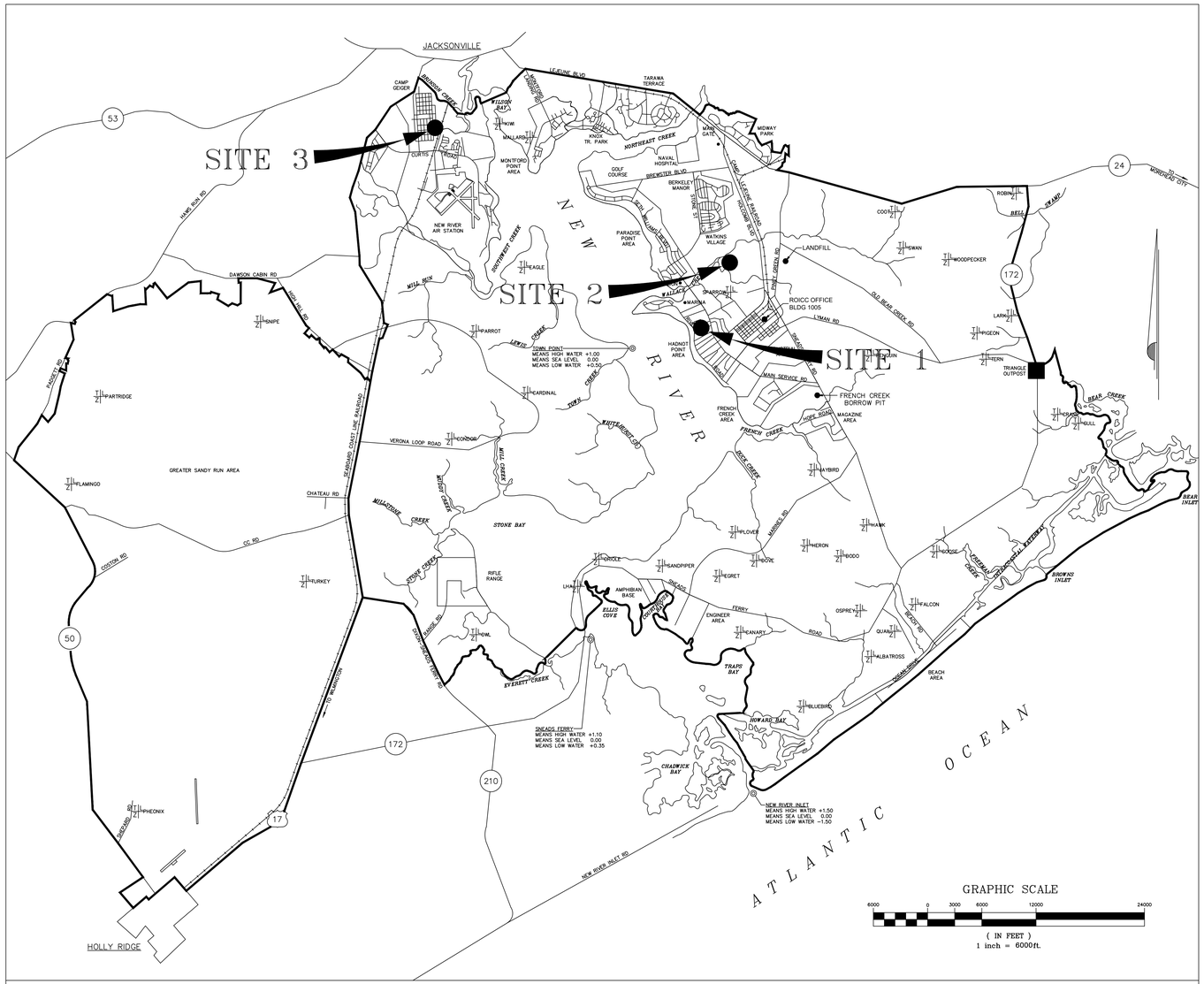
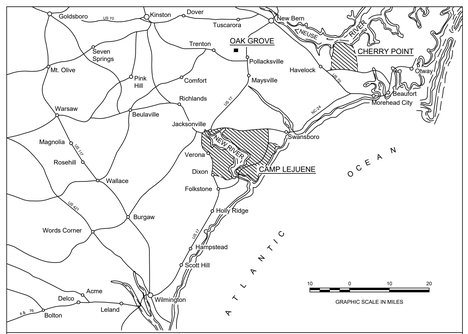


LOCATION MAP – U.S. MARINE CORPS BASE, CAMP LEJEUNE, N.C.

SCALE: 1" = 6000'



VICINITY MAP – CAMP LEJEUNE, N.C.

DRAWING INDEX

NAVFAC DWG NO.	SHEET NO.	TITLE
60044276	G001	VICINITY AND LOCATION PLAN
60044277	C100	SITE 1 – EXISTING CONDITIONS
60044278	C101	SITE 1 – SITE PLAN
60044279	C102	SITE 2 – EXISTING CONDITIONS
60044280	C103	SITE 2 – SITE PLAN
60044281	C104	SITE 3 – EXISTING CONDITIONS
60044282	C105	SITE 3 – SITE PLAN
60044283	C501	DETAILS

25-0090 MULTI-AREA STORMWATER DRAINAGE REPAIRS

DISCLOSURE OF INFORMATION

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FINAL

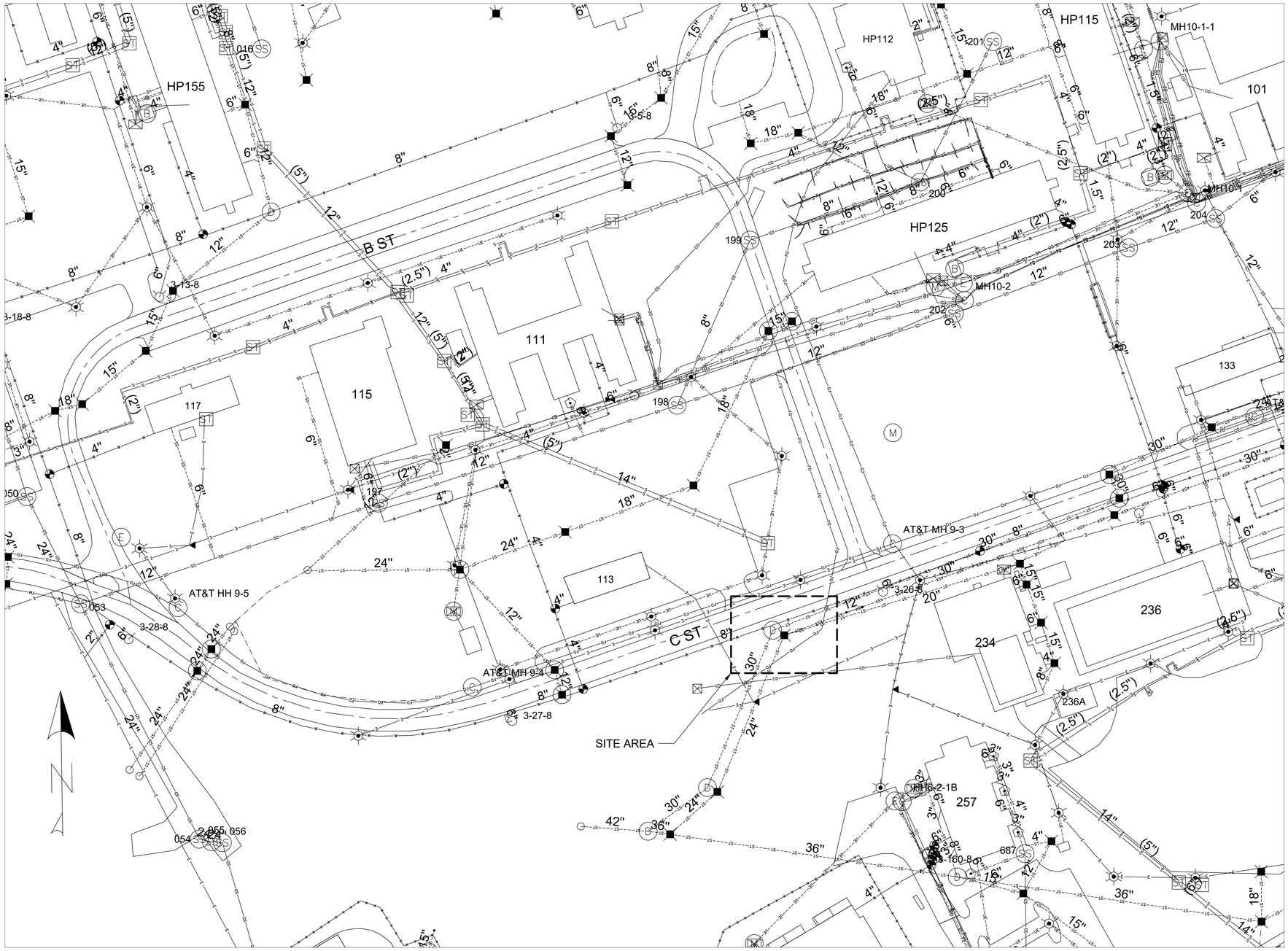
G001

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

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

25-0090
MULTI-AREA STORMWATER
DRAINAGE REPAIRS
VICINITY AND LOCATION PLAN

SIZE E1 | CODE IDENT NO. 80091 | PWO DRAWING NO. 60044276
CONST. CONTR. NO. N40085-25-B-0090
SCALE: AS SHOWN | SPEC. 05-25-0090 | SHEET 1 OF 8



GENERAL NOTES:

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- FENCE
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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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FINAL

C100

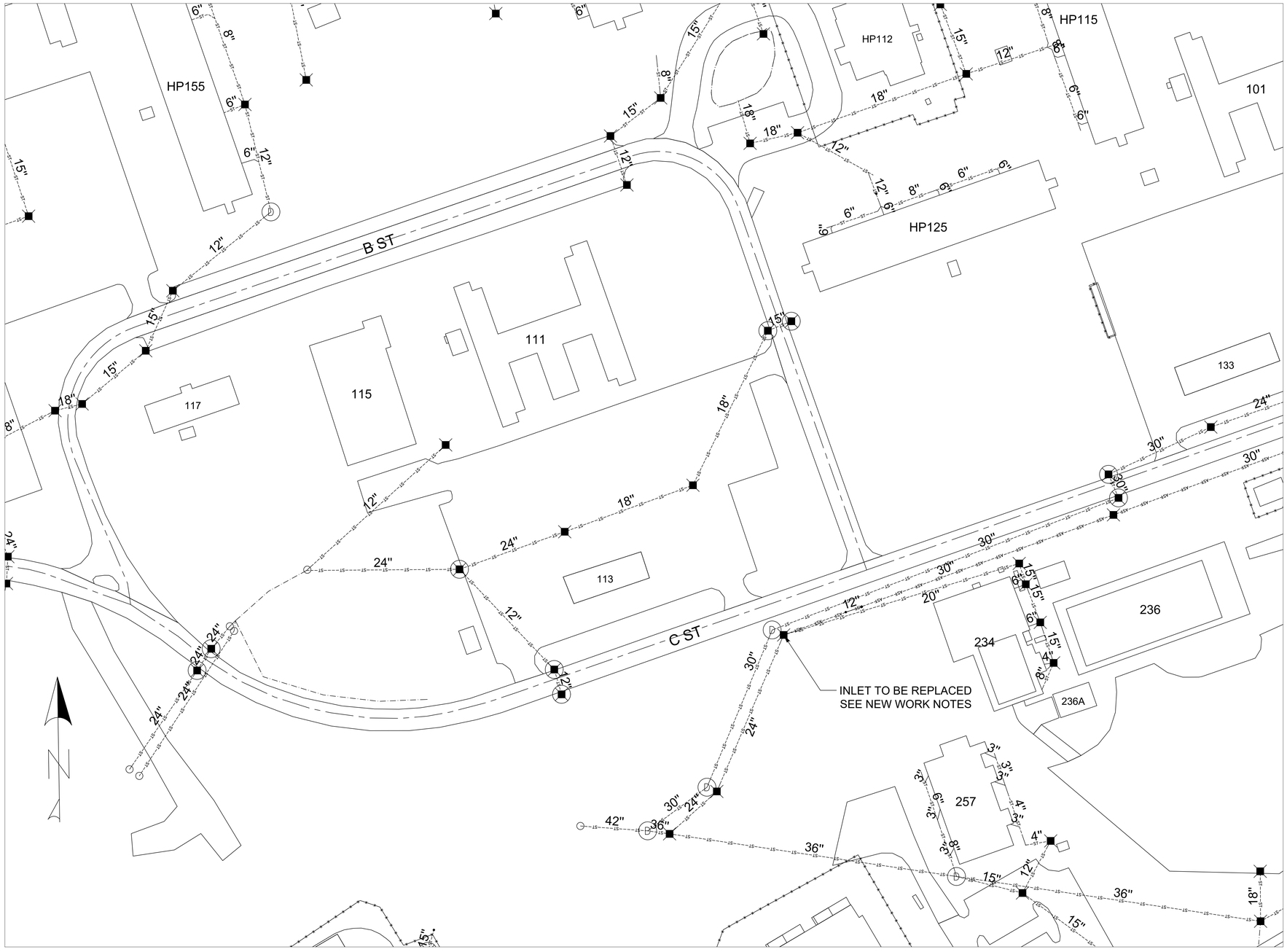
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

25-0090
MULTI-AREA STORMWATER DRAINAGE REPAIRS
SITE 1 – EXISTING CONDITIONS

SIZE E1 | CODE IDENT NO. 80091 | PWO DRAWING NO. 60044277
CONST. CONTR. NO. N40085-25-B-0090
SCALE: AS SHOWN | SPEC. 05-25-0090 | SHEET 2 OF 8

Christopher Maas 18-Jun-2026



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NEW WORK NOTES:

1. DEMOLISH AND REPLACE THE YARD INLET NOTED ON THIS SHEET WITH A NEW PRECAST YARD INLET AND GRATE. SEE DETAILS 840.14 & 840.16 ON SHEET C501. MATCH EXISTING INVERTS AND ELEVATIONS.
2. REMOVE SECTIONS OF EXISTING PIPE SEGMENTS UPSTREAM AND/OR DOWNSTREAM AS NEEDED TO FACILITATE THE CONNECTION BACK INTO THE EXISTING SYSTEM. ENSURE ALL JOINTS ARE SEALED PROPERLY.
3. SOD ALL DISTURBED AREAS WITH CENTIPEDE SOD.

GRAPHIC SCALE

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(IN FEET)
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FINAL

C101

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

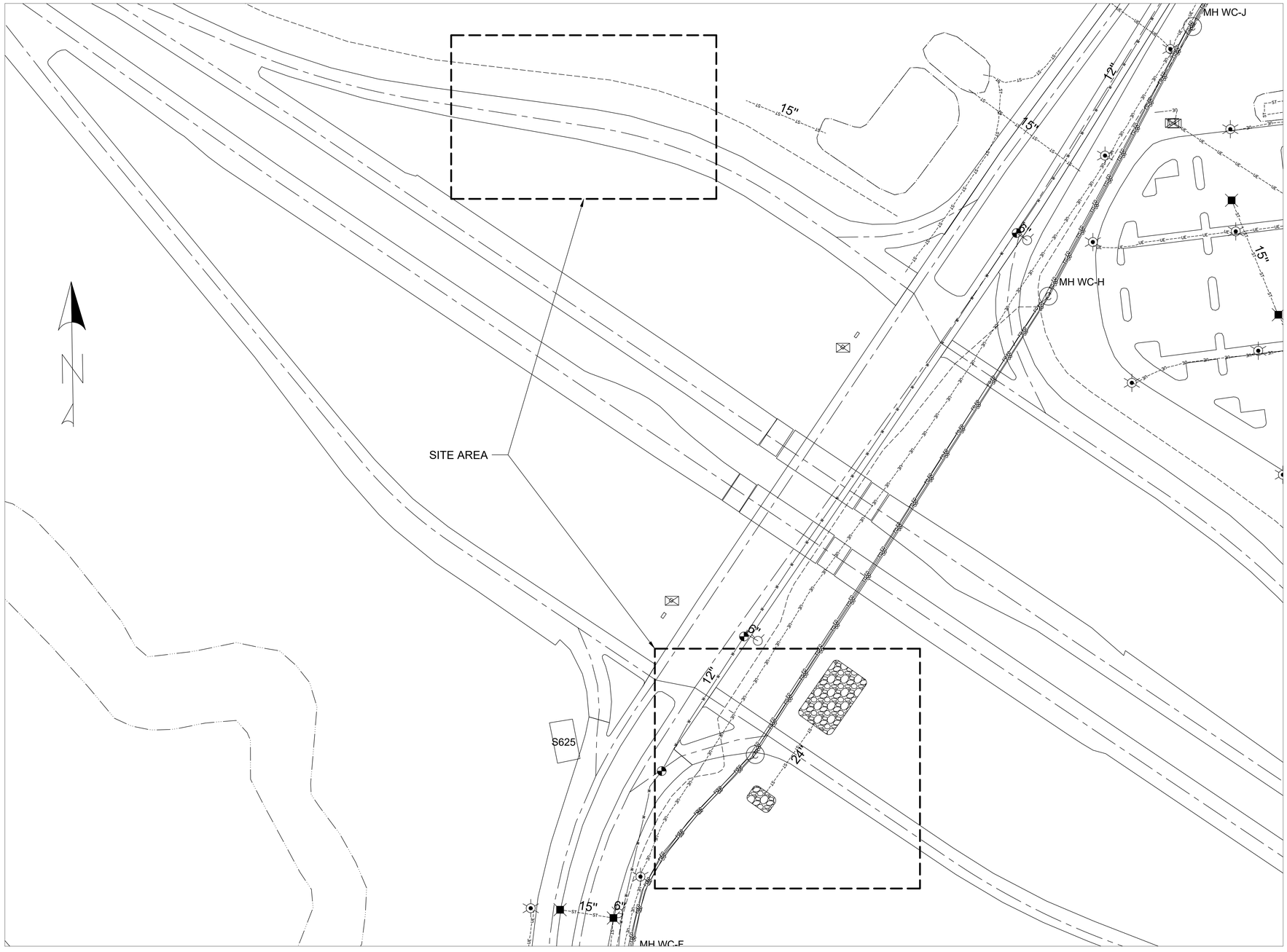
DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

25-0090
MULTI-AREA STORMWATER
DRAINAGE REPAIRS
SITE 1 - SITE PLAN

SIZE CODE IDENT NO. E1 80091
PWO DRAWING NO. 60044278
CONST. CONTR. NO. N40085-25-B-0090

Christopher Maas 18-Jun-2026

SCALE: AS SHOWN SPEC. 05-25-0090 SHEET 3 OF 8



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FINAL

C102

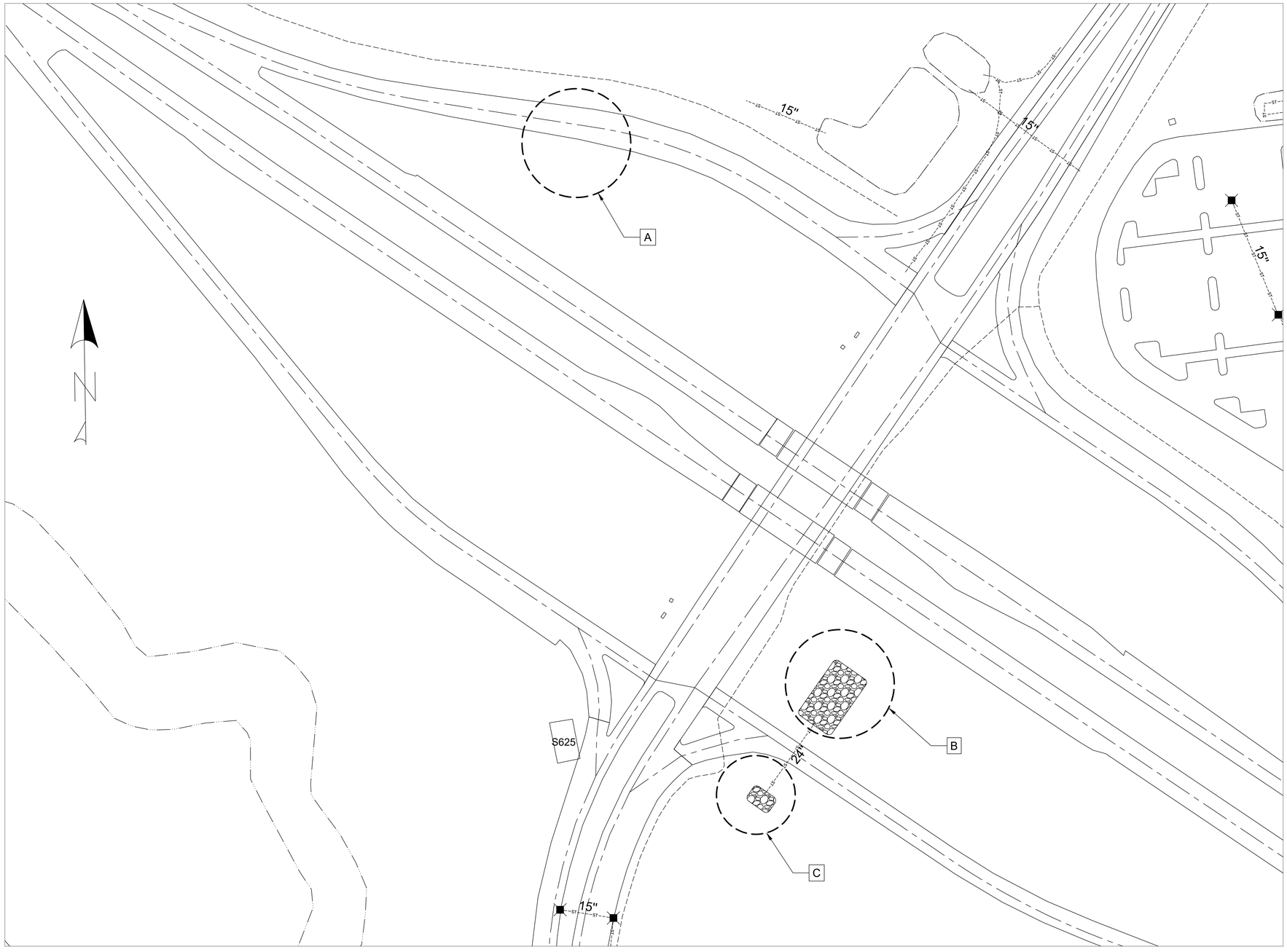
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

25-0090
MULTI-AREA STORMWATER DRAINAGE REPAIRS
SITE 2 – EXISTING CONDITIONS

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

Christopher Maas 18-Jun-2026

SIZE E1 | CODE IDENT NO. 80091 | PWO DRAWING NO. 60044279
CONST. CONTR. NO. N40085-25-B-0090
SCALE: AS SHOWN | SPEC. 05-25-0090 | SHEET 4 OF 8



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NEW WORK KEYNOTES:

A REPAIR WASHOUT (APPROX. 30' X 100') WITH SELECT FILL MATERIAL. PLACE FILL IN 6" LIFTS AND COMPACT TO 95% MAXIMUM DRY DENSITY. SOD ALL DISTURBED AREAS WITH CENTIPEDE SOD.

B REPAIR WASHOUT (APPROX 20' X 20') WITH SELECT FILL MATERIAL. PLACE FILL IN 6" LIFTS AND COMPACT TO 95% MAXIMUM DRY DENSITY. PLACE CLASS B RIP RAP OVER NON-WOVEN GEOTEXTILE FABRIC IN WASHOUT. SOD ANY AREAS THAT ARE NOT TO RECEIVE RIP RAP WITH CENTIPEDE SOD.

C REPAIR WASHOUT (APPROX. 30' X 50') WITH SELECT FILL MATERIAL. PLACE FILL IN 6" LIFTS AND COMPACT TO 95% MAXIMUM DRY DENSITY. PLACE NON-WOVEN GEOTEXTILE FABRIC AND CLASS B RIP RAP ON THE EMBANKMENT NEAR THE OUTLET. SLOPES MAY NOT EXCEED 3:1 SLOPE. ALL OTHER DISTURBED AREAS MUST BE VEGETATED WITH CENTIPEDE SOD.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
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FINAL

C103

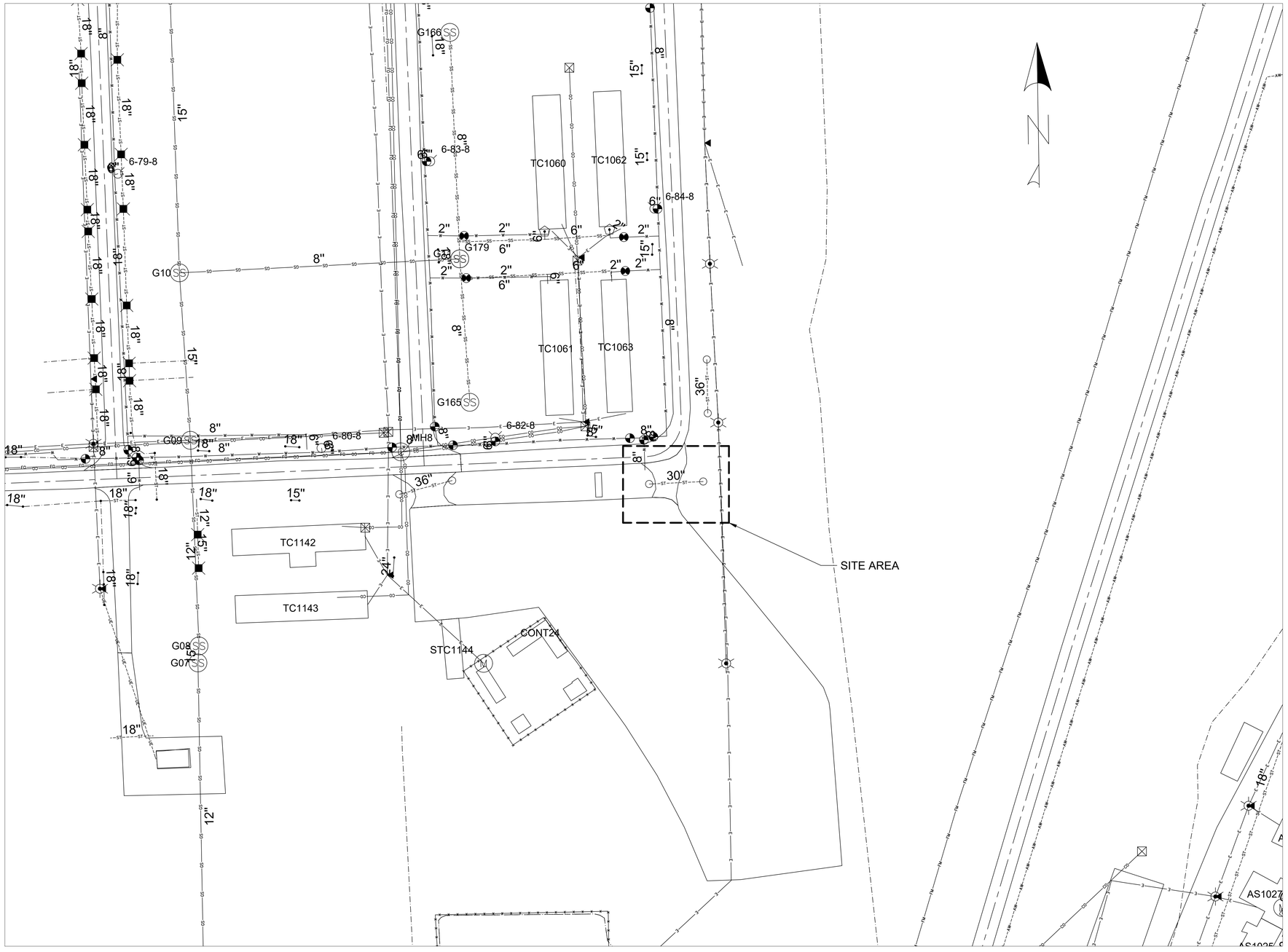
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

Christopher Maas 18-Jun-2026

25-0090
MULTI-AREA STORMWATER DRAINAGE REPAIRS
SITE 2 - SITE PLAN

SIZE E1 | CODE IDENT NO. 80091 | PWO DRAWING NO. 60044280
CONST. CONTR. NO. N40085-25-B-0090
SCALE: AS SHOWN | SPEC. 05-25-0090 | SHEET 5 OF 8



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C104

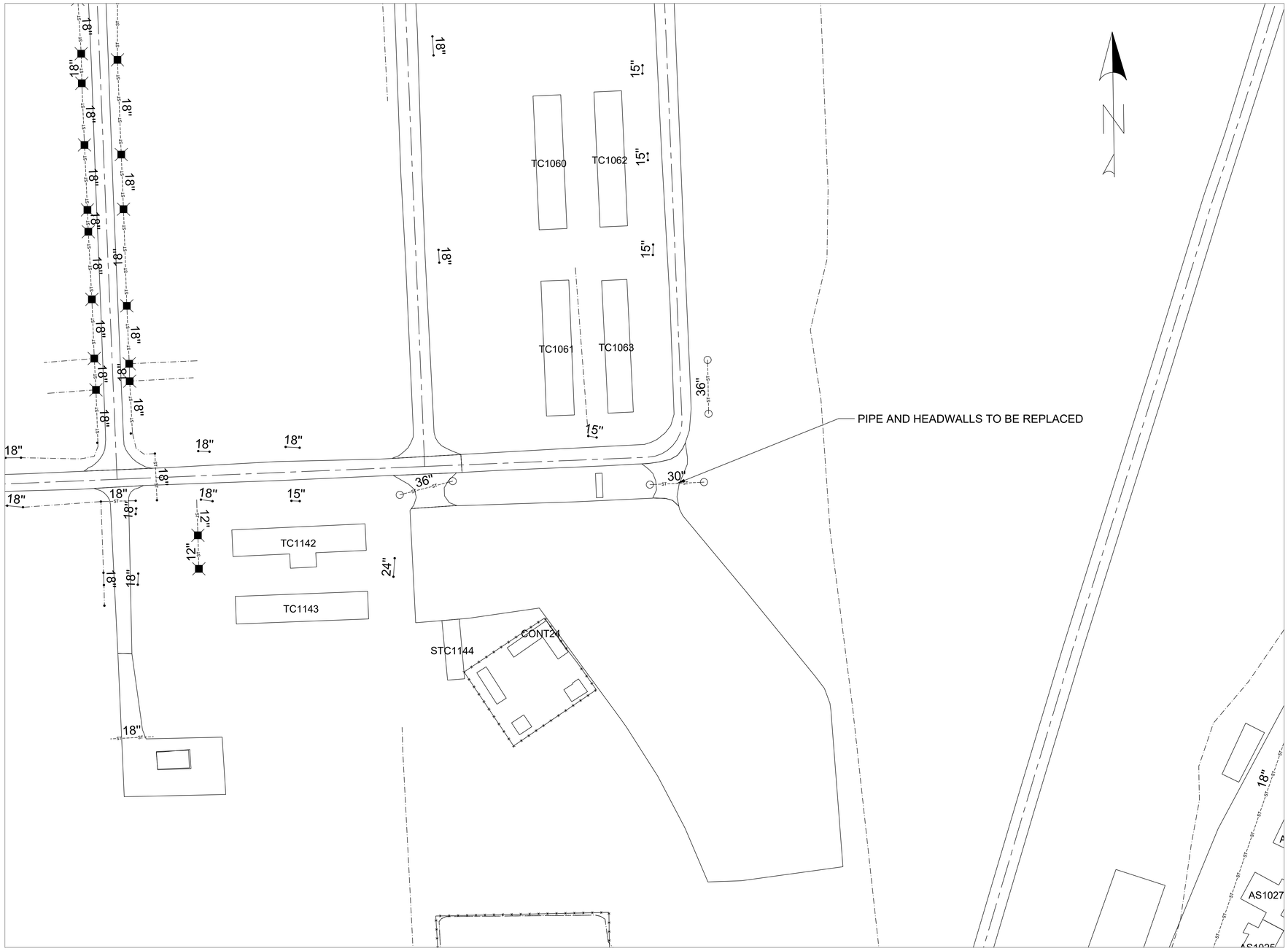
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

25-0090
MULTI-AREA STORMWATER DRAINAGE REPAIRS
SITE 3 – EXISTING CONDITIONS

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

Christopher Maas 18-Jun-2026

SIZE E1 | CODE IDENT NO. 80091 | PWO DRAWING NO. 60044281
CONST. CONTR. NO. N40085-25-B-0090
SCALE: AS SHOWN | SPEC. 05-25-0090 | SHEET 6 OF 8



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4. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES, INCLUDING TELECOMMUNICATIONS AND COMMERCIAL CABLING.
5. CONTRACTOR IS RESPONSIBLE TO COORDINATE COMMERCIAL CABLING WITH COMMERCIAL CABLING PROVIDERS
6. ALL UTILITY WORK MUST BE IN ACCORDANCE WITH APPLICABLE STATE AND BASE CODES.
7. CONTRACTOR MUST COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE CONTRACTING OFFICER.
8. SOD ANY DISTURBED AREAS UPON COMPLETION OF CONSTRUCTION.
9. JOBSITE MUST BE KEPT CLEAR OF ALL DEBRIS AND TRASH.
10. CONTRACTOR MUST BE RESPONSIBLE FOR ALL ASPECTS OF ENVIRONMENTAL, HEALTH AND SAFETY (EHS). CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ITS POLICIES AND PROCEDURES RELATED TO EHS MATTERS..

NEW WORK NOTES:

1. DEMOLISH AND REMOVE EXISTING PIPE AND HEADWALLS AT THE PIPE SEGMENT NOTED ON THIS SHEET.
2. PROVIDE AND INSTALL APPROX. 60LF OF NEW 30" CLASS IV OR CLASS V REINFORCED CONCRETE PIPE TO MATCH EXISTING PIPE INVERTS. PREPARE PIPE BEDDING AND PERFORM BACKFILL PER DETAIL 300.01 ON SHEET C501. COMPACT FILL MATERIAL IN LIFTS OF 6" TO 98% MAXIMUM DRY DENSITY.
3. PROVIDE AND INSTALL NEW CAST IN PLACE OR PRECAST HEADWALLS ON EACH END OF THE PIPE PER DETAIL 838.01 ON SHEET C501.
4. PATCH ASPHALT BACK WITH 2.5" OF SURFACE MIX RS9.5C OVER 8" OF COMPACTED ABC STONE AT 98% MAXIMUM DRY DENSITY.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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 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.

FINAL

C105

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

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

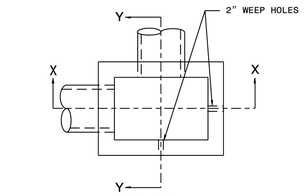
Christopher Maas 18-Jun-2026

25-0090
MULTI-AREA STORMWATER
DRAINAGE REPAIRS
SITE 3 - SITE PLAN

SIZE	CODE IDENT NO.	PWO DRAWING NO.
E1	80091	60044282

CONST. CONTR. NO. N40085-25-B-0090

SCALE: AS SHOWN | SPEC. 05-25-0090 | SHEET 7 OF 8



PLAN

WITH GRATE & FRAME REMOVED

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR. 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

MAX.DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12'-0". STD. DWG. 840.45 OR 840.46 CONTROLS MAXIMUM DEPTH IF PRECAST BOX IS USED.

CONSTRUCT WITH PIPE CROWNS MATCHING.

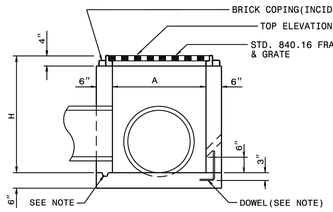
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

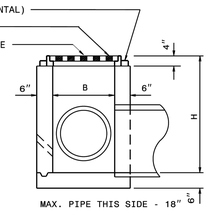
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.



SECTION X-X



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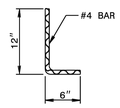


DOWEL

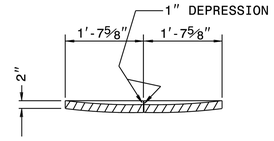
DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)								
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FT. HT.	TOTAL CONCRETE FOR MINIMUM HEIGHT, H	C.M.	R.C.
D	A	B	H					
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.026
15"			2'-3"			0.648	0.023	0.036
18"			2'-6"			0.703	0.033	0.049
24"			3'-0"			0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-6"	0.222	0.222	0.925	0.092	0.127

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

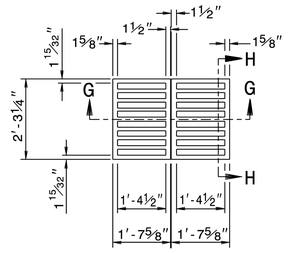
1-24

ROADWAY STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.14

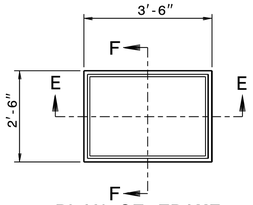


SECTION G-G



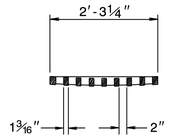
PLAN OF GRATING

CAST IRON

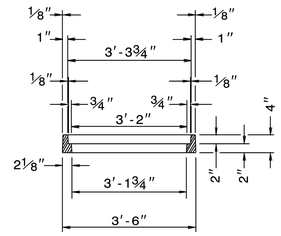


PLAN OF FRAME

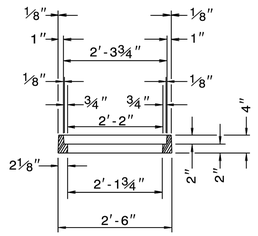
CAST IRON



SECTION H-H



SECTION E-E



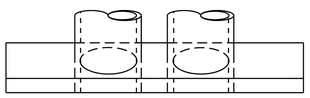
SECTION F-F

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

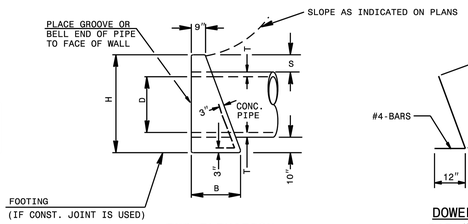
1-24

ROADWAY STANDARD DRAWING FOR
DROP INLET FRAME AND GRATES
FOR USE WITH STD. DWG.S 840.14 AND 840.15

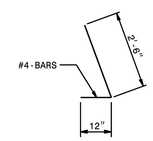
SHEET 1 OF 1
840.16



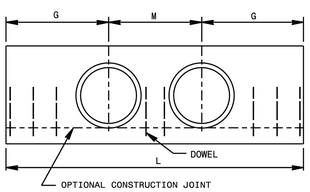
PLAN



END ELEVATION



DOWEL
BAR-"X"



ELEVATION

DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE																	
LOC.	PIPE DIA.	SINGLE PIPE								DOUBLE PIPE							
		15"	18"	24"	30"	36"	42"		48"		15"	18"	24"	30"	36"	42"		48"	
	BARS	"X"	"X"	"X"	"X"	"X"	"X"	Y*	"X"	Y*	"X"	"X"	"X"	"X"	"X"	"X"	Y*	"X"	Y*
G	QTY.	2	2	3	3	4	4	2	5	2	2	2	3	3	4	4	2	5	2
M	QTY.	-	-	-	-	-	-		-		1	1	2	2	2	2		3	
G	QTY.	2	2	3	3	4	4		5		2	2	3	3	4	4		5	
TOTAL LBS.		9	9	14	14	19	55		65		12	12	19	19	23	77		92	

DIMENSIONS AND CONCRETE QUANTITIES											
USING CONCRETE PIPE											
	COMMON DIMENSIONS					SINGLE PIPE		DOUBLE PIPE			
D	H	B	G	T	S	L	YD^3	M	L	YD^3	
15"	3'-3"	1'-8"	2'-9"	2¼"	9½"	5'-6"	0.7	2'-2"	7'-8"	1.0	
18"	3'-7"	1'-10"	3'-2"	2½"	10"	6'-4"	1.0	2'-7"	8'-11"	1.3	
24"	4'-2"	2'-1"	4'-0"	3"	10"	8'-0"	1.5	3'-5"	11'-5"	2.0	
30"	5'-0"	2'-6"	4'-7"	4¼"	11½"	9'-2"	2.3	4'-3"	13'-5"	3.1	
36"	5'-8"	2'-8"	5'-6"	4¾"	11½"	11'-0"	3.4	5'-0"	16'-0"	4.5	
42"	6'-2"	3'-1"	6'-4"	5¼"	11½"	12'-8"	4.5	5'-10"	18'-6"	6.0	
48"	6'-9"	3'-5"	7'-2"	5¾"	11½"	14'-4"	6.0	6'-8"	21'-0"	8.0	

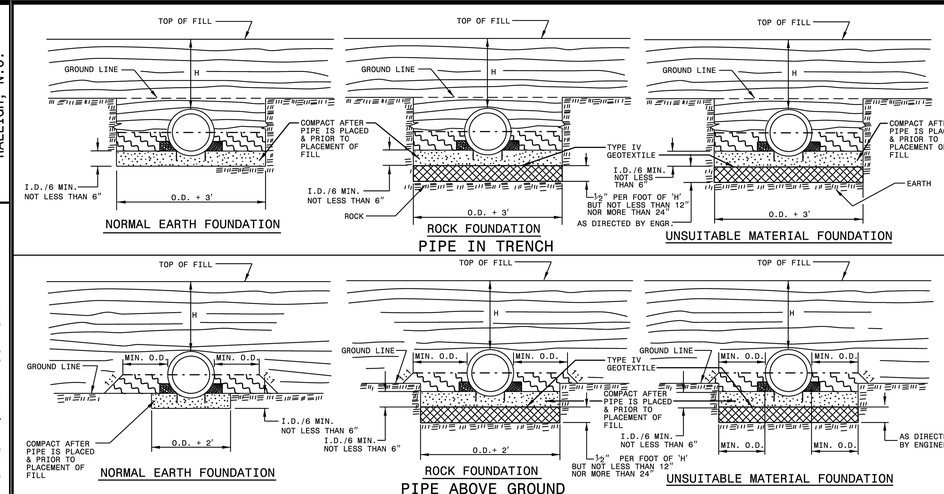
*SEE SHEET 3

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

1-24

ROADWAY STANDARD DRAWING FOR
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS
15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 3
838.01



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

1-24

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

GENERAL NOTES:

1. CONTRACTOR MUST LOCATE ALL UNDERGROUND UTILITIES, INCLUDING TELECOMMUNICATIONS AND COMMERCIAL CABLING, PRIOR TO GROUND DISTURBING ACTIVITIES.
2. CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS.
3. PRESERVE AND PROTECT ALL EXISTING UTILITIES, INCLUDING TELECOMMUNICATIONS AND COMMERCIAL CABLING. CONTACT BASE TELEPHONE 30 DAYS PRIOR TO DIGGING CONCERNING ANY CONFLICTS WITH BURIED COMMUNICATION LINES.
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FINAL

C501

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

25-0090
MULTI-AREA STORMWATER DRAINAGE REPAIRS
SITE DETAILS

DES. M. HORNE
DR. M. HORNE
CHK. C. MAAS, PE
SUBMITTED BY: M. HORNE
DESIGN DIR. C. MAAS, PE
DATE: 6/12/2026

Christopher Maas 18-Jun-2026

SIZE	CODE IDENT NO.	PWO DRAWING NO.
E1	80091	60044283

CONST. CONTR. NO. N40085-25-B-0090

SCALE: AS SHOWN SPEC. 05-25-0090 SHEET 8 OF 8