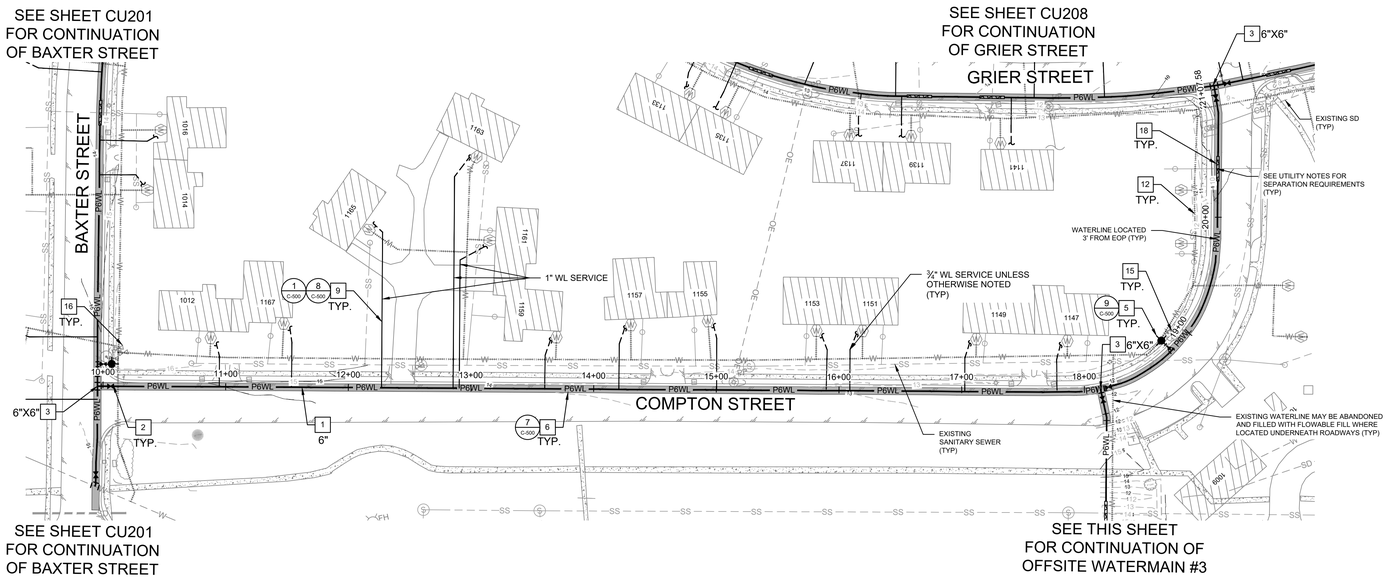
OFFSITE WATERLINE #1 STA 10+00 TO 17+60
OFFSITE WATERLINE #2 STA 10+00 TO 14+20

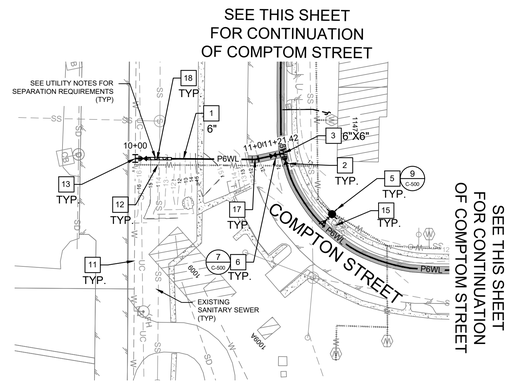
DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

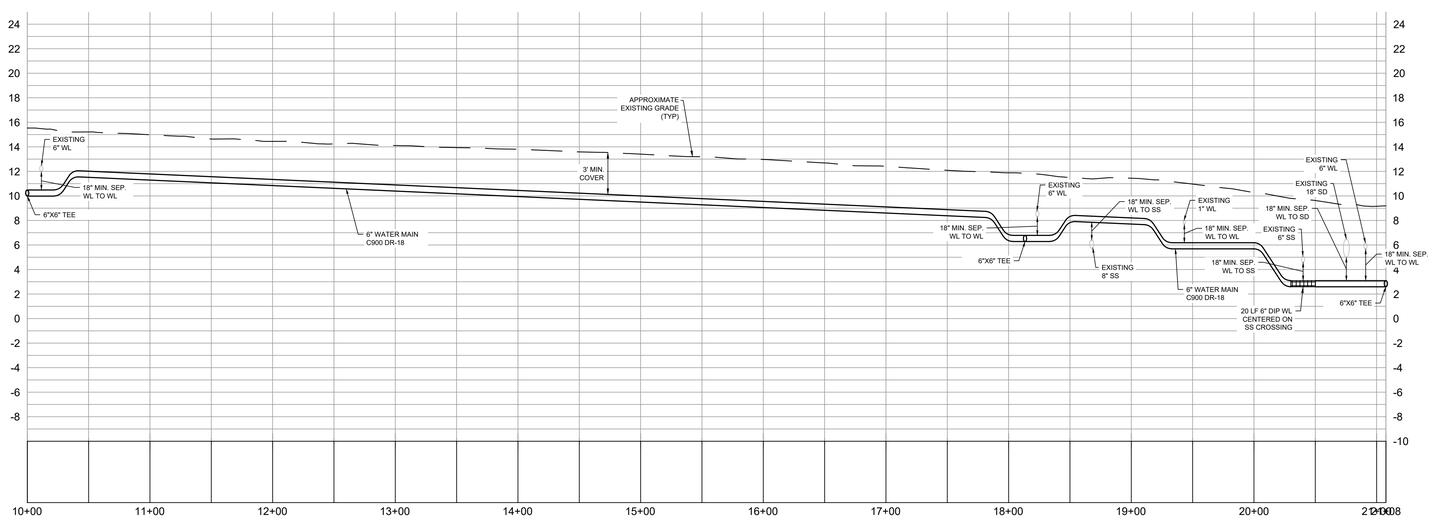
SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038633
		CONST. CONTR.

SCALE: NOTED | SPEC. 05-22-0043 | SHEET 27 OF 41

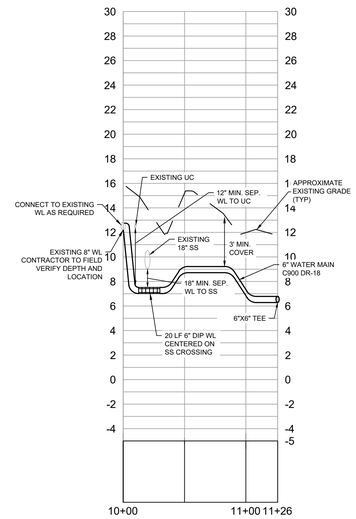
REVISIONS			
SYM		DATE	APPROVED







COMPTON STREET



OFFSITE WATERLINE #3

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-001)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE. STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 / C-001)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
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18. DUCTILE IRON WATER MAIN.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

1 COMPTON STREET STA 10+00 TO 21+08
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

2 OFFSITE WATERLINE #3 STA 10+00 TO 11+26
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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NORTH CAROLINA PROFESSIONAL SEAL 049090 ENGINEER MICHAEL R. HOUSE 5/5/23

FINAL
05-02-2023

CU207

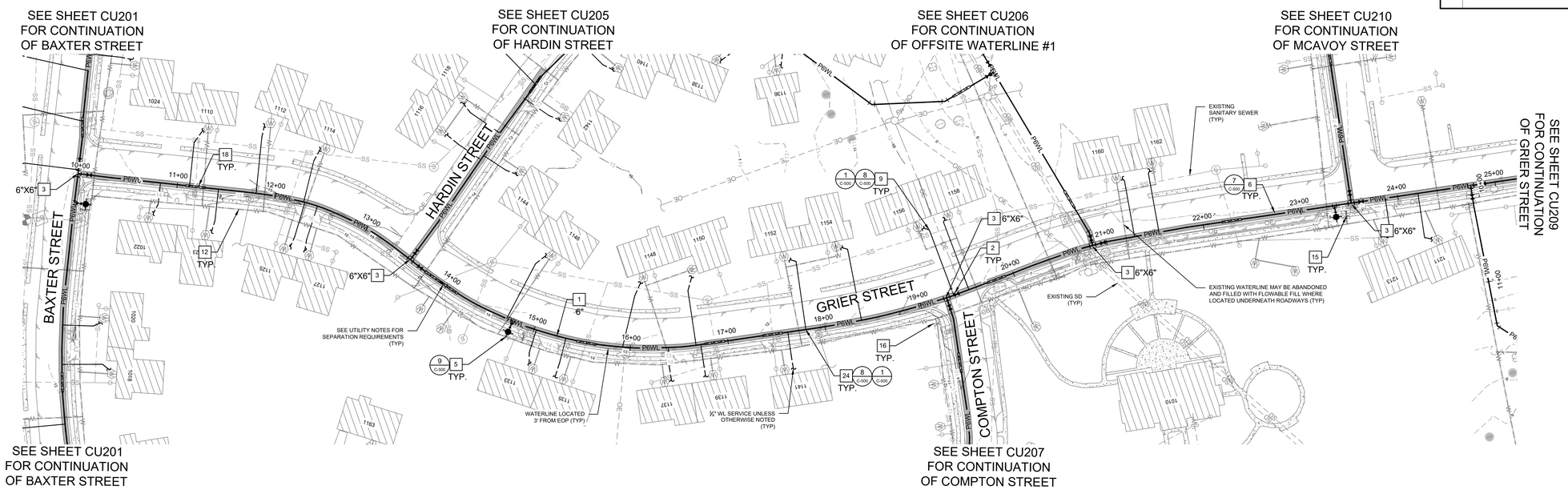
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

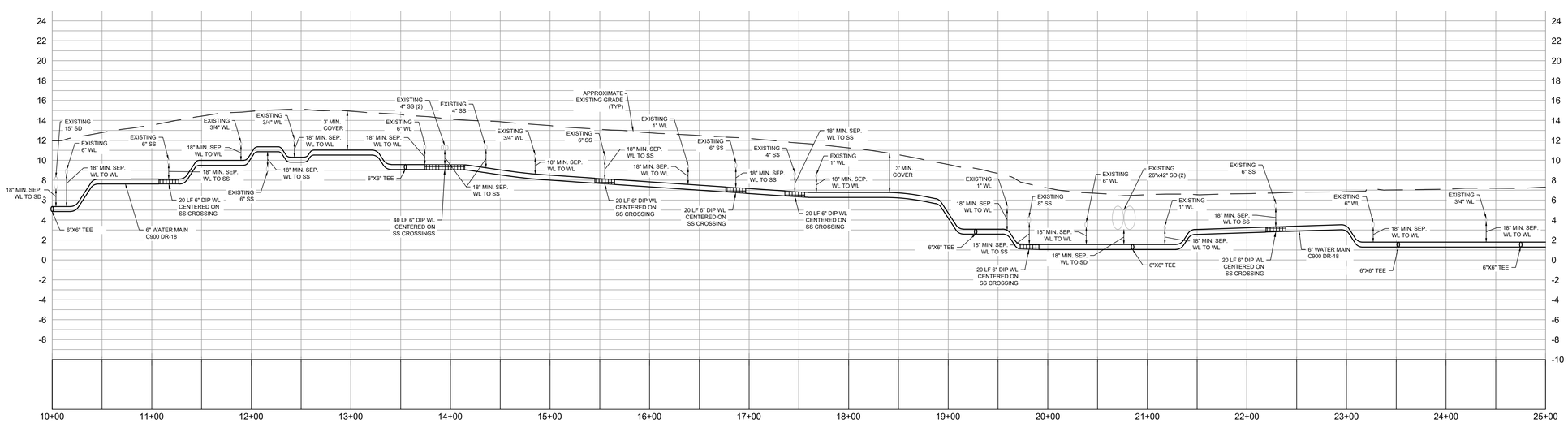
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
COMPTON STREET STA 10+00 TO 21+08
OFFSITE WATERLINE #3 STA 10+00 TO 11+26

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038634
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 28 OF 41

REVISIONS			
SYM		DATE	APPROVED





GRIER STREET

1 GRIER ST STA 10+00 TO 25+00
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-001)
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SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
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6. CUT AND PATCH EXISTING PAVEMENT.
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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

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05-02-2023

CU208

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NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL B. MOORE 6/5/23

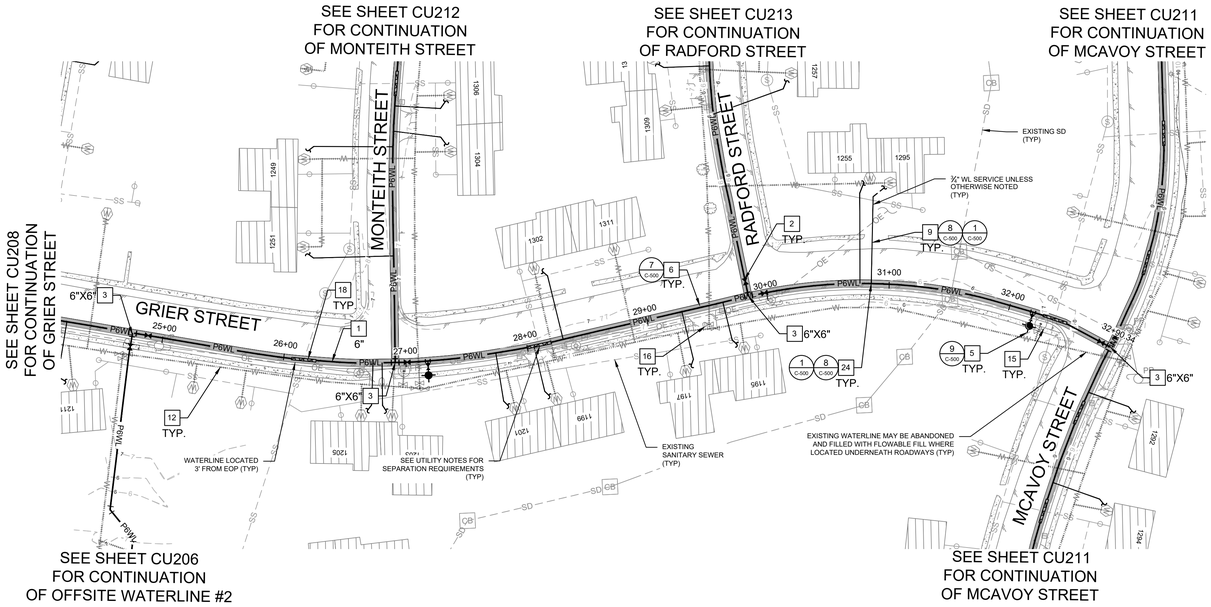
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

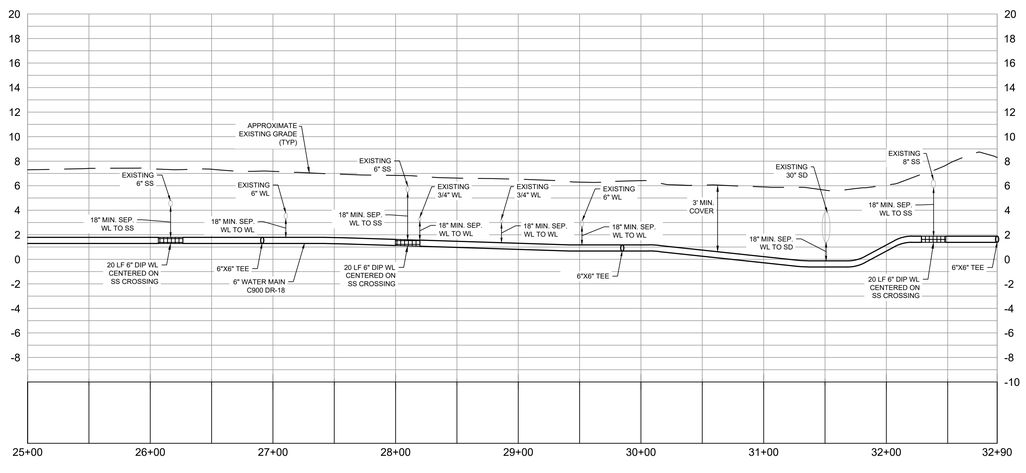
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
GRIER STREET
STA 10+00 TO 25+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038635
		CONST. CONTR.
SCALE: NOTED		SPEC. 05-22-0043

REVISIONS			
SYM		DATE	APPROVED





GRIER STREET

1 GRIER ST STA 25+00 TO 32+90
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL RESTORE AND SEED ANY DISTURBED AREAS AFTER BEING BROUGHT BACK TO MATCH ADJACENT GRADE. DISTURBED AREAS TO BE STABILIZED IN ACCORDANCE WITH APPLICABLE NCDEQ SPECIFICATIONS. (1 / C-901)
3. WHERE DRAINAGE DITCHES ARE IMPACTED BY WATERLINE INSTALLATION, CONTRACTOR SHALL ENSURE GRADES ARE RESTORED TO PROVIDE POSITIVE DRAINAGE. STORMWATER SHALL BE DIVERTED OR PUMPED AROUND AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM STORMDRAIN UPON COMPLETION.
4. TEMPORARY STONE CHECK DAMS SHALL BE PLACED WITHIN ROADSIDE SWALES AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT. (3 / C-901)

SHEET KEYNOTES

1. WATER MAIN (C900 DR-18). SIZE VARIES, SEE PLAN VIEW.
2. GATE VALVE. SIZE VARIES, SEE PLAN VIEW.
3. WATER MAIN TEE. SIZE VARIES, SEE PLAN VIEW.
4. UTILITY MAIN ENCASEMENT FOR JACK AND BORE
5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
10. CONTRACTOR TO FIELD ADJUST WATERMAIN LOCATION WITH FITTINGS AS REQUIRED TO MINIMIZE IMPACTS TO EXISTING TREES.
11. EXISTING WATER MAIN TO REMAIN.
12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
13. EXPOSE EXISTING WATER MAIN AND CONNECT TO NEWLY INSTALLED WATER MAIN WITH FITTINGS AS REQUIRED.
14. PLUG EXISTING WATER MAIN TO BE ABANDONED AT TIME OF CONNECTION TO NEWLY INSTALLED WATER MAIN.
15. EXISTING FIRE HYDRANT AND VALVE BOX TO BE REMOVED. CAP HYDRANT LEG, BACKFILL, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
16. REMOVE EXISTING VALVE BOX ON WATER MAIN TO BE ABANDONED, GRADE TO MATCH ADJACENT AND RESEED DISTURBED AREAS.
17. CONTRACTOR TO INSTALL BENDS AS REQUIRED.
18. DUCTILE IRON WATER MAIN.
19. CONTRACTOR TO DEMOLISH/REMOVE TREES AS NECESSARY FOR INSTALLATION OF WATER LINE.
20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 048880 6/2/23 ENGINEER MICHAEL R. HOWARD

FINAL
05-02-2023

CU209

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

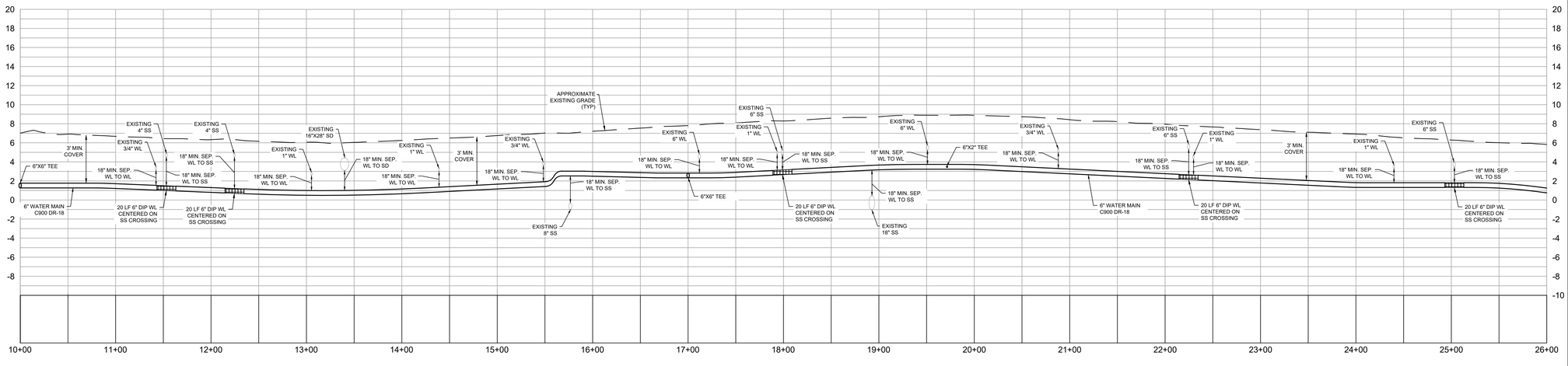
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

GRIER STREET
25+00 TO 32+90

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038636
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 30 OF 41

REVISIONS			
SYM		DATE	APPROVED



MCAVOY STREET

1 MCAVOY ST STA 10+00 TO 26+00
1" = 50'

PLAN NORTH

1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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FINAL
05-02-2023

CU210

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

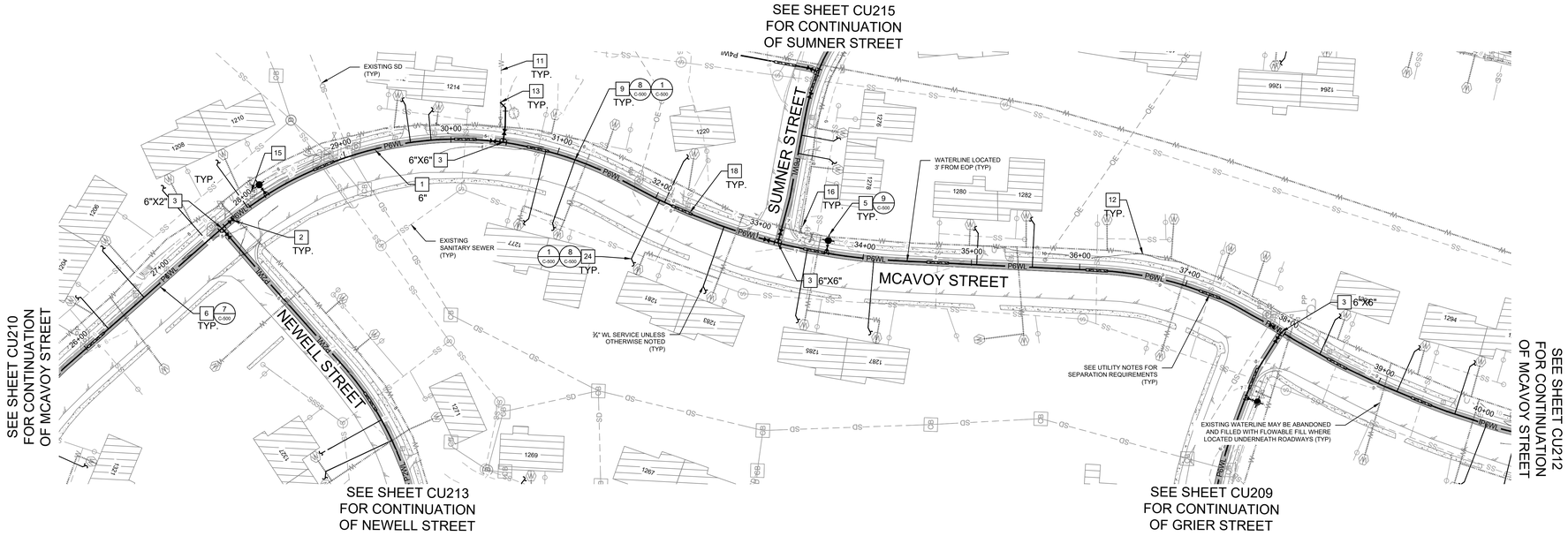
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

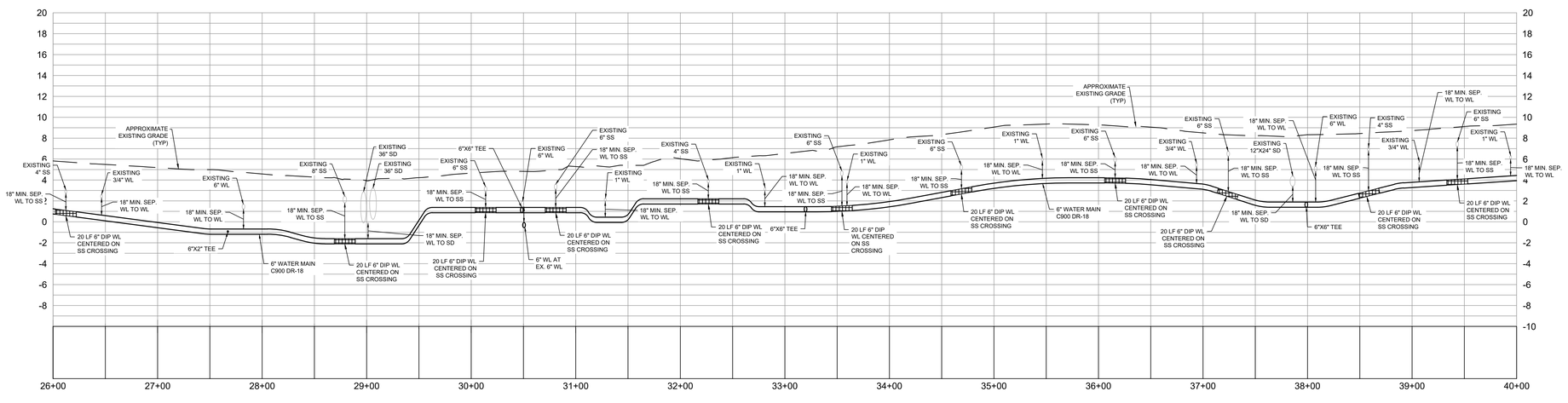
MCAVOY STREET
STA 10+00 TO 26+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038637
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 31 OF 41

REVISIONS			
SYM		DATE	APPROVED





MCAVOY STREET

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1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
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NORTH CAROLINA PROFESSIONAL SEAL 048880 ENGINEER MICHAEL R. HOWARD 6/5/23

FINAL
05-02-2023

CU211

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

MCAVOY STREET
STA 26+00 TO 40+00

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
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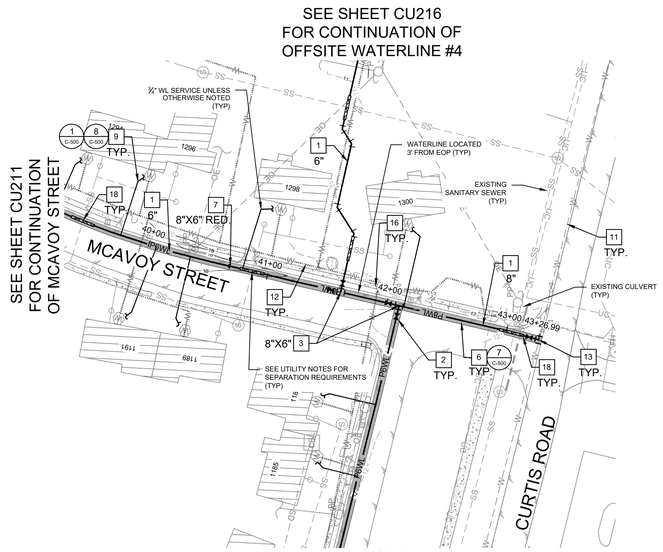
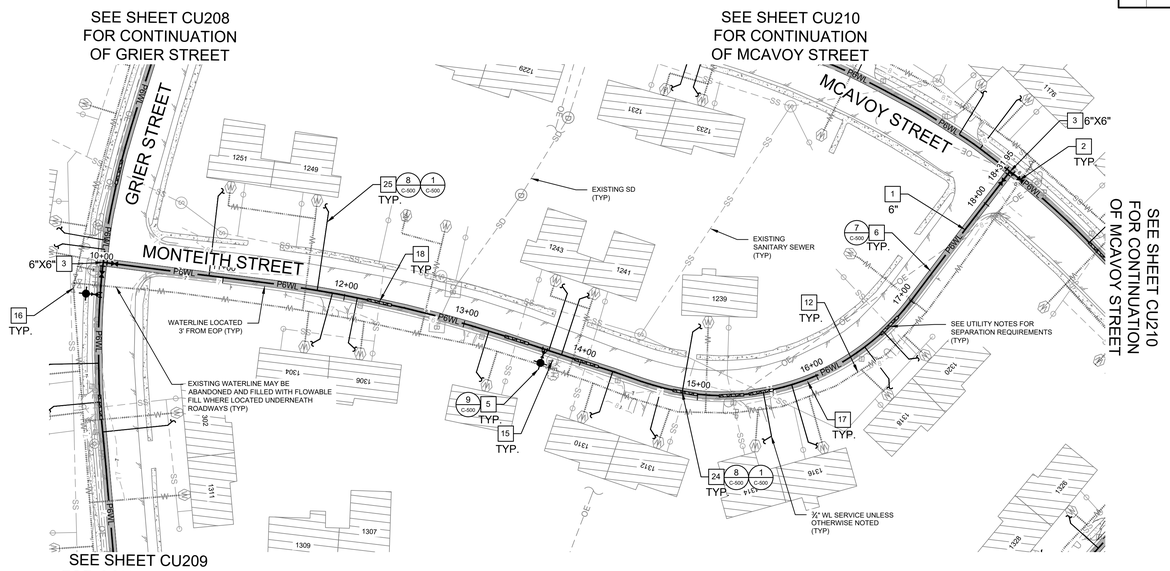
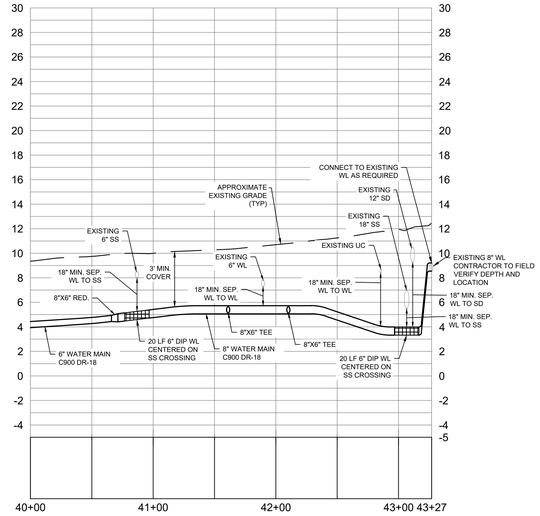
		CONST. CONTR.

SCALE: NOTED | SPEC. 05-22-0043 | SHEET 32 OF 41

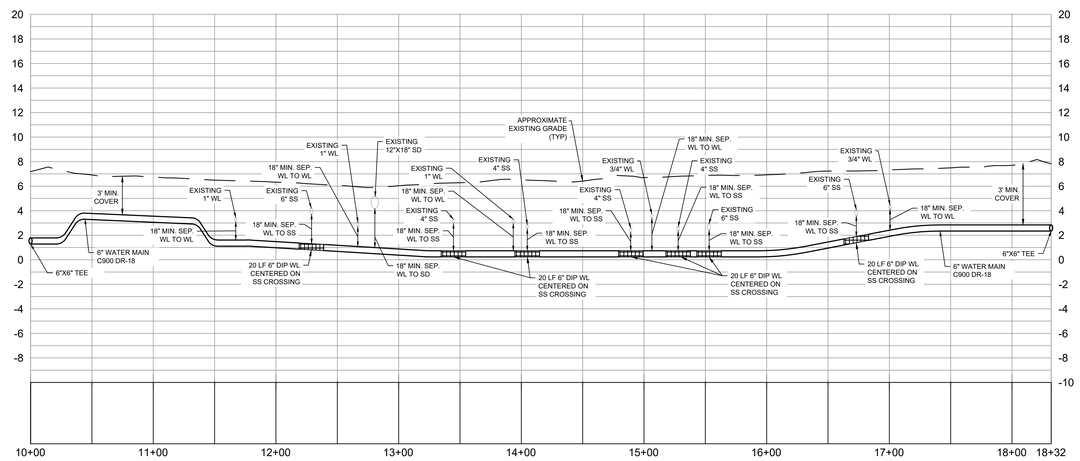
REVISIONS			
SYM		DATE	APPROVED







MCAVOY STREET



MONTEITH STREET

GENERAL SHEET NOTES

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1 MCAVOY ST STA 40+00 TO 43+27
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

2 MONTEITH STREET STA 10+00 TO 18+32
1" = 50'

PLAN NORTH

50 0 50 100
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FINAL
05-02-2023

CU212

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
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DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR.	J. FRANKLIN ORR, PE
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038639
		CONST. CONTR.
SCALE: NOTED		SPEC. 05-22-0043 — SHEET 33 OF 41

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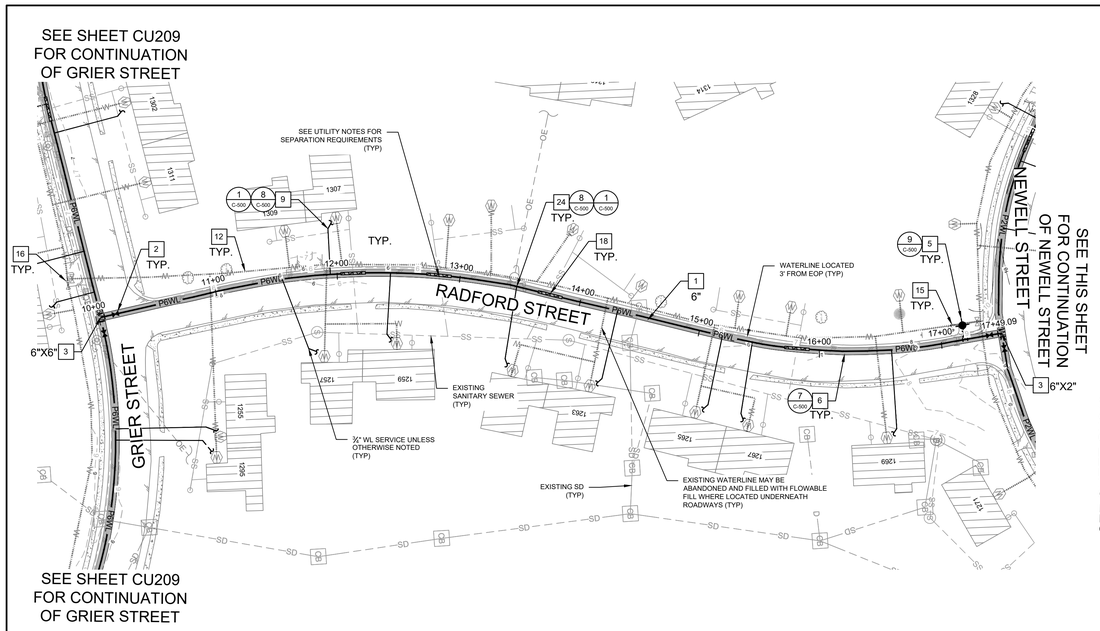
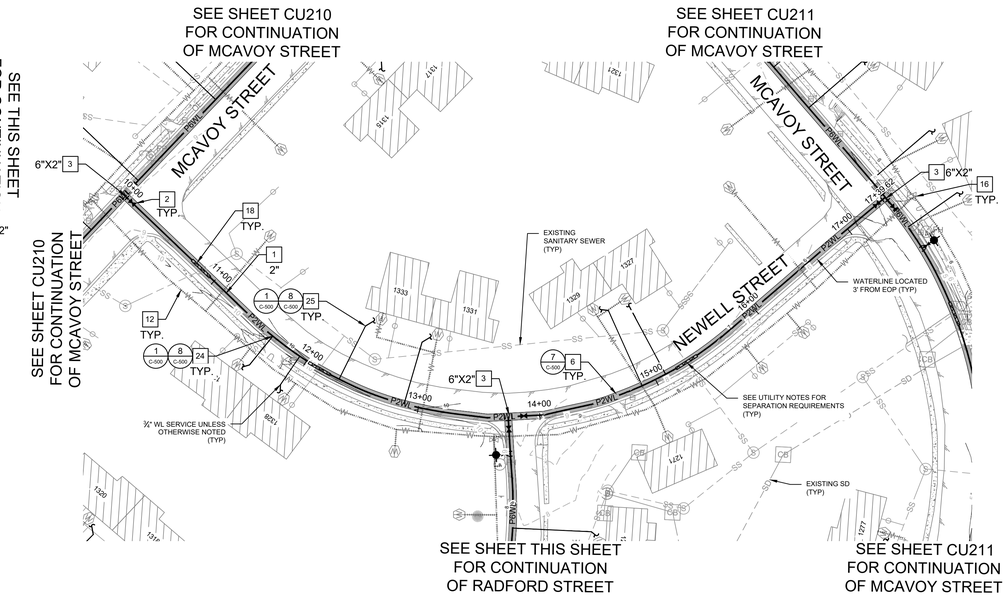
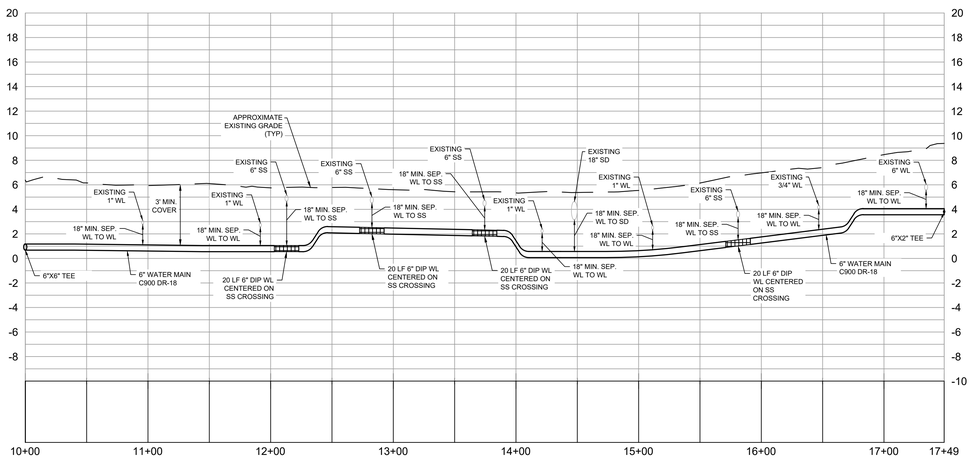
NORTH CAROLINA PROFESSIONAL SEAL 046990 ENGINEER MICHAEL R. MOORE 6/5/23

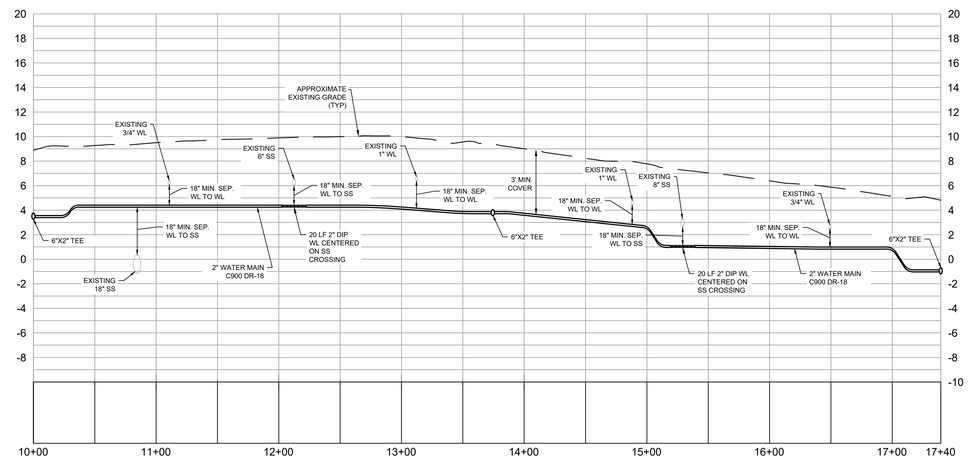
REVISIONS			
SYM		DATE	APPROVED







RADFORD STREET



NEWELL STREET

1 RADFORD ST STA 10+00 TO 17+49
1" = 50'

2 NEWELL STREET STA 10+00 TO 17+40
1" = 50'

PLAN NORTH

50 0 50 100
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5. FIRE HYDRANT ASSEMBLY.
6. CUT AND PATCH EXISTING PAVEMENT.
7. REDUCER (SIZE VARIES, SEE PLAN VIEW).
8. HORIZONTAL DIRECTION DRILL (HDD).
9. INSTALL SERVICE LINE AND STUB AT EXISTING METER BOX FOR FUTURE PLUMBING CONNECTION FOLLOWING TESTING AND CERTIFICATION OF NEW MAIN. MINIMUM DEPTH OF SERVICE LINES SHALL BE 18".
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12. EXISTING WATER MAIN TO BE REMOVED/ ABANDONED FOLLOWING TESTING AND CERTIFICATION OF NEWLY INSTALLED WATER MAIN. SEE DEMOLITION NOTES ON PLAN SHEET C-001.
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20. SERVICE LINE FOR FLUSHING STATION. 2" BLOW OFF WITH BLUETOOTH CONNECTION.
21. RESIDENTIAL STRUCTURE SCHEDULED FOR DEMOLITION. REMOVE EXISTING SERVICE TO WITHIN 5' OF STRUCTURE. NO SERVICE REPLACEMENT REQUIRED.
22. SILT FENCING
23. CONTRACTOR TO PROVIDE PIPE INLET PROTECTION DOWNSTREAM OF DISTURBANCE WITHIN DRAINAGE DITCHES WHERE SEDIMENT ACCUMULATION IS ANTICIPATED OR OBSERVED.
24. FAR-SIDE SERVICE TAPS LOCATED UNDERNEATH PAVEMENT TO BE INSTALLED BY PNEUMATIC BORE OR OTHER APPROVED TRENCHLESS INSTALLATION METHOD.

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
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www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 048880 ENGINEER MICHAEL R. HOWARD 6/5/23

FINAL
05-02-2023

CU213

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

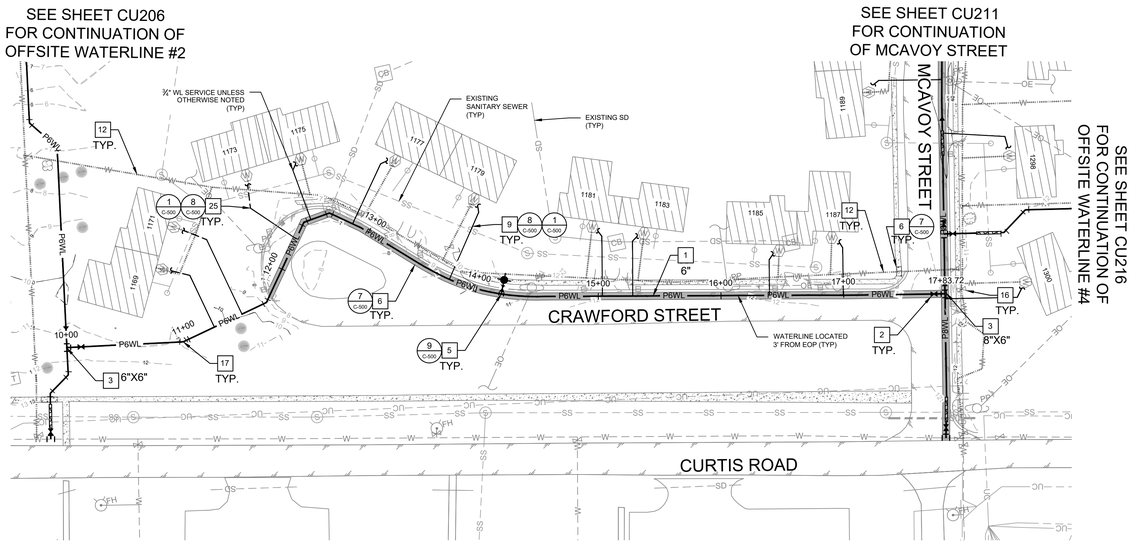
REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
RADFORD STREET STA 10+00 TO 17+49
NEWELL STREET STA 10+00 TO 17+40

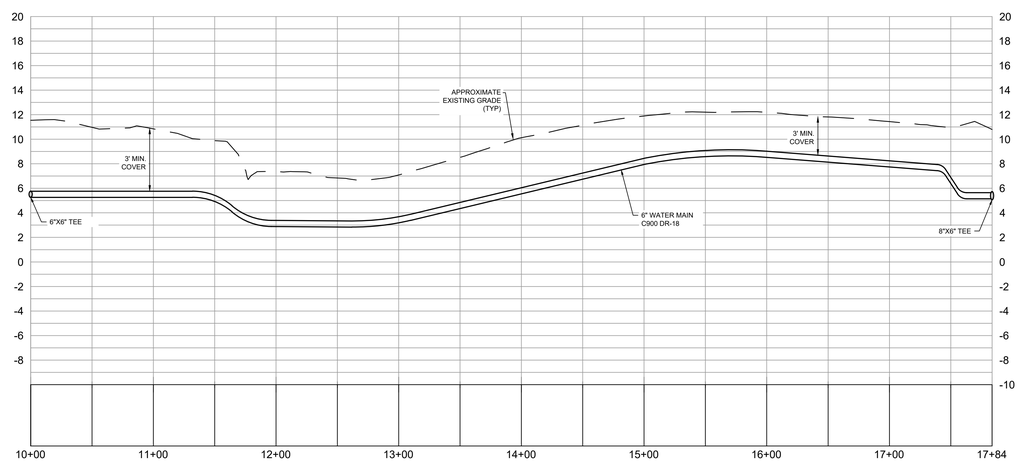
DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038640
		CONST. CONTR.

SCALE: NOTED | SPEC. 05-22-0043 | SHEET 34 OF 41

REVISIONS			
SYM		DATE	APPROVED





CRAWFORD STREET

1 CRAWFORD ST STA 10+00 17+84
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

GENERAL SHEET NOTES

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SHEET KEYNOTES

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NORTH CAROLINA PROFESSIONAL SEAL 048880 6/2/23 ENGINEER MICHAEL R. HOWARD

FINAL
05-02-2023

CU214

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

CRAWFORD STREET
STA 10+00 TO 17+84

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
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		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 35 OF 41

REVISIONS			
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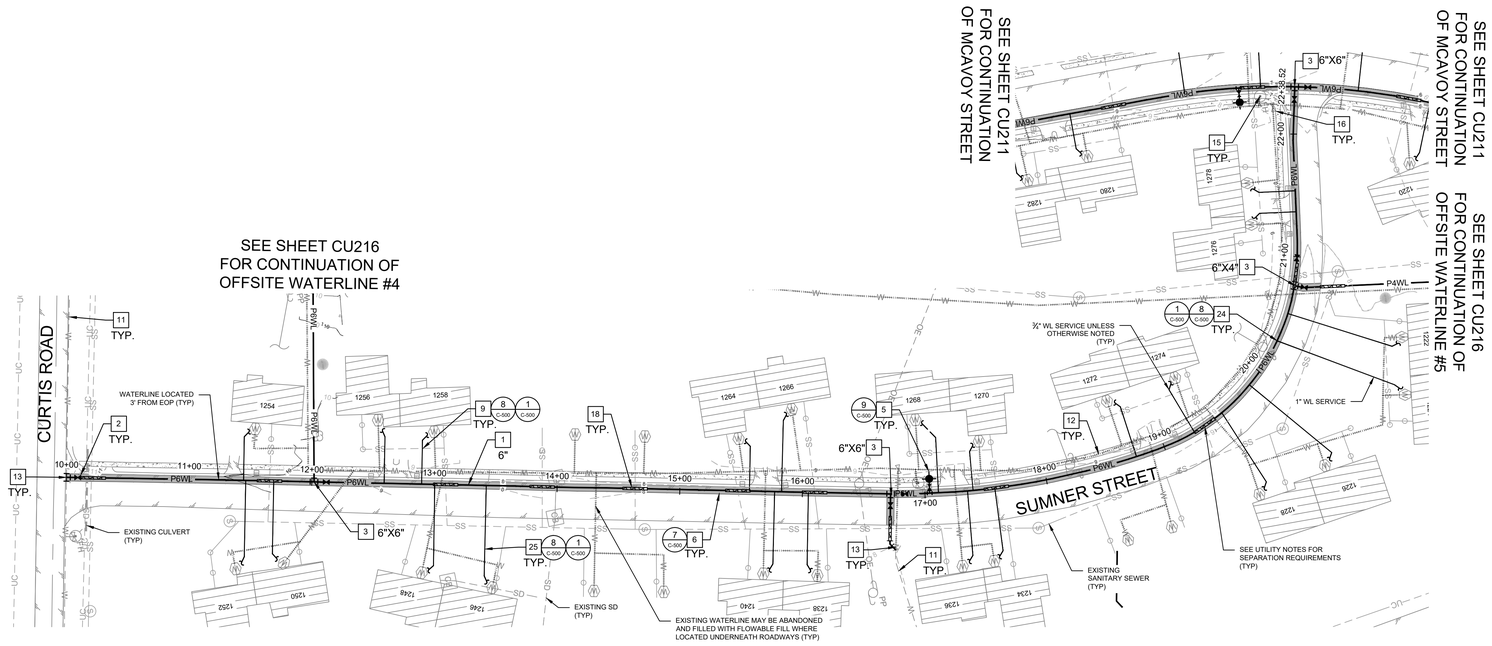

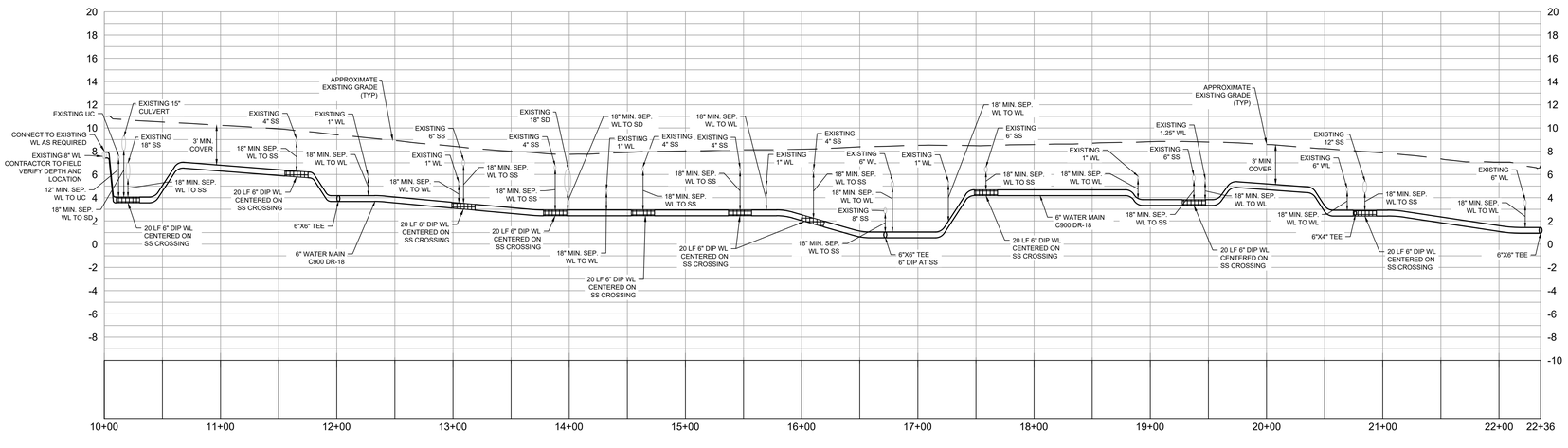

SUMNER STREET

1 SUMNER ST STA 10+00 TO 22+36
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

CU215

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

SUMNER STREET
STA 10+00 TO 22+36

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038642
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 36 OF 41

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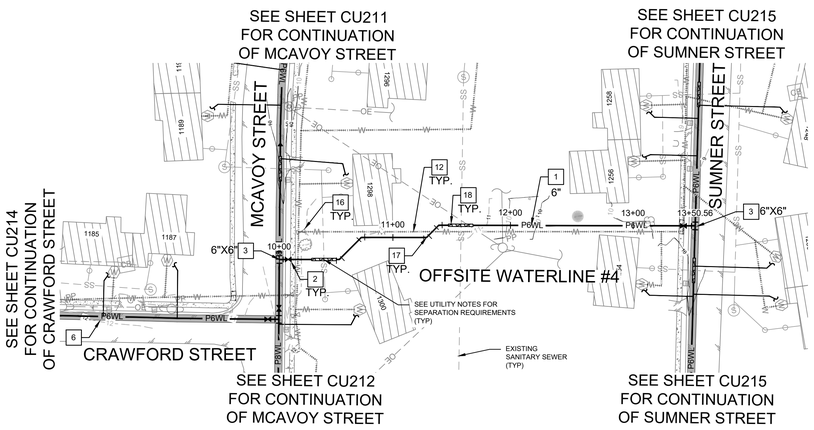
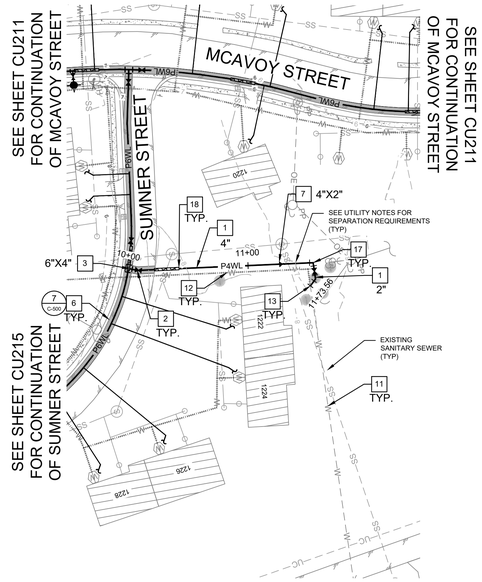
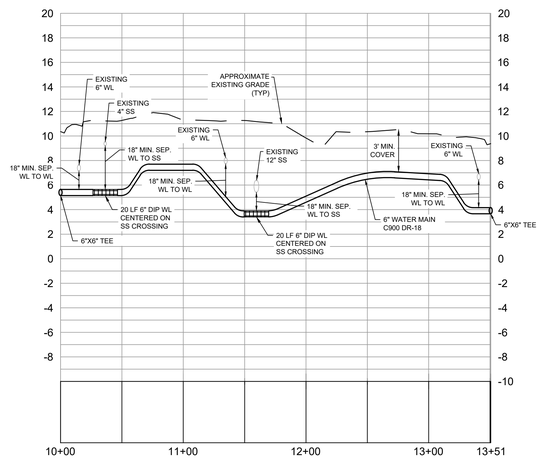
NORTH CAROLINA PROFESSIONAL SEAL 048880 ENGINEER MICHAEL R. KOHLER
6/5/18

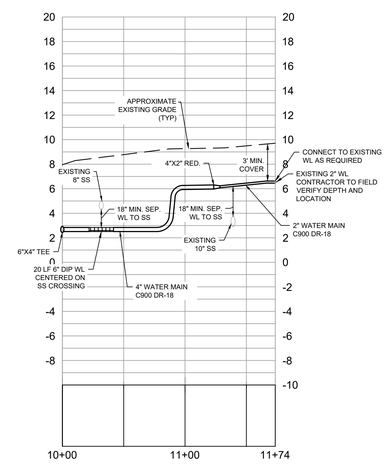
REVISIONS			
SYM		DATE	APPROVED







OFFSITE WATERLINE #4



OFFSITE WATERLINE #5

1 OFFSITE WATERLINE #4 STA 10+00 TO 13+51
1" = 50'

PLAN NORTH

50 0 50 100
1 INCH = 50 FEET HORIZONTAL
1 INCH = 5 FEET VERT

2 OFFSITE WATERLINE #5 STA 10+00 TO 11+74
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PLAN NORTH

50 0 50 100
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NORTH CAROLINA PROFESSIONAL SEAL 048880 6/4/18 ENGINEER MICHAEL R. HOWARD

FINAL
05-02-2023

CU216

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR
OFFSITE WATERLINE #4 10+00 TO 13+51
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DES.	MRH
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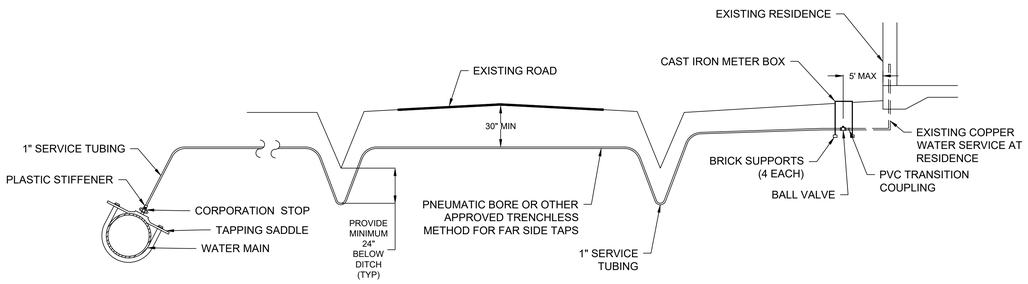
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038643
		CONST. CONTR.

SCALE: NOTED | SPEC. 05-22-0043 | SHEET 37 OF 41

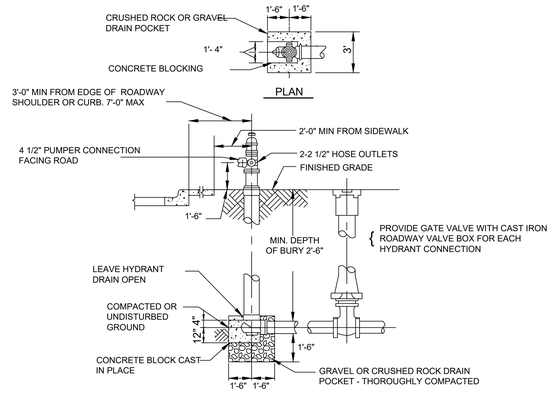
REVISIONS			
SYM		DATE	APPROVED



NOTES:
1. THE EXISTING WATER SERVICE SHALL NOT BE INTERRUPTED WITHOUT PRIOR SCHEDULING THROUGH THE CONTRACTING OFFICER. THE MAXIMUM OUTAGE DURATION SHALL NOT EXCEED 2 HOURS WITHOUT PERMISSION FROM THE CONTRACTING OFFICER.

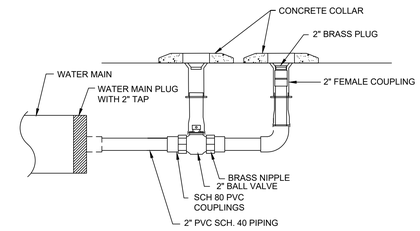
2. THE CONTRACTOR SHALL DRY BORE (BULLET) NEW WATER SERVICE LINES UNDER THE EXISTING ROAD SYSTEM. NO ROADWAY CUTTING SHALL BE ALLOWED FOR WATER SERVICE INSTALLATION.

8 TYPICAL RESIDENTIAL WATER SERVICE
NOT TO SCALE

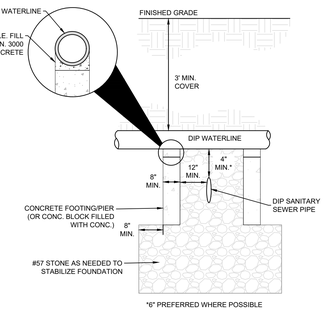


NOTE:
1. HYDRANTS SHALL BE PAINTED WITH AT LEAST ONE COAT OF PRIMER AND TWO COATS OF ENAMEL PAINT. PAINT BARREL YELLOW AND BONNET COLORS BASED ON RATED FLOW CAPACITY IN ACCORDANCE WITH UFC 3-600-01 AND NFPA 291.
2. CONTRACTOR RESPONSIBLE FOR PERFORMING FLOW TESTS ON ALL NEW HYDRANTS ONCE THE MAIN IS MADE ACTIVE. FLOW RESULTS SHALL BE PROVIDED TO BASE FIRE WITH PROPOSED COLOR CODE FOR ACCEPTANCE PRIOR TO PAINTING.
3. IN LOCATIONS WHERE PROTECTIVE BOLLARDS ARE USED PROVIDE A MINIMUM 24" CLEARANCE, AND MUST NOT BLOCK HYDRANT CONNECTIONS.
4. HYDRANTS TO BE INSTALLED WITH 5" STORZ X 4.5" HN/NST FIRE HYDRANT CONVERTER WITH 5" STORZ CAP PER UFC 3-600-01 SECTION 9-3.5.6)
5. HYDRANTS SHALL BE INSTALLED WITH IDENTIFICATION NUMBER TAG - TO BE ASSIGNED BY FIRE AND EMERGENCY SERVICE DIVISION (FESD) / INSTALLATION (UFC 3-600-01 SECTION 9-3.5.6).
6. CALENDAR OF WORK OR COORDINATION OF WATER OUTAGES MUST BE REPORTED TO FESD DUTY CHIEF AT 910-376-7170 OR FESD DIRE PREVENTION CHIEF AT 910-523-8315. THIS SHALL BE DONE TO ENSURE THAT FIREFIGHTERS ARE AWARE OF HYDRANT OUTAGES AND TO COORDINATE SHUT DOWNS IF NEEDED OF NEARBY AFFECTED FIRE SPRINKLER SYSTEMS.

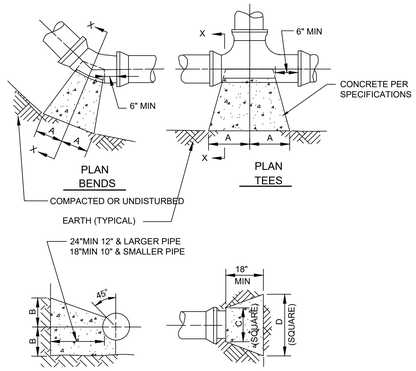
9 FIRE HYDRANT
NOT TO SCALE



10 BLOW OFF ASSEMBLY
NOT TO SCALE



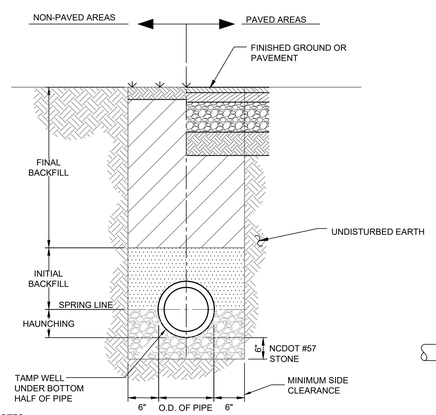
11 CONCRETE STRUCTURAL BRIDGING
NOT TO SCALE



SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		TEES		PLUGS	
	A	B	A	B	A	B	A	B	C	D
4"& 6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

NOTE:
SHALL BE INSTALLED PER PROJECT SPECIFICATIONS

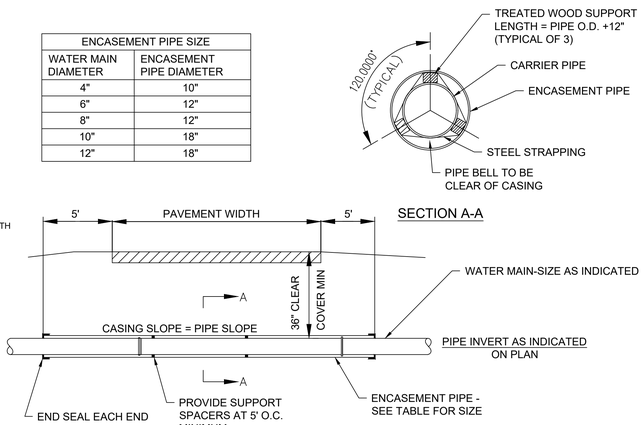
4 THRUST BLOCKS
NOT TO SCALE



NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

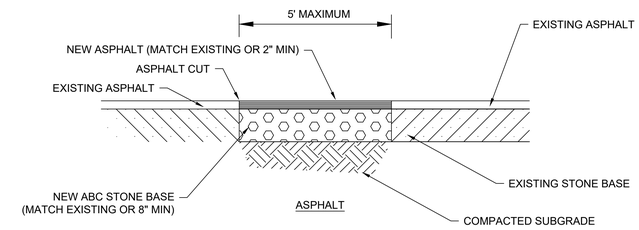
5 WATERLINE BEDDING DETAIL
NOT TO SCALE

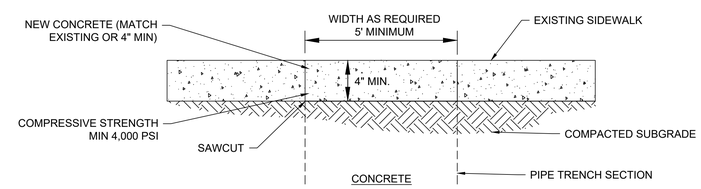
ENCASEMENT PIPE SIZE	
WATER MAIN DIAMETER	ENCASEMENT PIPE DIAMETER
4"	10"
6"	12"
8"	12"
10"	18"
12"	18"



WATER MAIN ENCASEMENT, BORE BENEATH ROADWAY

6 WATER MAIN ENCASEMENT
NOT TO SCALE

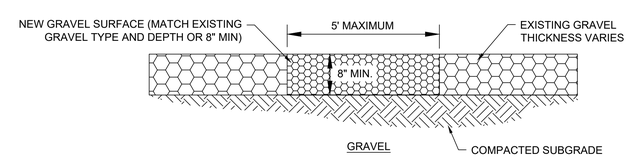




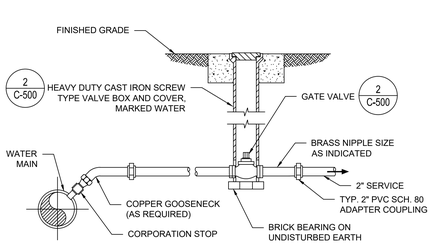
NOTES:
1. REMOVE CONCRETE SIDEWALK AT JOINTS WHEN JOINTS ARE LOCATED WITHIN 5 FEET OF AREA OF WORK.

2. CONCRETE FINISH AND JOINT PATTERN SHALL MATCH EXISTING.

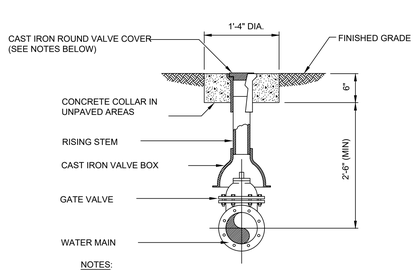
3. ALL SAWCUTS SHALL BE PERPENDICULAR TO THE EDGE OF THE EXISTING CONCRETE



7 PAVEMENT CUT AND PATCH
NOT TO SCALE



1 SERVICE CONNECTION
NOT TO SCALE

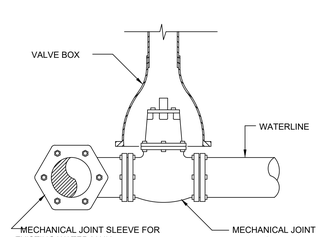


NOTES:

1. VALVE COVERS ON FIRE SERVICE LINES SHALL BE STAMPED 'FIRE' AND PAINTED RED.

2. VALVE COVERS ON DOMESTIC SERVICE LINES AND MAIN LINES SHALL BE STAMPED 'WATER'.

2 GATE VALVE
NOT TO SCALE



3 WATERLINE CONNECTION
NOT TO SCALE

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

C-500

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 049990 ENGINEER MICHAEL R. HOUSE 5/4/23

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

CIVIL DETAILS - 1

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR. J. FRANKLIN ORR, PE	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.
E1	80091	60038644
		CONST. CONTR.
SCALE: NOTED	SPEC. 05-22-0043	SHEET 38 OF 41

SELF-INSPECTION REPORT FOR LAND DISTURBING ACTIVITY AS REQUIRED BY NCGS 113A-54.1 15A NCAC 04B .0131 SELF-INSPECTIONS

WHERE INSPECTIONS ARE REQUIRED BY G.S. 113A-54.1(E), THE FOLLOWING APPLY:

(1) THE PERSON WHO PERFORMS THE INSPECTION SHALL MAKE A RECORD OF THE SITE INSPECTION BY DOCUMENTING THE FOLLOWING ITEMS:
  (A) ALL OF THE EROSION AND SEDIMENTATION CONTROL MEASURES, PRACTICES AND DEVICES, AS CALLED FOR IN A CONSTRUCTION SEQUENCE CONSISTENT WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING BUT NOT LIMITED TO SEDIMENTATION CONTROL BASINS, SEDIMENTATION TRAPS, SEDIMENTATION PONDS, ROCK DAMS, TEMPORARY DIVERSIONS, TEMPORARY SLOPE DRAINS, ROCK CHECK DAMS, SEDIMENT FENCE OR BARRIERS, ALL FORMS OF INLET PROTECTION, STORM DRAINAGE FACILITIES, ENERGY DISSIPATERS, AND STABILIZATION METHODS OF OPEN CHANNELS, HAVE INITIALLY BEEN INSTALLED AND DO NOT SIGNIFICANTLY DEVIATE (AS DEFINED IN SUB-ITEM (1)(E) OF THIS RULE) FROM THE LOCATIONS, DIMENSIONS AND RELATIVE ELEVATIONS SHOWN ON THE APPROVED EROSION AND SEDIMENTATION PLAN. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING EACH MEASURE OR PRACTICE SHOWN ON A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT THAT LISTS EACH MEASURE, PRACTICE OR DEVICE SHOWN ON THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THIS DOCUMENTATION IS REQUIRED ONLY UPON THE INITIAL INSTALLATION OF THE EROSION AND SEDIMENTATION CONTROL MEASURES, PRACTICES AND DEVICES AS SET FORTH BY THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR IF THE MEASURES, PRACTICES AND DEVICES ARE MODIFIED AFTER INITIAL INSTALLATION;
  (B) THE COMPLETION OF ANY PHASE OF GRADING FOR ALL GRADED SLOPES AND FILLS SHOWN ON THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN, SPECIFICALLY NOTING THE LOCATION AND CONDITION OF THE GRADED SLOPES AND FILLS. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT; THE LOCATION OF TEMPORARY OR PERMANENT GROUND COVER, AND THAT THE INSTALLATION OF THE GROUND COVER DOES NOT SIGNIFICANTLY DEVIATE (AS DEFINED IN SUB-ITEM (1)(E) OF THIS RULE) FROM THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT;
  (C) THAT MAINTENANCE AND REPAIR REQUIREMENTS FOR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES, PRACTICES AND DEVICES HAVE BEEN PERFORMED. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT (THE GENERAL STORM WATER PERMIT MONITORING FORM MAY BE USED TO VERIFY THE MAINTENANCE AND REPAIR REQUIREMENTS); AND
  (D) ANY SIGNIFICANT DEVIATIONS FROM THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN, CORRECTIVE ACTIONS REQUIRED TO CORRECT THE DEVIATION AND COMPLETION OF THE CORRECTIVE ACTIONS. SUCH DOCUMENTATION SHALL BE ACCOMPLISHED BY INITIALING AND DATING A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR BY COMPLETING, DATING AND SIGNING AN INSPECTION REPORT. A SIGNIFICANT DEVIATION MEANS AN OMISSION, ALTERATION OR RELOCATION OF AN EROSION OR SEDIMENTATION CONTROL MEASURE THAT PREVENTS THE MEASURE FROM PERFORMING AS INTENDED.

(2) THE DOCUMENTATION, WHETHER ON A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR AN INSPECTION REPORT, SHALL INCLUDE THE NAME, ADDRESS, AFFILIATION, TELEPHONE NUMBER, AND SIGNATURE OF THE PERSON CONDUCTING THE INSPECTION AND THE DATE OF THE INSPECTION. ANY RELEVANT LICENSES AND CERTIFICATIONS MAY ALSO BE INCLUDED. ANY DOCUMENTATION OF INSPECTIONS THAT OCCUR ON A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN SHALL OCCUR ON A SINGLE COPY OF THE PLAN AND THAT PLAN SHALL BE MADE AVAILABLE ON THE SITE. ANY INSPECTION REPORTS SHALL ALSO BE MADE AVAILABLE ON THE SITE.

(3) THE INSPECTION SHALL BE PERFORMED DURING OR AFTER EACH OF THE FOLLOWING PHASES OF A PLAN:
  (A) INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES;
  (B) CLEARING AND GRUBBING OF EXISTING GROUND COVER;
  (C) COMPLETION OF ANY PHASE OF GRADING OF SLOPES OR FILLS THAT REQUIRES PROVISION OF TEMPORARY OR PERMANENT GROUND COVER PURSUANT TO G.S. 113A-57(2);
  (D) COMPLETION OF STORM DRAINAGE FACILITIES;
  (E) COMPLETION OF CONSTRUCTION OR DEVELOPMENT; AND
  (F) QUARTERLY UNTIL THE ESTABLISHMENT OF PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION OR UNTIL THE FINANCIALLY RESPONSIBLE PARTY HAS CONVEYED OWNERSHIP OR CONTROL OF THE TRACT OF LAND FOR WHICH THE EROSION AND SEDIMENTATION CONTROL PLAN HAS BEEN APPROVED AND THE AGENCY THAT APPROVED THE PLAN HAS BEEN NOTIFIED. IF THE FINANCIALLY RESPONSIBLE PARTY HAS CONVEYED OWNERSHIP OR CONTROL OF THE TRACT OF LAND FOR WHICH THE EROSION AND SEDIMENTATION CONTROL PLAN HAS BEEN APPROVED, THE NEW OWNER OR PERSON IN CONTROL SHALL CONDUCT AND DOCUMENT INSPECTIONS QUARTERLY UNTIL THE ESTABLISHMENT OF PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION.

G.S. 113A-57 NO LAND-DISTURBING ACTIVITY SUBJECT TO THIS ARTICLE SHALL BE UNDERTAKEN EXCEPT IN ACCORDANCE WITH THE FOLLOWING MANDATORY REQUIREMENTS:

(1) PERMANENT GROUNDCOVER FOR ALL DISTURBED AREAS SHALL BE PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING THE COMPLETION OF CONSTRUCTION OR DEVELOPMENT (FINAL GRADE).

(2) THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

ALL PERIMETER DIKES, DITCHES, SWALES, PERIMETER SLOPES OR SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS.

MAINTENANCE DURING ESTABLISHMENT PERIOD

MAINTENANCE OF THE SEEDED AREAS SHALL INCLUDE PROTECTING EMBANKMENTS AND DITCHES FROM SURFACE EROSION; MAINTAINING EROSION CONTROL MATERIALS AND MULCH; PROTECTING INSTALLED AREAS FROM TRAFFIC; MOWING; WATERING; AND POST-FERTILIZATION.

MOWING

A. TURF AREAS: TURF AREAS SHALL BE MOWED TO A MINIMUM 3 INCH HEIGHT WHEN THE TURF IS A MAXIMUM 4 INCHES HIGH. CLIPPINGS SHALL BE REMOVED WHEN THE AMOUNT CUT PREVENTS SUNLIGHT FROM REACHING THE GROUND SURFACE.
B. EROSION CONTROL AREAS: EROSION CONTROL AREAS SHALL BE MOWED TO A MINIMUM 4 INCH HEIGHT WHEN THE PLANTS ARE A MAXIMUM 8 INCHES HIGH. CLIPPINGS SHALL BE REMOVED WHEN THE AMOUNT CUT PREVENTS SUNLIGHT FROM REACHING THE GROUND SURFACE.

POST-FERTILIZATION

AFTER THE PERMANENT GRASS HAS BEEN ACCEPTED, AND BETWEEN THE DATES OF APRIL 15 AND OCTOBER 15, APPLY 425 POUNDS OF FERTILIZER PER ACRE.

REPAIR OR REINSTALL

UNSATISFACTORY STAND OF GRASS PLANTS AND MULCH SHALL BE REPAIRED OR REINSTALLED, AND ERODED AREAS SHALL BE REPAIRED UNTIL A SATISFACTORY STAND OF GRASS RESULTS.

6.30 GRASS LINED CHANNELS:

CONSTRUCTION SPECIFICATIONS

1. REMOVE ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA, AND DISPOSE OF PROPERLY.
2. EXCAVATE THE CHANNEL, AND SHAPE IT TO NEAT LINES AND DIMENSIONS SHOWN ON THE PLANS PLUS A 0.2-FOOT OVERCUT AROUND THE CHANNEL PERIMETER TO ALLOW FOR BULKING DURING SEEDBED PREPARATIONS AND SOD BUILDUP.
3. REMOVE AND PROPERLY DISPOSE OF ALL EXCESS SOIL SO THAT SURFACE WATER MAY ENTER THE CHANNEL FREELY.
4. THE PROCEDURE USED TO ESTABLISH GRASS IN THE CHANNEL WILL DEPEND UPON THE SEVERITY OF THE CONDITIONS AND SELECTION SPECIES. PROTECT THE CHANNEL WITH MULCH OR A TEMPORARY LINER SUFFICIENT TO WITHSTAND ANTICIPATED VELOCITIES DURING THE ESTABLISHMENT PERIOD (*APPENDIX 8.05*).

MAINTENANCE

DURING THE ESTABLISHMENT PERIOD, CHECK GRASS-LINED CHANNELS AFTER EVERY HEAVY RAINFALL EVENT. IMMEDIATELY MAKE REPAIRS. IT IS PARTICULARLY IMPORTANT TO CHECK THE CHANNEL OUTLET AND ALL ROAD CROSSINGS FOR BANK STABILITY AND EVIDENCE OF PIPING OR SCOUR HOLES. REMOVE ALL SIGNIFICANT SEDIMENT ACCUMULATIONS TO MAINTAIN THE DESIGNED CARRYING CAPACITY. KEEP THE GRASS IN A HEALTHY, VIGOROUS CONDITION AT ALL TIMES, SINCE IT IS THE PRIMARY EROSION PROTECTION FOR THE CHANNEL (PRACTICE 6.11, *PERMANENT SEEDING*)

6.55 ROCK PIPE INLET PROTECTION

CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREA OF ALL DEBRIS THAT MIGHT HINDER EXCAVATION AND DISPOSAL OF SPOIL.
2. INSTALL THE CLASS B OR CLASS 1 RIP-RAP IN A SEMI-CIRCLE AROUND THE PIPE INLET. THE STONE SHOULD BE BUILT HIGHER ON EACH END WHERE IT TIES TO THE EMBANKMENT. THE MINIMUM CREST WIDTH OF THE RIP-RAP SHOULD BE 3 FEET, WITH A MINIMUM BOTTOM WIDTH OF 11 FEET. THE MINIMUM HEIGHT SHOULD BE 2 FEET, BUT ALSO 1 FOOT LOWER THAN THE SHOULDER OF THE EMBANKMENT OR DIVERSIONS.
3. A 1 FOOT THICK LAYER OF NCDOT #5 OR #57 STONE SHOULD BE PLACED ON THE OUTSIDE SLOPE OF THE RIP-RAP.
4. THE SEDIMENT STORAGE AREA SHOULD BE EXCAVATED AROUND THE OUTSIDE OF THE STONE HORSESHOE 18 INCHES BELOW NATURAL GRADE.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, FILL DEPRESSION AND ESTABLISH FINAL GRADING ELEVATIONS, COMPACT AREA PROPERLY, AND STABILIZE WITH GROUND COVER.

MAINTENANCE

INSPECT ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1.0 INCH AND GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.

CHECK THE STRUCTURE FOR DAMAGE. ANY RIP-RAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.

AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.

6.62 TEMPORARY SILT FENCE (SF):

CONSTRUCTION SPECIFICATIONS

MATERIALS

1. USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFIN OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS OF ASTM D 6461. SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT AT TEMPERATURE RANGE OF 0 TO 120° F.
2. ENSURE THE POSTS FOR SEDIMENT FENCES ARE 1.25 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 5 FT. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.
3. FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6-INCHES.

CONSTRUCTION

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24-INCHES ABOVE THE GROUND SURFACE (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORTED POST WITH A MINIMUM 4 FEET OF OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE A MINIMUM 50 POUND TENSILE STRENGTH.
5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS AT A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO THE POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE A MINIMUM 50 POUND TENSILE STRENGTH.
7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE

INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

SHOULD THE FABRIC OF THE SILT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

6.63 ROCK DAM:

CONSTRUCTION SPECIFICATIONS

1. CLEAR THE AREAS UNDER THE EMBANKMENT AND STRIP ROOTS AND OTHER OBJECTIONABLE MATERIAL.
2. COVER THE FOUNDATION AREA INCLUDING THE ABUTMENTS WITH EXTRA-STRENGTH FILTER FABRIC BEFORE BACKFILLING WITH ROCK. IF A CUTOFF TRENCH IS REQUIRED, EXCAVATE AT CENTER LINE OF DAM, EXTENDING ALL THE WAY UP THE EARTH ABUTMENTS. APPLY FILTER FABRIC UNDER THE ROCKFILL EMBANKMENT FROM THE UPSTREAM EDGE OF THE DAM TO THE DOWNSTREAM EDGE OF THE APRON. OVERLAP FILL MATERIAL A MINIMUM OF 1 FOOT AT ALL JOINTS, WITH THE UPSTREAM STRIP LAID OVER THE DOWNSTREAM STRIP.
3. CONSTRUCT THE EMBANKMENT WITH WELL-GRADED ROCK AND GRAVEL TO THE SIZE AND DIMENSIONS SHOWN ON THE DRAWINGS. IT IS IMPORTANT THAT ROCK ABUTMENTS BE AT LEAST 2 FEET HIGHER THAN THE SPILLWAY CREST AND AT LEAST 1 FOOT HIGHER THAN THE DAM, ALL THE WAY TO THE DOWNSTREAM TOE, TO PREVENT SCOUR AND EROSION AT THE ABUTMENTS.
4. SEDIMENT-LADEN WATER FROM THE CONSTRUCTION SITE SHOULD BE DIVERTED TOWARDS THE DAM.
5. CONSTRUCT THE ROCK DAM BEFORE THE BASIN AREA IS CLEARED TO MINIMIZE SEDIMENT YIELD FROM THE CONSTRUCTION OF THE BASIN. IMMEDIATELY STABILIZE ALL AREAS DISTURBED DURING CONSTRUCTION OF THE DAM.

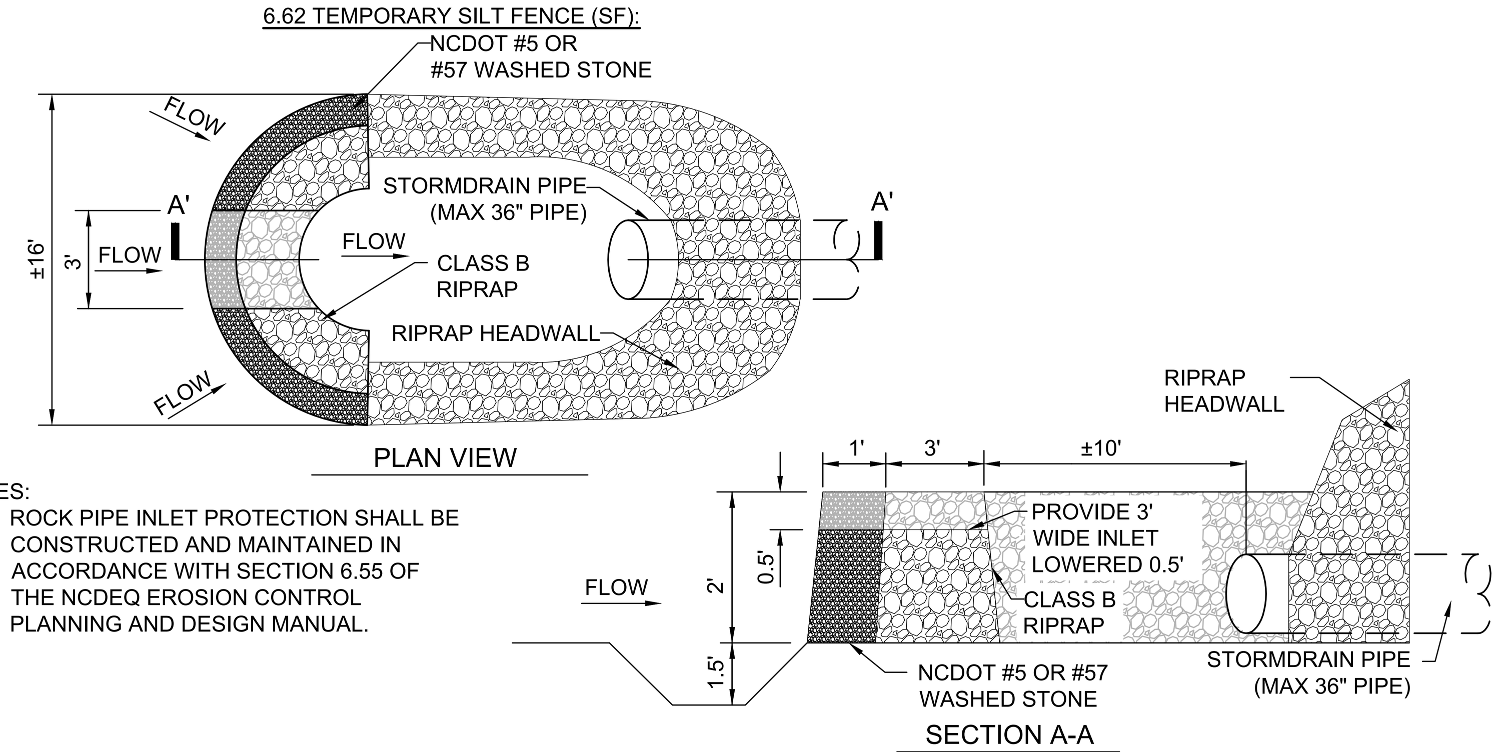
MAINTENANCE

CHECK SEDIMENT DAMS AFTER EACH RAINFALL. REMOVE SEDIMENT AND RESTORE ORIGINAL VOLUME WHEN SEDIMENT ACCUMULATES TO ABOUT ONE-HALF THE DESIGN VOLUME. SEDIMENT SHOULD BE PLACED ABOVE THE DAM AND ADEQUATELY STABILIZED.

CHECK THE STRUCTURE FOR EROSION, PIPING, AND ROCK DISPLACEMENT WEEKLY AND AFTER EVERY SIGNIFICANT (1.0 INCH AND GREATER) RAINSTORM AND REPAIR IMMEDIATELY.

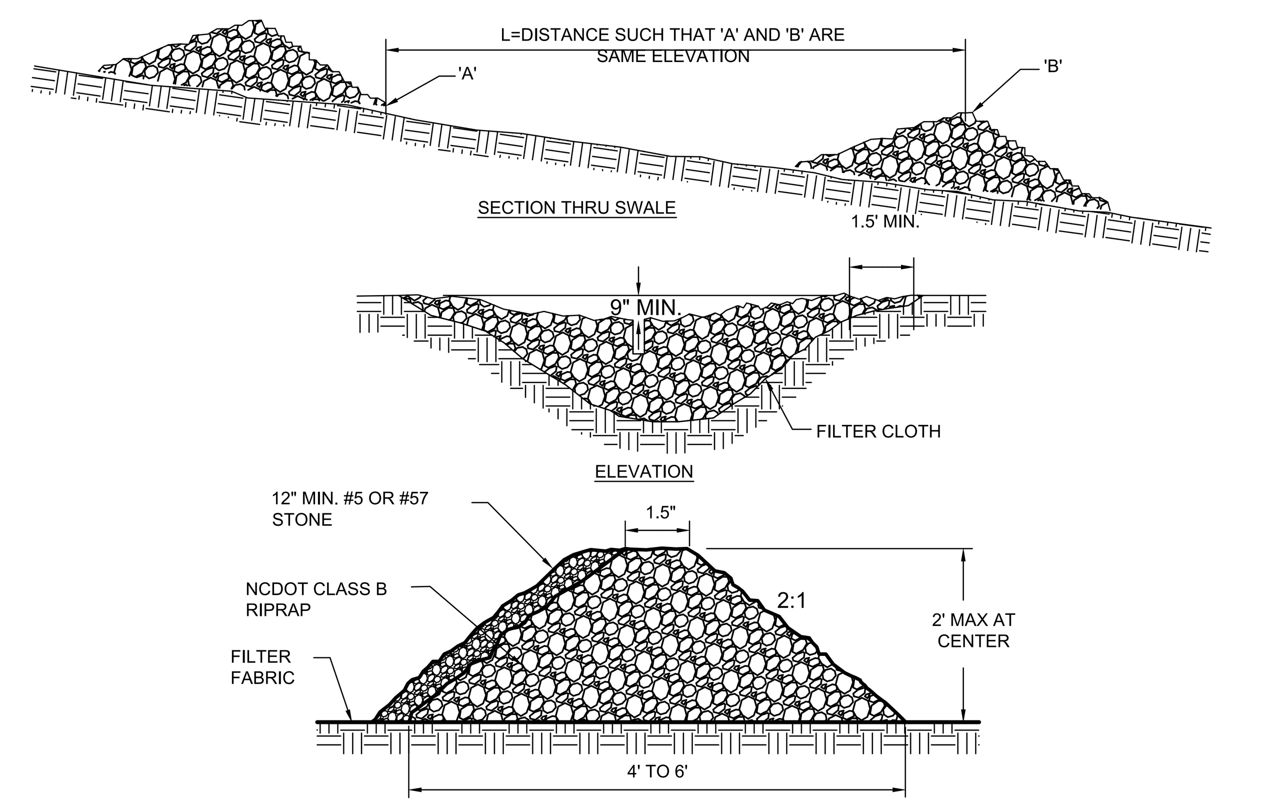
REMOVE THE STRUCTURE AND ANY UNSTABLE SEDIMENT IMMEDIATELY AFTER THE CONSTRUCTION SITE HAS BEEN PERMANENTLY STABILIZED. SMOOTH DAM SITE TO BLEND WITH SURROUNDING AREA AND STABILIZE. ALL WATER AND SEDIMENTS SHOULD BE REMOVED FROM THE BASIN PRIOR TO DAM REMOVAL. SEDIMENTS SHOULD BE REPLACED IN DESIGNATED DISPOSAL AREAS AND NOT ALLOWED TO FLOW INTO STREAMS OR DRAINAGE WAYS DURING STRUCTURE REMOVAL.

REVISIONS			
SYM		DATE	APPROVED



NOTES:
1. ROCK PIPE INLET PROTECTION SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.55 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL.

4 PIPE INLET PROTECTION
NOT TO SCALE



NOTES:
1. STONE CHECK DAM SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.83 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SEE THIS SHEET FOR ADDITIONAL SPECIFICATIONS AND MAINTENANCE CONSIDERATIONS.
2. CONTRACTOR SHALL INSTALL CHECK DAMS AS INDICATED ON PLANS AND ADDITIONAL CHECK DAMS AS REQUIRED BASED ON SPACING REQUIREMENTS SHOWN ABOVE
3. CONTRACTOR SHALL PLACE CHECK DAM STONE OVER CHANNEL BANKS TO KEEP WATER FROM CUTTING AROUND DAM.

3 ROCK DAM (IN SWALE)
NOT TO SCALE

MULCHING MATERIALS AND APPLICATION RATES

MATERIAL	RATE PER ACRE	QUALITY	NOTES
STRAW	2 TONS	DRY, UNCHOPPED, UNWEATHERED; AVOID WEEDS	SHOULD COME FROM WHEAT OR OATS SPREAD BY HAND OR MACHINE, MUST BE TACKED DOWN.

TEMPORARY SEEDING

TIME OF SEEDING	GRASS TYPE	AMOUNT/ ACRE	FERTILIZATION/ ACRE	FERTILIZATION/ACRE MAINTENANCE	
DEC 1 - APR 15	RYE (GRAIN) & LESPEDEZA, KOBE	120 LBS. & 50 LBS.	750 LBS. 10-10-10	NA	NA
APRIL 15-AUG 15	GERMAN MILLET	40 LBS.	750 LBS. 10-10-10	NA	NA
AUG 15-DEC 30	RYE (GRAIN)	120 LBS.	1,000 LBS. 10-10-10	NA	NA

TEMPORARY STABILIZATION

TEMPORARY SEEDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.10 AND PERMANENT SEEDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.11 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL. SODDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.12 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL AND PROJECT SPECIFICATIONS.

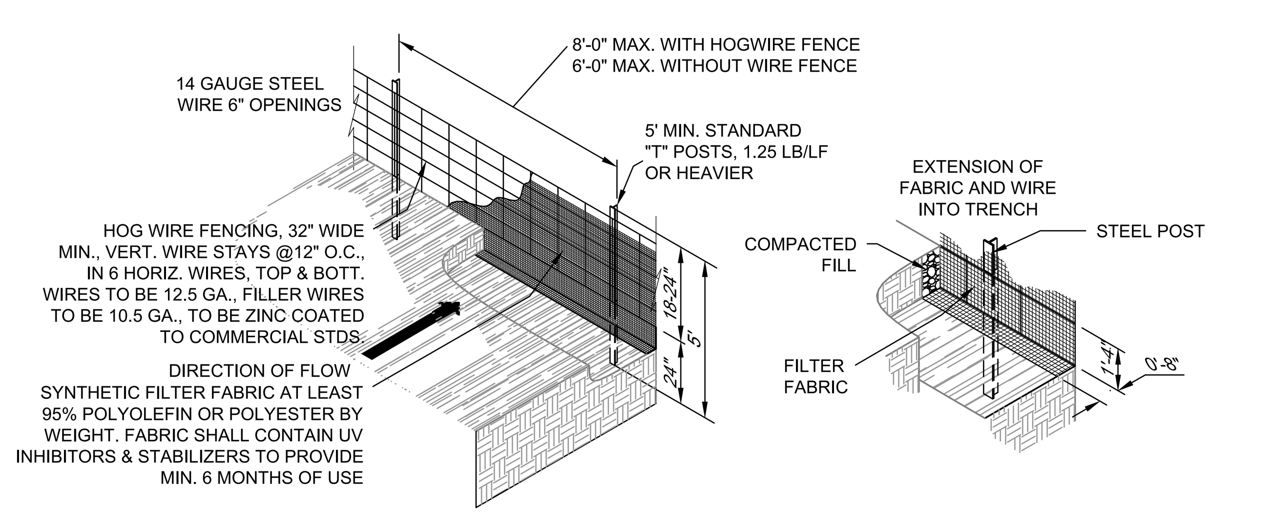
PERMANENT STABILIZATION

PROVIDE SAND-BASED CENTIPEDE SOD (EREMOCHLOA OPHIUROIDES) FOR ALL TURF AREAS. SODDING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.12 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL AND PROJECT SPECIFICATIONS.

NEW 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

1 SEEDING SCHEDULE
NOT TO SCALE



NOTES:
1. ALL SILT FENCE MATERIAL SHALL MEET OR EXCEED ASTM D 6461
2. SILT FENCE SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH SECTION 6.62 OF THE NCDEQ EROSION CONTROL PLANNING AND DESIGN MANUAL.
3. USE DOUBLE ROWS OF SILT FENCE (±4' APART) WHERE INDICATED ON PLANS.

2 TEMPORARY SILT FENCE
NOT TO SCALE

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046980 MICHAEL R. HOUSE 5/2/23

FINAL
05-02-2023

C-501

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

CIVIL DETAILS - 2

DES.	MRH
DR.	WEB
CHK.	MTH
SUBMITTED BY:	
DESIGN DIR.	J. FRANKLIN ORR, PE
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT. NO	NAVFAC DRAWING NO.	
E1	80091	60038645	
		CONST. CONTR.	
SCALE: NOTED		SPEC. 05-22-0043	SHEET 39 OF 41

REVISIONS			
SYM		DATE	APPROVED

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.

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

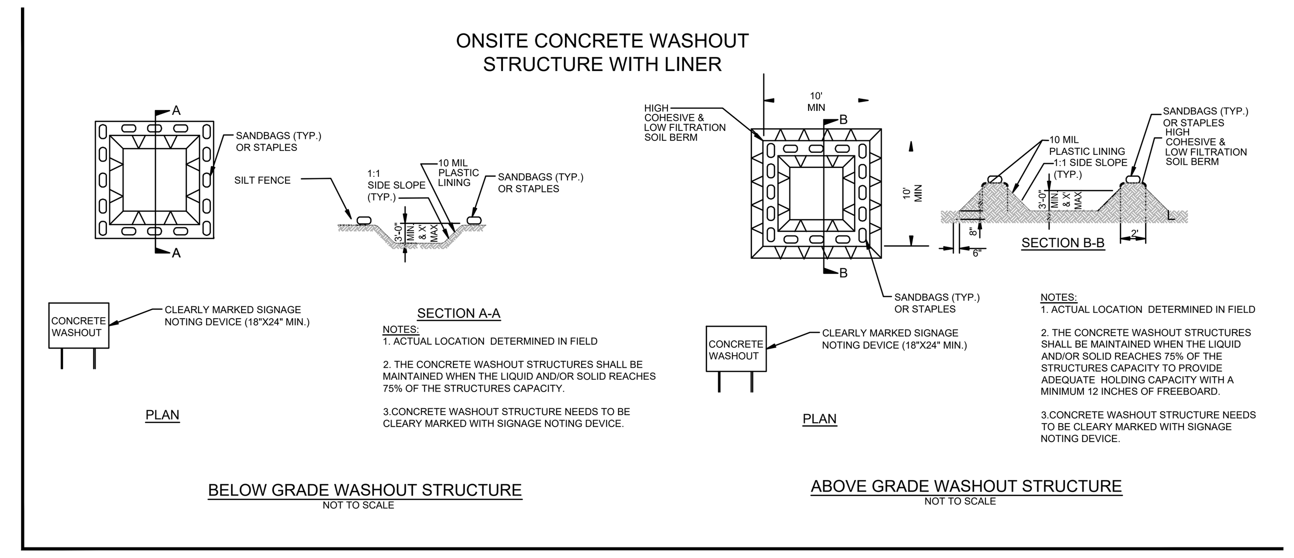
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, 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.

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.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

FINAL
05-02-2023

C-502

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

NCG01 STORMWATER REQUIREMENTS -1

DES. MRH
DR. WEB
CHK. MTH
SUBMITTED BY:
DESIGN DIR. J. FRANKLIN ORR, PE
APPROVED: PWO OR OICC DATE
SATISFACTORY TO: DATE

SIZE E1 | CODE IDENT. NO 80091 | NAVFAC DRAWING NO. 60038646
CONST. CONTR.
SCALE: NOTED | SPEC. 05-22-0043 | SHEET 40 OF 41

CAPE FEAR ENGINEERING
151 Poole Rd. Suite 100 | Leland, NC, 28451
TEL (910) 383-1044 | FAX (910) 383-1045
www.capefearengineering.com | N.C. LICENSE # C-1621

NORTH CAROLINA PROFESSIONAL SEAL 046980 ENGINEER MANUEL R. HOUSE

REVISIONS			
SYM		DATE	APPROVED

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.
(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 kept on site and available for inspection at all times during normal business hours.

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 to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for 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 twelve months. 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.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all 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).

(c) 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.

(d) Anticipated bypasses and unanticipated bypasses.

(e) 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 Department's Environmental Emergency Center personnel at (800) 858-0368.

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.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET G-001

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NORTH CAROLINA PROFESSIONAL SEAL 046980 ENGINEER MICHAEL R. HOLDEN 5/2/23

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MARINE CORPS BASE
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REPLACE WATERLINES
BREWSTER/SETH WILLIAMS & McCUTCHEON MANOR

NCG01 STORMWATER REQUIREMENTS -2

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