SHEET NO. INDEX

AS CONSTRUCTED PLANS

PROJECT NO. : 6.503340

F.A. NO. :

T.I.P. NO. : P-3100

COUNTY : CARTERET

R 110

DESCRIPTION : DESIGN/BUILD REPLACEMENT OF B&M R&R TRESTLE OVER NEWPORT RIVER BETWEEN MOREHEAD CITY AND RADIO ISLAND.

DIVISION NO. : TWO

CONTRACTOR : McLEAN CONTRACTING CO.
6700 McLEAN WAY
GLEN BURNIE, MARYLAND 21060-6480

DIVISION ENGINEER : C.F. LASSITER P.E.

RESIDENT ENGINEER : JOHN W. ROUSE JR. P.E.

I HEREBY CERTIFY THAT THIS PROJECT WAS CONSTRUCTUED ACCORDING TO PLANS EXCEPT AS NOTED HEREIN.

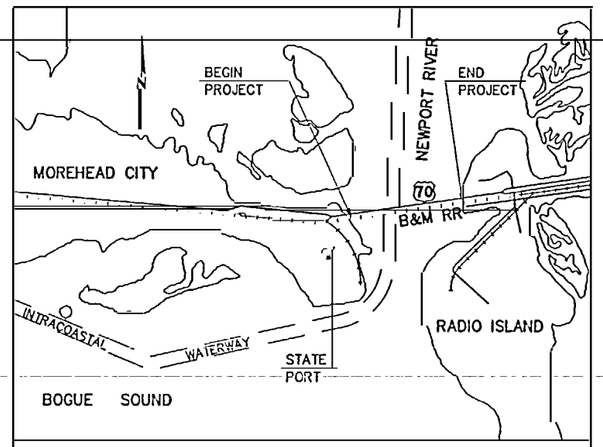
John W. Rouse Jr.
RESIDENT ENGINEER

FINAL RIGHT OF WAY HAS BEEN CHECKED.

DIVISION RIGHT OF WAY AGENT

P-3100

PROJECT: 6.503340



VICINITY MAP

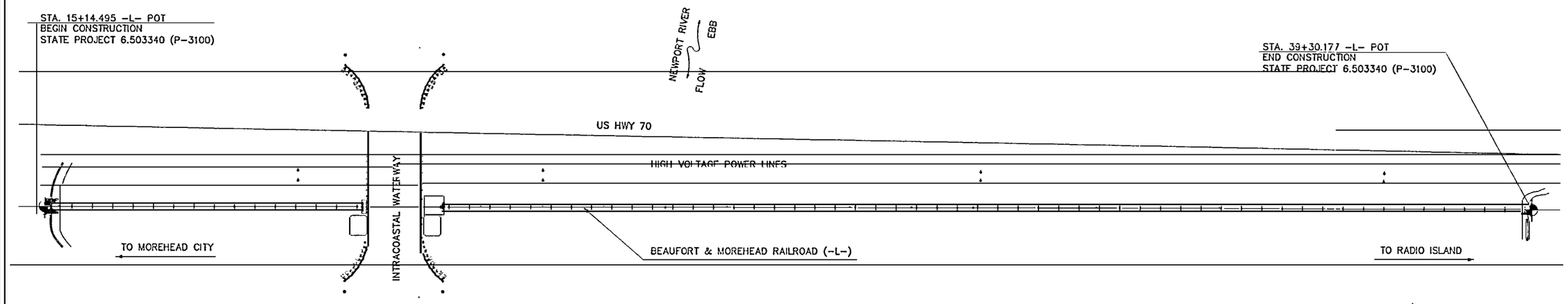
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CARTERET COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO	TOTAL SHEETS
N.C.	P-3100		
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
6.503340		P.E./CONST.	

LOCATION: *Beaufort & Morehead Railroad over the Newport River*

TYPE OF WORK: *Design/build project consisting of SEA/FONSI documentation, environmental permitting, removal of existing structure, new structure, railroad trackwork, new fender system, and construction engineering & inspection*



PROJECT LENGTH

LENGTH OF STRUCTURE PROJECT 6.503340 = 0.433 mi.

TOTAL LENGTH, STATE PROJECT 6.503340 = 0.433 mi.

Prepared in the Office of:
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609

1995 STANDARD SPECIFICATIONS

AS-BUILT PLANS

I HEREBY CERTIFY THAT THESE "AS-BUILT" PLANS ACCURATELY REPRESENT THE COMPLETED PROJECT.

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

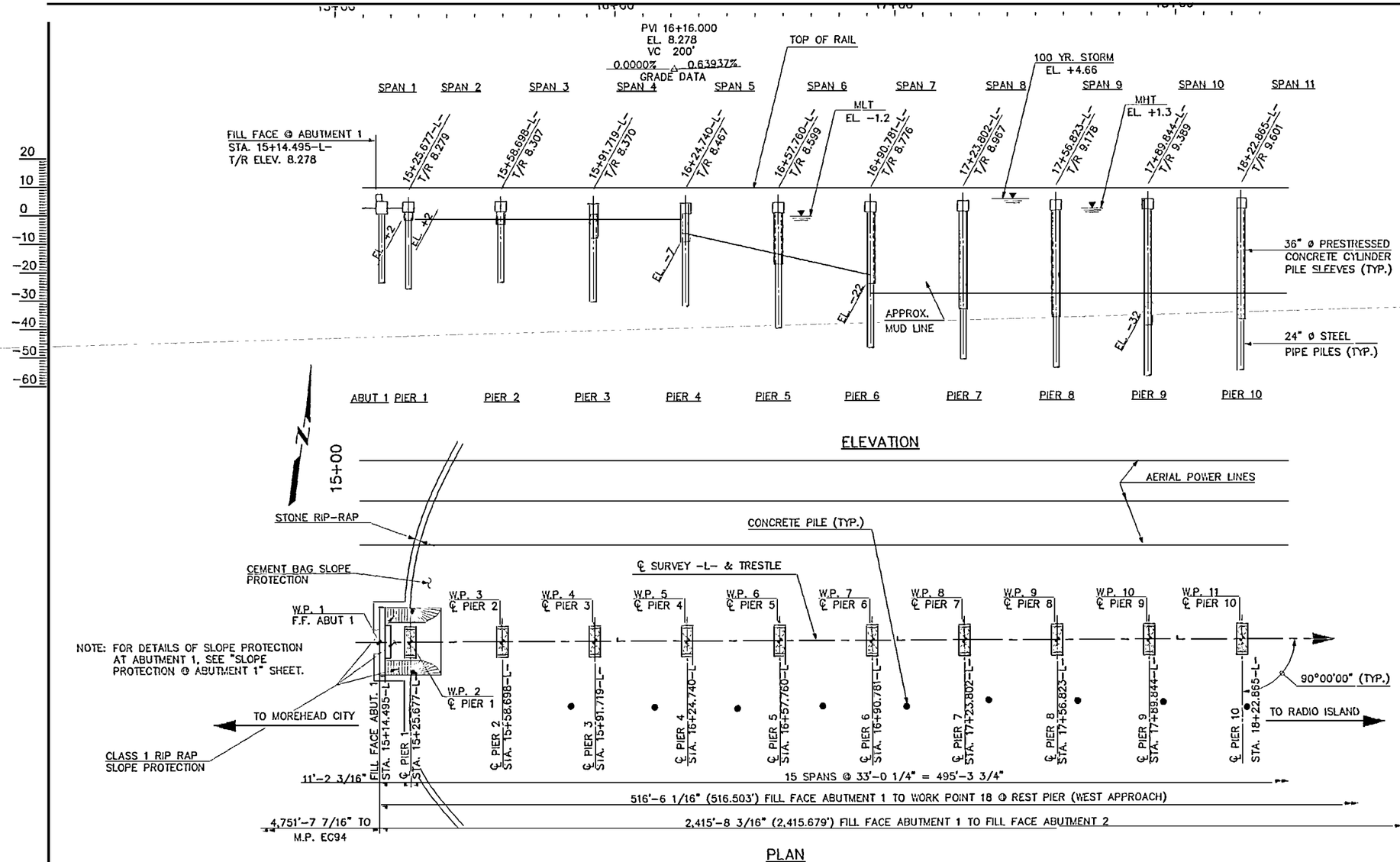
Neil T. Greenlee
PROJECT ENGINEER

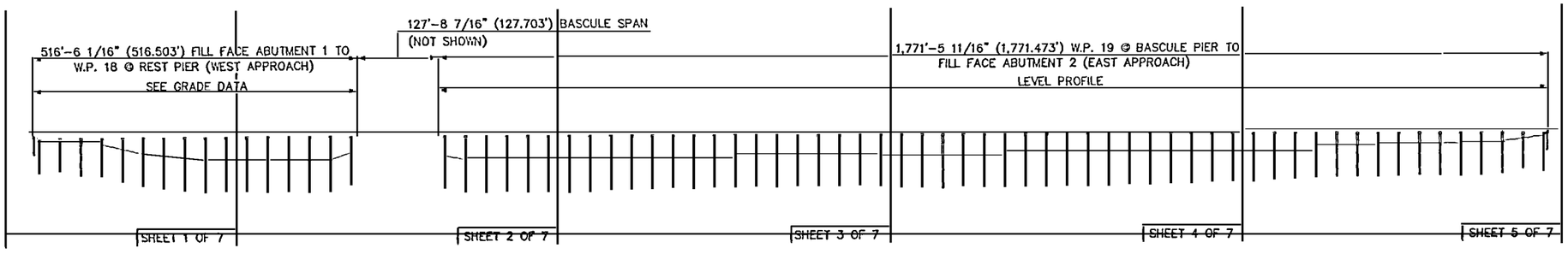
3/9/00
DATE

NOTE: NO PLAN REVISIONS WERE ISSUED THROUGH THE COURSE OF THIS PROJECT.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER





LOC.	COORDINATES	
	N	E
W.P. 1	361206.2575	2692453.5683
W.P. 18	361268.7980	2692966.2705
W.P. 19	361284.1437	2693093.0481
W.P. 74	361501.4949	2694851.1363

SCHEMATIC FULL LENGTH PROFILE & GENERAL DRAWING KEY

INDEX OF DRAWINGS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19324 NEIL T. GREENLEE

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 1 OF 7 REPLACED BR. NO. R110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BEAUFORT AND MOREHEAD RAILROAD
TRESTLE OVER NEWPORT RIVER BETWEEN
MOREHEAD CITY AND RADIO ISLAND

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

SHEET NO. 1

DRAWN BY: J BAYNE DATE 1/99
CHECKED BY: N GREENLEE DATE 1/99
DWG. NO. 1

CERTIFIED BY: NTG DATE: 3/00

TOTAL SHEETS 43

DISTRIBUTION No. 1

MMC P-3783A_pmn\Dwgs\As-Built Dwgs\B3446PE1.DWG DATE MAR 6, 2000

PVI 19+31.000
EL. 10.292
VC 200'
0.63937% Δ −0.05132%
GRADE DATA

SPAN 11 | SPAN 12 | SPAN 13 | SPAN 14 | SPAN 15 | SPAN 16 | SPAN 17 | BASCULE SPAN (NOT SHOWN) | SPAN 18 | SPAN 19 | SPAN 20 | SPAN 21 | SPAN 22 | SPAN 23 | SPAN 24

18+55.885–L– T/R 9.801
18+88.906–L– T/R 9.965
19+21.927–L– T/R 10.091
19+54.948–L– T/R 10.180
19+87.969–L– T/R 10.231
20+20.990–L– T/R 10.244
20+31.090–L– T/R 10.080
21+61.00–L– T/R 10.175
21+88.713–L– T/R 10.170
22+01.734–L– T/R 10.170
22+34.755–L– T/R 10.170
22+87.776–L– T/R 10.170
23+00.797–L– T/R 10.170
23+33.818–L– T/R 10.170

TOP OF RAIL (LEVEL)
REST PIER
MHT EL. +1.3
100 YR. STORM EL. +4.66
MLT EL. −1.2
BASCULE PIER
FENDER SYSTEM
APPROX. MUD LINE
EL. −32
EL. −33
36" ø PRESTRESSED CONCRETE CYLINDER PILE SLEEVES (TYP.)
24" ø STEEL PIPE PILES (TYP.)

20 10 0 −10 −20 −30 −40 −50 −60

ELEVATION

PIER 11 | PIER 12 | PIER 13 | PIER 14 | PIER 15 | PIER 16 | PIER 17 | PIER 18 | PIER 19 | PIER 20 | PIER 21 | PIER 22

POWER LINE ELEV. 59.06'
AERIAL POWER LINES
20+00
FENDER SYSTEM (TYP.)
POWER LINE ELEV. 98.54'
℄ SURVEY –L– & TRESTLE
W.P. 18 STA. 20+31.000–L–
W.P. 19 STA. 21+58.703–L–
41.57'
43.95'
CONCRETE PILE (TYP.)
W.P. 20 ℄ PIER 17
W.P. 12 ℄ PIER 11
W.P. 13 ℄ PIER 12
W.P. 14 ℄ PIER 13
W.P. 15 ℄ PIER 14
W.P. 16 ℄ PIER 15
W.P. 17 ℄ PIER 16
W.P. 21 ℄ PIER 18
W.P. 22 ℄ PIER 19
W.P. 23 ℄ PIER 20
W.P. 24 ℄ PIER 21
W.P. 25 ℄ PIER 22
REST PIER
BASCULE PIER
ABANDONED HIGHWAY PIER
INTRACOASTAL WATERWAY
ABANDONED HIGHWAY PIER
90°00'00" (TYP.)
TO MOREHEAD CITY
TO RADIO ISLAND
℄ PIER 11 STA. 18+55.885–L–
℄ PIER 12 STA. 18+88.906–L–
℄ PIER 13 STA. 19+21.927–L–
℄ PIER 14 STA. 19+54.948–L–
℄ PIER 15 STA. 19+87.969–L–
℄ PIER 16 STA. 20+20.990–L–
℄ PIER 17 STA. 21+68.713–L–
℄ PIER 18 STA. 22+01.734–L–
℄ PIER 19 STA. 22+34.755–L–
℄ PIER 20 STA. 22+67.776–L–
℄ PIER 21 STA. 23+00.797–L–
℄ PIER 22 STA. 23+33.818–L–
15 SPANS @ 33'–0 1/4" = 495–3 3/4"
10'–0 1/8"
BASCULE SPAN (NOT SHOWN) 127'–8 7/16" (127.703')
10'–0 1/8"
53 SPANS @ 33'–0 1/4" = 1,750'–1 1/4"
516'–6 1/16" (516.503') FILL FACE ABUTMENT 1 TO W.P. 18 ℄ REST PIER
1,771'–5 11/16" (1,771.473') W.P. 19 ℄ BASCULE PIER TO FILL FACE ABUTMENT 2
2,415'–8 3/16" (2,415.679') FILL FACE ABUTMENT 1 TO FILL FACE ABUTMENT 2
CLUSTER DOLPHIN (TYP.)

PLAN

PROJECT NO. P–3100
CARTERET COUNTY
STATION: POT 10+00.00 –L–
MILE POST EC94.90
SHEET 2 OF 7

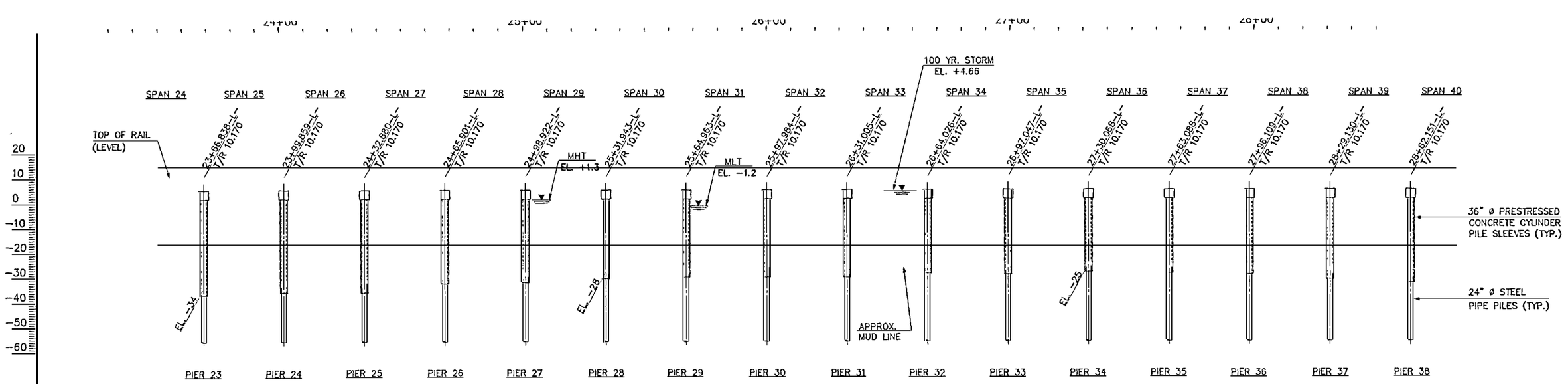
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BEAUFORT AND MOREHEAD RAILROAD
TRESTLE OVER NEWPORT RIVER BETWEEN
MOREHEAD CITY AND RADIO ISLAND

NORTH CAROLINA PROFESSIONAL SEAL 9313 ENGINEER NEIL T. GREENLEE

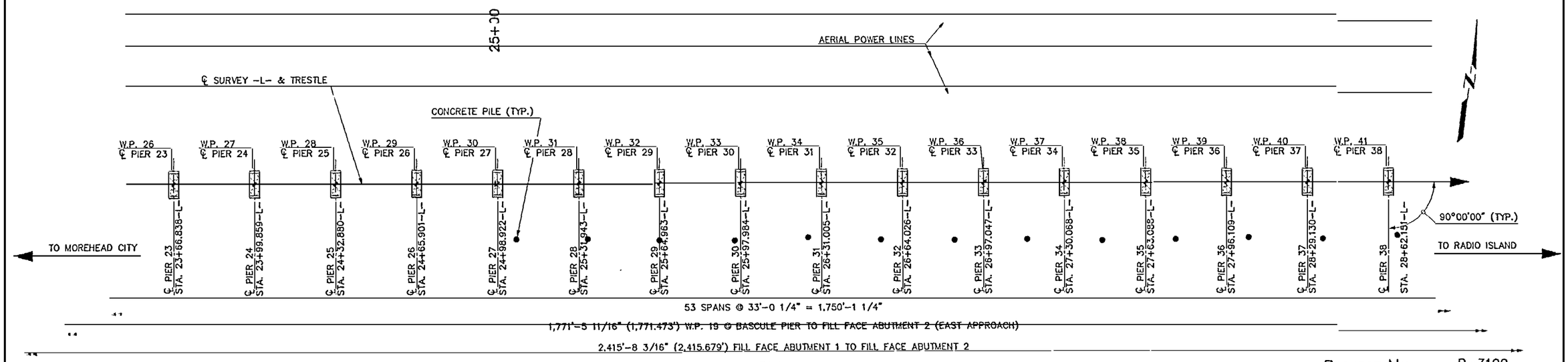
HNTB HNTB NORTH CAROLINA, P.C.
343 E Six Forks Road, Suite 200, Raleigh, N.C. 27609
DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 1/98
DWG. NO. 2

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 2
TOTAL SHEETS 43
DISTRIBUTION No. 1



ELEVATION



PLAN

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BEAUFORT AND MOREHEAD RAILROAD
TRESTLE OVER NEWPORT RIVER BETWEEN
MOREHEAD CITY AND RADIO ISLAND

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

SHEET NO. 3

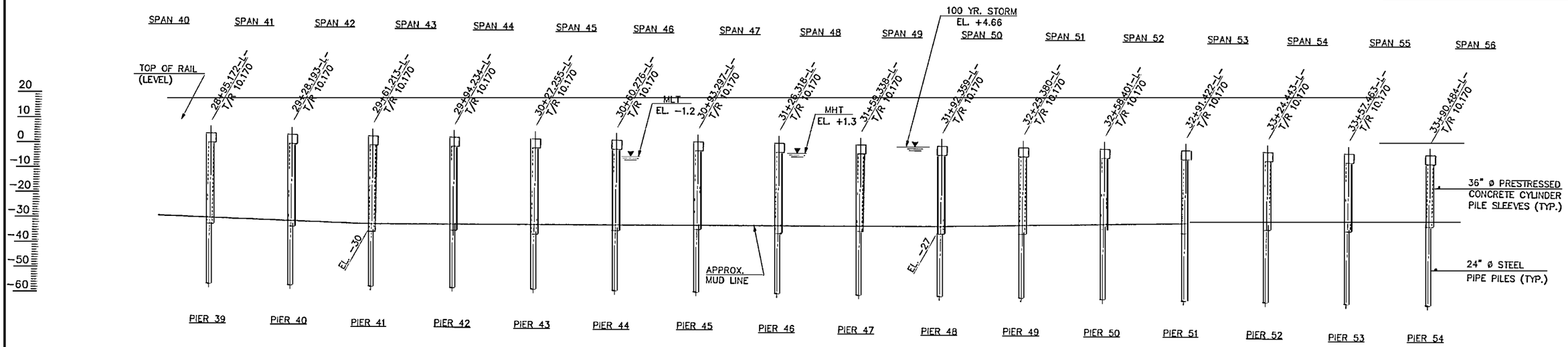
DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 1/98
DWG. NO. 3

CERTIFIED BY: NTG DATE: 3/00

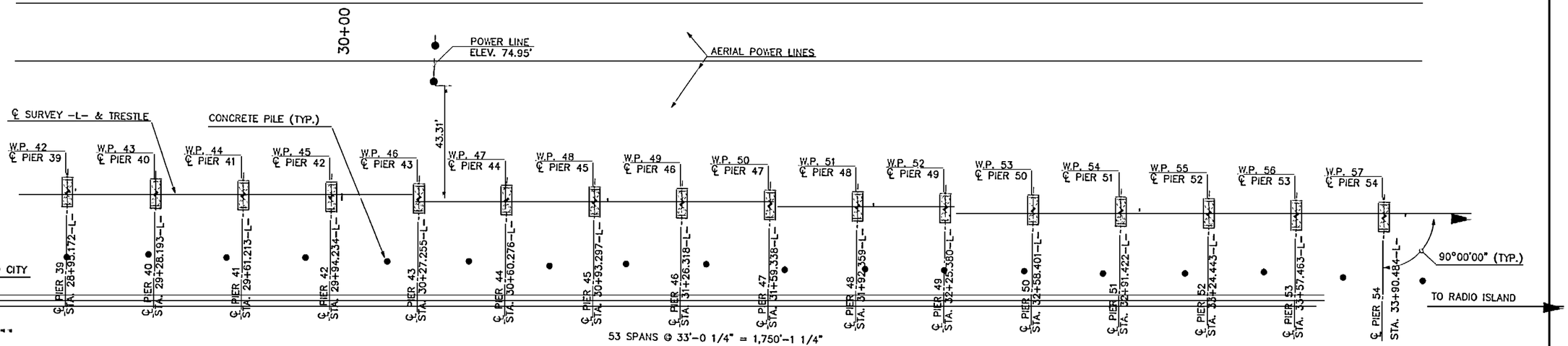
TOTAL SHEETS 43

DISTRIBUTION No. 1

NAME: P:\12783\DWGS\AS BUILT DWGS\834GPC3.DWG DATE: MAR 3, 2000



ELEVATION



53 SPANS @ 33'-0 1/4" = 1,750'-1 1/4"

1,771'-5 11/16" (1,771.473') W.P. 19 @ BASCULE PIER TO FILL FACE ABUTMENT 2 (EAST APPROACH)

2,415'-8 3/16" (2,415.679') FILL FACE ABUTMENT 1 TO FILL FACE ABUTMENT 2

PLAN

NAME: P:\2783A\DWGS\AS BUILT DWGS\B34GPE4.DWG DATE: MAR 3, 2000

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BEAUFORT AND MOREHEAD RAILROAD
TRESTLE OVER NEWPORT RIVER BETWEEN
MOREHEAD CITY AND RADIO ISLAND

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE ENGINEER 1/99

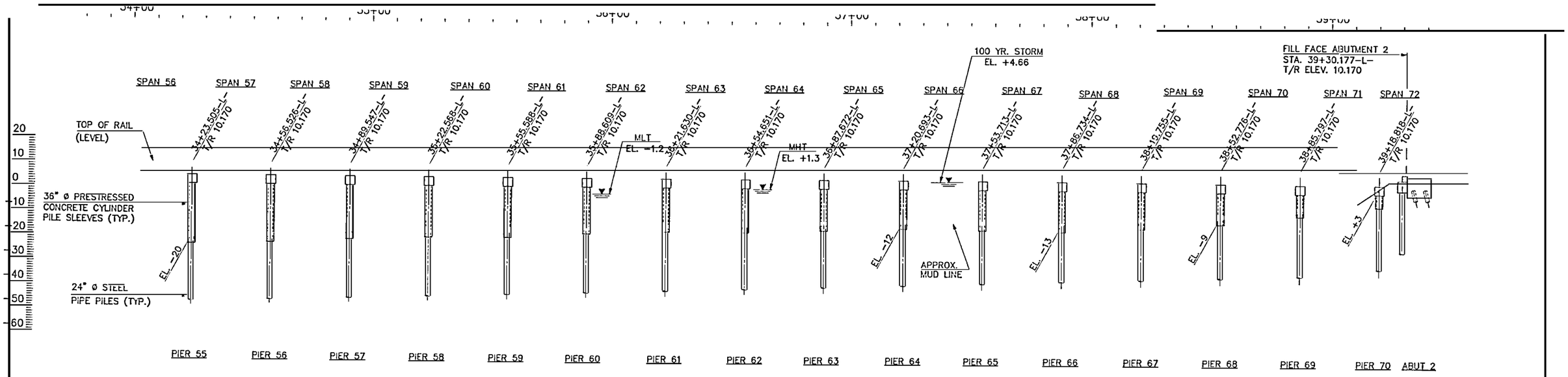
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. HAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 1/98
DWG. NO. 4

AS-BUILT PLANS

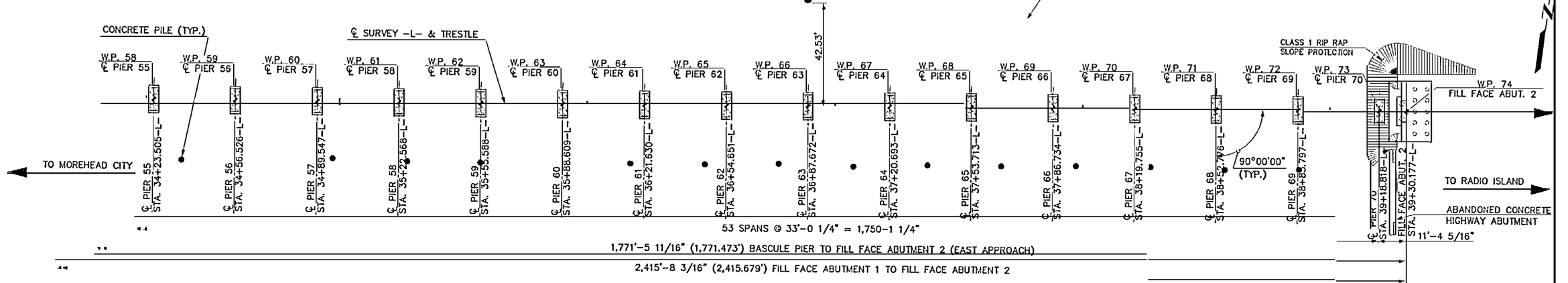
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 4
TOTAL SHEETS 43
DISTRIBUTION No. 1



ELEVATION

NOTE: FOR DETAILS OF SLOPE PROTECTION AT ABUTMENT 2, SEE "SLOPE PROTECTION @ ABUTMENT 2" SHEET.



PLAN

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BEAUFORT AND MOREHEAD RAILROAD
TRESTLE OVER NEWPORT RIVER BETWEEN
MOREHEAD CITY AND RADIO ISLAND

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. RAYLE DATE 1/98
CHECKED BY N. GREENLEE DATE 1/98
DWG. NO. 5

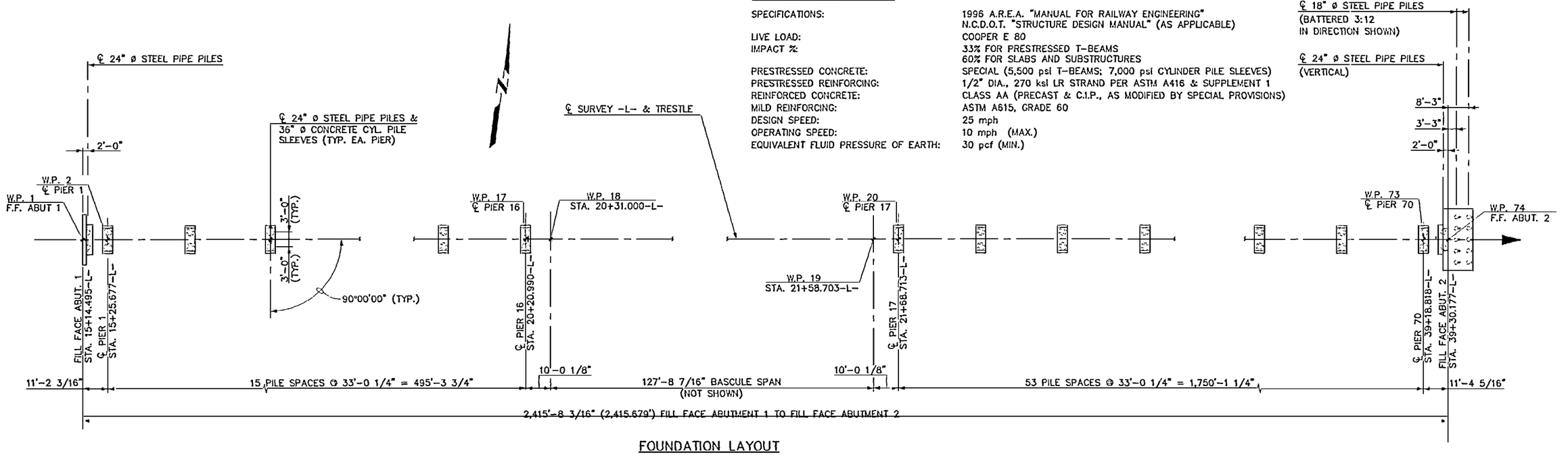
AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 5
TOTAL SHEETS 43
DISTRIBUTION No. 1

NAME P:\27834\DWGS\As Built Dwgs\B34GPE5.DWG DATE: MAR 3, 2000

BRIDGE DESIGN DATA

SPECIFICATIONS:	1996 A.R.E.A. "MANUAL FOR RAILWAY ENGINEERING" N.C.D.O.T. "STRUCTURE DESIGN MANUAL" (AS APPLICABLE)
LIVE LOAD:	COOPER E 80
IMPACT %:	33% FOR PRESTRESSED T-BEAMS 60% FOR SLABS AND SUBSTRUCTURES
PRESTRESSED CONCRETE:	SPECIAL (5,500 psi T-BEAMS; 7,000 psi CYLINDER PILE SLEEVES)
PRESTRESSED REINFORCING:	1/2" DIA., 270 ksi LR STRAND PER ASTM A416 & SUPPLEMENT 1
REINFORCED CONCRETE:	CLASS AA (PRECAST & C.I.P., AS MODIFIED BY SPECIAL PROVISIONS)
MILD REINFORCING:	ASTM A615, GRADE 60
DESIGN SPEED:	25 mph
OPERATING SPEED:	10 mph (MAX.)
EQUIVALENT FLUID PRESSURE OF EARTH:	30 pcf (MIN.)



FOUNDATION LAYOUT

GENERAL NOTES

THIS BRIDGE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9, "SEISMIC DESIGN FOR RAILWAY STRUCTURES", OF THE A.R.E.A. "MANUAL FOR RAILWAY ENGINEERING".

THIS BRIDGE DESIGNED IN ACCORDANCE WITH APPLICABLE A.R.E.A. RECOMMENDATIONS.

CORROSION PROTECTION FOR THIS BRIDGE MEETS THE REQUIREMENTS FOR STRUCTURES IN HIGHLY CORROSIVE AREAS OUTLINED IN CHAPTER 11 OF THE N.C.D.O.T. STRUCTURE DESIGN MANUAL.

GENERALLY, IN CASES OF DISCREPANCY, THESE GENERAL NOTES GOVERNED OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS GOVERNED OVER THE GENERAL NOTES, AND SPECIAL PROVISIONS GOVERNED OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

EXCEPT AS OTHERWISE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP WAS IN ACCORDANCE WITH THE 1995 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

~~THE EXISTING OPEN DECK TIMBER TRESTLE APPROACH STRUCTURE LOCATED ON THE PROPOSED ALIGNMENT SHALL BE REMOVED PER THE SPECIAL PROVISIONS. THE SUBSTRUCTURE AND FOUNDATIONS OF THE EXISTING STRUCTURE AS SHOWN ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST N.C.D.O.T. FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.~~

THE MUD LINE SHOWN ON THE PLANS REPRESENTS THE LOCALIZED 100-YR. SCOUR CONDITION DIRECTLY UNDERNEATH THE STRUCTURE. CYLINDER PILE SLEEVE PENETRATION IS 3 ft. MINIMUM BELOW THIS LINE (SEE SPECIAL PROVISION "INSTALLATION OF CYLINDER PILE SLEEVES"). THE ANTICIPATED FUTURE MUD LINE FOR THE NON-SCOUR CONDITION WILL BE 5 ft. TO 7 ft. HIGHER THAN THE EXISTING MUD LINE SHOWN ON THE PLANS.

ALL REINFORCING STEEL WAS DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

MIRADRI 860 WATERPROOFING WAS UTILIZED AS NOTED ON THE PLANS. IN ADDITION, ALL CONSTRUCTION JOINTS AND SHRINKAGE CRACKS COVERED BY FILL WERE WATERPROOFED WITH MIRADRI 860 WATERPROOFING UTILIZING 2 ft. WIDE FABRIC STRIPS PLACED SYMMETRICALLY OVER SUCH JOINTS OR CRACKS. USE OF MIRADRI 860 WATERPROOFING IN LIEU OF METHOD "A" WATERPROOFING PER THE STANDARD SPECIFICATIONS WAS APPROVED IN ADVANCE BY THE RESIDENT ENGINEER.

ALL GROUT USED ON THIS PROJECT WAS NON-SHRINK, NON-METALLIC, PORTLAND CEMENT GROUT AS APPROVED BY THE ENGINEER WITH ULTIMATE STRENGTH AS CALLED FOR ON THE PLANS. FOR MORE INFORMATION, SEE PIER SHEETS AND "SUPERSTRUCTURE DETAILS" SHEET.

ALL WORK INVOLVED IN THE CONSTRUCTION OF THIS BRIDGE WAS PERFORMED SATISFACTORY TO THE ENGINEER AND/OR THE OPERATING RAILWAY COMPANY. ~~ALL WORK WHICH WILL POTENTIALLY IMPACT THE SAFETY OF SCHEDULED RAIL OPERATIONS MUST BE APPROVED BY THE ENGINEER AND/OR THE OPERATING RAILWAY COMPANY REPRESENTATIVE PRIOR TO PROCEEDING WITH SUCH WORK. SCHEDULED RAIL TRAFFIC SHALL AT ALL TIMES BE MAINTAINED AND PROTECTED. THE CONTRACTOR SHALL NOT AT ANY TIME DELAY OR INTERFERE WITH SCHEDULED RAIL OPERATIONS WITHOUT PRIOR APPROVAL FROM THE ENGINEER AND/OR THE OPERATING RAILWAY COMPANY REPRESENTATIVE.~~

~~ALL CONSTRUCTION JOINTS SHOWN ON THESE PLANS SHALL BE REQUIRED UNLESS DENOTED AS "OPTIONAL". CONSTRUCTION JOINTS SHALL NOT BE PERMITTED EXCEPT AS SHOWN ON THE PLANS OR WHERE WRITTEN APPROVAL HAS BEEN PREVIOUSLY OBTAINED FOR SUCH WORK.~~

THE CONTRACTOR INSTALLED PERMANENT SLOPE PROTECTION AT THE ABUTMENTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE SLOPE PROTECTION SHEETS. EXISTING SLOPE PROTECTION DAMAGED OR DISTURBED DURING CONSTRUCTION WAS RESTORED BY THE CONTRACTOR TO ITS PRE-CONSTRUCTION CONDITION.

FOR MEASUREMENT AND PAYMENT FOR LUMP SUM DESIGN/BUILD CONTRACT, SEE SPECIAL PROVISIONS.

FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF RAIL AND MARINE TRAFFIC, SEE SPECIAL PROVISIONS.

FOR WORK IN, OVER OR ADJACENT TO NAVIGABLE WATERS, SEE SPECIAL PROVISIONS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR PORTLAND CEMENT, SEE SPECIAL PROVISIONS.

FOR FINE AND COARSE AGGREGRATE, SEE SPECIAL PROVISIONS.

FOR 36" PRESTRESSED CONCRETE T-BEAMS, SEE SPECIAL PROVISIONS.

FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

FOR PRECAST CONCRETE UNITS (NON-PRESTRESSED), SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE CYLINDER PILE SLEEVES, SEE SPECIAL PROVISIONS.

FOR STEEL PIPE PILES, SEE SPECIAL PROVISIONS.

FOR INSTALLATION OF CYLINDER PILE SLEEVES, SEE SPECIAL PROVISIONS.

FOR INSTALLATION OF STEEL PIPE PILES, SEE SPECIAL PROVISIONS.

FOR BACKFILL BEHIND ABUTMENTS, SEE SPECIAL PROVISIONS.

FOR RAILROAD BALLAST, SEE SPECIAL PROVISIONS.

FOR RAILROAD TRACKWORK, SEE SPECIAL PROVISIONS.

BALLAST, CROSSTIES, BOLTED RAIL AND ASSOCIATED HARDWARE WERE INSTALLED AFTER CONSTRUCTION OF THE NEW TRESTLE WAS COMPLETE. BALLAST WAS TAMPED AND SURFACED TO THE SATISFACTION OF THE OPERATING RAILWAY COMPANY.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 6 OF 7

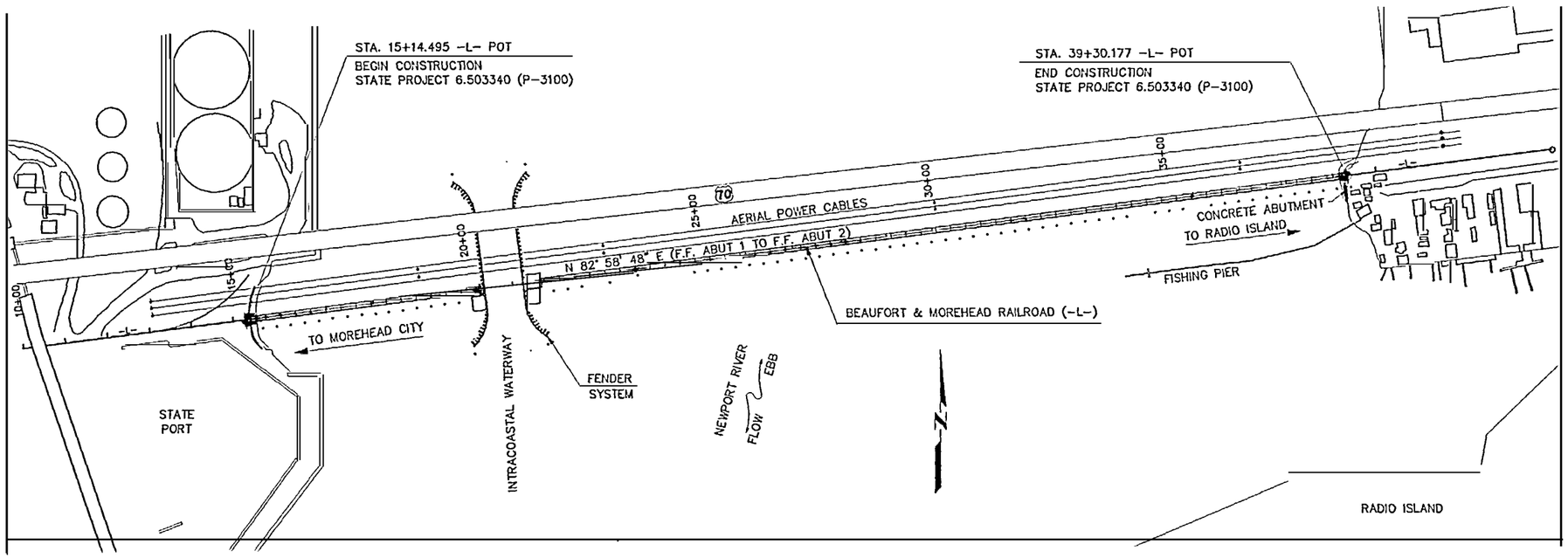
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOUNDATION LAYOUT
&
GENERAL NOTES

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

DRAWN BY: J. RAYNE DATE: 1/98
CHECKED BY: N. GREENLEE DATE: 3/98
DWG. NO. 6
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 6
TOTAL SHEETS 43
DISTRIBUTION No. 1



LOCATION SKETCH

FINAL QUANTITIES*

ITEM	36" PRESTRESSED CONCRETE T-BEAM	22" PRECAST CONCRETE SLAB	ELASTOMERIC BEARINGS	ANCHORING ASSEMBLIES	PRECAST CONCRETE PIER CAP UNIT	PRECAST CONCRETE BACKWALL/ WINGWALL UNITS	PRECAST CONCRETE SUPPORT UNIT (REST PIER)	PRECAST CONCRETE SUPPORT UNIT (BASCULE PIER)	PRECAST CONCRETE RIB UNITS (ABUT. 2)	36" O.D. CYLINDER PILE SLEEVES	24" O.D. STEEL PIPE PILES	18" O.D. STEEL PIPE PILES	CLASS AA CONCRETE (C.I.P.)	GROUT	RAILROAD BALLAST AND TRACKWORK	FENDER SYSTEM
UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	C.Y.	C.F.	L.S.	L.S.
LINE CODE	2E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2C, 4002	2C, 4001	2C	2D	N/A	2E, 4003, 4004	4007
TOTAL	136	4	146	288	72	2	1	1	6	4,176.0	12,658.0	400	147.7	1,963.3	L.S.	L.S.

*NOTE: ALL WORK ON THIS PROJECT WAS PERFORMED UNDER A LUMP SUM, DESIGN/BUILD CONTRACT. THE UNITS OF MEASUREMENT SHOWN ABOVE ARE FOR CONVENIENCE ONLY, AND ARE NOT INTENDED TO REPRESENT A PARTICULAR METHOD OF MEASUREMENT OR BASIS OF PAYMENT FOR THIS PROJECT. LINE CODE NUMBERS ARE FOR REFERENCE ONLY AND CORRESPOND TO THE LINE CODES ENTERED IN THE PAY RECORD BOOKS FOR THE ORIGINAL LUMP SUM CONTRACT AND SUPPLEMENTAL AGREEMENTS.

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE 3/00

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
LOCATION SKETCH &
FINAL QUANTITIES

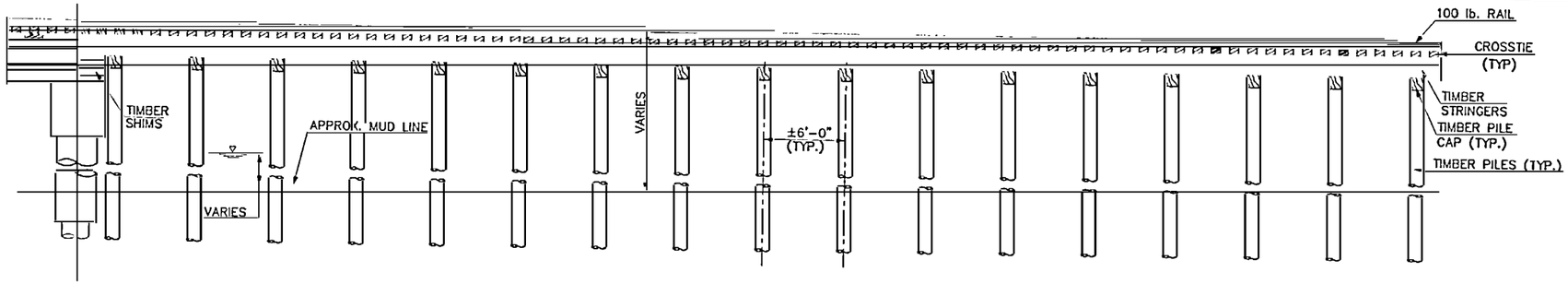
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE 2/00
CHECKED BY: N. GREENLEE DATE 2/00
DWG. NO. 7

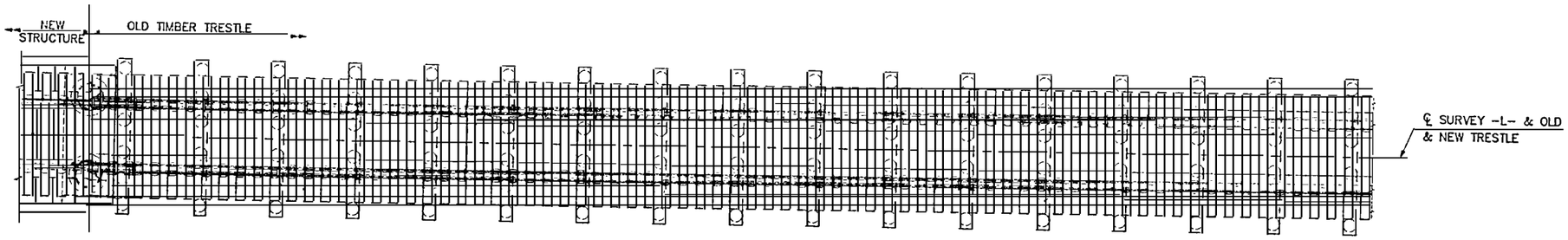
AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 7
TOTAL SHEETS 43

DISTRIBUTION No. AB



SECTION ALONG ℄ SURVEY -L-



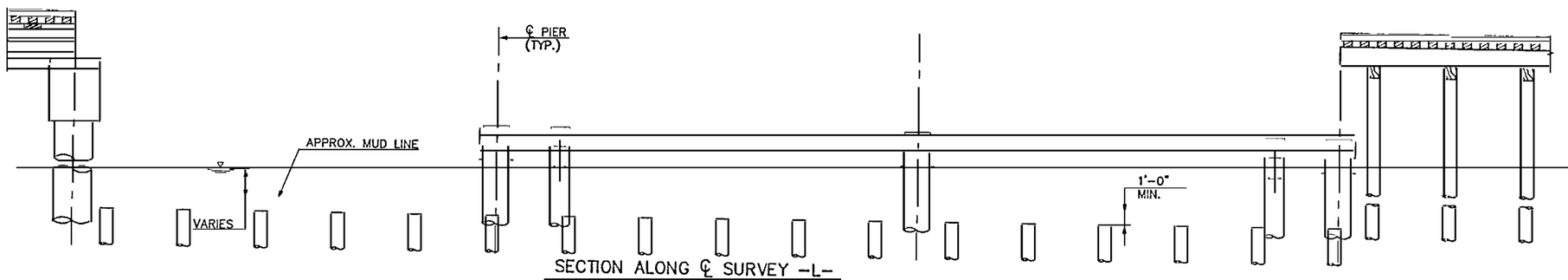
PLAN

EXISTING STRUCTURE

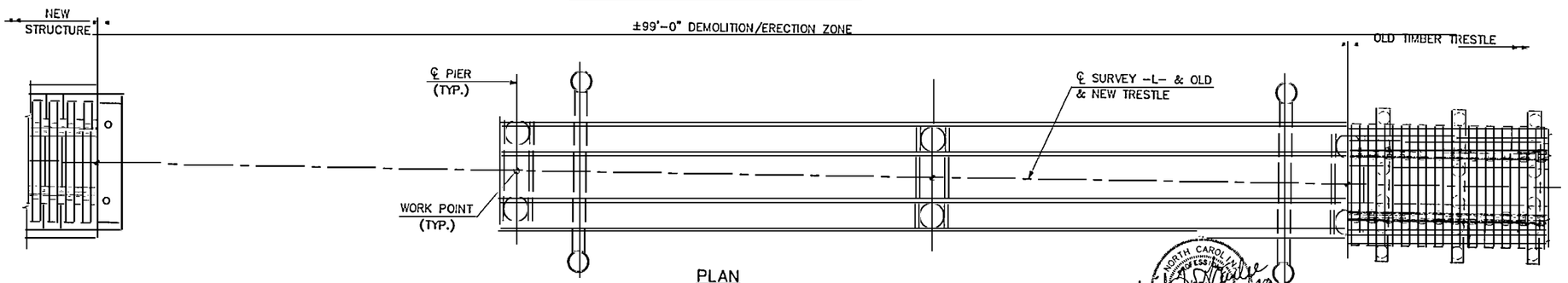
OLD TIMBER TRESTLE AS SHOWN CONSISTED OF:

- 14"x14"x12'-0" TIMBER PILE CAPS
- 8"x16" TIMBER STRINGERS
- 7"x8" TIES AT 24" CTRS
- 100 lb. RAIL

NOTE: CONSTRUCTION OF NEW TRESTLE CLOSELY FOLLOWED THE SEQUENCE HEREIN DEPICTED. NEW RAIL, TIES AND BALLAST WERE ADDED AFTER NEW TRESTLE CONSTRUCTION WAS SUBSTANTIALLY COMPLETE.



SECTION ALONG ℄ SURVEY -L-



PLAN

STAGE 1

CONSTRUCTION SEQUENCE - STAGE 1

REMOVE ±99 FEET OF TIMBER TRESTLE AS FOLLOWS:

1. REMOVE RAIL, TIES AND HARDWARE IN "PANELIZED" SECTIONS.
2. REMOVE TIMBER STRINGERS, SHIMS AND PILE CAPS AND BEGIN CONSTRUCTION OF TEMPORARY GRADE RAISE FOR STAGE 5 RAIL RECONSTRUCTION.
3. REMOVE TIMBER PILES TO MINIMUM 1'-0" BELOW EXISTING MUD LINE. DISPOSE OF TIMBER PILES OFF SITE.
4. DRIVE SUPPORT PILES FOR PILE-DRIVING TEMPLATE.
5. SET PILE DRIVING TEMPLATE TO PROPER HORIZONTAL AND VERTICAL ALIGNMENT.
6. DRIVE PIPE PILES TO ELEVATIONS SHOWN ON THE PLANS. (SEE PIER SHEETS).

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SEQUENCE OF CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE

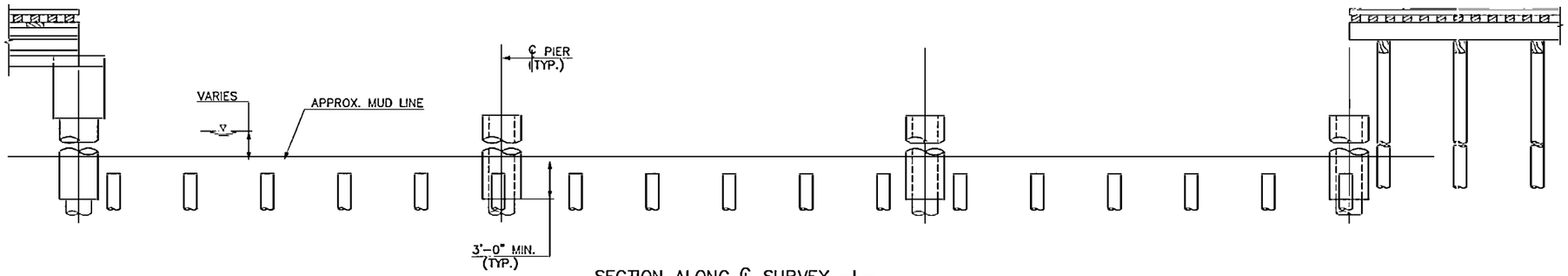
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 3/98
DWG. NO. 8

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 8
TOTAL SHEETS 43
DISTRIBUTION No. 1

NAME: P:\27534\DWGS\As Built Dwgs\B34SEQ1.DWG DATE: FEB 25, 2000



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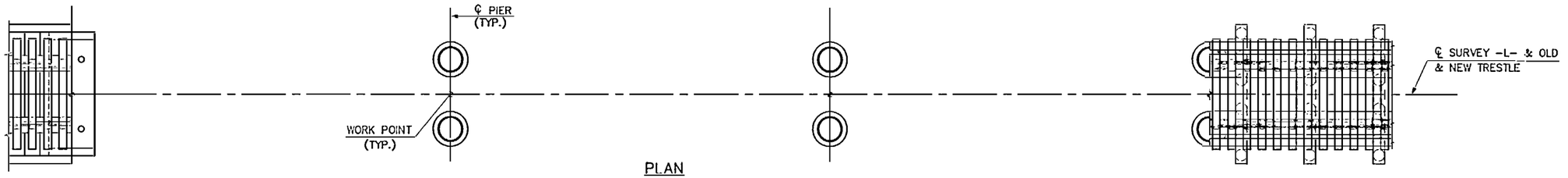
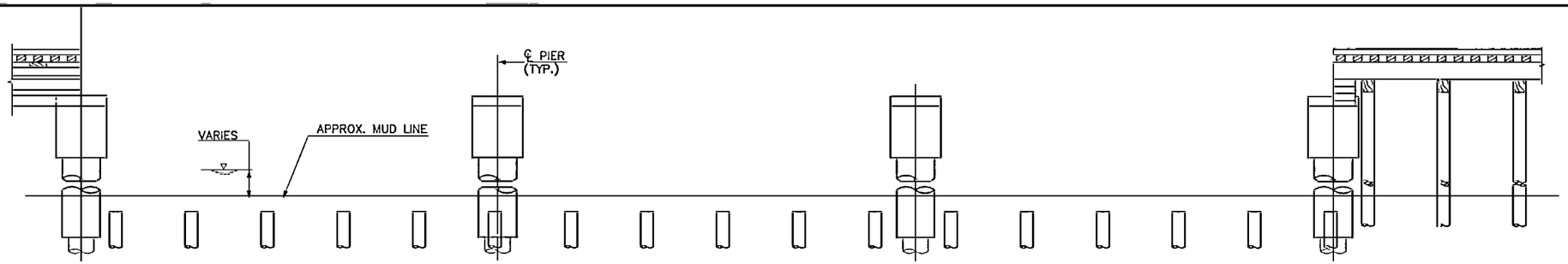


PLAN

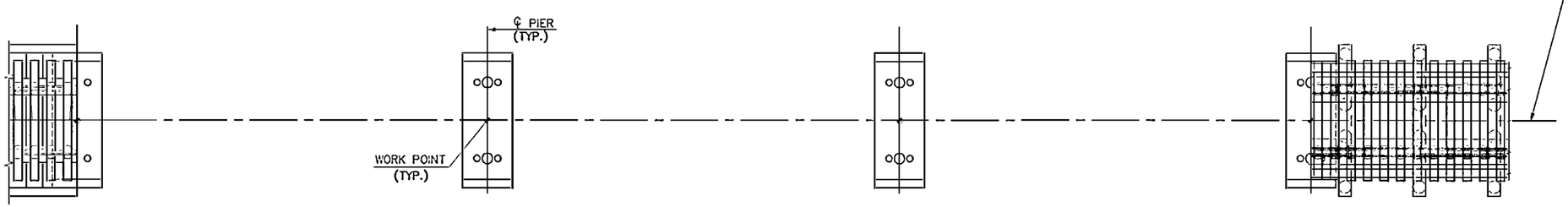
STAGE 2

CONSTRUCTION SEQUENCE – STAGE 2

1. REMOVE PILE DRIVING TEMPLATE.
2. PLACE CYLINDER PILE SLEEVES AROUND THE PIPE PILES TO ELEVATIONS SHOWN ON THE PLANS. (SEE PIER SHEETS).
3. PUMP WATER FROM INSIDE OF PIPE PILES.
4. FILL ANNULAR SPACE BETWEEN CYLINDER PILE SLEEVES AND PIPE PILES WITH GROUT. (SEE PIER SHEETS).



SECTION ALONG ℄ SURVEY -L-



PLAN

STAGE 3

CONSTRUCTION SEQUENCE – STAGE 3

1. PLACE PRECAST PIER CAP ON PILES.
2. FILL PILE PLUGS AND TAPERED HOLES WITH CLASS AA CONCRETE AS SHOWN ON THE PLANS. (SEE PIER SHEETS).
3. COMPLETE CONSTRUCTION OF TEMPORARY GRADE RAISE.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE 4/29/98

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SEQUENCE OF CONSTRUCTION

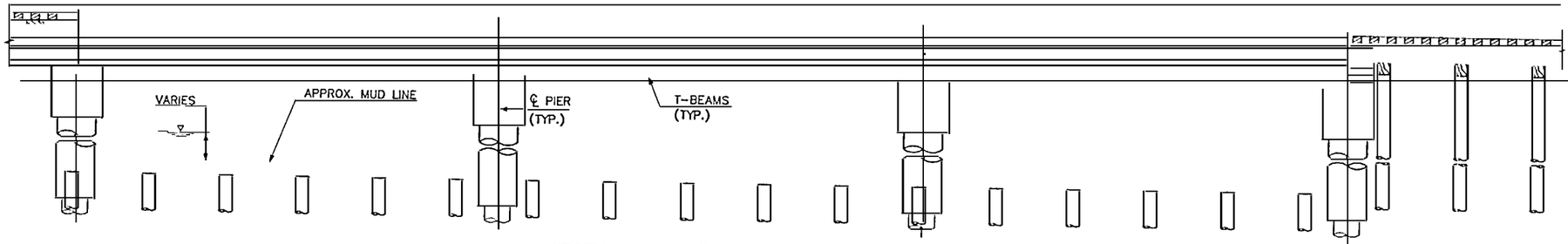
HNTB HNTB NORTH CAROLINA, P.C.
343 E Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J BAYNE DATE 2/98
CHECKED BY N. GREENLEE DATE 3/98
DWG. NO. 9

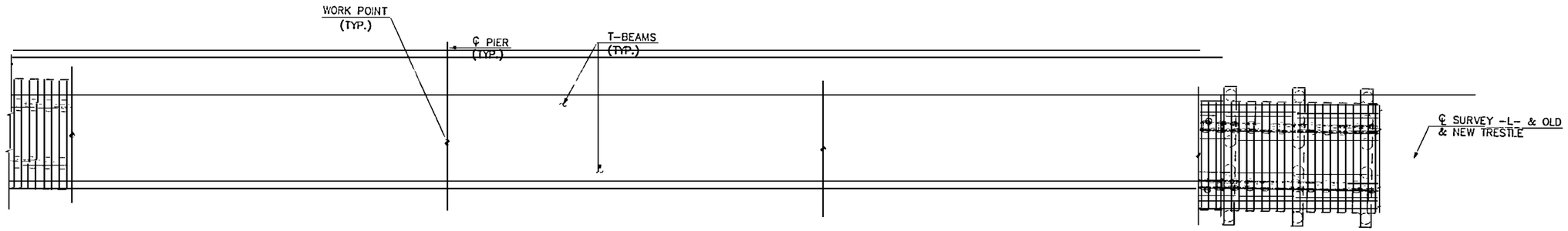
AS-BUILT PLANS

CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 9
TOTAL SHEETS 43
DISTRIBUTION No. 1



SECTION ALONG ℄ SURVEY -L-

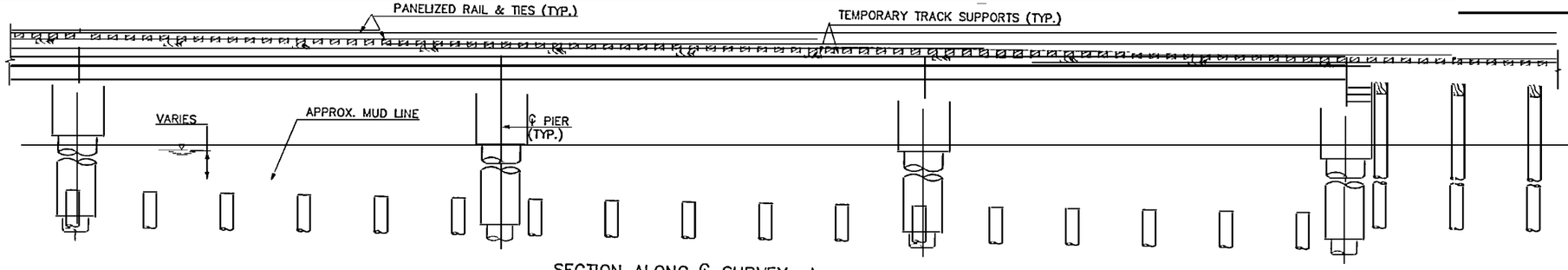


PLAN

STAGE 4

SEQUENCE OF CONSTRUCTION – STAGE 4

1. PLACE ELASTOMERIC BEARINGS ON PIER CAPS.
2. PLACE PRESTRESSED CONCRETE T-BEAMS ON ELASTOMERIC BEARINGS.
3. INSTALL ANCHORING ASSEMBLIES.



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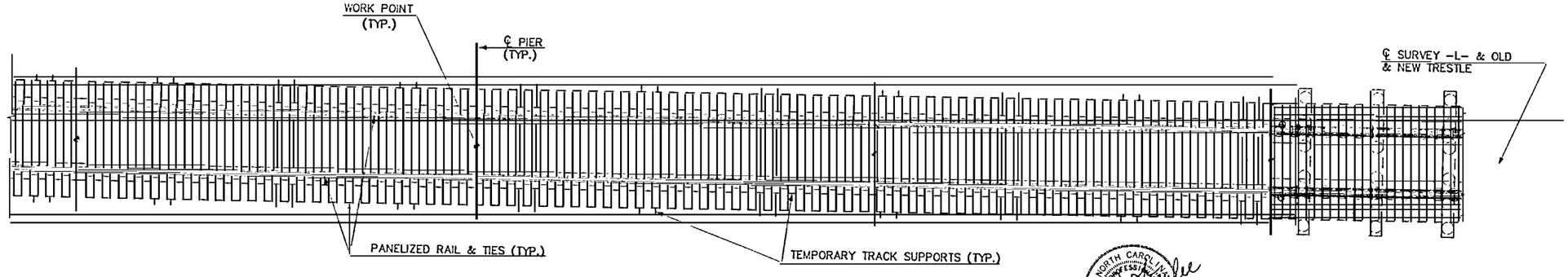


PLAN

STAGE 5

SEQUENCE OF CONSTRUCTION – STAGE 5

1. PLACE TEMPORARY TRACK SUPPORTS IN BALLAST PAN.
2. SET PREVIOUSLY REMOVED "PANELIZED" TRACK ON TEMPORARY SUPPORTS, ALIGN AND SHIM TO GRADE.
3. RECONNECT RAILS WITH BOLTED RAIL SPLICES.
4. OPEN BRIDGE TO TRAFFIC.

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SEQUENCE OF CONSTRUCTION

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

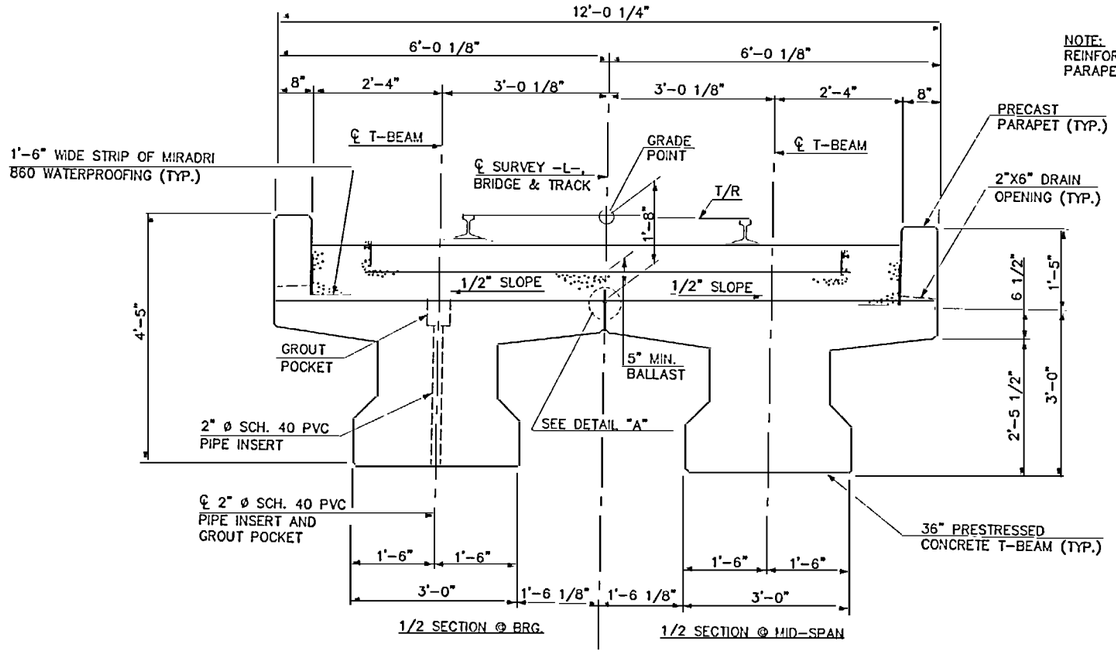
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BATNE DATE 2/98
CHECKED BY N. GREENLEE DATE 3/98
DWG. NO. 10

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 10
TOTAL SHEETS 43
DISTRIBUTION No. 1

NAME P:\2783A\DWGS\As Built Dwgs\B345SEQ3.DWG DATE MAR 2, 2000



NOTE:
REINFORCING STEEL IN THE PARAPETS IS EPOXY COATED.

TYPICAL SECTION
(SPANS 2 – 16, 19 – 71)

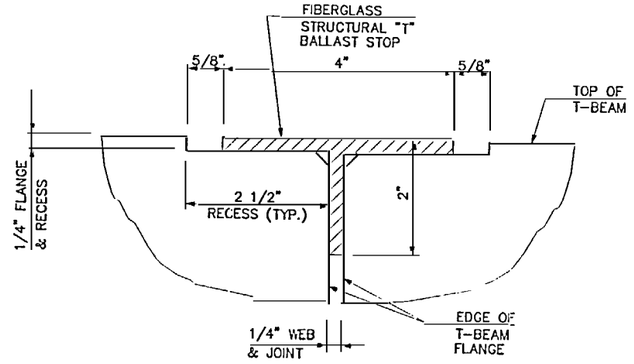
NOTES:

ALL HORIZONTAL DIMENSIONS ARE SHOWN NORMAL TO ℄ SURVEY -L-.

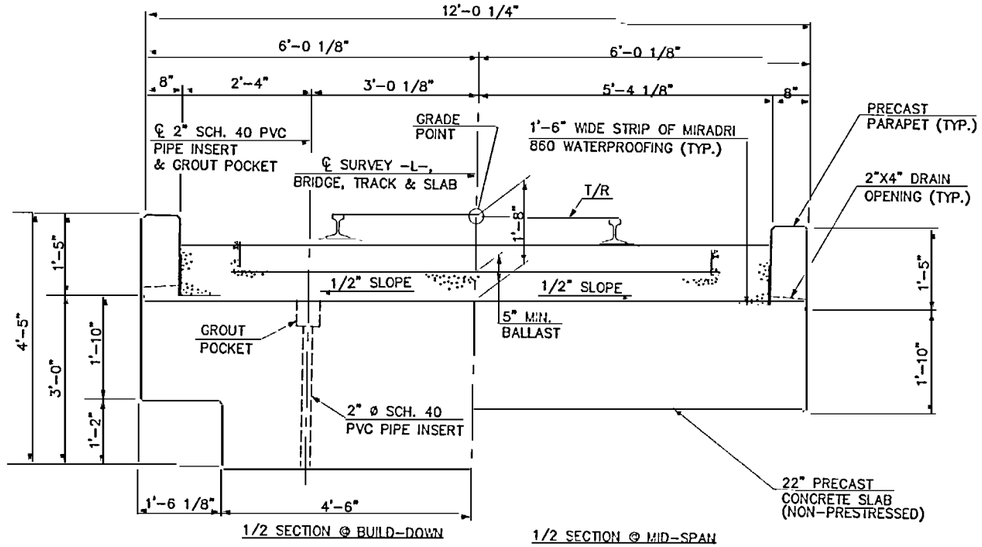
FOR T-BEAM DETAILS, SEE "36" PRESTRESSED CONCRETE T-BEAM" SHEET.

FOR SLAB DETAILS, SEE "22" PRECAST CONCRETE SLAB" SHEET.

FOR CONSTRUCTION SEQUENCE, SEE "SEQUENCE OF CONSTRUCTION" SHEET.



DETAIL "A"



NOTE:
ALL REINFORCING STEEL IN THE SLAB AND PARAPETS IS EPOXY COATED.

TYPICAL SECTION
(SPANS 1, 17, 18, 72)

NOTE: 2"x4" DRAIN OPENINGS IN PARAPETS WERE COVERED WITH GALVANIZED STEEL SCREEN AND MIRAFI 140N GEOTEXTILE TO PREVENT LOSS OF BALLAST THROUGH THE OPENINGS.

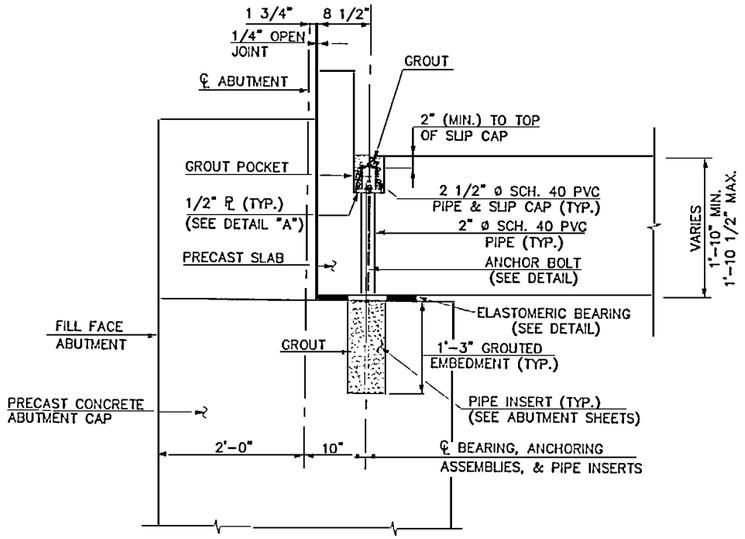
PROJECT NO. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTIONS

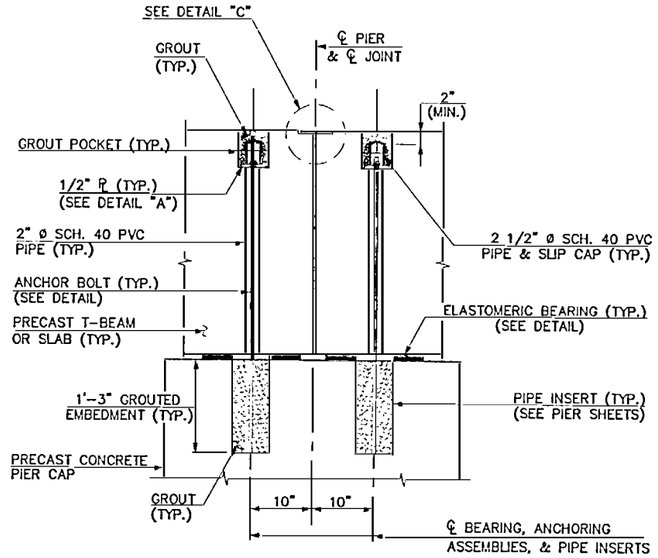
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609
DRAWN BY J. HAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 3/98
DWG. NO. 11

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00
SHEET NO. 11
TOTAL SHEETS 43
DISTRIBUTION No. 1

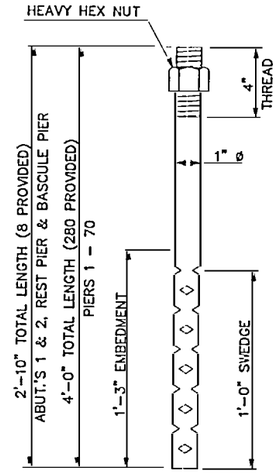
NAME P:\27834\DWGS\As Built Dwgs\834TSECD.DWG DATE MAR 2, 2000



SECTION @ ABUTMENTS
(ABUT. 1 SHOWN, ABUT. 2 SIMILAR)



SECTION @ PIERS 1 – 70



ANCHOR BOLT DETAIL
(ASTM F-1554GR55S1, F_y = 64.8 ksi)

NOTES:

FOR ADDITIONAL DETAILS AND INFORMATION RELATED TO ANCHORING ASSEMBLIES, SEE T-BEAM, SLAB AND PIER SHEETS.

FOR SEQUENCE OF CONSTRUCTION, SEE "SEQUENCE OF CONSTRUCTION" SHEETS.

FOR DETAILS OF GROUT POCKETS AND 2" ø SCH. 40 PVC PIPES IN T-BEAMS AND SLABS, SEE T-BEAM AND SLAB SHEETS.

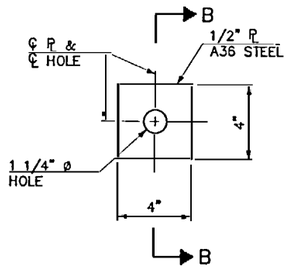
GROUT USED IN ANCHORING ASSEMBLIES WAS NON-SHRINK, NON-METALLIC, PORTLAND CEMENT GROUT CAPABLE OF ATTAINING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,500 PSI AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

FOR DETAILS OF PIPE INSERTS IN PRECAST CONCRETE PIER CAPS, SEE PIER SHEETS.

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FIBERGLASS SHIMS USED AT REST PIER. SEE "REST PIER DETAILS", SHEET 1 OF 2.



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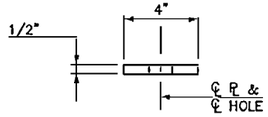
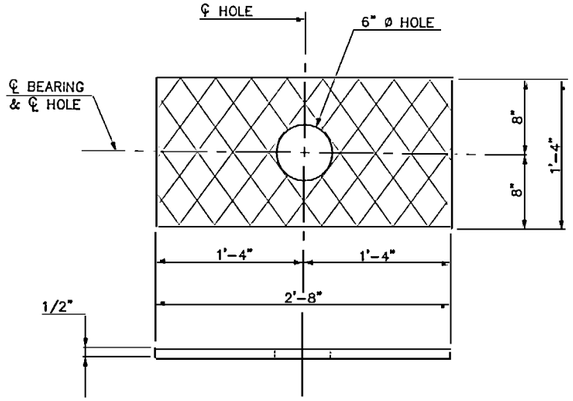
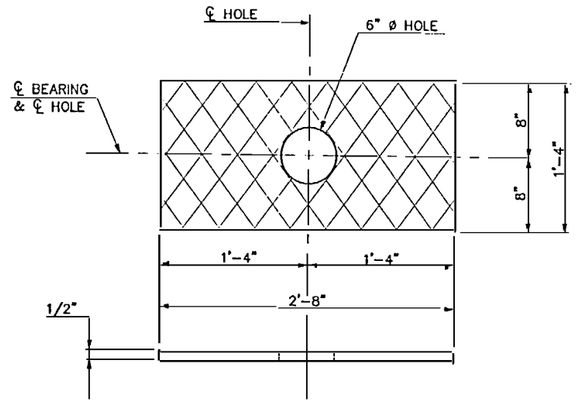


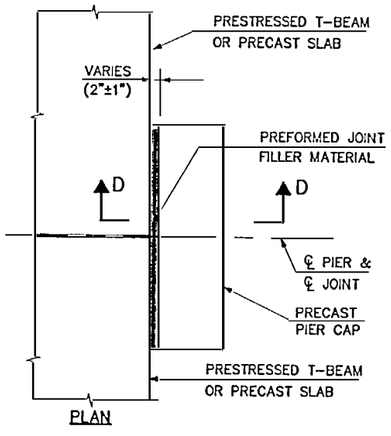
SECTION B-B

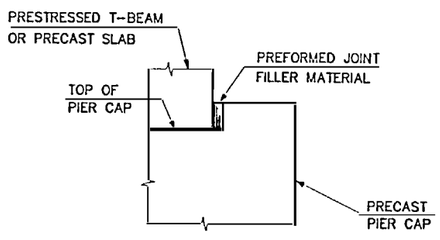


FIBERGLASS SHIM DETAIL
(2 PROVIDED)

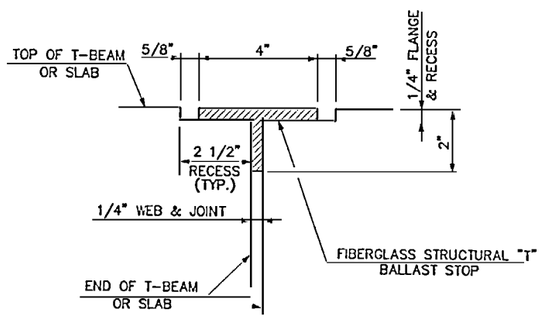


ELASTOMERIC BEARING DETAIL
(145 PROVIDED)





T-BEAM/PIER CAP JOINT FILLER DETAILS
(TYPICAL PIERS 1-70)



DETAIL "C"

PROJECT No. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

SUPERSTRUCTURE DETAILS

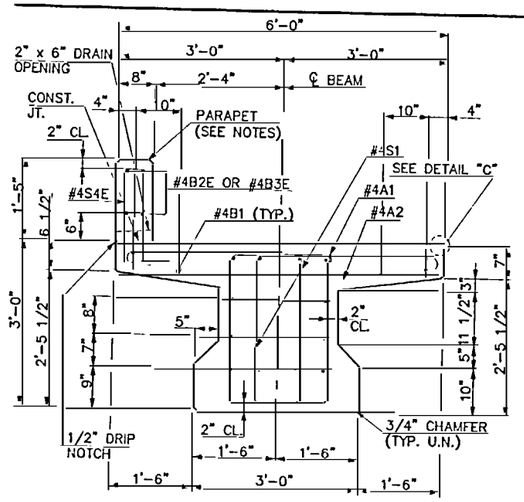
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

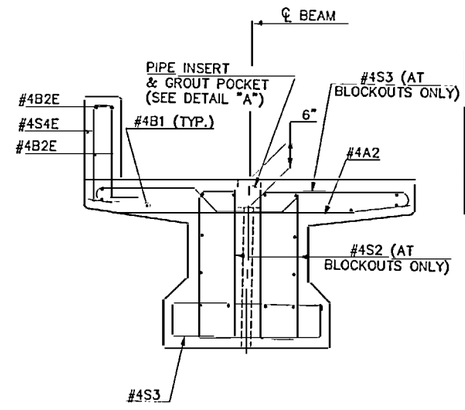
DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 3/98
DWG. NO. 12
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 12
TOTAL SHEETS 43
DISTRIBUTION No. 1

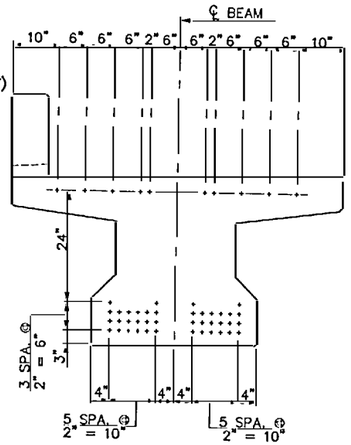
NAME P:\27834\DWGS\As Built Dwgs\B345DET.DWG DWG DATE: MAR 2, 2000



TYPICAL DIMENSIONS AND REINFORCING

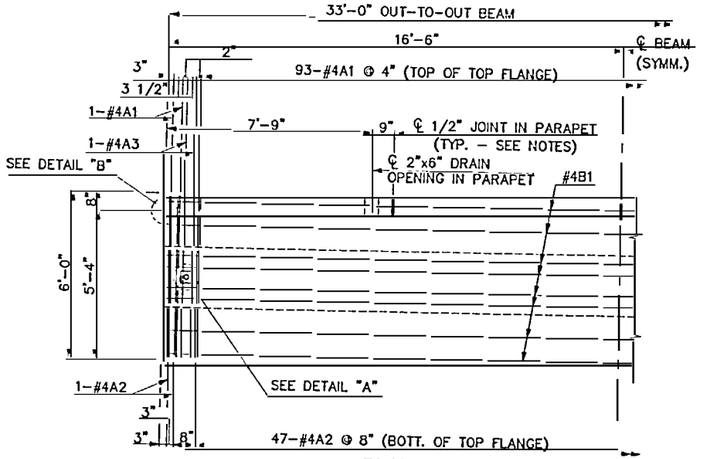


END REINFORCING AND DETAILS



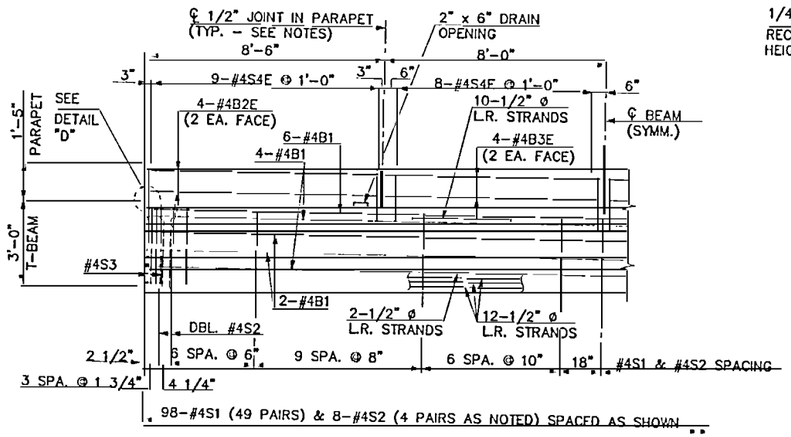
STRAND LOCATIONS
("+" DENOTES STRAND, 50 TOTAL)

SECTIONS



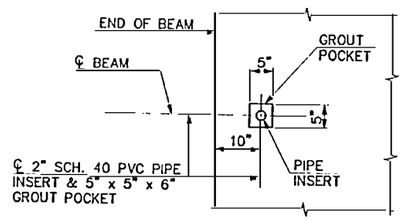
PLAN

(PARAPET BARS, STIRRUP BARS, & 1/2" ø L.R. STRANDS NOT SHOWN)

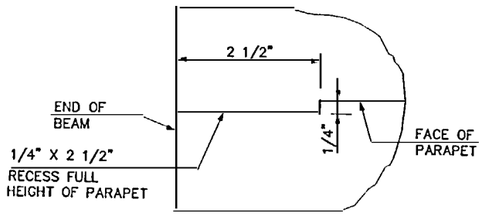


ELEVATION

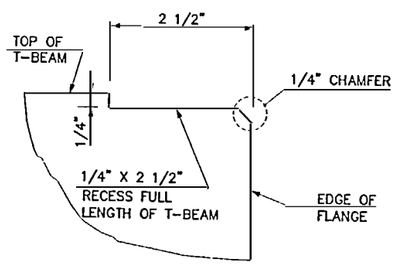
("A" BARS NOT SHOWN)



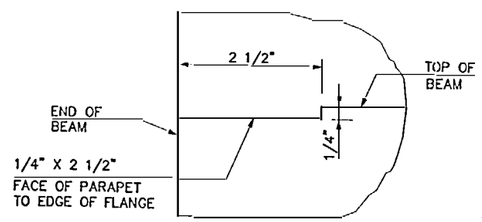
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

DESIGN LOADING: E-80 WITH 33.0% IMPACT FOR BALLAST DECK
MAX. ℄ TRACK ECCENTRICITY - E = ±3"
DESIGN SPEED - V_D = 25 M.P.H.
OPERATING SPEED - V_O = 10 M.P.H.

MATERIAL AND WORKMANSHIP CONFORMS TO 1996 A.R.E.A. SPECIFICATIONS, NCDOT STD. SPECIFICATIONS FOR PRECAST, PRESTRESSED CONCRETE PRODUCTS, AND THE SPECIAL PROVISIONS.

CONCRETE:
f'_c = 5,500 P.S.I. @ 28 DAYS
f'_{ci} = 4,400 P.S.I. @ TRANSFER OF PRESTRESSING FORCE
CONCRETE AIR ENTRAINED PER THE STANDARD SPECIFICATIONS.
CONCRETE VIBRATED INTERNALLY DURING PLACEMENT TO PROVIDE THOROUGH CONSOLIDATION AND COMPACTION.
DISPLACEMENT OF EMBEDDED ITEMS AVOIDED.

REINFORCING STEEL:
PRESTRESSING STRANDS: 1/2" ø 7 WIRE UNCOATED LOW RELAXATION, WITH MINIMUM f_{pu} = 270,000 P.S.I., MEETING REQUIREMENTS OF ASTM A-416 & SUPPLEMENT 1.

INITIAL PRESTRESSING: 0.75(As)f_{pu} = 31,000 LBS. PER STRAND.

NON-PRESTRESSED REINFORCEMENT MEETS THE REQUIREMENTS OF ASTM A-615, GRADE 60.

SUFFIX "E" DENOTES EPOXY COATED REINFORCING.

ALL REINFORCEMENT HAS A MINIMUM COVER OF 2" UNLESS NOTED OTHERWISE.

ALL BAR BENDING AND STANDARD HOOK DIMENSIONS ARE IN ACCORDANCE WITH "MANUAL OF STANDARD PRACTICE" AS PUBLISHED BY THE CONCRETE REINFORCING STEEL INSTITUTE UNLESS OTHERWISE SHOWN OR NOTED.

FOR MAINTENANCE PURPOSES, LIFTING SLINGS MUST NOT BE PLACED MORE THAN 3'-0" FROM ENDS OF GIRDER.

EPOXY PROTECTIVE COATING APPLIED TO BOTH ENDS OF BEAM. SEE SPECIAL PROVISIONS.

TOP SURFACE OF THE BEAM CONSTRUCTED TO THE DIMENSIONS SHOWN ON THIS SHEET AND FINISHED SMOOTH WITH A WOOD OR HARD RUBBER SCREED.

1/2" JOINTS IN PARAPET SHALL BE COMPLETELY FILLED WITH ASPHALT IMPREGNATED CANE FIBER CONFORMING TO AASHTO M213.

PARAPET IS CLASS AA CONCRETE PER THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS AND WAS CAST AFTER RELEASE OF PRESTRESS. FORM REMOVAL CONFORMED TO ARTICLE 420-17 OF THE STANDARD SPECIFICATIONS EXCEPT THAT MINIMUM WAIT TIME WAS 24 HOURS AFTER CASTING OF CONCRETE. T-BEAMS WERE NOT MOVED OR DISTURBED BETWEEN CASTING OF PARAPETS AND FORM REMOVAL.

HOOKS ON #4A1 BARS ORIENTED AS NECESSARY TO MEET THE MINIMUM COVER REQUIREMENTS.

FOR 36" PRESTRESSED CONCRETE T-BEAMS, SEE SPECIAL PROVISIONS.

FOR PORTLAND CEMENT, SEE SPECIAL PROVISIONS.

FOR FINE AND COURSE AGGREGATE, SEE SPECIAL PROVISIONS.

1/2" ø L.R. GRADE 270 STRANDS

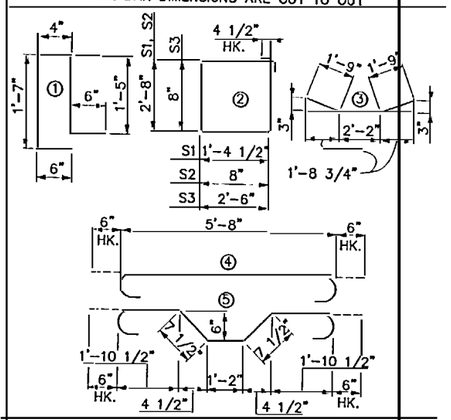
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	31,000

REINFORCING STEEL FOR ONE BEAM

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LB.)
A1	97	#4	4	6'-8"	432
A2	51	#4	3	5'-8"	193
A3	4	#4	5	7'-2"	19
B1	18	#4	STR.	32'-8"	393
B2E	8	#4	STR.	8'-1"	43
B3E	8	#4	STR.	7'-7"	41
S1	98	#4	2	8'-10"	578
S2	8	#4	2	7'-5"	40
S3	4	#4	2	7'-1"	19
S4E	34	#4	1	4'-4"	98

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT



QUANTITIES FOR ONE BEAM

BEAMS	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL	5,500 PSI CONCRETE	CLASS AA CONCRETE (PARAPET)	1/2" ø L.R. STRANDS
	LB.	LB.	C.Y.	C.Y.	No.
ALL	1674	182	12.3	1.2	50

BEAMS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
136	33'-0"	4,488'-0"

PROJECT No. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

36" PRESTRESSED CONCRETE T-BEAM (SPANS 2-16, 19-71)

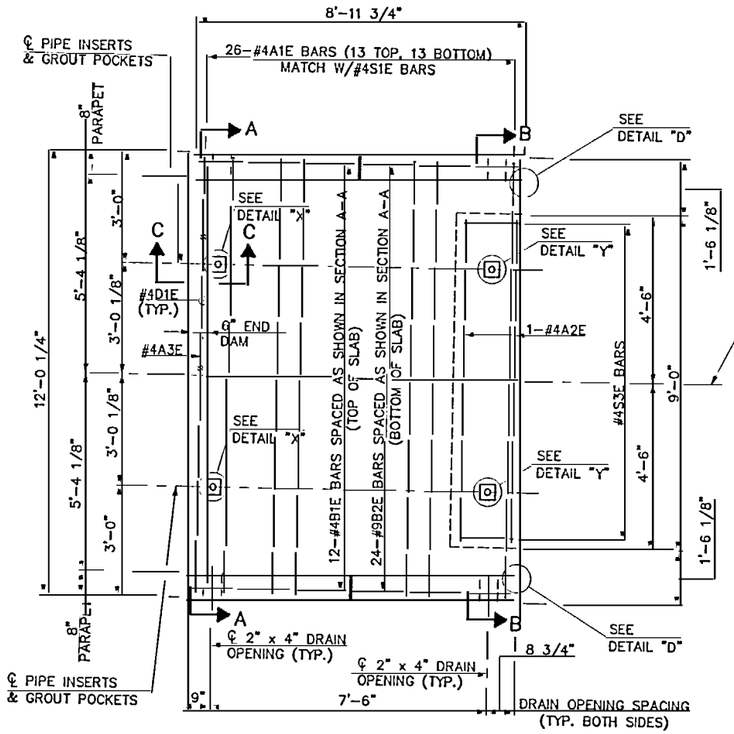
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 2/98
DWG. NO. 13

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

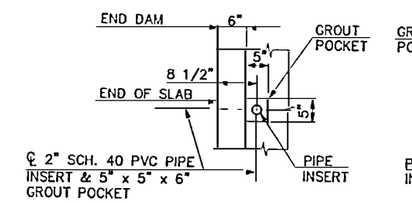
SHEET NO. 13
TOTAL SHEETS 43
DISTRIBUTION No. 1

NAME P:\2783A\DWGS\As Built Dwgs\834TBEAM.DWG DATE: MAR 2, 2000

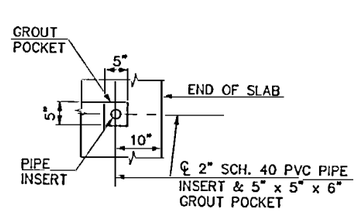


PLAN

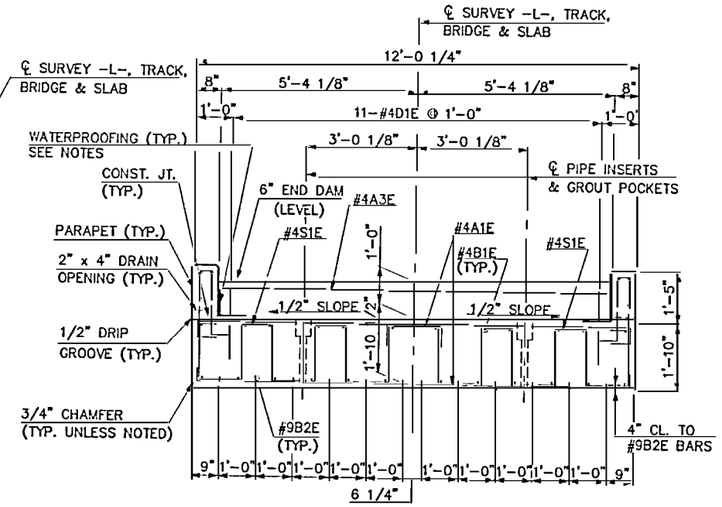
NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.



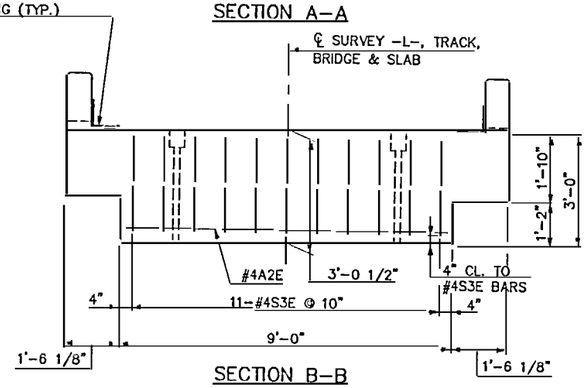
DETAIL "X"



DETAIL "Y"

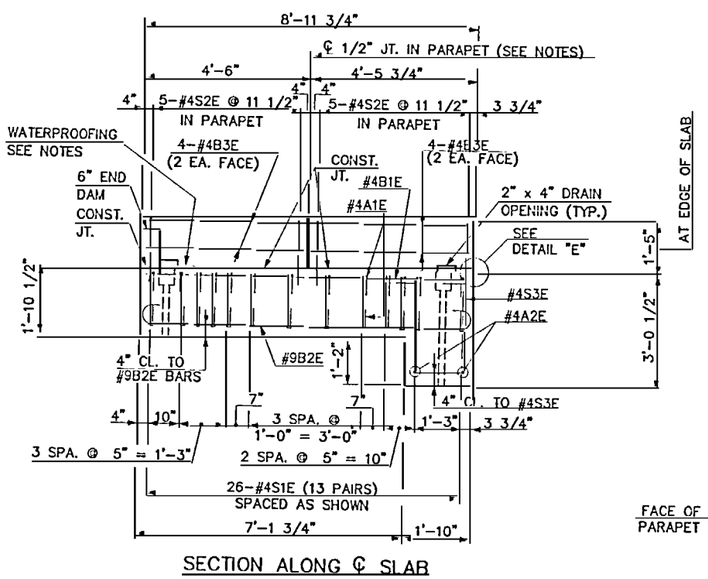


SECTION A-A

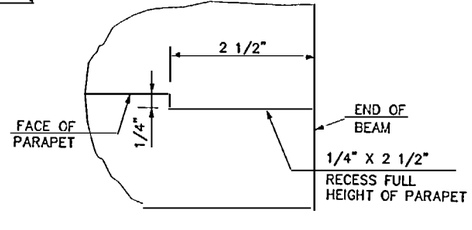


SECTION B-B

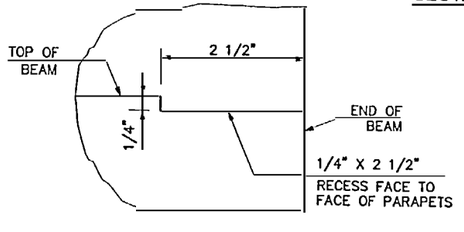
(SEE SECTION A-A FOR ADDITIONAL DETAILS AND REINFORCING)



SECTION ALONG ℄ SLAB



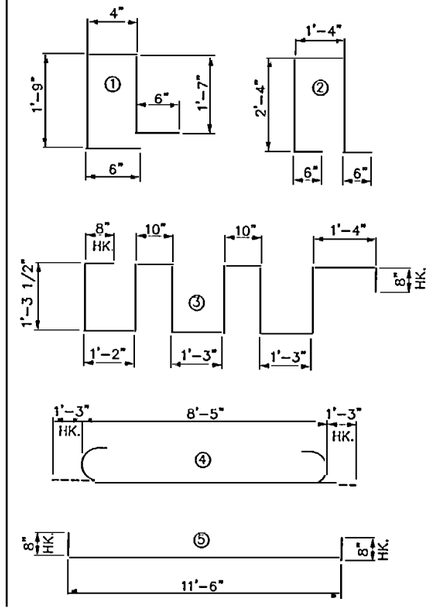
DETAIL "D"



DETAIL "E"

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

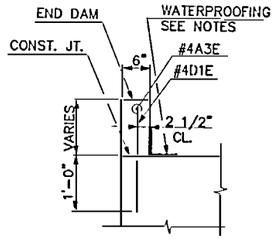


BILL OF MATERIAL

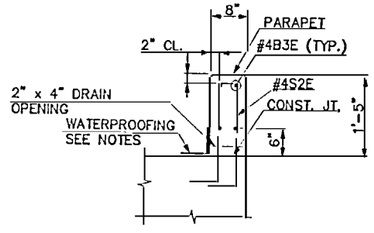
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS)
REINFORCING FOR 1 PRECAST CONC. SLAB UNIT (4 REQ'D)					
A1E	26	#4	5	12'-10"	223
A2E	2	#4	STR.	8'-6"	11
A3E	1	#4	STR.	10'-2"	7
B1E	12	#4	STR.	8'-5"	67
B2E	24	#9	4	10'-11"	891
B3E	16	#4	STR.	3'-11"	42
D1E	11	#4	STR.	1'-9"	13
S1E	26	#4	3	15'-9"	274
S2E	20	#4	1	4'-8"	62
S3E	11	#4	2	7'-0"	51

QUANTITIES

EPOXY COATED REINFORCING STEEL		LBS.	1,641
CLASS AA CONCRETE :	SLAB	C.Y.	8.1
	PARAPETS	C.Y.	0.6
	END DAM	C.Y.	0.2
	TOTAL	C.Y.	8.9



SECTION C-C



SECTION THRU PARAPET

NOTES:

ALL REINFORCING STEEL IS EPOXY COATED.

1/2" JOINTS IN PARAPETS COMPLETELY FILLED WITH ASPHALT IMPREGNATED CANE FIBER CONFORMING TO AASHTO M213.

FOR PRECAST CONCRETE UNITS (NON-PRESTRESSED), SEE SPECIAL PROVISIONS.

FOR PORTLAND CEMENT, SEE SPECIAL PROVISIONS.

FOR FINE AND COARSE AGGREGATE, SEE SPECIAL PROVISIONS.

WATERPROOFING IS 1'-6" WIDE STRIP OF MIRADRI 860 EXTENDING LONGITUDINALLY AT BASE OF PARAPET FROM END DAM TO END OF BEAM, AND TRANSVERSELY AT BASE OF END DAM FROM FACE TO FACE OF PARAPETS.

PROJECT No. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
22" PRECAST CONCRETE SLAB (SPANS 1, 17, 18, 72)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE 4/29/98

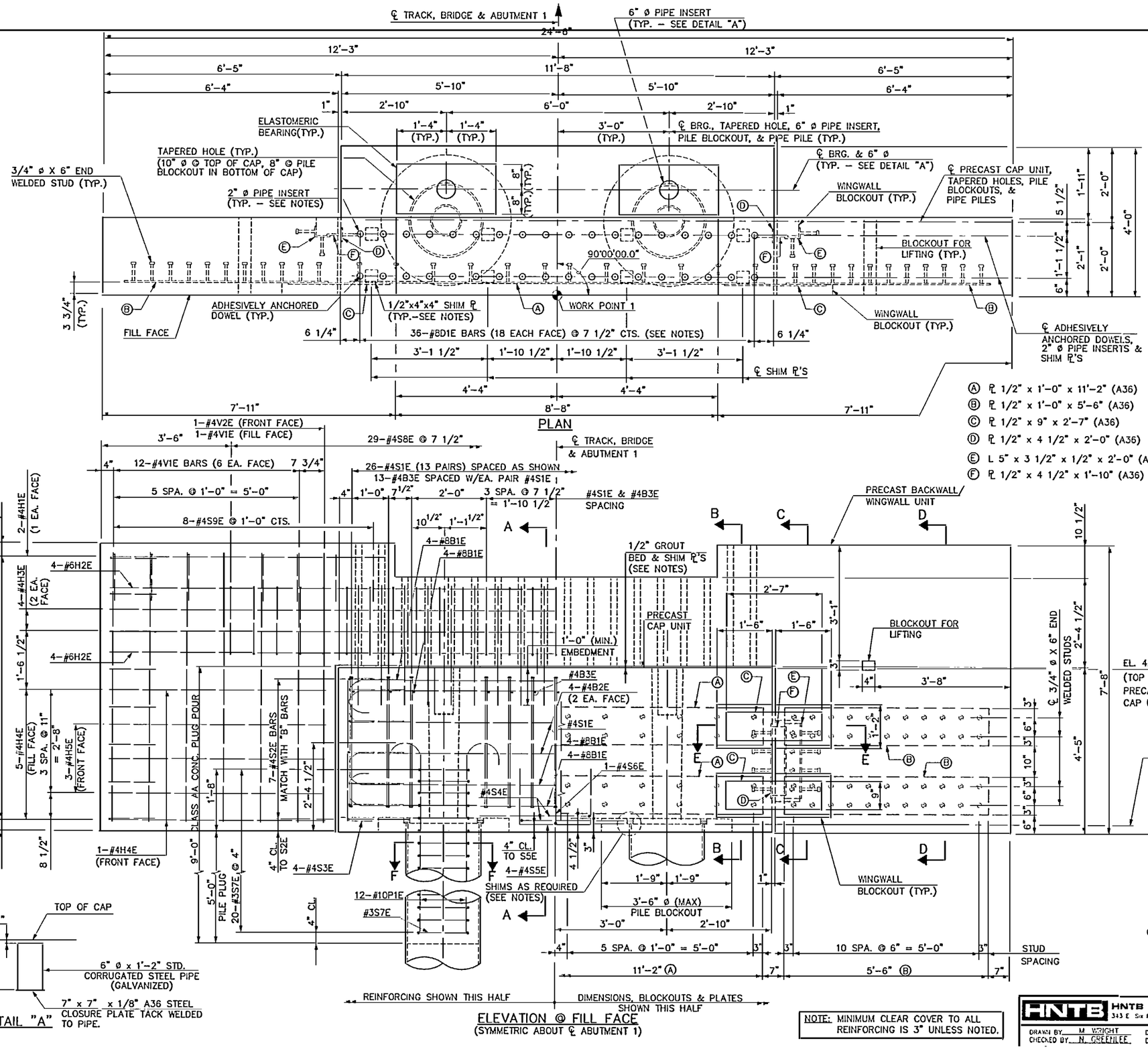
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. HAYNE DATE 4/98
CHECKED BY N. GREENLEE DATE 4/98
DWG. NO. 14

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 14
TOTAL SHEETS 43
DISTRIBUTION No. 1

NAME P:\27834\DWGS\14 Built Dwgs\B34SGEAM.DWG DATE MAR 2, 2000



NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

NOTES:

FOR SECTIONS A–A, B–B, C–C, D–D, E–E AND F–F, SEE SHEET 2 OF 2.

HOOKS ON "P" BARS IN PRECAST CAP UNIT ORIENTED AS NECESSARY FOR PLACING REINFORCING STEEL.

EMBEDDED STRUCTURAL STEEL ANCHOR PLATES AND ANGLES CONFORM TO ASTM A36 AND WERE FABRICATED AND INSTALLED IN THE PRECAST UNITS AS SHOWN ON THE PLANS.

REINFORCING IN PRECAST UNITS MAY HAVE BEEN SHIFTED SLIGHTLY AS NECESSARY TO CLEAR STUDS ON EMBEDDED ANCHOR PLATES AND ANGLES.

CONCRETE IN EACH PILE PLUG WAS CONTINUOUSLY PLACED UNTIL THE PLUG, PILE BLOCKOUT, AND TAPERED HOLE WERE COMPLETELY FILLED WITH CONCRETE. DURING THIS OPERATION, THE CONTRACTOR PROTECTED THE FRESH CONCRETE AGAINST TIDAL WATER INTRUSION. PROTECTIVE MEASURES REMAINED IN PLACE FOR AT LEAST 24 HOURS AFTER PLACEMENT OF THE CONCRETE.

SHIMS ARE A36 STEEL PLATES. MINIMUM 4 EQUALLY SPACED SHIM POINTS PER PILE AND 9 SQ. IN. OF PRECAST CAP BEARING AREA PER SHIM POINT. SEE SHIM DETAIL SHEET 2 OF 2.

ADHESIVELY ANCHORED DOWELS ARE #8 EPOXY COATED BARS AS SHOWN ON THE PLANS CONFORMING TO ASTM A615 GRADE 60, AND INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. THE YIELD LOAD FOR THE DOWELS IS 47.4 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM WAS NOT REQUIRED. SEE SPECIAL PROVISION "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS".

GROUT IS NON–SHRINK, NON–METALLIC, PORTLAND CEMENT GROUT ATTAINING A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 5,500 PSI, INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

FOR ANCHORING ASSEMBLIES AND ELASTOMERIC BEARINGS, SEE "SUPERSTRUCTURE DETAILS" SHEET.

FOR PRECAST CAP UNIT AND PRECAST BACKWALL/WINGWALL UNIT, SEE SPECIAL PROVISION "PRECAST CONCRETE UNITS (NON–PRESTRESSED)".

FOR STEEL PIPE PILES, SEE SPECIAL PROVISIONS.

FOR INSTALLATION OF STEEL PIPE PILES, SEE SPECIAL PROVISION "COMPOSITE PILE INSTALLATION".

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

SEQUENCE OF CONSTRUCTION:

1. EXCAVATE ABUTMENT AREA AND DRIVE PIPE PILES.
2. PLACE PRECAST CAP UNIT ON PIPE PILES AND POUR CONCRETE PLUG.
3. PLACE PRECAST BACKWALL/WINGWALL UNIT ON PRECAST CAP UNIT AND INSTALL ADHESIVELY ANCHORED DOWELS AND WELDED STEEL ANCHOR PLATES. THE CONTRACTOR MAY: 1) PREDRILL HOLES FOR DOWELS IN THE PRECAST CAP UNIT PRIOR TO PLACING THE UNIT, OR 2) DRILL HOLES IN THE PRECAST CAP UNIT AFTER PLACING BOTH UNITS USING THE 2" DIA. GROUT TUBES AS DRILL GUIDES.
4. PLACE GROUT IN BLOCKOUTS. GROUT TUBES AND SPACE BETWEEN PRECAST UNITS. FORMS USED FOR GROUTING SHALL BE FLUSH WITH THE VERTICAL FACES OF THE PRECAST UNITS AND SHALL REMAIN IN PLACE FOR AT LEAST 12 HOURS AFTER GROUT IS PLACED. DAMAGE TO THE PRECAST UNITS RESULTING FROM FORM ATTACHMENT AND/OR REMOVAL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
5. BACKFILL AS REQUIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND PLACE SLOPE PROTECTION IN ACCORDANCE WITH DETAILS SHOWN ON "SLOPE PROTECTION @ ABUTMENT 1" SHEET.
6. PLACE ELASTOMERIC BEARINGS AND 22" PRECAST CONCRETE SLAB UNIT AS SHOWN ON THE PLANS.
7. INSTALL ANCHORING ASSEMBLIES AS SHOWN ON THE PLANS.
8. PLACE BALLAST AND TRACK (i.e. TIES, RAIL AND ASSOCIATED HARDWARE) ON THE SLAB AND ALIGN TRACK TO GRADE.

PROJECT NO. P–3100

CARTERET COUNTY

STATION: POT 10+00.00 –L–

MILE POST EC94.90

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
ABUTMENT 1

NEIL T. GREENLEE SEAL 19315 ENGINEER 9/9/98

HNTB NORTH CAROLINA, P.C.
343 E Six Forks Road, Suite 200, Raleigh, NC 27609

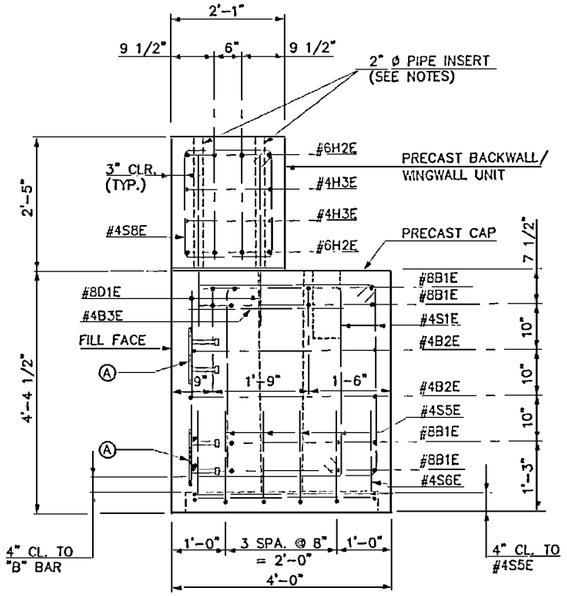
DRAWN BY M WRIGHT DATE 7/98
CHECKED BY N. GREENLEE DATE 7/98
DWG. NO. 15

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

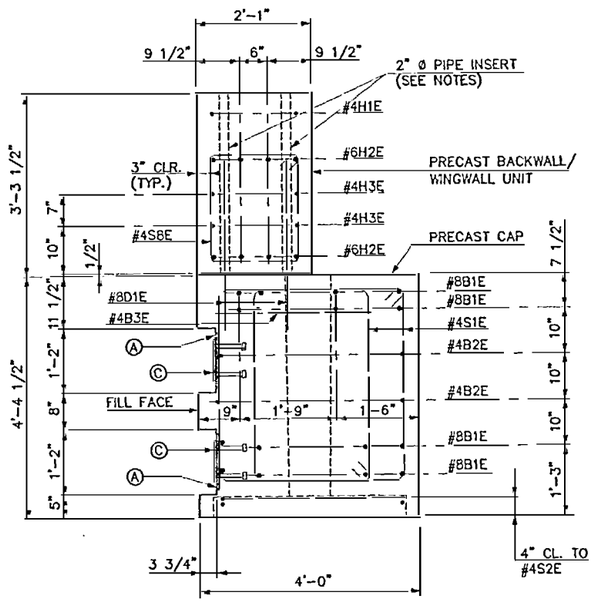
SHEET NO. 15
TOTAL SHEETS 43

DISTRIBUTION No. 5

NAME: P:\2753A\DWGS\834ABTAR.DWG DATE: SEP 09, 1998 TIME: 1:38 PM

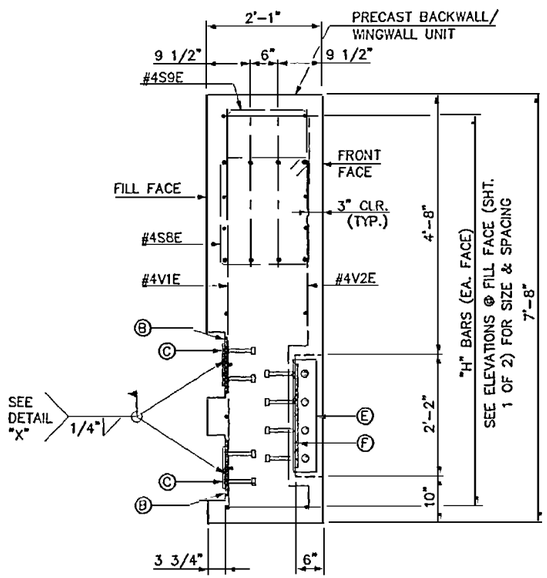


SECTION A–A

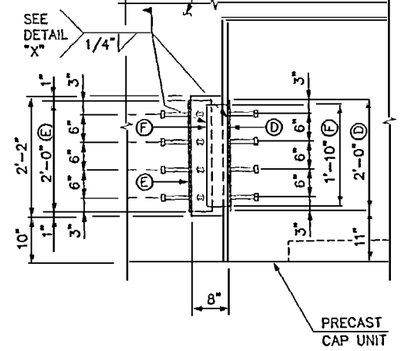


SECTION B–B

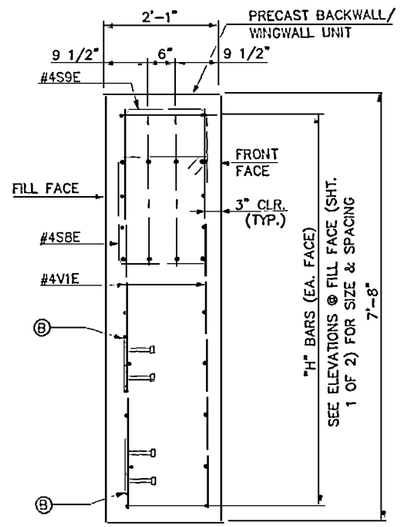
NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.



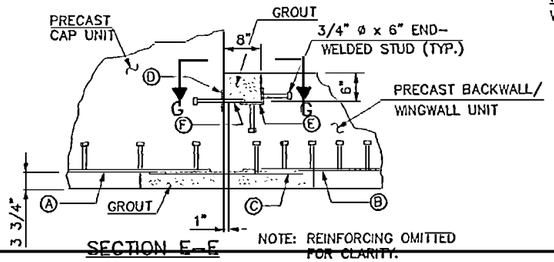
SECTION C–C



SECTION G–G

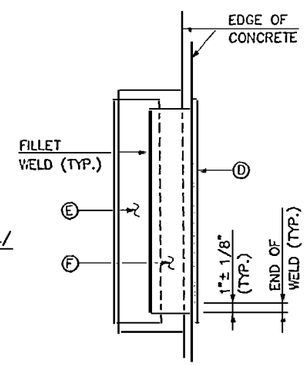


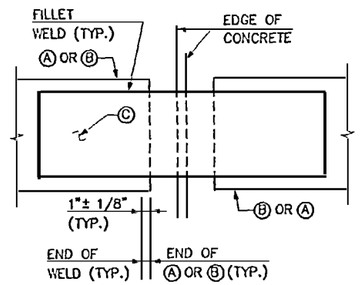
SECTION D–D



SECTION E–E

NOTE: REINFORCING OMITTED FOR CLARITY.

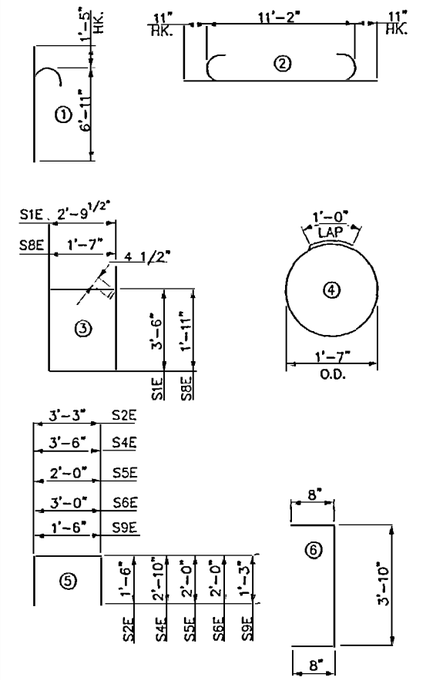




DETAIL "X" (WELD TERMINATIONS)

NOTE: STUDS OMITTED FOR CLARITY.

BAR TYPES



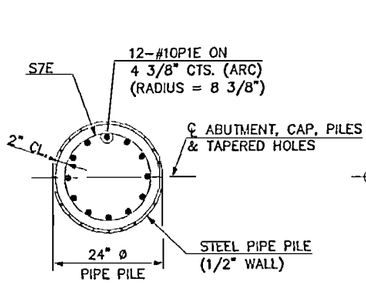
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

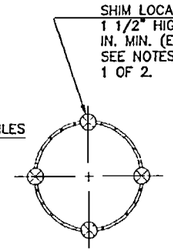
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
REINFORCING FOR 1 PRECAST CAP UNIT					
B1E	16	#8	2	13'–0"	555
B2E	4	#4	STR.	11'–2"	30
B3E	13	#4	STR.	2'–10"	25
S1E	26	#4	3	13'–4"	232
S2E	14	#4	5	6'–3"	58
S3E	8	#4	6	5'–2"	28
S4E	2	#4	5	9'–2"	12
S5E	4	#4	5	6'–0"	16
S6E	1	#4	5	7'–0"	5
S7E	40	#3	4	6'–0"	90
P1E	24	#10	1	8'–4"	861
REINFORCING FOR 1 PRECAST WINGWALL/BACKWALL UNIT					
D1E	36	#8	STR.	3–2"	304
H1E	4	#4	STR.	7'–5"	20
H2E	8	#6	STR.	24'–0"	288
H3E	4	#4	STR.	24'–0"	64
H4E	14	#4	STR.	5'–10"	55
H5E	6	#4	STR.	4'–4"	17
V1E	26	#4	STR.	7'–2"	124
V2E	2	#4	7	7'–10"	10
S8E	29	#4	3	7'–9"	150
S9E	32	#4	5	4'–0"	86

QUANTITIES

EPOXY COATED REINF. STEEL		
PRECAST CAP UNIT	LBS.	1,912
PRECAST WINGWALL/BACKWALL UNIT	LBS.	1,118
TOTAL	LBS.	3,030
GROUT	C.F.	10.8
CLASS AA CONCRETE:		
PRECAST CAP UNIT	C.Y.	7.1
PRECAST WINGWALL/BACKWALL UNIT	C.Y.	9.7
CAST–IN–PLACE	C.Y.	1.5
TOTAL	C.Y.	18.3
STEEL PIPE PILES	NO.	2
	L.F.	140



SECTION F–F



SHIM DETAIL (@ TOP OF PILE)

NOTES:

ALL REINFORCING IN PRECAST UNITS IS EPOXY COATED.

FOR Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, AND Ⓕ, SEE SHEET 1 OF 2

PROJECT NO. P–3100

CARTERET COUNTY

STATION: POT 10+00.00 –L–

MILE POST EC94.90

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
ABUTMENT 1

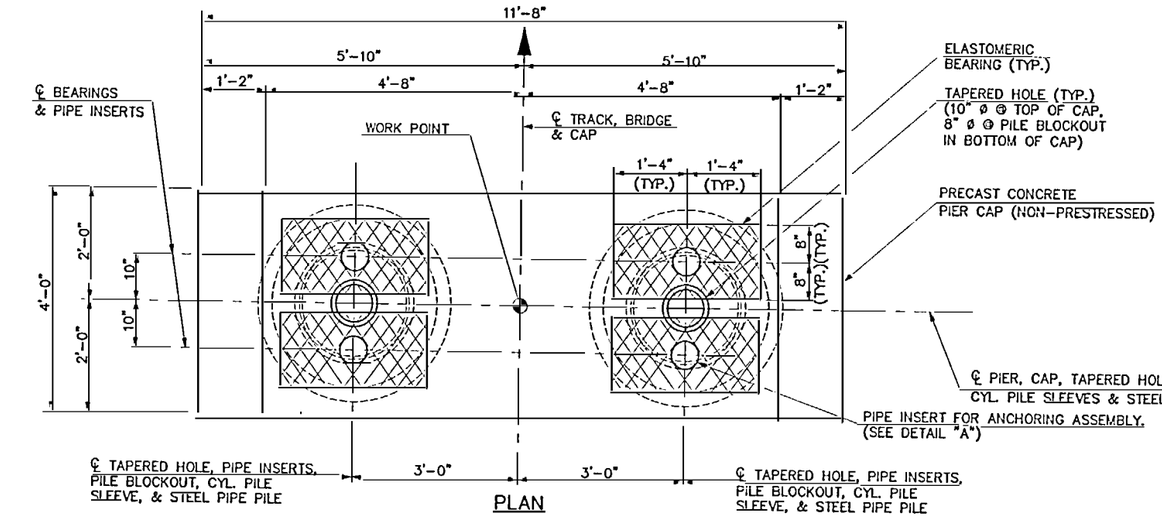
NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE 4/17/98

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

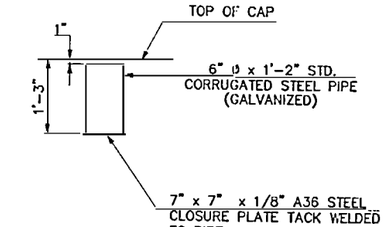
AS-BUILT PLANS

DRAWN BY M. WRIGHT DATE 7/98
CHECKED BY N. GREENLEE DATE 7/98
DWG. NO. 16
CERTIFIED BY: NTG DATE: 3/00
SHEET NO. 16
TOTAL SHEETS 43
DISTRIBUTION No. 5

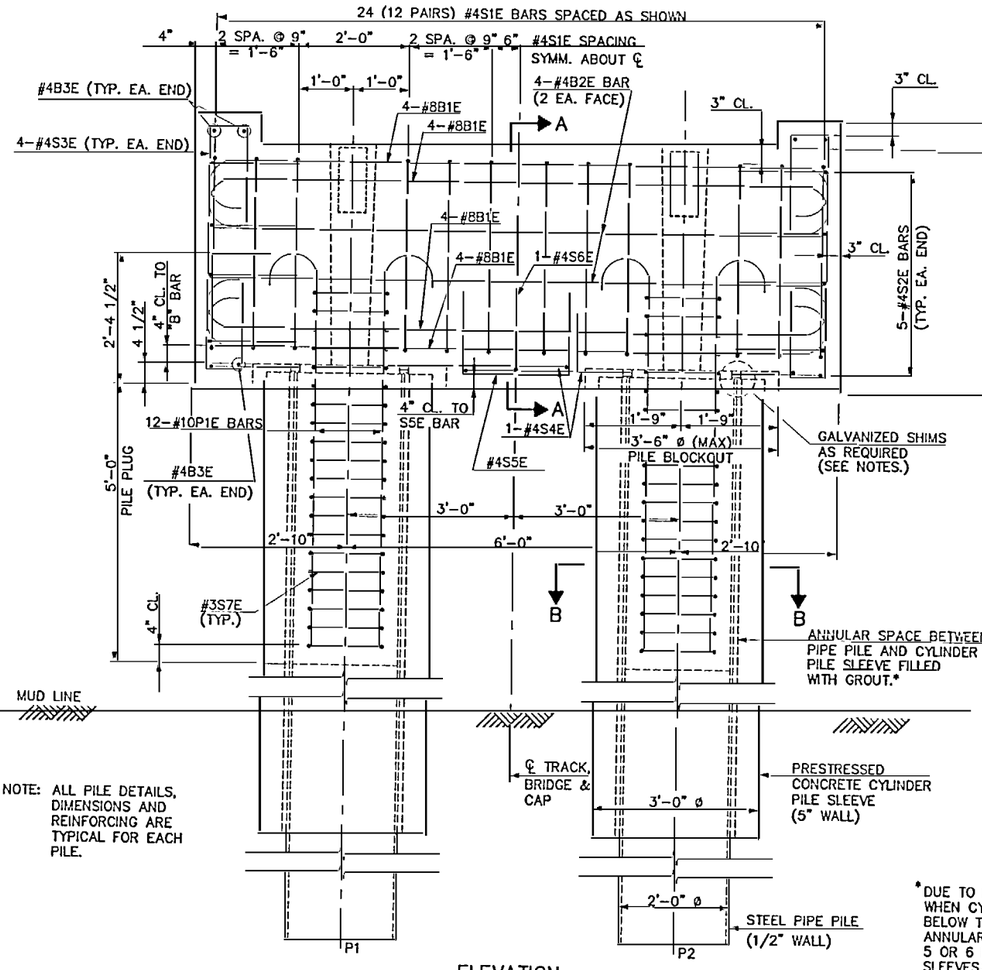
NAME: P:\27834\DWGS\As Built Dwgs\834BIB.DWG DATE: FEB 25, 2000



PLAN



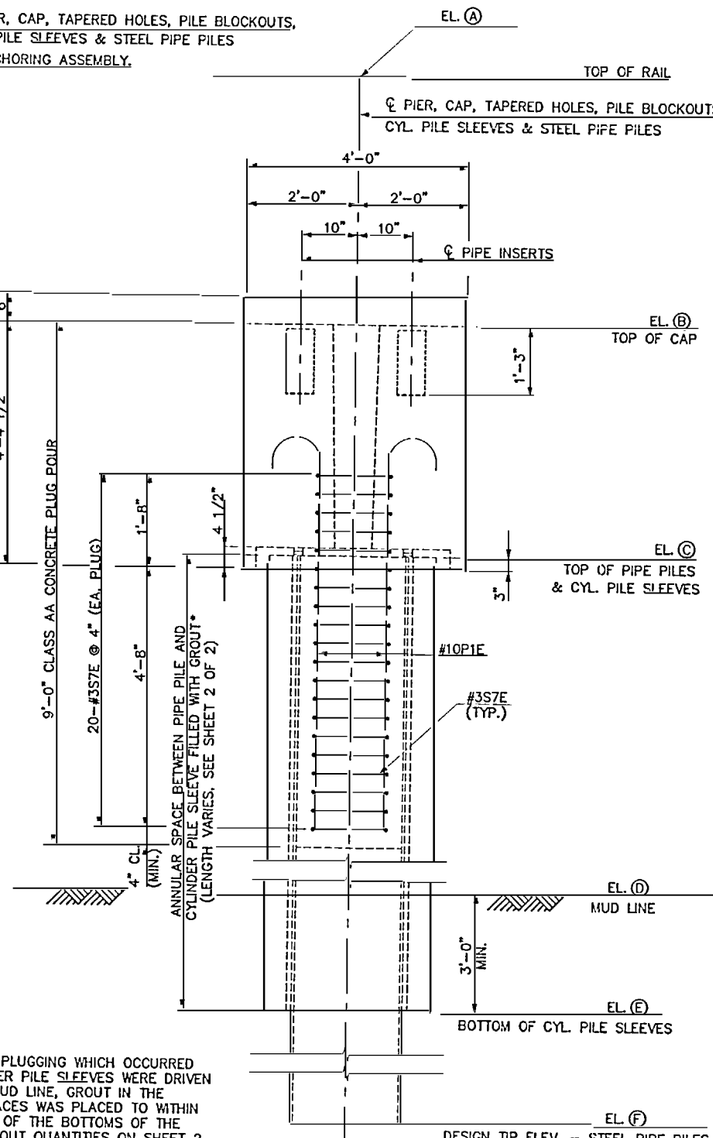
DETAIL "A"



ELEVATION
(LOOKING UPSTATION)

NOTE: ALL PILE DETAILS, DIMENSIONS AND REINFORCING ARE TYPICAL FOR EACH PILE.

*DUE TO MUD PLUGGING WHICH OCCURRED WHEN CYLINDER PILE SLEEVES WERE DRIVEN BELOW THE MUD LINE, GROUT IN THE ANNULAR SPACES WAS PLACED TO WITHIN 5 OR 6 FEET OF THE BOTTOMS OF THE SLEEVES. GROUT QUANTITIES ON SHEET 2 OF 2 HAVE BEEN ADJUSTED ACCORDINGLY.



END VIEW

NOTES:

FOR ADDITIONAL INFORMATION RELATED TO ANCHORING ASSEMBLIES, SEE "SUPERSTRUCTURE DETAILS" SHEET.

HOOKS ON "P" BARS ORIENTED AS NECESSARY FOR PLACING REINFORCING STEEL

FOR SECTIONS A-A , B-B AND TYPICAL END VIEW, SEE SHEET 2 OF 2.

FOR CYLINDER PILE SLEEVE DETAILS, SEE "PRE-STRESSED CONCRETE CYLINDER PILE SLEEVE" SHEET.

SHIMS ARE A36 STEEL PLATES GALVANIZED PER THE STANDARD SPECIFICATIONS. MINIMUM 4 EQUALLY SPACED SHIM POINTS PER PILE AND 9 SQ. IN. OF BEARING AREA PER SHIM POINT. SEE SHIM DETAIL ON SHEET 2 OF 2.

GROUT IN ANNULAR SPACE BETWEEN CYLINDER PILE SLEEVES AND PIPE PILES IS NON-SHRINK, NON-METALLIC, PORTLAND CEMENT GROUT ATTAINING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,500 PSI AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

CONCRETE IN EACH PILE PLUG WAS CONTINUOUSLY PLACED UNTIL THE PLUG, PILE BLOCKOUT, AND TAPERED HOLE WERE COMPLETELY FILLED WITH CONCRETE. PRIOR TO THIS OPERATION, THE CONTRACTOR SEALED THE PILE BLOCKOUT FORMS AGAINST POTENTIAL WATER INTRUSION DURING HIGH TIDE. FORMS REMAINED IN PLACE FOR AT LEAST 24 HOURS AFTER PLACEMENT OF THE CONCRETE. IMMEDIATELY AFTER FORM REMOVAL, THE BLOCKOUT CONCRETE WAS INSPECTED AND ANY POCKETS, DEPRESSIONS, HONEYCOMBS OR OTHER DEFECTS WERE REPAIRED AS APPROVED BY THE ENGINEER.

FOR SEQUENCE OF CONSTRUCTION, SEE "SEQUENCE OF CONSTRUCTION" SHEETS.

FOR PRECAST CONCRETE PIER CAP, SEE SPECIAL PROVISION "PRECAST CONCRETE UNITS (NON-PRESTRESSED)".

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE CYLINDER PILE SLEEVES, SEE SPECIAL PROVISIONS.

FOR INSTALLATION OF CYLINDER PILE SLEEVES, SEE SPECIAL PROVISIONS.

FOR STEEL PIPE PILES, SEE SPECIAL PROVISIONS.

FOR INSTALLATION OF STEEL PIPE PILES, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
PIERS 1 - 70

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 7/98
DWG. NO. 17

AS-BUILT PLANS

CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 17
TOTAL SHEETS 43

DISTRIBUTION No. 1

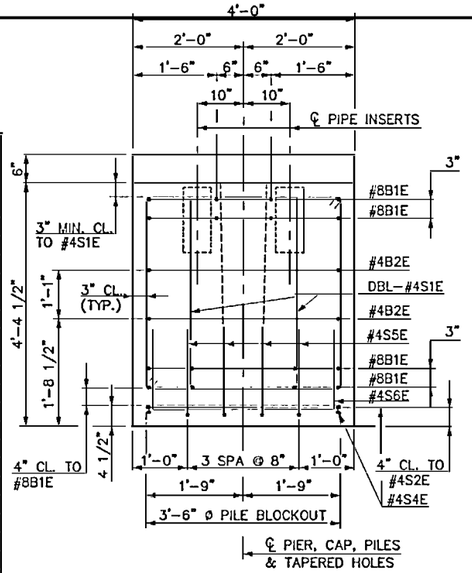
NAME P:\27834\DWGS\As Built Dwgs\B34787TA.DWG DWG DATE MAR 8, 2000

* CYLINDER PILE SLEEVES AT PIERS 1-4 AND PIERS 64-70 NOT PRESTRESSED. SEE "PRESTRESSED CONCRETE CYLINDER PILE SLEEVE" SHEET AND SPECIAL PROVISION "PRESTRESSED CONCRETE CYLINDER PILE SLEEVES".

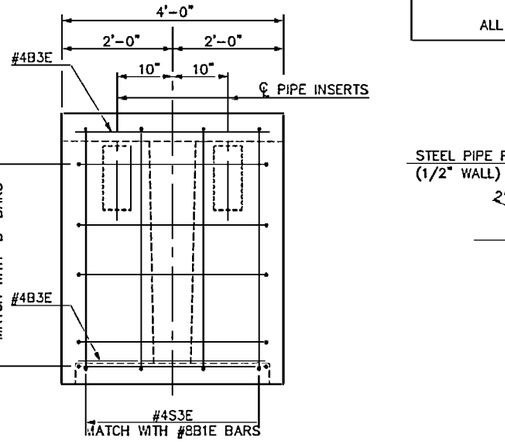
** QUANTITIES SHOWN ARE TOTAL LINEAR FOOTAGE AT EACH PIER.

NOTE: PIPE PILE DESIGNATED "P1" IS ON THE LEFT LOOKING UPSTATION.

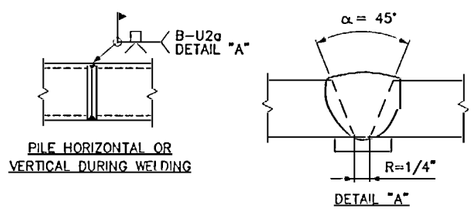
PIER NO.	WORK POINT	-L- STATION	ELEVATIONS (FT.) Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ P1	Ⓕ P2	PRESTRESSED CONCRETE CYLINDER PILE SLEEVES NO.	** L.F.	STEEL PIPE PILES NO.	** L.F.	GROUT C.F.
*1	2	15+25.677	8.279	3.530	-0.600	1.000	-4.600	-70.6	-70.6	2	8	2	140.0	5.4
*2	3	15+58.698	8.307	3.590	-0.600	-0.600	-4.600	-75.6	-75.6	2	8	2	150.0	5.4
*3	4	15+91.719	8.370	3.645	-0.500	-5.500	-8.500	-74.5	-74.5	2	16	2	148.0	9.7
*4	5	16+24.740	8.467	3.745	-0.400	-7.000	-12.400	-75.4	-75.4	2	24	2	150.0	14.1
5	6	16+57.760	8.599	3.840	-0.300	-15.000	-20.300	-85.3	-85.3	2	40	2	170.0	16.8
6	7	16+90.781	8.766	4.020	-0.100	-22.000	-28.100	-90.1	-90.1	2	56	2	180.0	25.5
7	8	17+23.802	8.967	4.210	0.100	-26.000	-35.900	-94.9	-94.9	2	72	2	190.0	30.5
8	9	17+56.823	9.178	4.430	0.300	-29.000	-39.700	-99.7	-99.7	2	80	2	200.0	34.8
9	10	17+89.844	9.389	4.645	0.500	-32.000	-43.500	-104.5	-104.5	2	88	2	210.0	39.2
10	11	18+22.865	9.601	4.825	0.700	-30.000	-43.300	-103.8	-104.3	2	88	2	209.5	39.2
11	12	18+55.885	9.801	5.040	0.900	-31.000	-43.100	-104.1	-104.1	2	88	2	210.0	39.2
12	13	18+88.906	9.965	5.190	1.100	-32.000	-42.900	-106.9	-103.9	2	88	2	213.0	39.2
13	14	19+21.927	10.091	5.340	1.200	-31.000	-42.800	-103.8	-103.8	2	88	2	210.0	39.2
14	15	19+54.948	10.180	5.430	1.300	-32.000	-42.700	-103.7	-103.7	2	88	2	210.0	39.2
15	16	19+87.969	10.231	5.465	1.360	-32.000	-42.640	-103.6	-103.6	2	88	2	210.0	39.2
16	17	20+20.990	10.244	5.500	1.370	-21.000	-30.630	-98.6	-98.6	2	64	2	200.0	29.9
17	20	21+68.713	10.170	5.435	1.300	-27.000	-30.700	-93.7	-93.7	2	64	2	190.0	29.9
18	21	22+01.734	10.170	5.430	1.300	-33.000	-38.700	-93.7	-93.7	2	80	2	190.0	38.6
19	22	22+34.755	10.170	5.440	1.300	-34.000	-38.700	-93.7	-93.7	2	80	2	190.0	38.6
20	23	22+67.776	10.170	5.425	1.300	-32.000	-38.700	-103.7	-103.7	2	80	2	210.0	38.6
21	24	23+00.797	10.170	5.420	1.300	-33.000	-38.700	-94.0	-93.7	2	80	2	190.0	38.6
22	25	23+33.818	10.170	5.390	1.300	-33.000	-38.700	-93.7	-93.7	2	80	2	190.0	38.6
23	26	23+66.838	10.170	5.440	1.300	-34.000	-34.700	-93.7	-93.7	2	80	2	190.0	38.6
24	27	24+99.859	10.170	5.435	1.300	-33.000	-34.700	-93.7	-90.7	2	80	2	187.0	38.6
25	28	24+32.880	10.170	5.440	1.300	-30.000	-34.700	-88.7	-88.7	2	72	2	180.0	34.3
26	29	24+65.901	10.170	5.415	1.300	-29.500	-34.700	-88.7	-88.7	2	72	2	180.0	34.3
27	30	24+98.922	10.170	5.405	1.300	-29.000	-30.700	-88.7	-88.7	2	72	2	180.0	34.3
28	31	25+31.943	10.170	5.410	1.300	-27.500	-30.700	-88.7	-88.7	2	72	2	180.0	34.3
29	32	25+64.963	10.170	5.395	1.300	-30.000	-30.700	-88.7	-88.7	2	72	2	180.0	34.3
30	33	25+97.984	10.170	5.410	1.300	-27.000	-30.700	-88.7	-88.7	2	64	2	180.0	29.9
31	34	26+31.005	10.170	5.400	1.300	-27.000	-30.700	-88.7	-88.7	2	64	2	180.0	29.9
32	35	26+64.026	10.170	5.395	1.300	-25.500	-30.700	-88.7	-88.7	2	64	2	180.0	29.9
33	36	26+97.047	10.170	5.400	1.300	-27.000	-30.700	-88.7	-88.7	2	64	2	180.0	29.9
34	37	27+30.068	10.170	5.415	1.300	-25.000	-30.700	-83.7	-83.7	2	64	2	170.0	29.9
35	38	27+63.088	10.170	5.415	1.300	-25.500	-30.700	-83.7	-83.7	2	64	2	180.0	29.9
36	39	27+96.109	10.170	5.400	1.300	-26.000	-34.700	-78.7	-78.7	2	64	2	180.0	29.9
37	40	28+29.130	10.170	5.410	1.300	-25.000	-34.700	-82.7	-79.7	2	64	2	180.0	29.9
38	41	28+62.151	10.170	5.375	1.300	-26.500	-34.700	-78.7	-78.7	2	64	2	180.0	29.9
39	42	28+95.172	10.170	5.430	1.300	-28.000	-30.700	-78.7	-78.7	2	72	2	170.0	34.3
40	43	29+28.193	10.170	5.420	1.300	-28.500	-30.700	-78.7	-78.7	2	72	2	170.0	34.3
41	44	29+61.213	10.170	5.430	1.300	-30.000	-30.700	-88.7	-88.7	2	72	2	160.0	34.3
42	45	29+94.234	10.170	5.420	1.300	-26.000	-30.700	-88.2	-88.7	2	64	2	165.0	29.9
43	46	30+27.255	10.170	5.395	1.300	-27.000	-30.700	-86.7	-84.7	2	64	2	160.0	29.9
44	47	30+60.276	10.170	5.380	1.300	-28.000	-30.700	-84.7	-84.7	2	64	2	160.0	29.9
45	48	30+93.297	10.170	5.400	1.300	-27.000	-30.700	-83.7	-83.7	2	64	2	160.0	29.9
46	49	31+26.318	10.170	5.400	1.300	-28.000	-30.700	-83.7	-83.7	2	64	2	180.0	29.9
47	50	31+59.338	10.170	5.415	1.300	-26.500	-30.700	-83.7	-83.7	2	64	2	179.5	29.9
48	51	31+92.359	10.170	5.410	1.300	-27.000	-30.700	-83.7	-83.7	2	64	2	174.0	29.9
49	52	32+25.380	10.170	5.420	1.300	-26.500	-30.700	-83.7	-83.7	2	64	2	172.0	29.9
50	53	32+58.401	10.170	5.400	1.300	-24.000	-30.700	-83.7	-83.7	2	64	2	170.0	29.9
51	54	32+91.422	10.170	5.400	1.300	-25.000	-30.700	-83.7	-83.7	2	64	2	170.0	29.9
52	55	33+24.443	10.170	5.400	1.300	-23.000	-26.700	-83.7	-83.7	2	56	2	170.0	25.5
53	56	33+57.463	10.170	5.390	1.300	-23.000	-26.700	-83.7	-83.7	2	56	2	170.0	25.5
54	57	33+90.484	10.170	5.390	1.300	-20.500	-26.700	-83.7	-83.7	2	56	2	170.0	25.5
55	58	34+23.505	10.170	5.390	1.300	-20.000	-26.700	-83.7	-83.7	2	56	2	170.0	25.5
56	59	34+56.526	10.170	5.390	1.300	-20.600	-26.700	-83.7	-83.7	2	56	2	170.0	25.5
57	60	34+89.547	10.170	5.400	1.300	-17.600	-22.700	-83.7	-83.7	2	48	2	170.0	21.2
58	61	35+22.568	10.170	5.365	1.300	-16.600	-22.700	-83.7	-83.7	2	48	2	170.0	21.2
59	62	35+55.588	10.170	5.400	1.300	-14.600	-18.700	-83.7	-83.7	2	40	2	170.0	17.4
60	63	35+88.609	10.170	5.420	1.300	-14.600	-18.700	-83.7	-83.7	2	40	2	170.0	17.4
61	64	36+21.630	10.170	5.385	1.300	-13.600	-18.700	-83.7	-83.7	2	40	2	170.0	17.4
62	65	36+54.651	10.170	5.390	1.300	-13.600	-18.700	-83.7	-83.7	2	40	2	170.0	17.4
63	66	36+87.672	10.170	5.410	1.300	-12.600	-18.700	-83.7	-83.7	2	40	2	170.0	17.4
*64	67	37+20.693	10.170	5.390	1.300	-11.600	-14.700	-83.7	-83.7	2	32	2	170.0	14.1
*65	68	37+53.713	10.170	5.405	1.300	-12.100	-14.700	-83.7	-83.7	2	32	2	170.0	14.1
*66	69	37+86.734	10.170	5.380	1.300	-12.600	-14.700	-83.7	-83.7	2	32	2	170.0	14.1
*67	70	38+19.755	10.170	5.380	1.300	-11.100	-14.700	-83.7	-83.7	2	32	2	170.0	14.1
*68	71	38+52.776	10.170	5.380	1.300	-9.100	-14.700	-73.7	-73.7	2	32	2	150.0	14.1
*69	72	38+85.797	10.170	5.410	1.300	-5.600	-10.700	-68.7	-68.7	2	24	2	140.0	14.1
*70	73	39+18.818	10.170	5.360	1.300	-1.600	-6.700	-63.7	-63.7	2	16	2	130.0	9.7



SECTION A-A

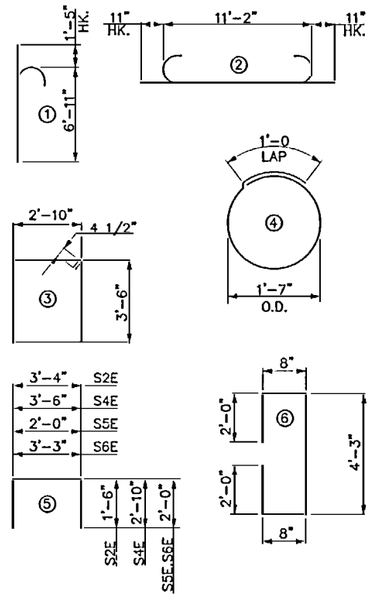


TYPICAL END VIEW



PILE SPLICE DETAILS

BAR TYPES



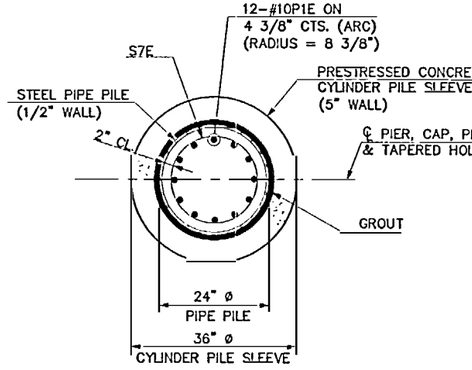
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PIER (70 REQ'D)

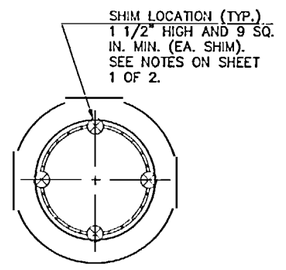
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1E	16	#8	2	13'-0"	555
B2E	4	#4	STR.	11'-2"	30
B3E	6	#4	STR.	3'-6"	14
S1E	24	#4	3	13'-5"	215
S2E	11	#4	5	6'-4"	47
S3E	8	#4	6	9'-7"	51
S4E	2	#4	5	9'-2"	12
S5E	4	#4	5	6'-0"	16
S6E	1	#4	5	7'-3"	5
S7E	40	#3	4	6'-0"	90
P1E	24	#10	1	8'-4"	861

QUANTITIES

EPOXY COATED REINF. STEEL	LBS.	1,896
GROUT	C.F.	SEE TABLE
CLASS AA CONCRETE: PRECAST CAP	C.Y.	7.3
CAST-IN-PLACE PLUG	C.Y.	1.4
TOTAL	C.Y.	8.7
PRESTRESSED CONCRETE CYLINDER PILE SLEEVES	NO.	SEE TABLE
	L.F.	SEE TABLE
STEEL PIPE PILES	NO.	SEE TABLE
	L.F.	SEE TABLE



SECTION B-B



SHIM DETAIL
(@ TOP OF PILE)

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
PIERS 1 - 70

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

HNTB HNTB NORTH CAROLINA, P.C.
343 E Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

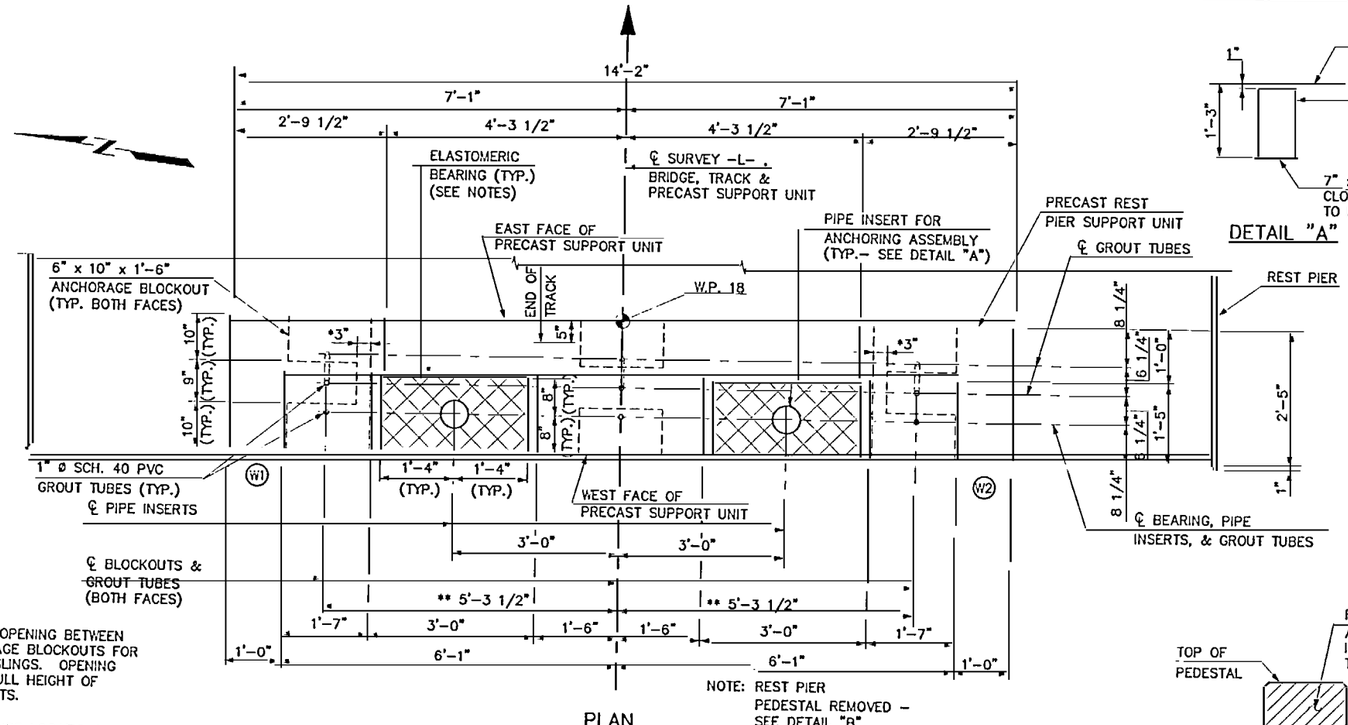
SHEET NO. 18
TOTAL SHEETS 43

DRAWN BY J. BAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 2/98
DWG. NO. 18

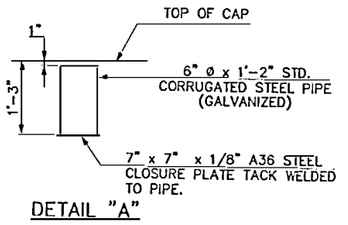
CERTIFIED BY: NTG DATE: 3/00

DISTRIBUTION No. 1

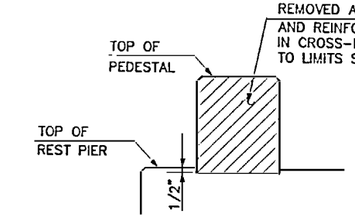
NAME P:\2784\DWGS\AS BUILT DWGS\B34TB118.DWG DWG DATE MAR 8, 2000



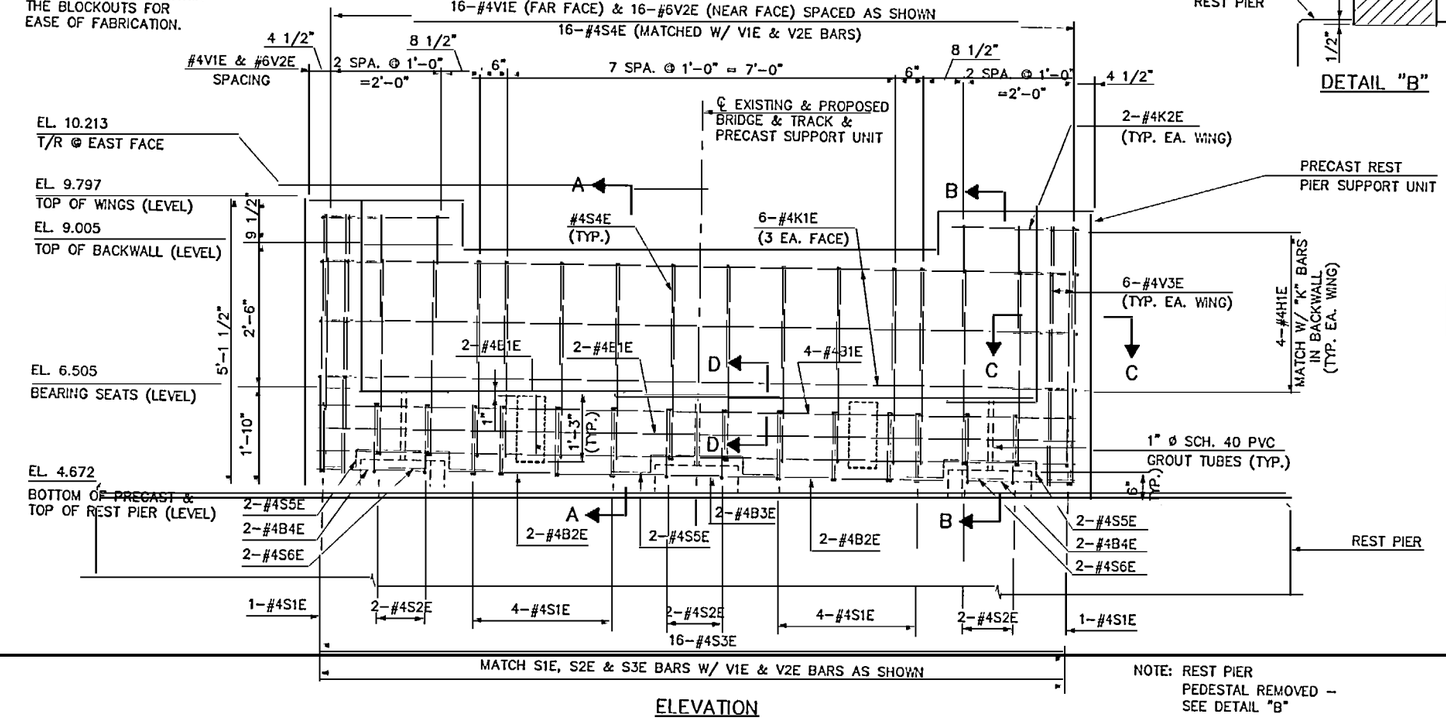
PLAN



DETAIL "A"



DETAIL "B"



ELEVATION

NOTE: REST PIER PEDESTAL REMOVED – SEE DETAIL "B"

NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

NOTES:

FOR ADDITIONAL INFORMATION RELATED TO ANCHORING ASSEMBLIES AND ELASTOMERIC BEARINGS, SEE "SUPERSTRUCTURE DETAILS" SHEET.

BEARING CONSISTS OF ONE (1), 1" THICK FIBERGLASS PLATE (STRONGWELL SAFPLATE, EXTREN SERIES 500, EXTRA COURSE GRIT) SANDWICHED BETWEEN TWO (2), 1/2" THICK ELASTOMERIC BEARINGS. TOTAL THICKNESS OF BEARING IS 2". PLAN VIEW DIMENSIONS OF FIBERGLASS PLATE AND ELASTOMERIC BEARINGS ARE AS SHOWN ON THE "SUPERSTRUCTURE DETAILS" SHEET.

FOR SECTIONS A–A, B–B, C–C AND D–D, SEE SHEET 2 OF 2.

FOR DETAILS OF ANCHORAGES, SEE SHEET 2 OF 2.

ALL STRUCTURAL STEEL ANGLES AND PLATES CONFORM TO ASTM A36.

ANCHOR BOLTS ARE THREADED, 1" DIAMETER RODS CONFORMING TO ASTM A36 AND INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. THE YIELD LOAD FOR THE ANCHOR BOLTS IS 45.6 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM WAS REQUIRED. SEE SPECIAL PROVISION "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS".

GROUT IS NON–SHRINK, NON–METALLIC, PORTLAND CEMENT GROUT ATTAINING A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 5,500 PSI AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

FOR PRECAST REST PIER SUPPORT UNIT, SEE SPECIAL PROVISION "PRECAST CONCRETE UNITS (NON–PRESTRESSED)".

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

SEQUENCE OF CONSTRUCTION:

1. REMOVE EXISTING CONCRETE PEDESTAL FROM REST PIER. SEE DETAIL "B" ON SHEET 1 OF 2 FOR LIMITS OF CONCRETE REMOVAL. PATCH DISTURBED AREA OF REST PIER SURFACE WITH GROUT AND FINISH FLUSH WITH ADJACENT SURFACE OF REST PIER.
2. DRILL HOLES IN REST PIER FOR ANCHOR BOLTS AND ANCHOR STEEL ANGLES TO TOP OF REST PIER AS SHOWN ON THE PLANS.
3. PLACE PRECAST REST PIER SUPPORT UNIT ON TOP OF REST PIER AND WELD STEEL PLATES TO STEEL ANGLES AND EMBEDDED STEEL ANCHOR PLATES AS SHOWN ON THE PLANS.
4. PLACE FORMS OVER ANCHORAGE BLOCKOUTS AND FILL BLOCKOUTS AND GROUT TUBES WITH GROUT. BLOCKOUT FORMS SHALL BE FLUSH WITH THE VERTICAL FACES OF THE PRECAST UNIT AND SHALL REMAIN IN PLACE FOR AT LEAST 12 HOURS AFTER GROUT IS PLACED. DAMAGE TO THE PRECAST UNIT OR THE EXISTING REST PIER RESULTING FROM BLOCKOUT FORM ATTACHMENT AND/OR REMOVAL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
5. PLACE BEARINGS AND 22" PRECAST CONCRETE SLAB UNIT AS SHOWN ON THE PLANS.
6. INSTALL ANCHORING ASSEMBLIES AS SHOWN ON THE PLANS.
7. PLACE BALLAST AND TRACK (i.e. TIES, RAIL AND ASSOCIATED HARDWARE) ON THE SLAB.
8. VERIFY ALIGNMENT AT INTERFACE OF NEW TRACK AND BASCULE TRACK PRIOR TO OPENING BRIDGE TO RAIL TRAFFIC.

NAME: P:\2783A\DWGS\As Built Dwgs\BSARPIER.DWG DATE: MAR 2, 2000

PROJECT No. P–3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

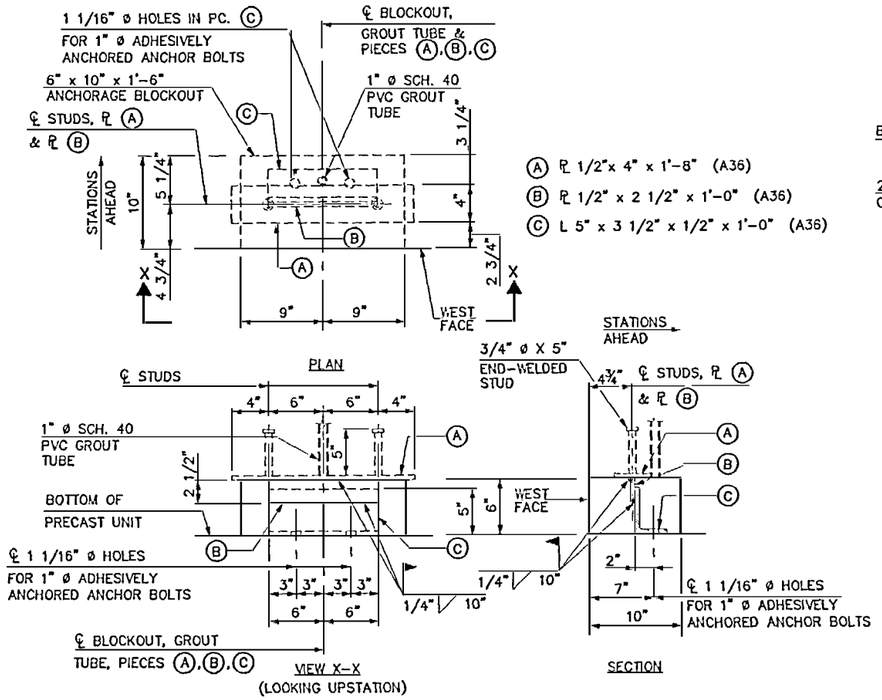
REST PIER DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 10313 ENGINEER NEIL T. GREENLEE 3/24/98

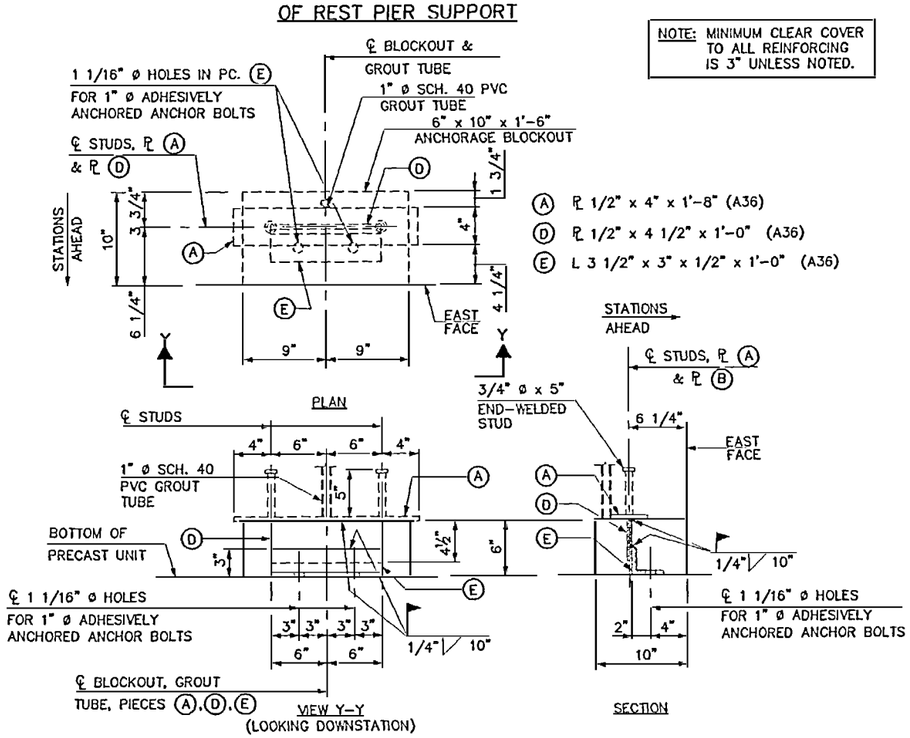
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

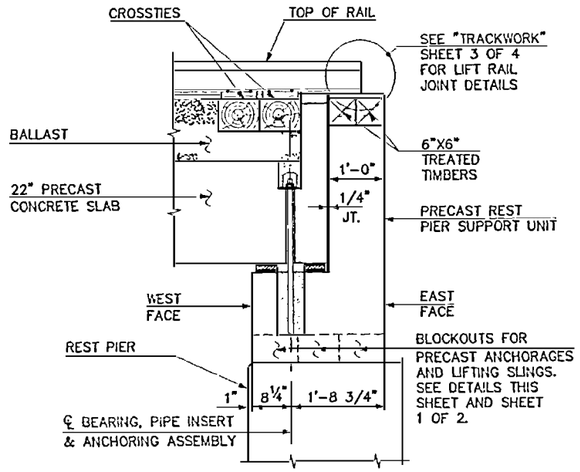
DRAWN BY M. WRIGHT DATE 5/98
CHECKED BY N. GREENLEE DATE 5/98
DWG. NO. 19
CERTIFIED BY: NTG DATE: 3/00
SHEET NO. 19
TOTAL SHEETS 43
DISTRIBUTION No. 3



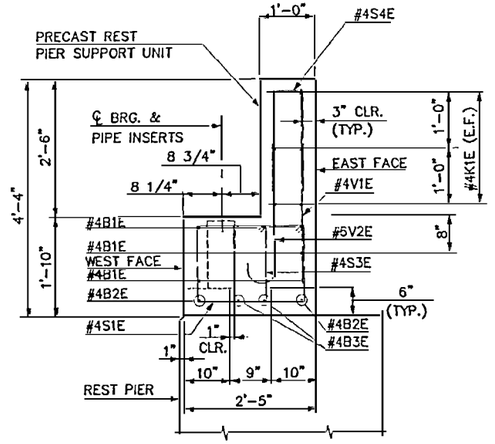
DETAILS OF ANCHORAGES @ WEST FACE OF REST PIER SUPPORT



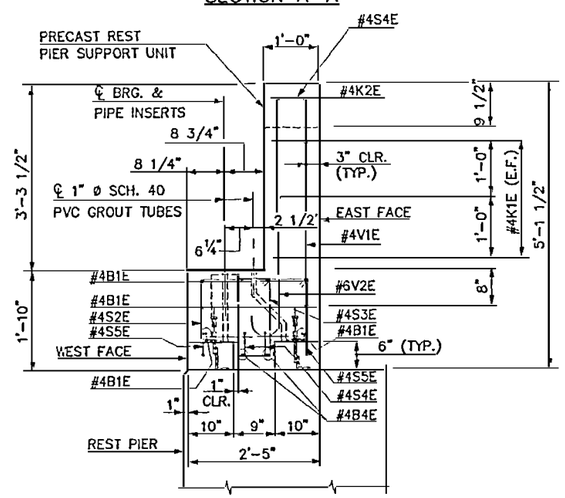
DETAILS OF ANCHORAGES @ EAST FACE OF REST PIER SUPPORT



SECTION AT ANCHORING ASSEMBLY

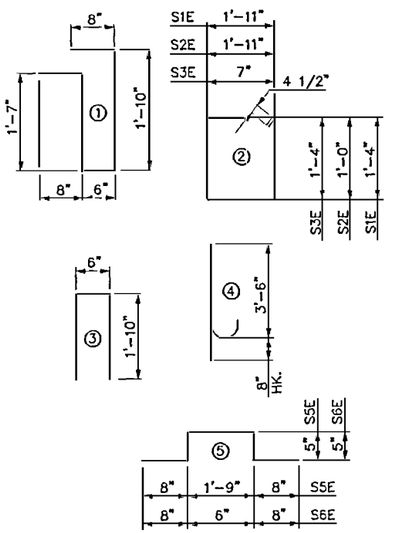


SECTION A-A



SECTION B-B

BAR TYPES



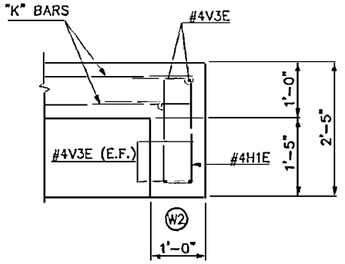
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR REST PIER

MARK	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
B1E	8	#4	STR.	13'-8"	73
B2E	4	#4	STR.	3'-7"	10
B3E	2	#4	STR.	8'-11"	12
B4E	4	#4	STR.	2'-1"	6
H1E	8	#4	1	5'-3"	28
K1E	6	#4	STR.	13'-8"	55
K2E	4	#4	STR.	2'-3"	6
S1E	10	#4	2	7'-3"	48
S2E	6	#4	2	6'-7"	26
S3E	16	#4	2	4'-7"	49
S4E	16	#4	3	4'-2"	45
S5E	6	#4	5	3'-11"	16
S6E	4	#4	5	2'-8"	7
V1E	16	#4	STR.	3'-6"	37
V2E	16	#6	4	4'-2"	100
V3E	12	#4	STR.	4'-7"	37

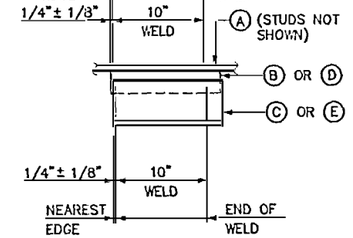
QUANTITIES

EPOXY COATED REINF. STEEL	LBS.	555
GROUT	C.F.	4.2
CLASS AA CONCRETE (PRECAST)	C.Y.	4.0

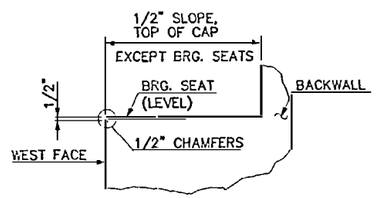


SECTION C-C

(W1 SIMILAR)



WELD TERMINATION DETAIL



SECTION D-D

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

REST PIER DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREECHEE 3/24/00

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

SHEET NO. 20

TOTAL SHEETS 43

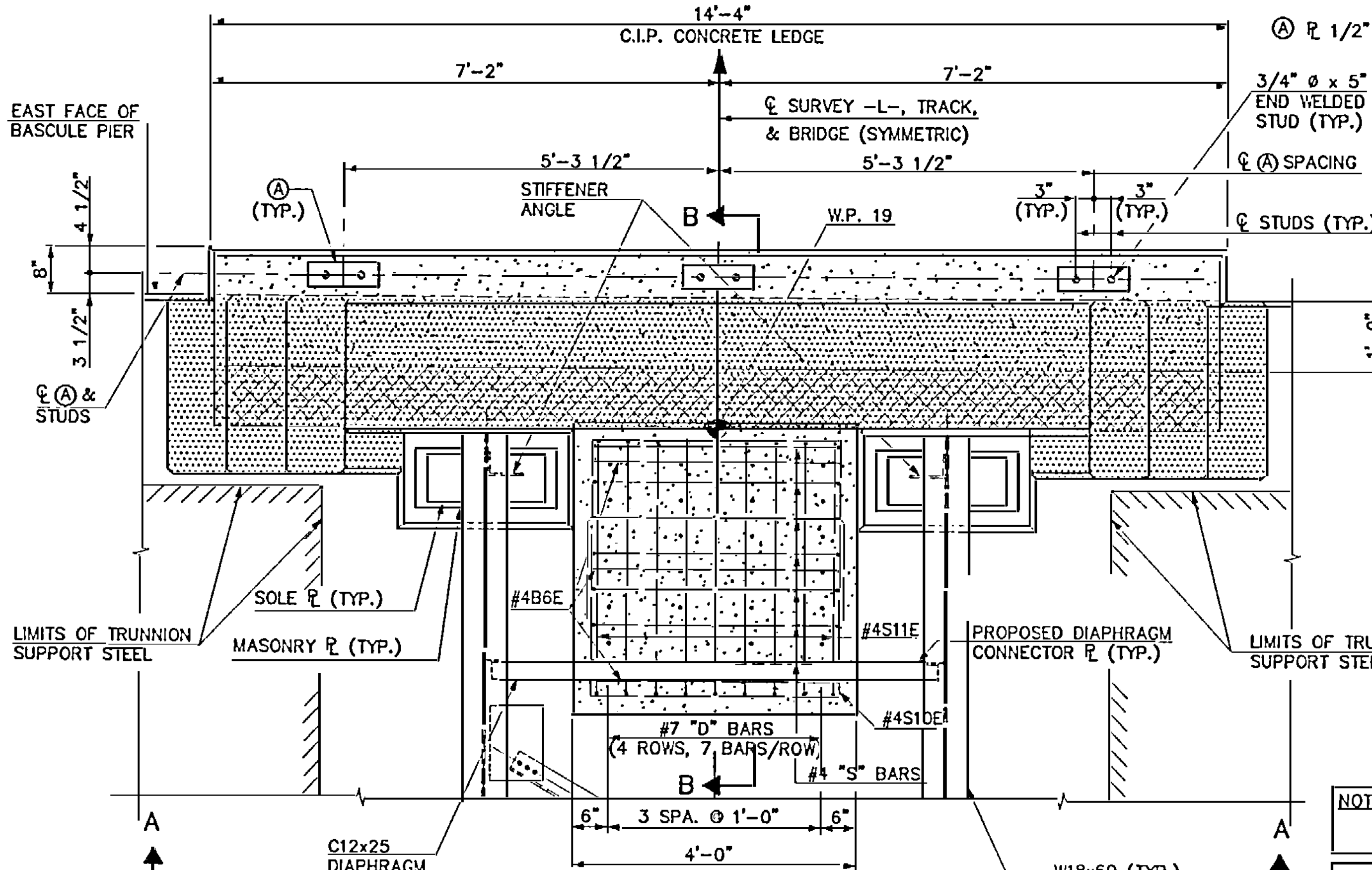
DRAWN BY M. WRIGHT DATE 5/98
CHECKED BY N. GREECHEE DATE 5/98

DWG. NO. 20

CERTIFIED BY: NTG DATE: 3/00

DISTRIBUTION No. 3

NAME: P:\2781\DWGS\As Built Dgn\34B2R2.DWG DATE: MAR 2, 2000

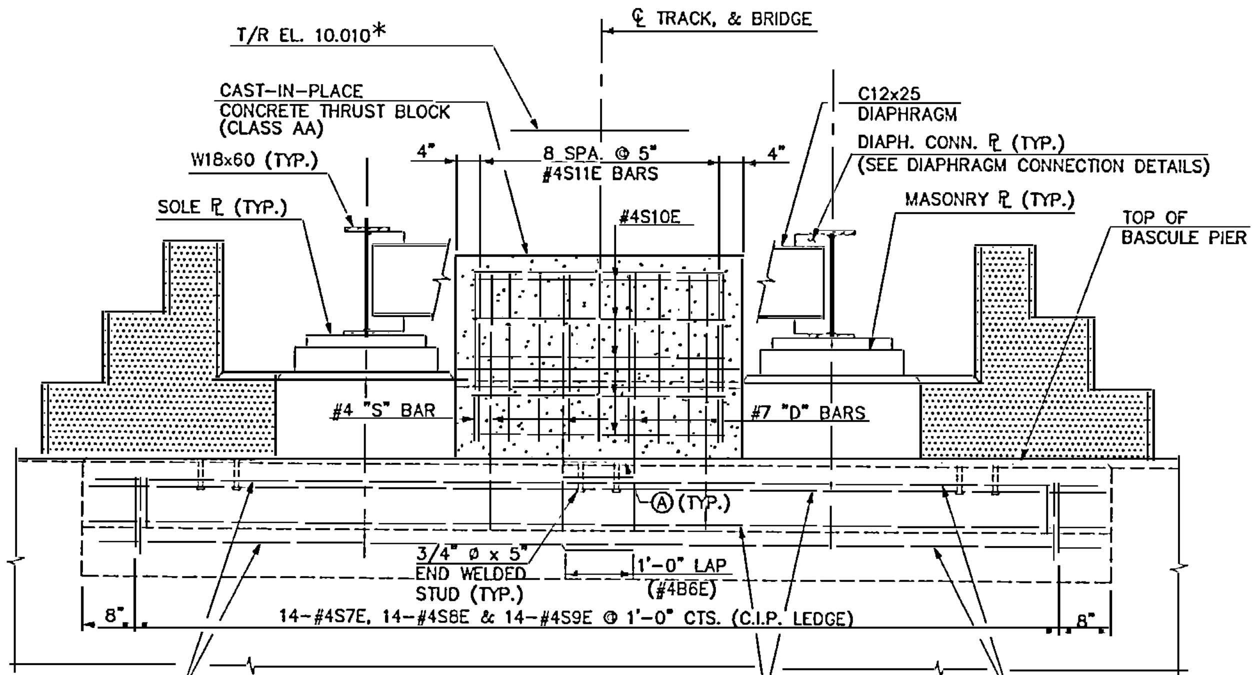


(A) ℄ 1/2" x 4" x 1'-0" (A36)

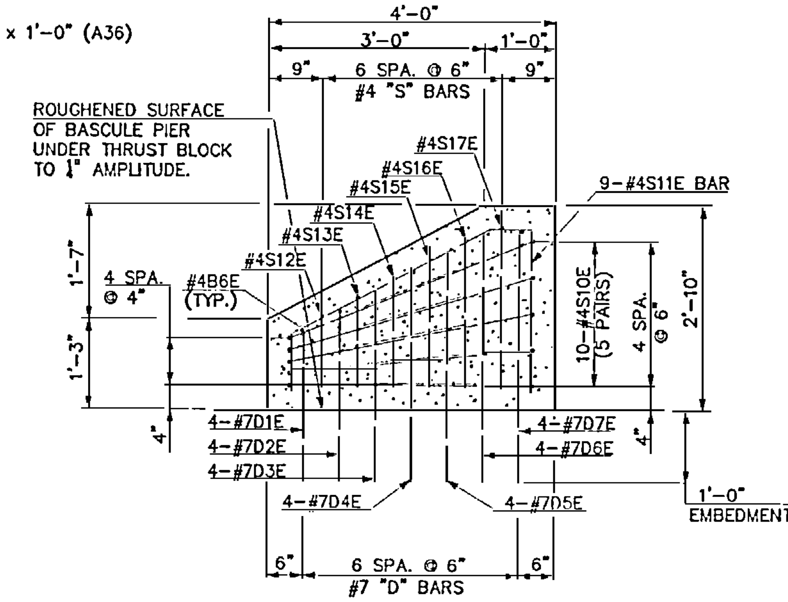
NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

NOTE: ALL CHAMFERS SHOWN ARE 1" UNLESS NOTED

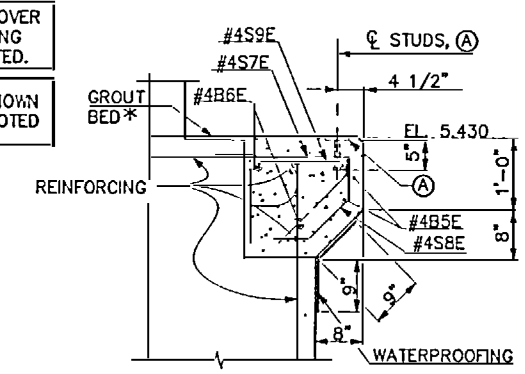
PLAN
(TRACKWORK OMITTED FOR CLARITY)



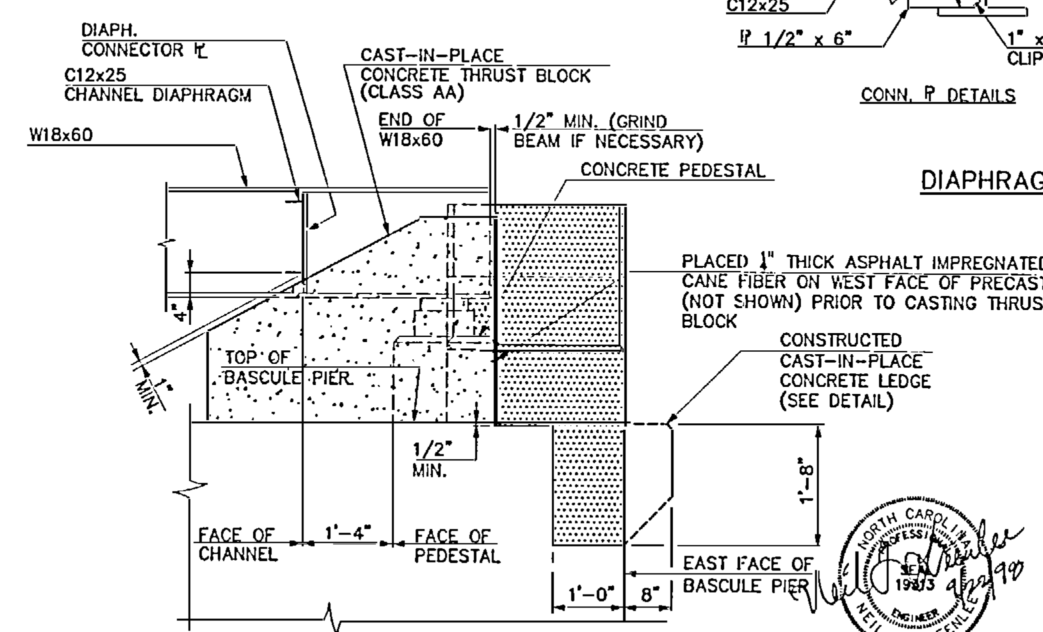
VIEW A-A



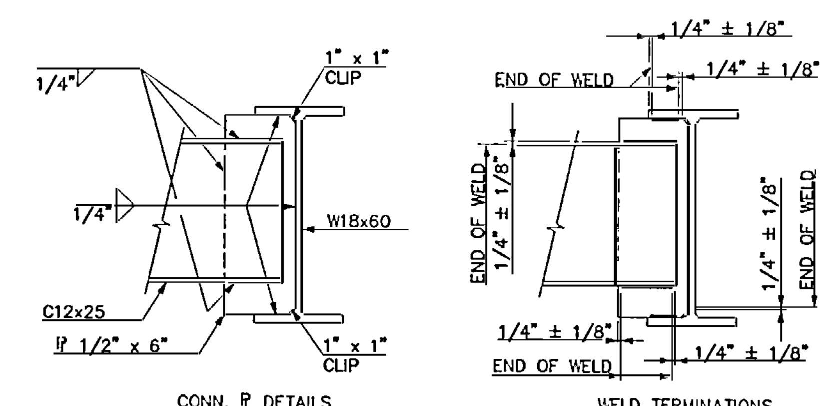
SECTION THRU C.I.P. THRUST BLOCK



SECTION THRU C.I.P. LEDGE



SECTION B-B



NOTE:
ALL TERMINATIONS SHOWN ARE TYPICAL FOR ENDS OF SIMILAR WELDS.

DIAPHRAGM CONNECTION DETAILS

SEQUENCE OF CONSTRUCTION:

1. REMOVE EXISTING BASCULE PIER CONCRETE AS SHOWN.
2. CONSTRUCT CAST-IN-PLACE CONCRETE LEDGE AND PLACE GROUT BED AS SHOWN. CONCRETE IN THE LEDGE MUST ATTAIN A STRENGTH OF AT LEAST 3000 PSI AND GROUT MUST CURE FOR AT LEAST 12 HOURS BEFORE PROCEEDING TO STEP 5.
3. DRILL HOLES FOR ADHESIVELY ANCHORED ANCHOR BOLTS AT WEST FACE ANCHORAGES AND ATTACH STEEL ANGLES TO TOP OF BASCULE PIER AS SHOWN ON SHEETS 2 OF 3 AND 3 OF 3.
4. PLACE PRECAST BASCULE PIER SUPPORT UNIT ON TOP OF BASCULE PIER AND MAKE ALL WELDED CONNECTIONS AT WEST FACE AND EAST FACE ANCHORAGE BLOCKOUTS AS SHOWN ON SHEET 3 OF 3.
5. PLACE FORMS OVER ANCHORAGE BLOCKOUTS AND FILL BLOCKOUTS AND GROUT TUBES WITH GROUT. BLOCKOUT FORMS SHALL BE FLUSH WITH THE VERTICAL FACES OF THE PRECAST UNIT AND SHALL REMAIN IN PLACE FOR AT LEAST 12 HOURS AFTER GROUT IS PLACED. DAMAGE TO THE PRECAST UNIT OR THE EXISTING BASCULE PIER RESULTING FROM BLOCKOUT FORM ATTACHMENT AND/OR REMOVAL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
6. PLACE ELASTOMERIC BEARINGS AND 22" PRECAST CONCRETE SLAB UNIT AS SHOWN ON THE PLANS.
7. INSTALL ANCHORING ASSEMBLIES AS SHOWN ON THE PLANS.
8. PLACE BALLAST AND TRACK (i.e. TIES, RAIL AND ASSOCIATED HARDWARE) ON THE SLAB, ALIGN TRACK TO GRADE, AND OPEN BRIDGE TO SCHEDULED RAIL TRAFFIC.

NOTE: STEPS 9 – 16 MAY BE PERFORMED IMMEDIATELY AFTER COMPLETION OF STEPS 1 – 5, SCHEDULED RAIL TRAFFIC PERMITTING. OTHERWISE, STEPS 9 – 16 MUST BE COMPLETED WITHIN 3 MONTHS AFTER COMPLETION OF STEPS 1 – 8 ABOVE.

9. REMOVE FIXED RAILS AND TIMBERS FROM EXISTING W18x60's AS NECESSARY TO ACCESS THRUST BLOCK WORK AREA.
10. REMOVE EXISTING C12x25 DIAPHRAGM LEAVING DIAPHRAGM CONNECTOR ANGLES IN PLACE.
11. REMOVE & DISCARD EXISTING STEEL ANGLE BRACE AS SHOWN.
12. WELD NEW DIAPHRAGM CONNECTOR PLATES TO EXISTING W18x60's AT NEW DIAPHRAGM LOCATION AS SHOWN.
13. CONSTRUCT CAST-IN-PLACE THRUST BLOCK AS SHOWN. CONCRETE IN THRUST BLOCK MUST ATTAIN A STRENGTH OF AT LEAST 3000 PSI BEFORE PERFORMING STEP 16.
14. WELD EXISTING C12x25 DIAPHRAGM FROM STEP 10 TO CONNECTOR PLATES INSTALLED IN STEP 12.
15. REPLACE FIXED RAILS AND TIMBERS FROM STEP 9.
16. OPEN BRIDGE TO SCHEDULED RAIL TRAFFIC.

NOTE: CONCRETE REMOVED AS SHOWN TO ½" BELOW TOP OF EXISTING BASCULE PIER. AFTER CONCRETE REMOVAL AND C.I.P. LEDGE CONSTRUCTION COMPLETED, CONTRACTOR PLACED GROUT BED AS SHOWN. CONCRETE REMOVAL AREAS OUTSIDE OF GROUT BED LIMITS GROUTED FLUSH WITH ADJACENT, UNDISTURBED CONCRETE AT THE TOP OF EXISTING BASCULE PIER. FOR GROUT DATA, SEE NOTES ON SHEET 2 OF 3.

LEGEND

- GROUT BED
- CONCRETE REMOVED (SEE NOTE AT LEFT)
- C.I.P. CONCRETE (CLASS AA)

PROJECT NO. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BASCULE PIER DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19813 NEIL T. GREENLEE

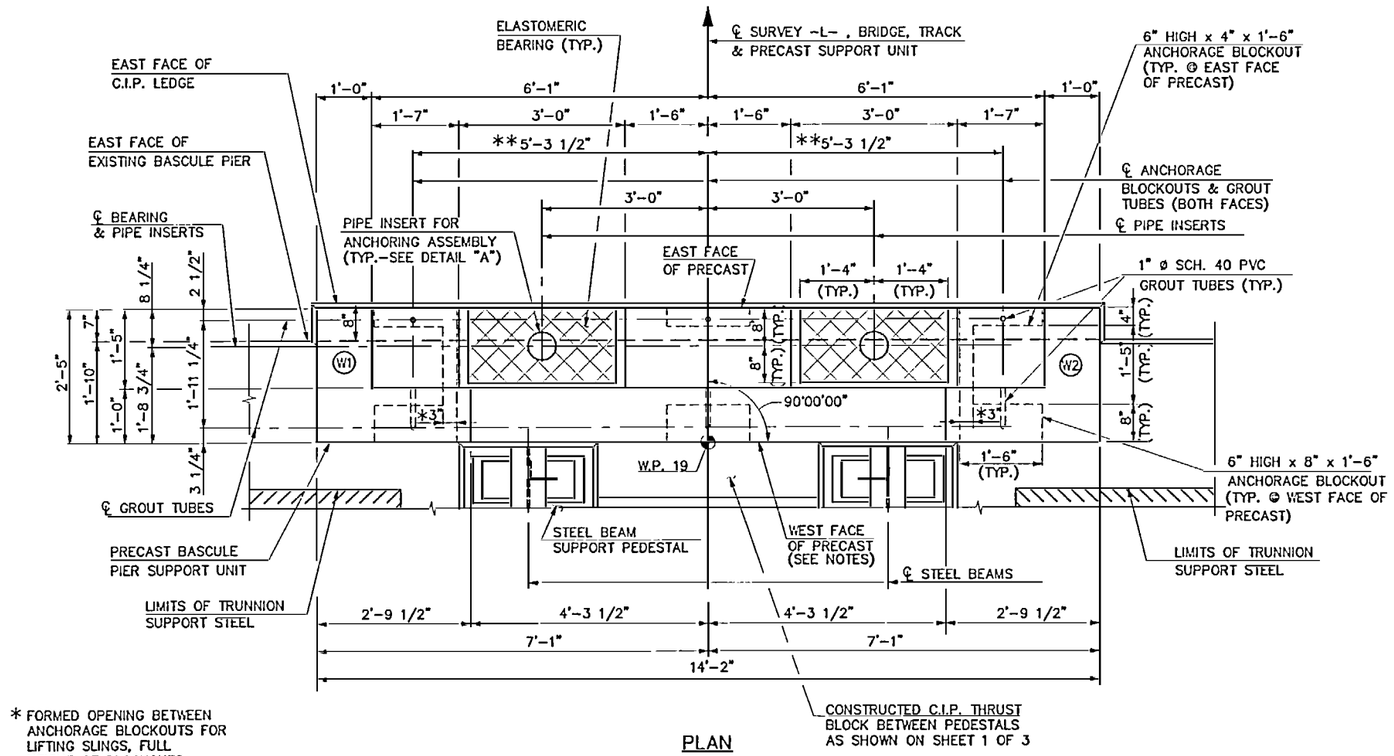
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY	J. BAYNE	DATE	8/98
CHECKED BY	N. GREENLEE	DATE	8/98

DWG. NO. 21

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00
SHEET NO. 21
TOTAL SHEETS 43
DISTRIBUTION No. 6

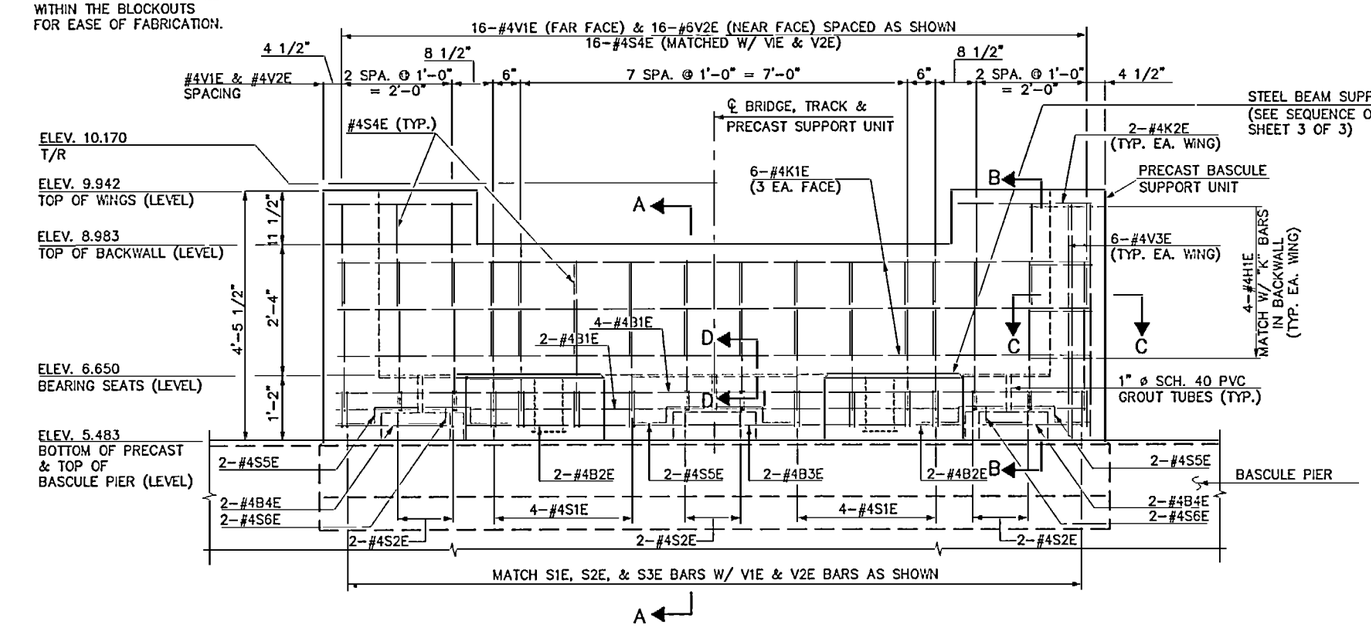
NAME P:\27834\DWGS\As Built Dwgs\834BPER3.DWG DATE MAR 9 2000



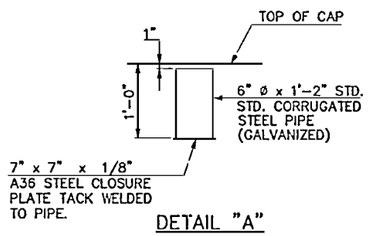
PLAN

* FORMED OPENING BETWEEN ANCHORAGE BLOCKOUTS FOR LIFTING SLINGS, FULL HEIGHT OF BLOCKOUTS.

** GROUT TUBE LOCATIONS MAY HAVE BEEN ADJUSTED WITHIN THE BLOCKOUTS FOR EASE OF FABRICATION.



ELEVATION AT WEST FACE OF PRECAST



DETAIL "A"

NOTES:

FOR ADDITIONAL INFORMATION RELATED TO ANCHORING ASSEMBLIES AND ELASTOMERIC BEARINGS, SEE "SUPERSTRUCTURE DETAILS" SHEET.

FOR SEQUENCE OF CONSTRUCTION AND LIMITS OF CONCRETE REMOVAL, SEE SHEET 1 OF 3.

FOR SECTIONS A-A, B-B, C-C, AND D-D, SEE SHEET 3 OF 3.

FOR DETAILS OF ANCHORAGE BLOCKOUTS, SEE SHEET 3 OF 3.

ALL STRUCTURAL STEEL PLATES AND ANGLES CONFORM TO ASTM A36.

AFTER INSTALLATION OF RELOCATED DIAPHRAGM, ALL EXPOSED SURFACES OF CONNECTOR PLATES, DIAPHRAGM, AND EXISTING W18x60 BEAMS WERE COATED WITH COAL TAR EPOXY PAINT PER THE STANDARD SPECIFICATIONS.

1/4" THICK ASPHALT IMPREGNATED CANE FIBER PLACED ON WEST FACE OF PRECAST UNIT FOR FULL HEIGHT AND WIDTH OF C.I.P. THRUST BLOCK. THRUST BLOCK CAST AGAINST PRECAST UNIT WITH CANE FIBER ACTING AS PERMANENT BOND BREAKER.

ANCHOR BOLTS ARE THREADED, 1" DIAMETER RODS CONFORMING TO ASTM A36 AND INSTALLED TO THE EMBEDMENT DEPTHS SHOWN ON THE PLANS USING AN ADHESIVE ANCHORING SYSTEM. THE YIELD LOAD FOR THE ANCHOR BOLTS IS 21.8KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM WAS NOT REQUIRED.

GROUT IS NON-SHRINK, NON-METALLIC, PORTLAND CEMENT GROUT ATTAINING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,500 PSI AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

FOR PRECAST BASCULE PIER SUPPORT UNIT, SEE SPECIAL PROVISION "PRECAST CONCRETE UNITS (NON-PRESTRESSED)".

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BASCULE PIER DETAILS

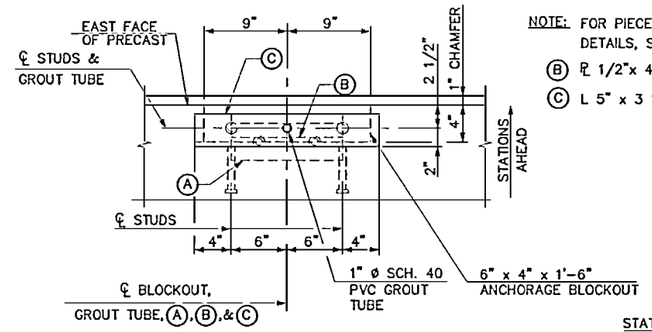
NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

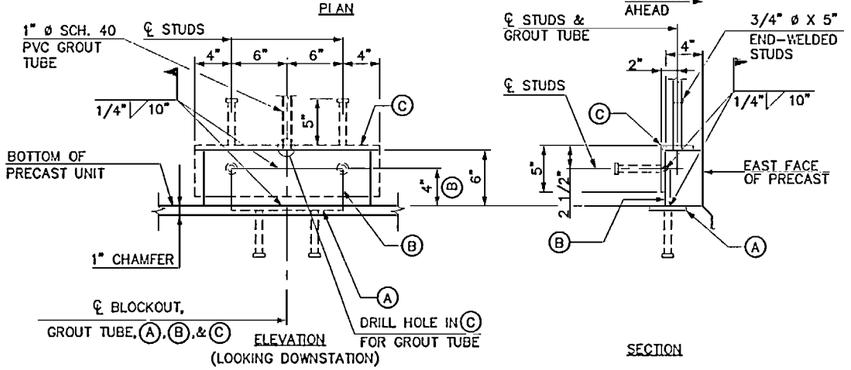
AS-BUILT PLANS

DRAWN BY J. BAYNE DATE 8/98
CHECKED BY N. GREENLEE DATE 8/98
DWG. NO. 22
CERTIFIED BY: NTG DATE: 3/00
SHEET NO. 22
TOTAL SHEETS 43
DISTRIBUTION No. 6

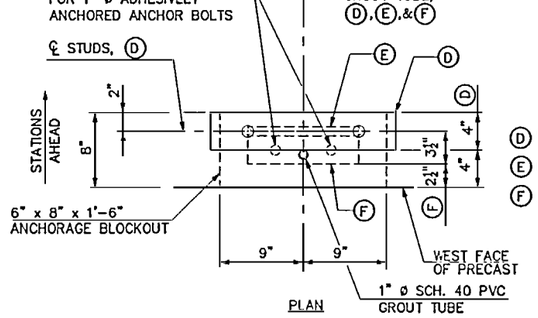
NAME: P:\27814\DWGS\As Built Dgns\AB34BPIER.dwg DATE: FEB 28 2000



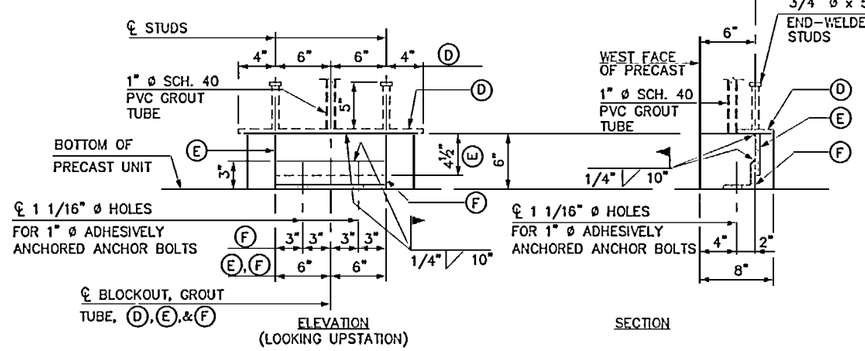
PLAN



DETAILS OF ANCHORAGES @ EAST FACE OF BASCULE PIER SUPPORT



PLAN

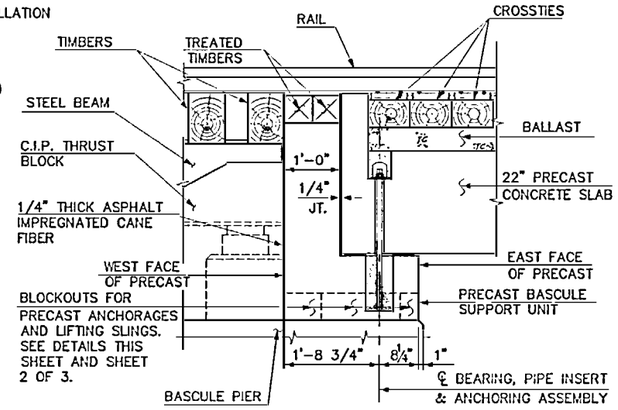


DETAILS OF ANCHORAGES @ WEST FACE OF BASCULE PIER SUPPORT

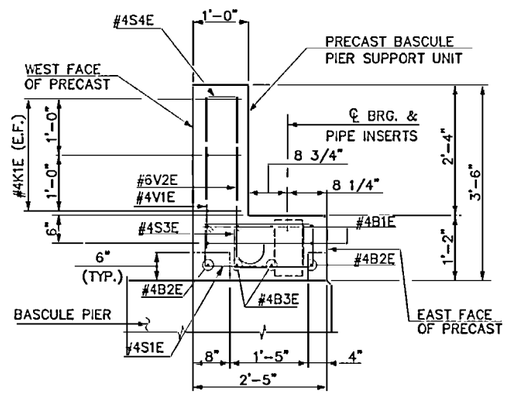
NOTE: FOR PIECE Ⓐ FABRICATION AND INSTALLATION DETAILS, SEE SHEET 1 OF 3.

Ⓑ ℙ 1/2"x 4" x 1'-0" (A36)

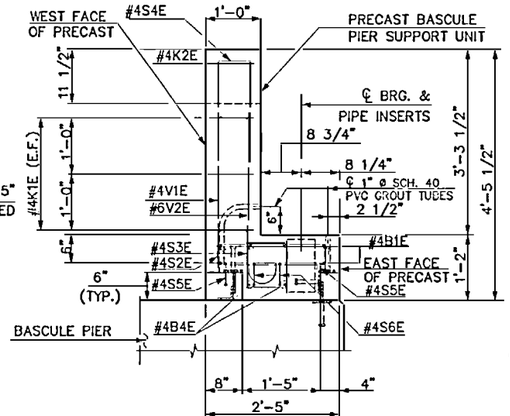
Ⓒ L 5" x 3 1/2" x 1/2" x 1'-8" (A36)



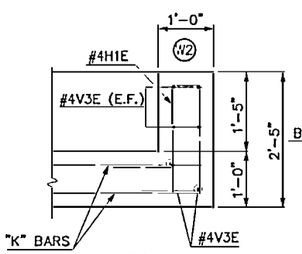
SECTION AT ANCHORING ASSEMBLY



SECTION A–A

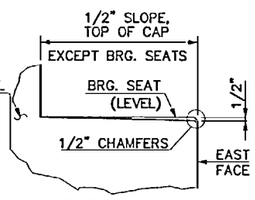


SECTION B–B

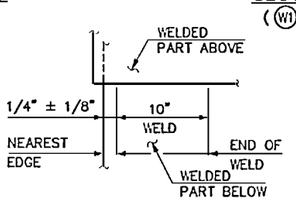


SECTION C–C

(W1 SIMILAR)

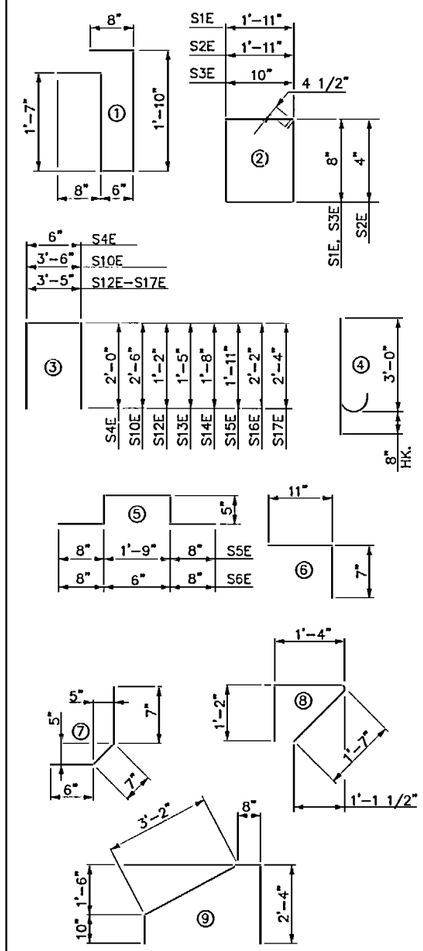


SECTION D–D



WELD TERMINATION DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR BASCULE PIER

MARK	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
B1E	6	#4	STR.	13'-8"	55
B2E	4	#4	STR.	3'-7"	10
B3E	2	#4	STR.	8'-11"	12
B4E	4	#4	STR.	2'-1"	6
B5E	2	#4	STR.	13'-10"	18
B6E	4	#4	STR.	7'-5"	20
D1E	4	#7	STR.	2'-3"	18
D2E	4	#7	STR.	2'-6"	20
D3E	4	#7	STR.	2'-9"	22
D4E	4	#7	STR.	3'-0"	25
D5E	4	#7	STR.	3'-3"	27
D6E	4	#7	STR.	3'-6"	29
D7E	4	#7	STR.	3'-7"	29
H1E	8	#4	1	5'-3"	28
K1E	6	#4	STR.	13'-8"	55
K2E	4	#4	STR.	2'-3"	6
S1E	10	#4	2	5'-11"	40
S2E	6	#4	2	5'-3"	21
S3E	16	#4	2	3'-9"	40
S4E	16	#4	3	4'-6"	48
S5E	6	#4	5	3'-11"	16
S6E	4	#4	5	2'-8"	7
S7E	14	#4	6	1'-6"	14
S8E	14	#4	7	1'-8"	16
S9E	14	#4	8	4'-1"	38
S10E	10	#4	3	8'-6"	57
S11E	9	#4	9	7'-0"	42
S12E	1	#4	3	5'-9"	4
S13E	1	#4	3	6'-3"	4
S14E	1	#4	3	6'-9"	5
S15E	1	#4	3	7'-3"	5
S16E	1	#4	3	7'-9"	5
S17E	1	#4	3	8'-1"	5
V1E	16	#4	STR.	2'-8"	29
V2E	16	#6	4	3'-8"	88
V3E	12	#4	STR.	3'-11"	31

QUANTITIES

EPOXY COATED REINF. STEEL	LBS.	895
GROUT	C.F.	3.0
CLASS AA CONCRETE (PRECAST)	C.Y.	3.1
(CAST-IN-PLACE)	C.Y.	2.7
(TOTAL)	C.Y.	5.8

NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

BASCULE PIER DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE 9/22/00

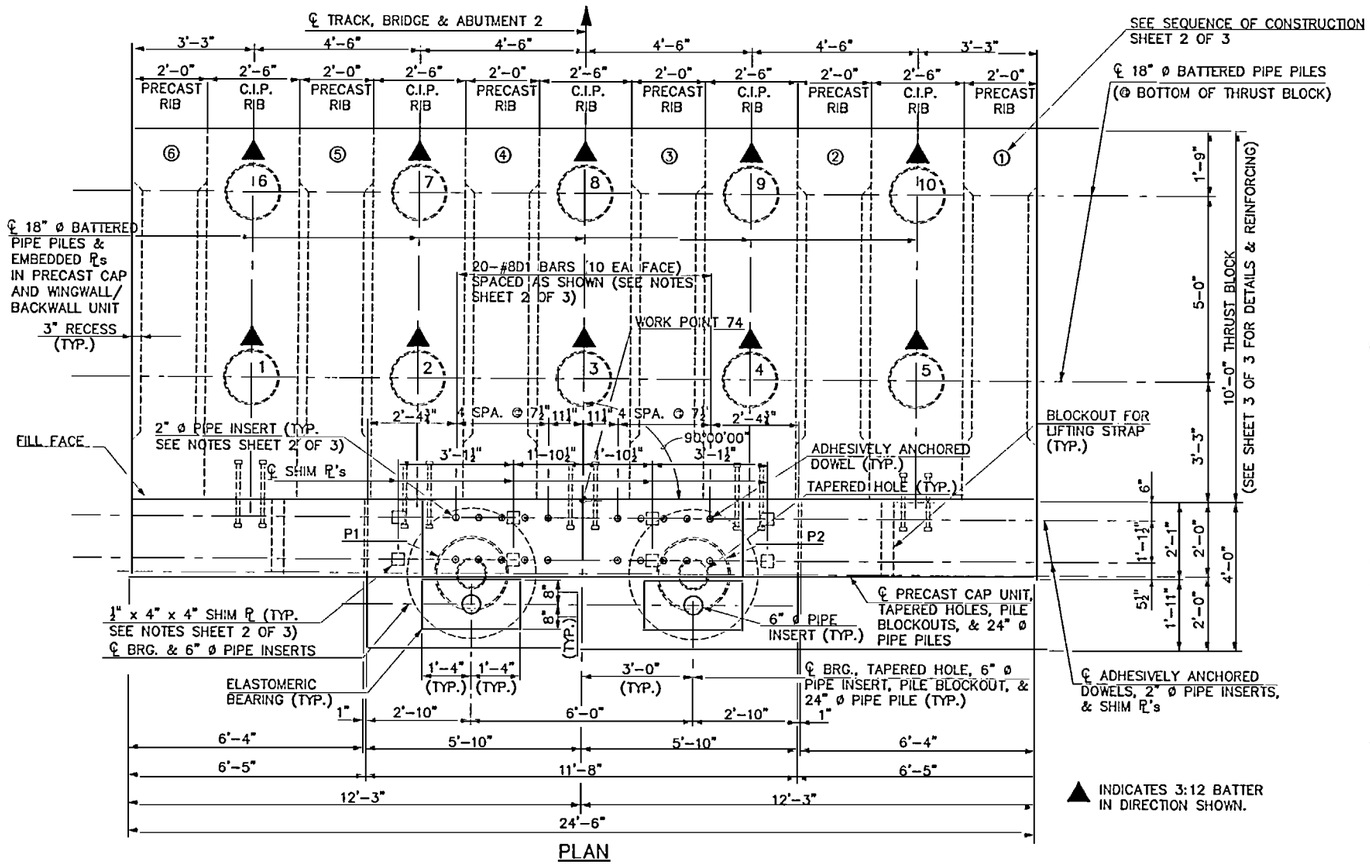
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J BAYNE DATE 8/98
CHECKED BY N. GREENLEE DATE 8/98
DWG. NO. 23

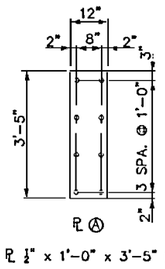
AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 23
TOTAL SHEETS 43
DISTRIBUTION No. 6

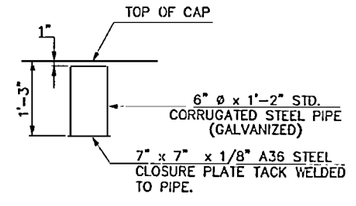
NAME: P:\2728A\DWGS\As Built Dgns\BASPIER2.DWG DATE: FEB 28, 2000



PLAN

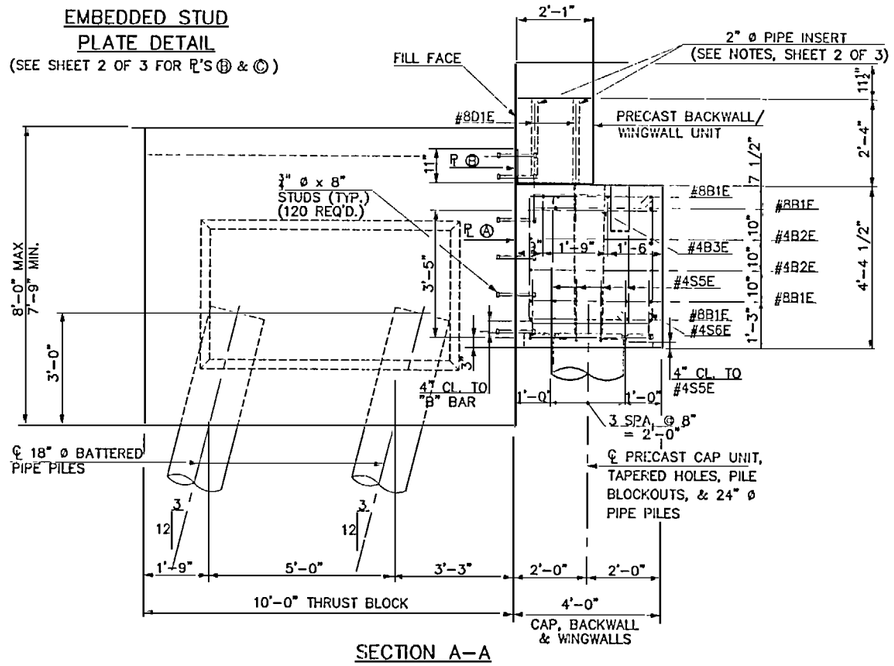


Ⓐ ℞ ½" x 1'-0" x 3'-5" (A36)

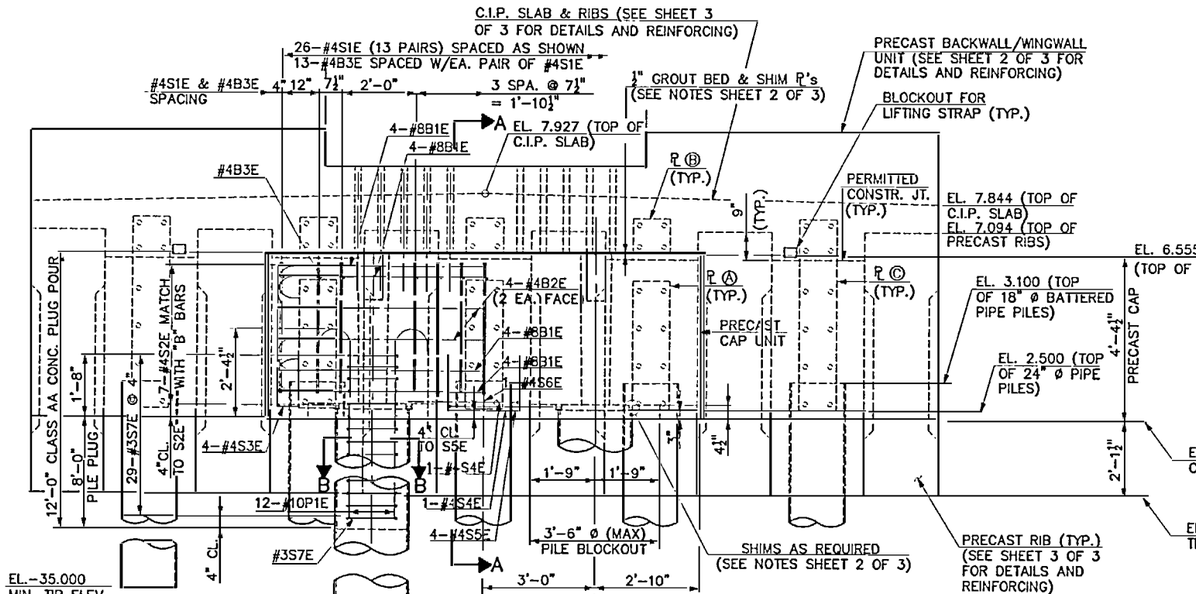


DETAIL "A"

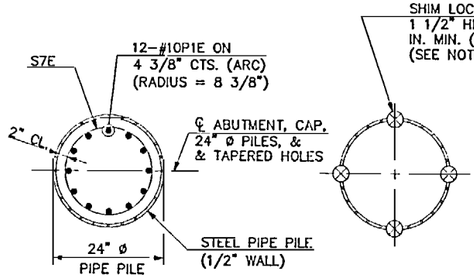
EMBEDDED STUD PLATE DETAIL
(SEE SHEET 2 OF 3 FOR ℞'S Ⓑ & Ⓒ)



SECTION A-A



ELEVATION
(SYMMETRIC ABOUT ℄ ABUTMENT 2)



SECTION B-B

SHIM DETAIL
(@ TOP OF PILE)

NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

NORTH CAROLINA PROFESSIONAL SEAL 9313 ENGINEER NEIL T. GREENLEE 3/12/99

PROJECT NO. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
ABUTMENT 2

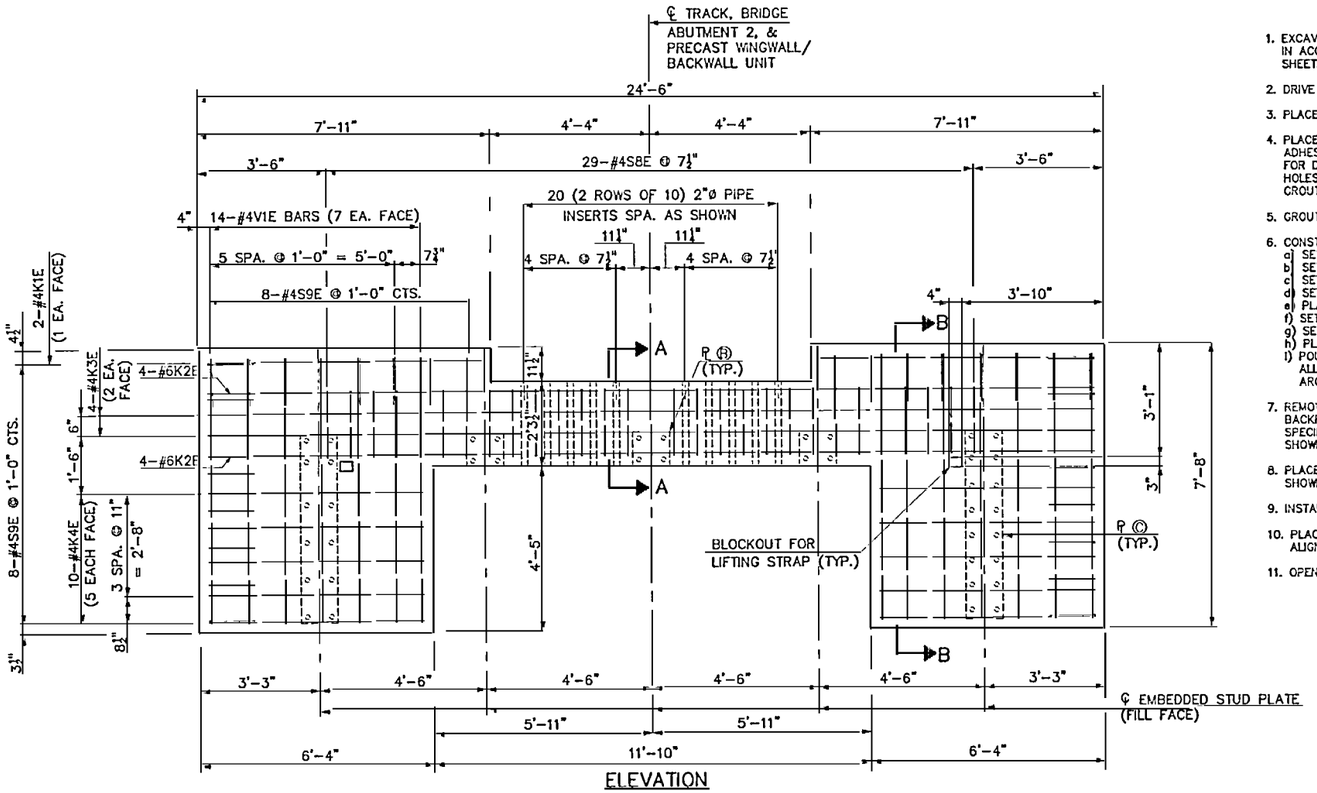
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. RAYNE DATE 1/99
CHECKED BY N. GREENLEE DATE 1/99
DWG. NO. 24

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 24
TOTAL SHEETS 43

DISTRIBUTION No. 9



ELEVATION

NOTE: REINFORCING AND DIMENSIONS SYMMETRIC ABOUT ℄ PRECAST BACKWALL/WINGWALL UNIT

SEQUENCE OF CONSTRUCTION:

1. EXCAVATE WORK AREA AS REQUIRED AND INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH DETAILS SHOWN ON "EROSION CONTROL @ ABUTMENT 2" SHEET.
2. DRIVE 24" AND 18" DIAMETER PIPE PILES.
3. PLACE PRECAST CAP UNIT ON PIPE PILES AND POUR CONCRETE PILE PLUG.
4. PLACE PRECAST BACKWALL/WINGWALL UNIT ON PRECAST CAP UNIT AND INSTALL ADHESIVELY ANCHORED DOWELS. THE CONTRACTOR MAY: 1) PREDRILL HOLES FOR DOWELS IN THE PRECAST CAP UNIT PRIOR TO PLACING THE UNIT, OR 2) DRILL HOLES IN THE PRECAST CAP UNIT AFTER PLACING BOTH UNITS USING THE 2" DIA. GROUT TUBES AS DRILL GUIDES.
5. GROUT DOWELS IN BACKWALL AS SHOWN ON THE PLANS.
6. CONSTRUCT THRUST BLOCK AS SHOWN ON THE PLANS AND AS FOLLOWS:
   a) SET PRECAST RIB NO. 1 AND REBAR CAGE FOR ADJACENT CAST-IN-PLACE RIB.
   b) SET PRECAST RIB NO. 2 AND REBAR CAGE FOR ADJACENT CAST-IN-PLACE RIB.
   c) SET PRECAST RIB NO. 3 AND REBAR CAGE FOR ADJACENT CAST-IN-PLACE RIB.
   d) SET PRECAST RIB NO. 4 AND REBAR CAGE FOR ADJACENT CAST-IN-PLACE RIB.
   e) PLACE #4K5E AND #6K8E BARS AS SHOWN ON SHEET 3 OF 3.
   f) SET PRECAST RIB NO. 5 AND REBAR CAGE FOR ADJACENT CAST-IN-PLACE RIB.
   g) SET PRECAST RIB NO. 6.
   h) PLACE #4K6E, #4K7E AND #6K9E BARS AS SHOWN ON SHEET 3 OF 3.
   i) POUR CLASS AA CONCRETE FOR THRUST BLOCK AS SHOWN ON THE PLANS. ALLOW CONCRETE TO CURE FOR AT LEAST 24 HOURS PRIOR TO BACKFILLING AROUND ABUTMENT AND THRUST BLOCK.
7. REMOVE EROSION CONTROL DEVICES INSTALLED IN STEP 1 AND COMPLETE BACKFILLING AS REQUIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PLACE SLOPE PROTECTION IN ACCORDANCE WITH DETAILS SHOWN ON "SLOPE PROTECTION @ ABUTMENT 2" SHEET.
8. PLACE ELASTOMERIC BEARINGS AND 22" PRECAST CONCRETE SLAB UNIT AS SHOWN ON THE PLANS.
9. INSTALL ANCHORING ASSEMBLIES AS SHOWN ON THE PLANS.
10. PLACE BALLAST AND TRACK (i.e. TIES, RAIL AND ASSOCIATED HARDWARE) AND ALIGN TRACK TO GRADE.
11. OPEN BRIDGE TO RAIL TRAFFIC.

NOTES:

HOOKS ON "P" BARS IN PRECAST CAP UNIT ORIENTED AS NECESSARY FOR PLACING REINFORCING STEEL.

EMBEDDED STRUCTURAL STEEL STUD PLATES CONFORM TO ASTM A36 AND WERE FABRICATED AND INSTALLED IN THE PRECAST UNITS AS SHOWN ON THE PLANS. REINFORCING IN PRECAST UNITS MAY HAVE BEEN SHIFTED SLIGHTLY AS NECESSARY TO CLEAR STUDS ON EMBEDDED STUD PLATES.

CONCRETE IN EACH PILE PLUG WAS CONTINUOUSLY PLACED UNTIL THE PLUG, PILE BLOCKOUT, AND TAPERED HOLE WERE COMPLETELY FILLED WITH CONCRETE. DURING THIS OPERATION, THE CONTRACTOR PROTECTED THE FRESH CONCRETE AGAINST TIDAL WATER INTRUSION. PROTECTIVE MEASURES REMAINED IN PLACE FOR AT LEAST 24 HOURS AFTER PLACEMENT OF THE CONCRETE.

SHIMS ARE A36 STEEL PLATES AS NOTED ON THE PLANS. FOUR EQUALLY SPACED SHIM POINTS AT TOP OF EACH PILE (AS REQUIRED) WITH 9 SQ. IN. (MIN.) OF PRECAST CAP BEARING AREA PER SHIM POINT.
SEE SHIM DETAIL SHEET 1 OF 3.

ADHESIVELY ANCHORED DOWELS ARE #8 EPOXY COATED BARS AS SHOWN ON THE PLANS CONFORMING TO ASTM A615 GRADE 60, AND INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. THE YIELD LOAD FOR THE DOWELS IS 47.4 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM WAS NOT REQUIRED. SEE SPECIAL PROVISION "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS".

GROUT IS NON-SHRINK, NON-METALLIC, PORTLAND CEMENT GROUT ATTAINING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,500 PSI AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

4" DIAMETER HOLES LOCATED IN PRECAST RIB UNITS AS SHOWN ON SHEET 3 OF 3 AND PREFORMED WITH CORRUGATED PLASTIC TUBING.

FOR ANCHORING ASSEMBLIES AND ELASTOMERIC BEARINGS, SEE "SUPERSTRUCTURE DETAILS" SHEET.

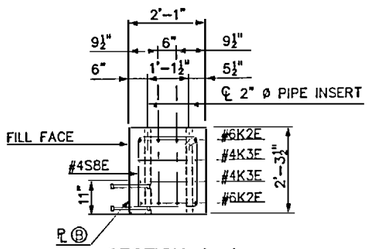
FOR PRECAST CAP, BACKWALL/WINGWALL AND RIB UNITS, SEE SPECIAL PROVISION "PRECAST CONCRETE UNITS (NON-PRESTRESSED)".

FOR STEEL PIPE PILES, SEE SPECIAL PROVISIONS. COPPER CONTENT PROVISIONS MAY BE WAIVED FOR 18" DIAMETER PIPE PILES.

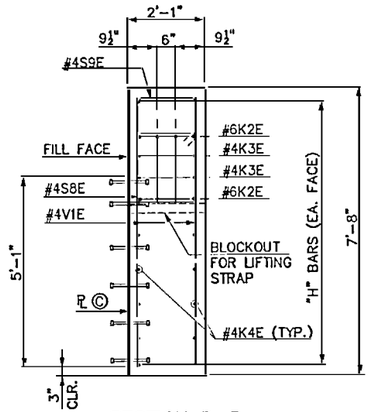
FOR INSTALLATION OF STEEL PIPE PILES, SEE SPECIAL PROVISION "COMPOSITE PILE INSTALLATION".

FOR ANCHORING ASSEMBLIES, SEE SPECIAL PROVISIONS.

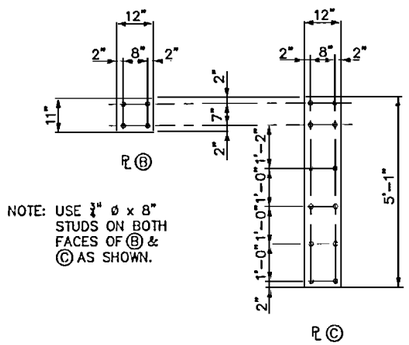
FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



SECTION A-A



SECTION B-B



NOTE: USE ½" ø x 8" STUDS ON BOTH FACES OF Ⓑ & Ⓒ AS SHOWN.

Ⓑ ℄ ½" x 11" x 1'-0" (A36)
Ⓒ ℄ ½" x 1'-0" x 5'-1" (A36)

EMBEDDED STUD PLATE DETAILS
(SEE SHEET 1 OF 3 FOR ℄ Ⓐ)

NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE 3/12/99

PROJECT No. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
ABUTMENT 2

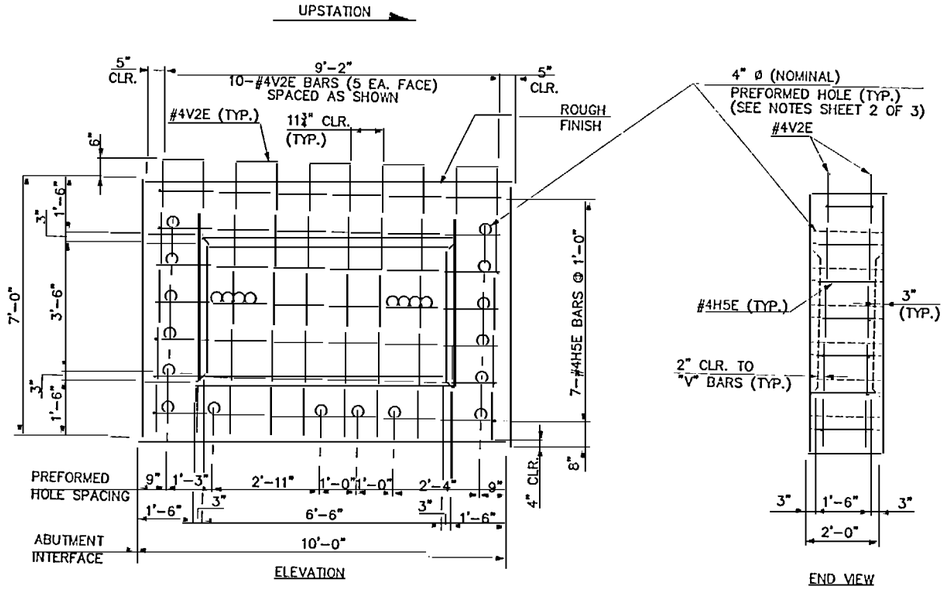
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 1/99
CHECKED BY N. GREENLEE DATE 1/99
DWG. NO. 23

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

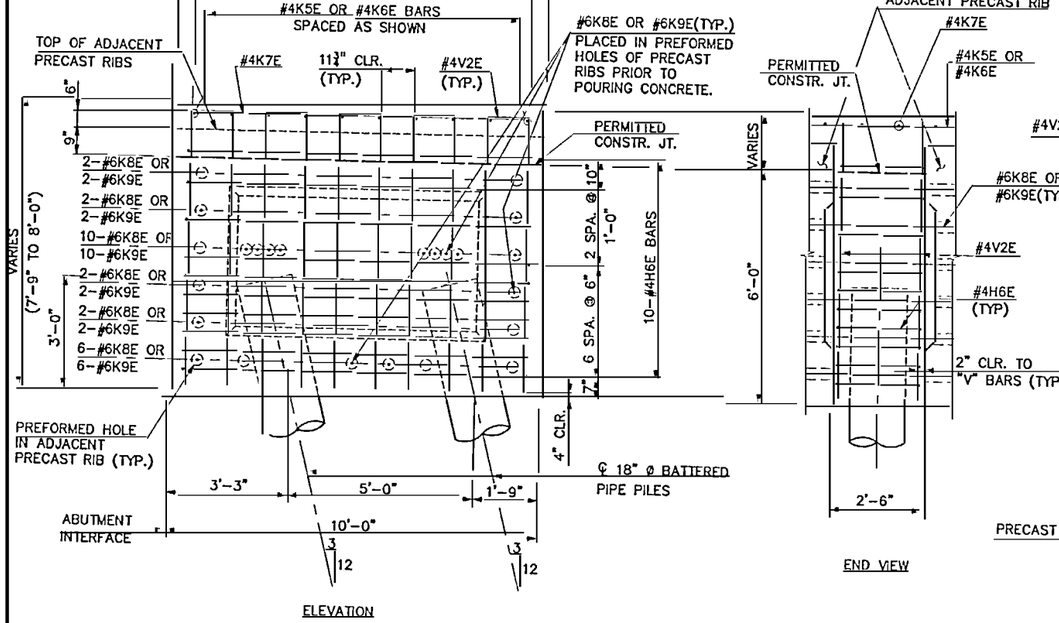
SHEET NO. 25
TOTAL SHEETS 43
DISTRIBUTION No. 9

NAME: P:\27834-bAcm\DWGS\As Built Dwgs\8344B2B.DWG DATE: MAR 2, 2000



PRECAST RIB DETAILS

NOTE: MINIMUM CLEAR COVER TO ALL REINFORCING IS 3" UNLESS NOTED.

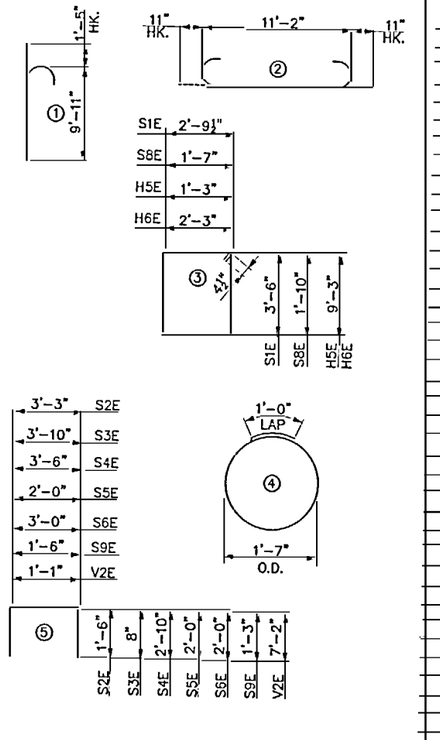


CAST-IN-PLACE RIB DETAILS

QUANTITIES

EPOXY COATED REINF. STEEL		
PRECAST CAP UNIT	LBS.	2,262
PRECAST WINGWALL/BACKWALL UNIT	LBS.	986
PRECAST RIB UNITS (TOTAL)	LBS.	1,230
CAST-IN-PLACE	LBS.	2,562
TOTAL	LBS.	7,040
GROUT	C.F.	5.0
CLASS AA CONCRETE:		
PRECAST CAP UNIT	C.Y.	7.1
PRECAST WINGWALL/BACKWALL UNIT	C.Y.	9.8
PRECAST RIB UNITS (TOTAL)	C.Y.	27.8
CAST-IN-PLACE	C.Y.	45.5
TOTAL	C.Y.	90.2
STEEL PIPE PILES – 24" ø	NO.	2
	L.F.	105
STEEL PIPE PILES – 18" ø	NO.	10
	L.F.	381

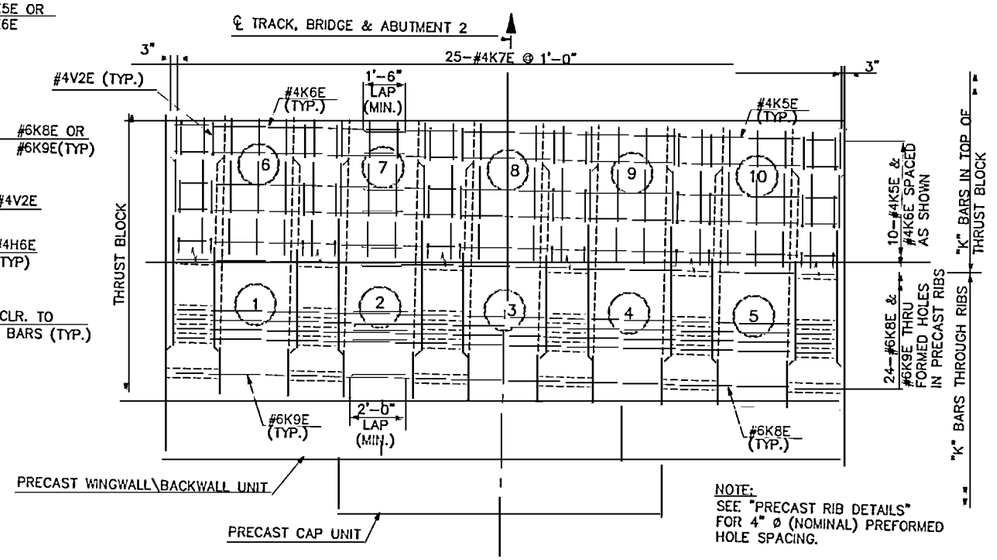
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
REINFORCING FOR 1 PRECAST CAP UNIT					
B1E	16	#8	2	13'-0"	555
B2E	4	#4	STR.	11'-2"	30
B3E	13	#4	STR.	2'-10"	25
S1E	26	#4	3	13'-4"	232
S2E	14	#4	5	6'-3"	58
S3E	8	#4	5	5'-2"	28
S4E	2	#4	5	9'-2"	12
S5E	4	#4	5	6'-0"	16
S6E	1	#4	5	7'-0"	5
S7E	58	#3	4	6'-0"	131
P1E	24	#10	1	11'-4"	1,170
REINFORCING FOR 1 PRECAST WINGWALL/BACKWALL UNIT					
D1E	20	#8	STR.	3'-2"	169
K1E	4	#4	STR.	7'-5"	20
K2E	8	#6	STR.	24'-0"	288
K3E	4	#4	STR.	24'-0"	64
K4E	20	#4	STR.	5'-10"	78
V1E	28	#4	STR.	7'-2"	134
S8E	29	#4	3	7'-7"	147
S9E	32	#4	5	4'-0"	86
REINFORCING FOR 1 PRECAST RIB UNIT (6 REQ'D)					
H5E	7	#4	3	21'-11"	102
V2E	10	#4	5	15'-5"	103
REINFORCING FOR C.I.P. THRUST BLOCK					
H6E	50	#4	3	23'-11"	799
K5E	10	#4	STR.	17'-3"	115
K6E	10	#4	STR.	8'-3"	55
K7E	25	#4	STR.	9'-6"	159
K8E	24	#6	STR.	17'-3"	622
K9E	24	#6	STR.	8'-3"	297
V2E	50	#4	5	15'-5"	515



NOTE:
SEE "PRECAST RIB DETAILS" FOR 4" ø (NOMINAL) PREFORMED HOLE SPACING.

PLAN OF THRUST BLOCK

NORTH CAROLINA SEAL 19313 7/12/99 ENGINEER NEIL T. GREENLEE

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
ABUTMENT 2

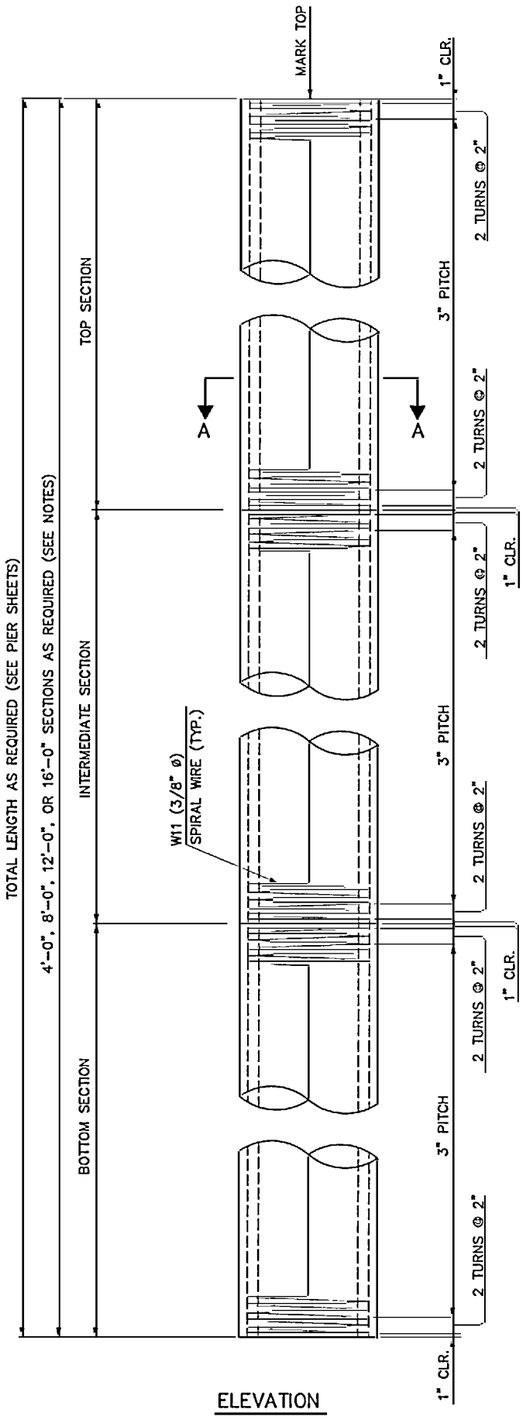
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 1/99
CHECKED BY N. GREENLEE DATE 1/99
DWG. NO. 26

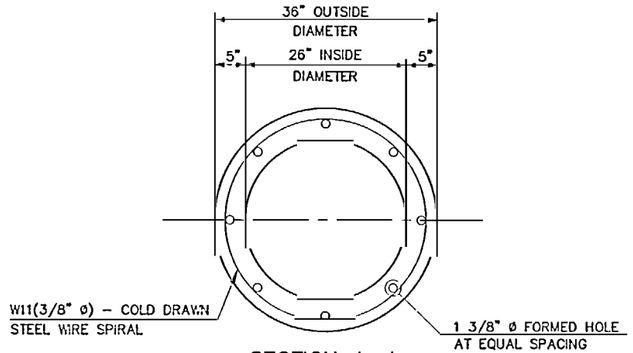
AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 26
TOTAL SHEETS 43
DISTRIBUTION No. 9

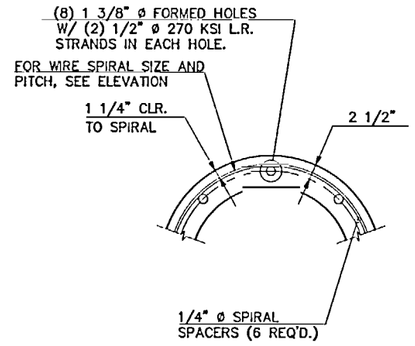
NAME: P:\27834_b&m\DWGS\As Built Dwgs\83448ZC.DWG DATE: MAR 2, 2000



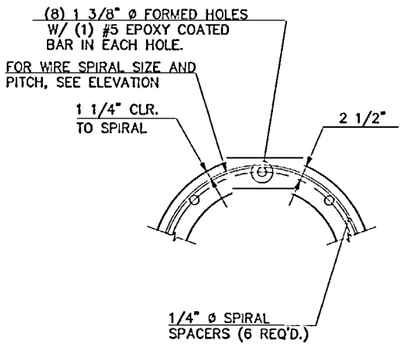
ELEVATION



SECTION A–A

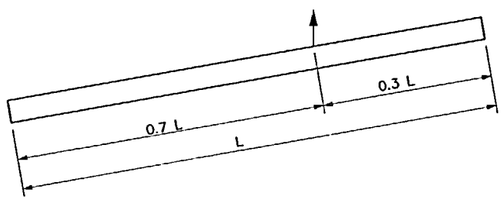


PIERS 5 – 63
(59 PIERS TOTAL)

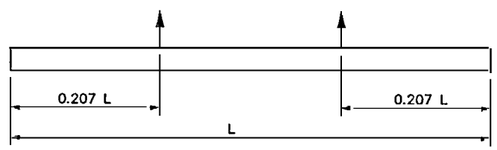


PIERS 1 – 4, 64 – 70
(11 PIERS TOTAL)

REINFORCING DETAILS



ONE POINT PICK–UP



TWO POINT PICK–UP

PILE PICK – UP DETAILS

PICK–UP NOTES

DEVICES FOR LIFTING THE PILES APPROVED BY THE ENGINEER.

ROTATION OF THE PILE IN THE SLING WAS PREVENTED UNTIL THE PILE WAS IN THE VERTICAL POSITION.

PICK–UP POINTS FOR ALL PILES CLEARLY MARKED ON PILES.

MAXIMUM LENGTHS FOR PICK–UP CALCULATED FOR BENDING STRESSES DUE TO THE WEIGHT OF THE PILE PLUS 50 PERCENT ALLOWABLE FOR IMPACT, WITH CONCRETE TENSILE STRESS LIMITED TO $6\sqrt{f'c}$

NOTES:

PRESTRESSED CONCRETE CYLINDER PILE SLEEVES FABRICATED IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE SPECIAL PROVISIONS. MINIMUM COMPRESSIVE STRENGTH ($f'c$) WAS 7,000 psi AT 28 DAYS PER THE SPECIAL PROVISIONS. THE INITIAL AVERAGE UNIT PRESTRESS PER TENDON WAS 203 ksi.

PRESTRESSING STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESSING
1/2" ø	270LR	.153 IN²	41.3 KIPS/STRAND	31 KIPS/STRAND

PRESTRESSED CONCRETE CYLINDER PILE SLEEVES FOR PIERS 5 – 63 (59 PIERS TOTAL) POST–TENSIONED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. FOR PIERS 1 – 4 AND 64 – 70 (11 PIERS TOTAL), SLEEVES CONTAIN ONLY MILD REINFORCING PER THE DETAILS SHOWN ON THIS SHEET AND THE SPECIAL PROVISIONS.

FABRICATION TOLERANCES AND DETENSIONING SEQUENCE OF THE PRESTRESSED CONCRETE PILE WERE AS REQUIRED BY THE SPECIAL PROVISIONS.

THE W11 COLD–DRAWN STEEL WIRE SPIRAL RIENFORCEMENT IS "AS COLD DRAWN" CONFORMING TO ASTM DESIGNATION A82. THE SPIRAL REINFORCING STEEL IS WELDED TO THE LONGITUDINAL WIRES.

TOTAL LENGTH OF SLEEVES IS AS NOTED IN THE PLANS (SEE PIER SHEETS). INDIVIDUAL PILE SECTIONS IN 4'–0", 8'–0", 12'–0" AND 16'–0" LENGTHS WERE JOINED TOGETHER IN ORDER TO ACHIEVE THE TOTAL LENGTHS SHOWN IN THE PLANS. TOTAL LENGTHS ACHIEVED USING AS FEW INDIVIDUAL PILE SECTIONS AS POSSIBLE.

ALL PILES CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

THE WATER/CEMENT RATIO FOR PILES DOES NOT EXCEED 0.40.

FOR PRESTRESSED CONCRETE CYLINDER PILE SLEEVES, SEE SPECIAL PROVISIONS.

PROJECT NO. P–3100

CARTERET COUNTY

STATION: POT 10+00.00 –L–

MILE POST EC94.90

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19313 NEIL T. GREENLEE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

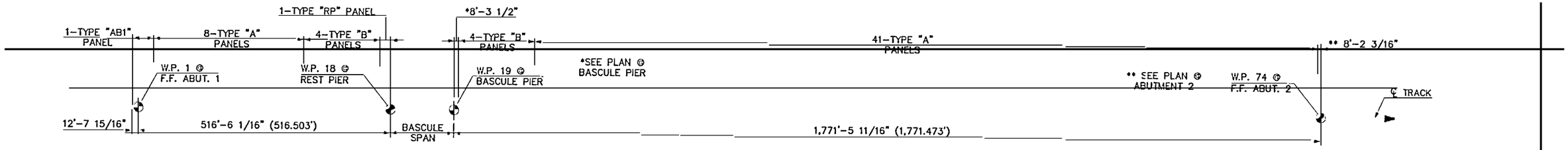
PRESTRESSED CONCRETE
CYLINDER PILE SLEEVE

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

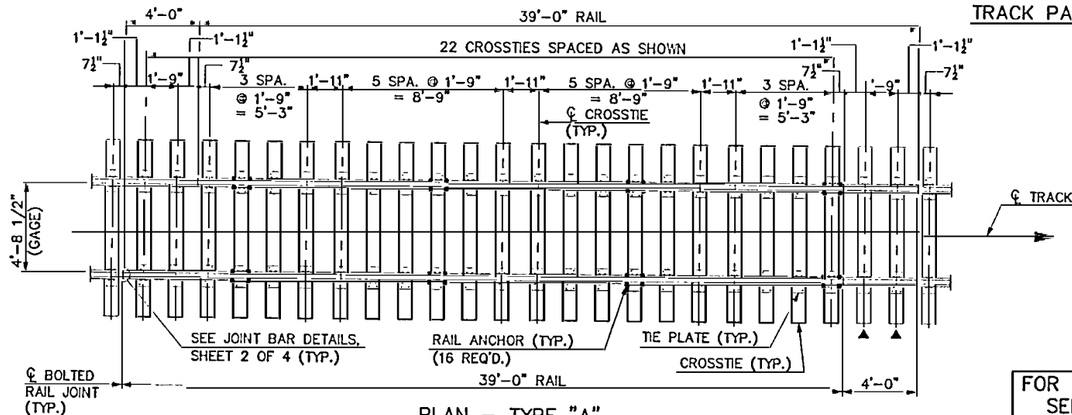
AS-BUILT PLANS

DRAWN BY J. RAYNE DATE 1/98
CHECKED BY N. GREENLEE DATE 3/98
DWG. NO. 27
CERTIFIED BY: NTG DATE: 3/00

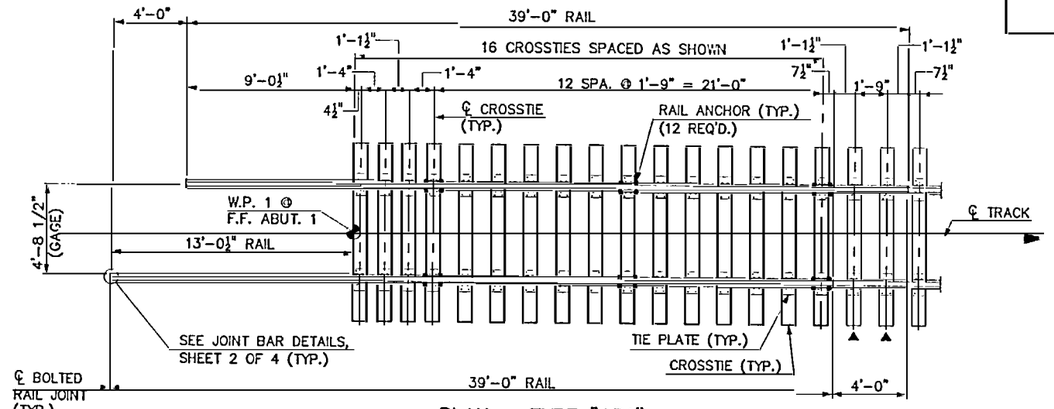
SHEET NO. 27
TOTAL SHEETS 43
DISTRIBUTION No. 1



TRACK PANEL LOCATION SCHEMATIC

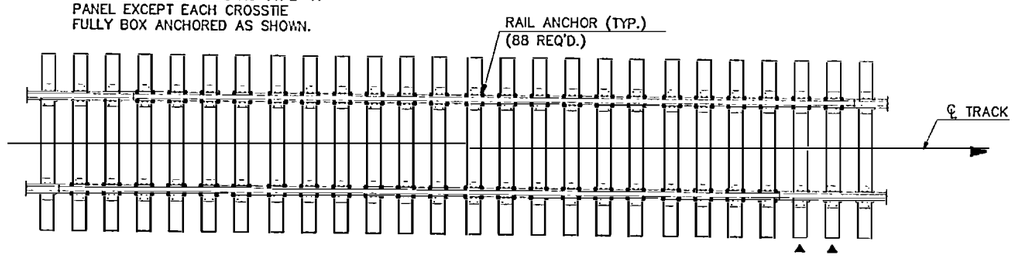


PLAN – TYPE "A"
(49 REQ'D.)



PLAN – TYPE "AB1"
(1 REQ'D.)

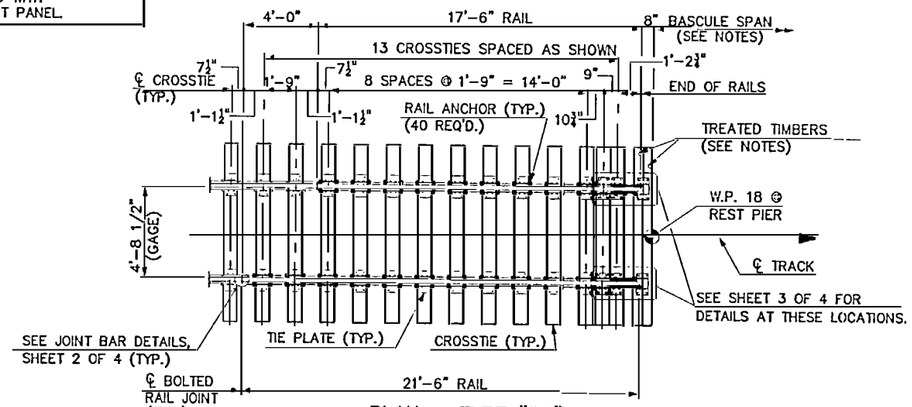
NOTE:
TYPE "B" PANEL SAME AS TYPE "A" PANEL EXCEPT EACH CROSSTIE FULLY BOX ANCHORED AS SHOWN.



PLAN – TYPE "B"
(8 REQ'D.)

FOR TRACKWORK NOTES, SEE SHEET 2 OF 4.

▲ CROSSTIES INDICATED INCLUDED WITH ADJACENT PANEL.



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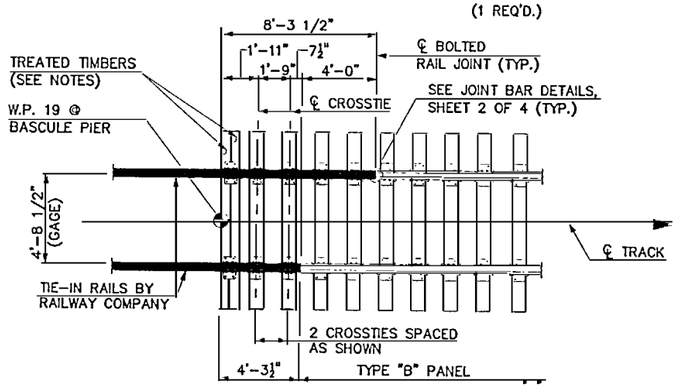
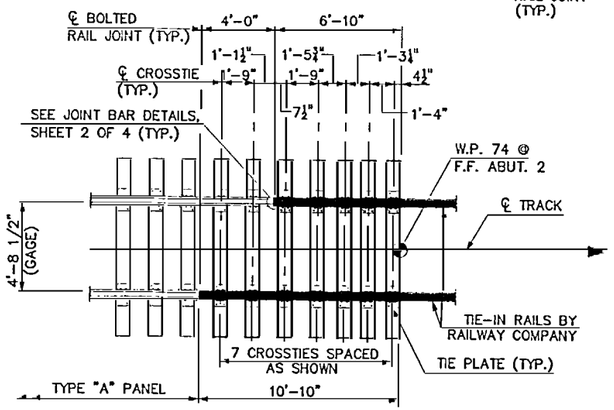
(1 REQ'D.)



PLAN @ BASCULE PIER



PLAN @ ABUTMENT 2

PROJECT NO. P–3100
CARTERET COUNTY
STATION: POT 10+00.00 –L–
MILE POST EC94.90
SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRACKWORK

NORTH CAROLINA SEAL 19313 ENGINEER NEIL T. GREENLEE 11/5/98

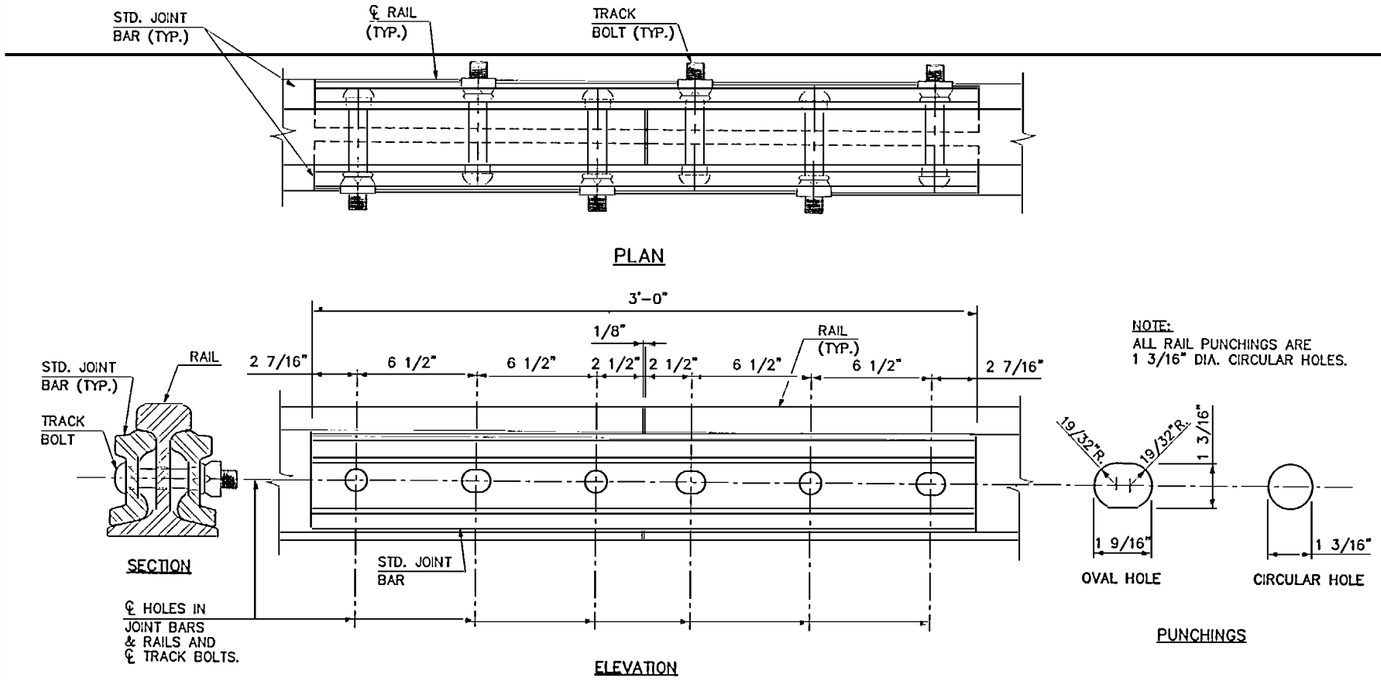
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

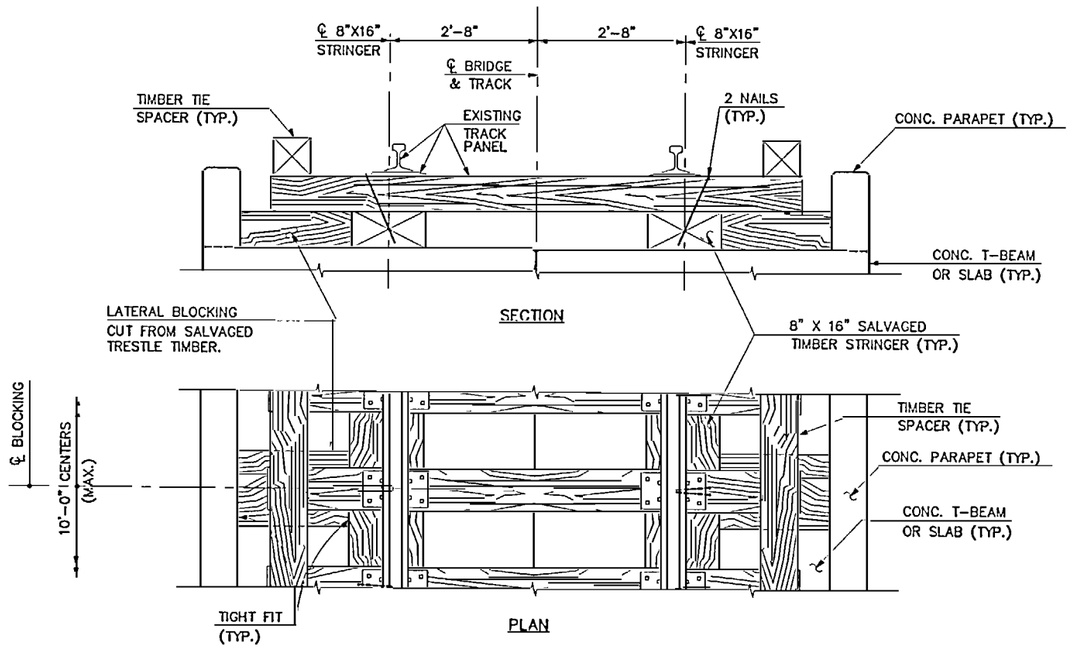
DRAWN BY M WRIGHT DATE 11/98
CHECKED BY N GREENLEE DATE 11/98
DWG. NO. 28
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 28
TOTAL SHEETS 43
DISTRIBUTION No. 7

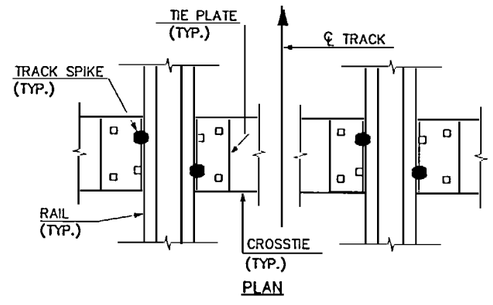
NAME P:\27634\DWGS\As Built Dwgs\B347RWK1.DWG DATE: MAR 6, 2000



STANDARD JOINT BAR DETAILS



TEMPORARY TRACK SUPPORT DETAILS



TYPICAL SPIKING PATTERN

NOTES:

ALL TRACKWORK MATERIALS SHOWN ON THE TRACKWORK PLANS FURNISHED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

FOR TRACK PANEL LOCATION SCHEMATIC AND TRACK PANEL DETAILS, SEE SHEET 1 OF 4.

CROSSTIES SPIKED IN ACCORDANCE WITH THE TRACK SPIKING PATTERN SHOWN ON THIS SHEET UNLESS NOTED OTHERWISE.

DEPTH OF STONE BALLAST UNDER CROSSTIES IS 5" MINIMUM.

TREATED TIMBERS ARE 6" x 6" x 8'-6" CONFORMING TO THE MATERIAL SPECIFICATION FOR CROSSTIES IN THE "TRACKWORK" SPECIAL PROVISION. SEE SHEET 1 OF 4 FOR DETAILS.

A TOTAL OF 8 GAGE RODS WERE LOCATED ON THE BRIDGE AS FOLLOWS: ONE GAGE ROD IN THE FIRST BALLASTED TIE SPACE EAST OF WORK POINTS 1 AND 19 AND WEST OF WORK POINTS 18 AND 74. PLACE AN ADDITIONAL GAGE ROD IN THE FIRST BALLASTED TIE SPACE AT LEAST 12' EAST OF WORK POINTS 1 AND 19 AND AT LEAST 12' WEST OF WORK POINTS 18 AND 74. GAGE RODS FOR THE BASCULE SPAN SHALL BE LOCATED AS DIRECTED BY THE OPERATING RAILROAD.

COMPROMISE JOINT BARS FURNISHED BY THE CONTRACTOR FOR TEMPORARY JOINING OF DISSIMILAR RAIL SECTIONS. BARS PUNCHED TO MATCH RAIL ENDS AND COMPATIBLE WITH THE RAIL SECTIONS BEING JOINED.

FOR DETAILS OF SPECIAL TIE PLATES, RAIL PLATES, BRACKETS, END-WELDED STUDS, NUTS & WASHERS, SEE SHEET 3 OF 4.

STRUCTURAL STEEL CONFORMS TO THE FOLLOWING:
- GUIDE PLATES, BASE PLATES, FILL PLATES & RIB PLATES: A36
- SPECIAL TIE PLATES & RAIL PLATES: A572, GRADE 65
- END-WELDED STUDS, NUTS & WASHERS: A325

FOR TEMPORARY GRADE RAISE DETAILS, SEE SHEET 4 OF 4.

SEE "TRACKWORK" SPECIAL PROVISION FOR THE FOLLOWING:
- RAIL, STANDARD JOINT BARS, COMPROMISE JOINT BARS, TRACK BOLTS, TIE PLATES, TRACK SPIKES, RAIL ANCHORS, GAGE RODS, CROSSTIES AND STONE BALLAST
- FABRICATION OF TRACK PANELS
- INSTALLATION OF TRACK PANELS
- TEMPORARY GRADE RAISES
- BASCULE SPAN TRACKWORK

NAME P:\27834\DWGS\As Built Dwgs\BAS41RWK2.DWG DATE: FEB 26, 2000

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRACKWORK

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

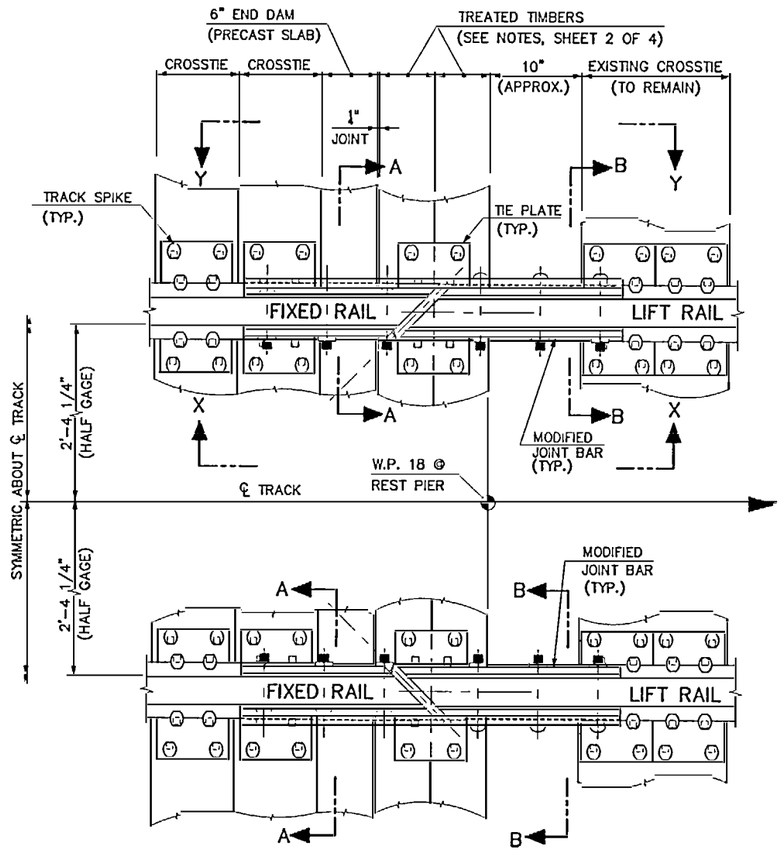
DRAWN BY M. WRIGHT DATE 11/98
CHECKED BY N. GREENLEE DATE 11/98
DWG. NO. 29

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

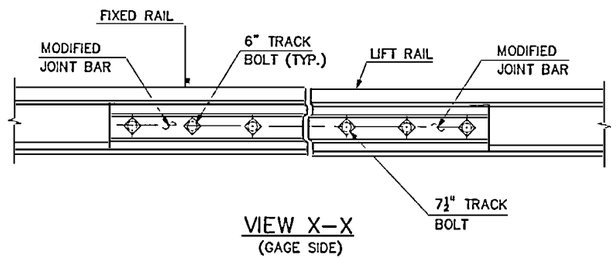
SHEET NO. 29
TOTAL SHEETS 43

DISTRIBUTION No. 7

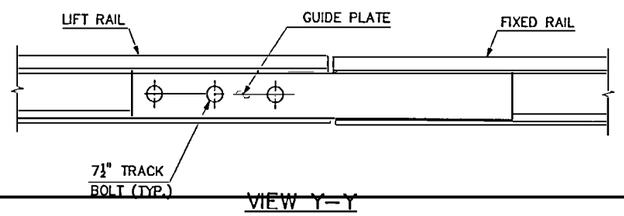
FOR NOTES, SEE SHEET 2 OF 4.



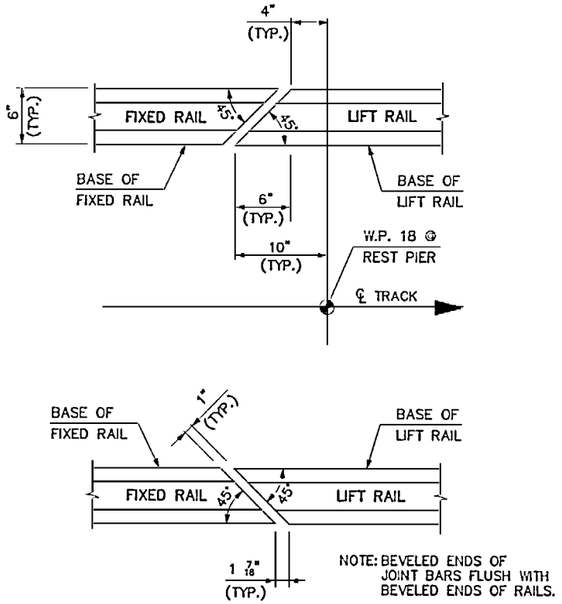
PLAN @ REST PIER



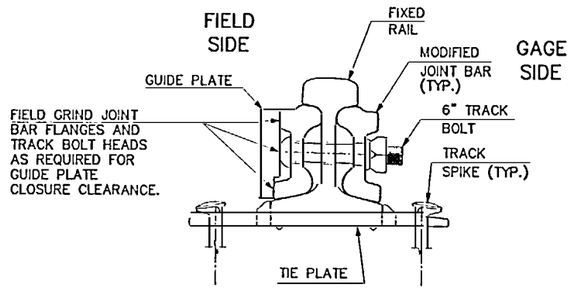
VIEW X–X
(GAGE SIDE)



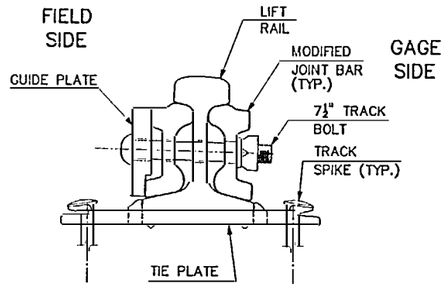
VIEW Y–Y
(FIELD SIDE)



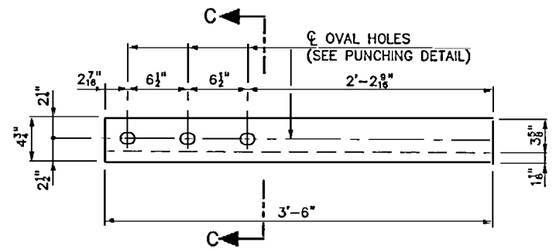
END OF RAIL DETAIL



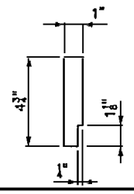
SECTION A–A



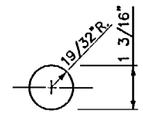
SECTION B–B



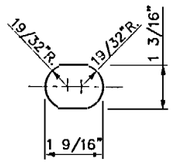
GUIDE PLATE DETAIL



SECTION C–C



ROUND HOLE



OVAL HOLE
PUNCHING DETAIL

PROJECT No. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 –L–
MILE POST EC94.90
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRACKWORK

NORTH CAROLINA PORTS RAILWAY COMMISSION
1717 Woodbine Street, Wilmington, NC 28401

APPROVED BY W. C TAYLOR, GENERAL MANAGER

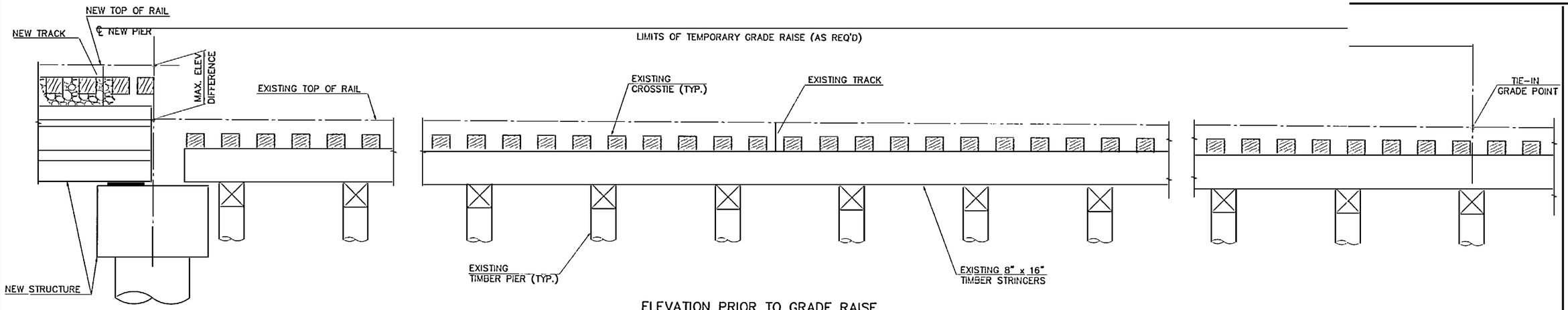
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 2/99
CHECKED BY N. GREENLEE DATE 2/99
DWG. NO. 30

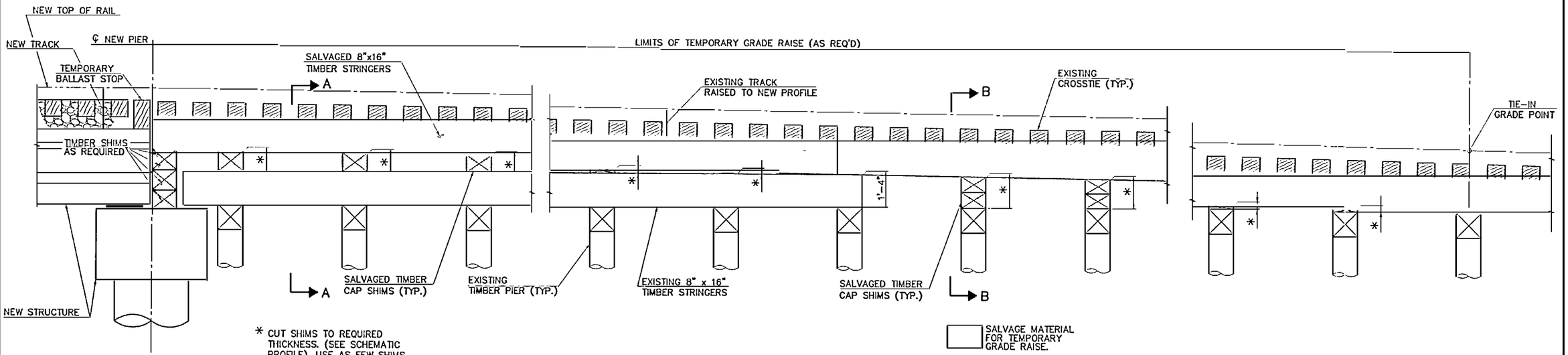
AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 30
TOTAL SHEETS 43
DISTRIBUTION No. 8

NORTH CAROLINA SEAL 19313 ENGINEER NEIL T. GREENLEE 2/17/99

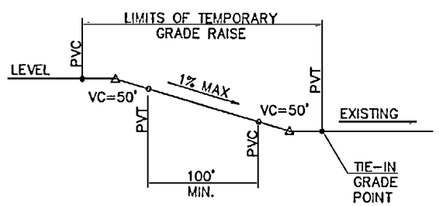


ELEVATION PRIOR TO GRADE RAISE

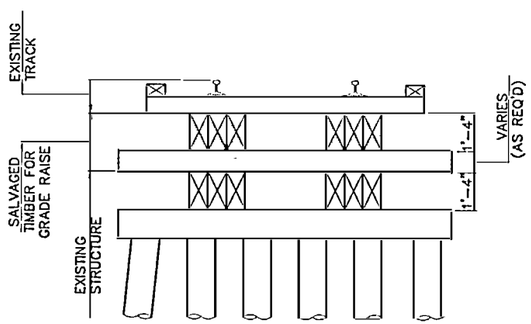


* CUT SHIMS TO REQUIRED THICKNESS. (SEE SCHEMATIC PROFILE). USE AS FEW SHIMS AS PRACTICABLE.

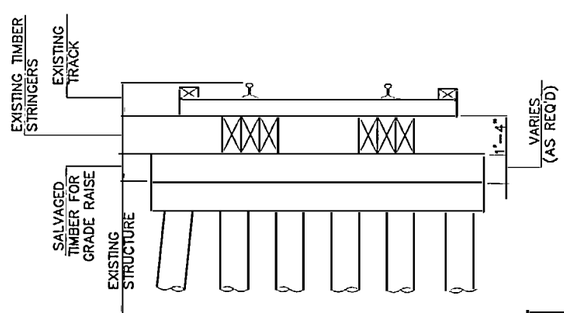
ELEVATION AFTER GRADE RAISE



SCHEMATIC PROFILE



SECTION A–A



SECTION B–B

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRACKWORK

NORTH CAROLINA ENGINEER SEAL 19513 NEIL T. GREENLEE

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY J. RAYNE DATE 11/98
CHECKED BY N. GREENLEE DATE 11/98
DWG. NO. 31

AS-BUILT PLANS

CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 31
TOTAL SHEETS 43
DISTRIBUTION No. 7

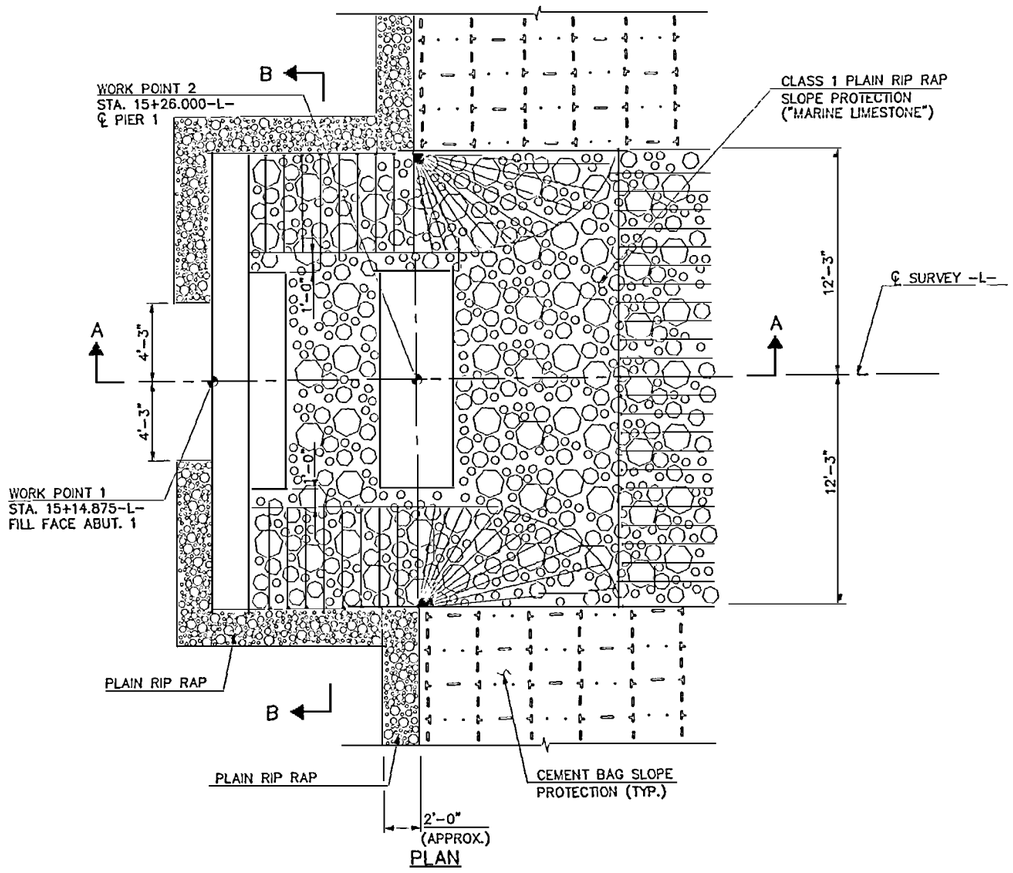
NAME: P:\2784\DWGS\44 Built Dwgs\834TRNK4.DWG DATE: MAR 6, 2000

NOTES:

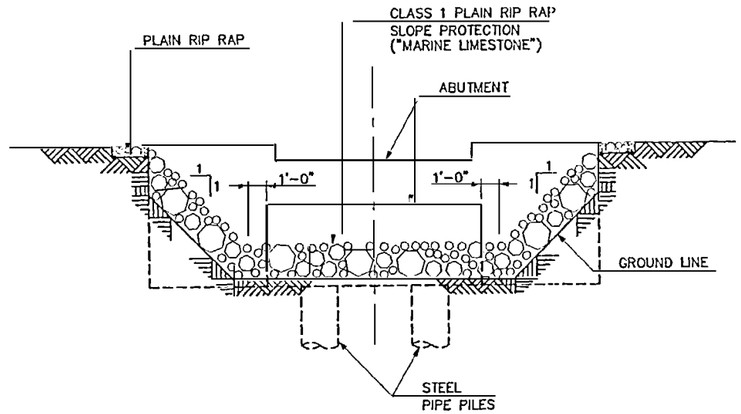
RIP RAP IS CLASS 1 PLAIN ("MARINE LIMESTONE") AS SHOWN CONFORMING TO THE STANDARD SPECIFICATIONS.

BACKFILL MATERIALS AND PROCEDURES CONFORM TO THE STANDARD SPECIFICATIONS.

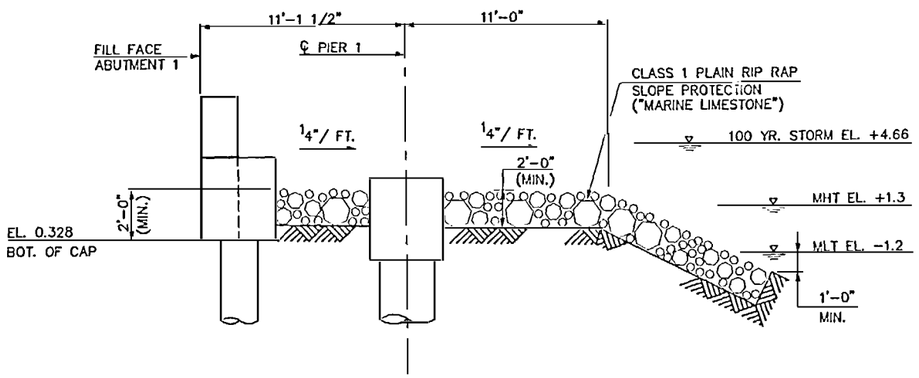
EROSION CONTROL MEASURES AS SHOWN ON "EROSION CONTROL @ ABUTMENT 1" SHEET.



PLAN



SECTION B-B



SECTION A-A

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
SLOPE PROTECTION
@ ABUTMENT 1

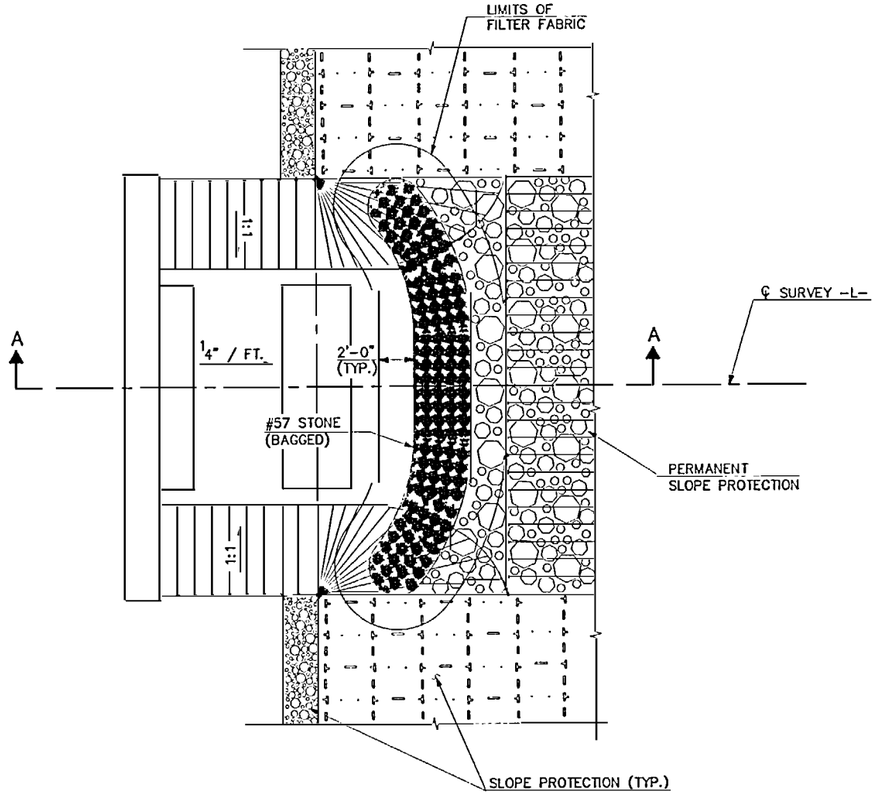
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

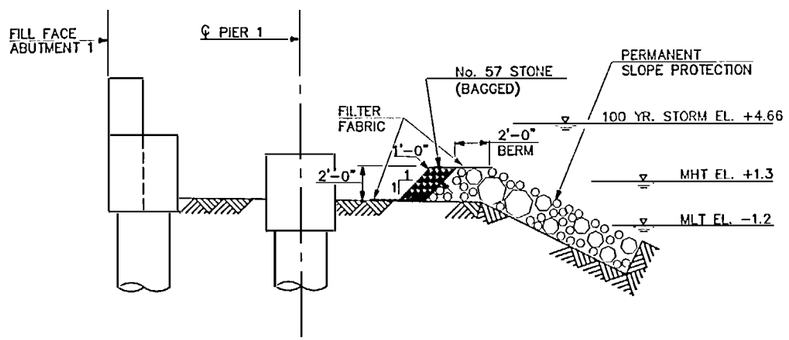
DRAWN BY M. WRIGHT DATE 7/98
CHECKED BY N. GREENLEE DATE 7/98
DWG. NO. 32
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 32
TOTAL SHEETS 43
DISTRIBUTION No. 5

NAME: P:\27841\Dwgs\As Built Dwgs\18345SB01.DWG DATE: MAR 2, 2000



PLAN



SECTION A-A

NOTES

THE SEQUENCE OF CONSTRUCTION INVOLVES REMOVAL OF THE EXISTING RAILROAD TRESTLE AND SLOPE PROTECTION AT THE LOCATION SHOWN FOLLOWED BY IMMEDIATE CONSTRUCTION OF THE PROPOSED ABUTMENT, PIER AND PERMANENT SLOPE PROTECTION AT THE SAME LOCATION. THIS PROCEDURE WILL BE PERFORMED WITHIN A FOUR DAY PERIOD IN ORDER TO MAINTAIN SCHEDULED RAIL TRAFFIC. IF CONSTRUCTION OF THE PROPOSED ABUTMENT AND PIER CAN NOT BE COMPLETED IN A SINGLE FOUR DAY PERIOD AND THE ENGINEER BELIEVES EROSION CONTROL MEASURES ARE NECESSARY, THEN SUCH MEASURES SHALL BE IMPLEMENTED AS FOLLOWS:

1. PLACE PROPOSED PERMANENT SLOPE PROTECTION TO THE LIMITS SHOWN.
2. PLACE FILTER FABRIC AND NO. 57 STONE (BAGGED) AS SHOWN.

THE NO. 57 STONE MAY BE LEFT IN PLACE AS PART OF THE PROPOSED PERMANENT SLOPE PROTECTION AT THE DISCRETION OF THE ENGINEER.

FOR DETAILS OF PROPOSED PERMANENT SLOPE PROTECTION, SEE "SLOPE PROTECTION @ ABUTMENT 1" SHEET.

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL
@ ABUTMENT 1

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

AS-BUILT PLANS

SHEET NO. 33

DRAWN BY J BAYNE DATE 7/98
CHECKED BY N. GREENLEE DATE 7/98

DWG. NO. 33

CERTIFIED BY: NTG DATE: 3/00

TOTAL SHEETS 43

DISTRIBUTION No. 5

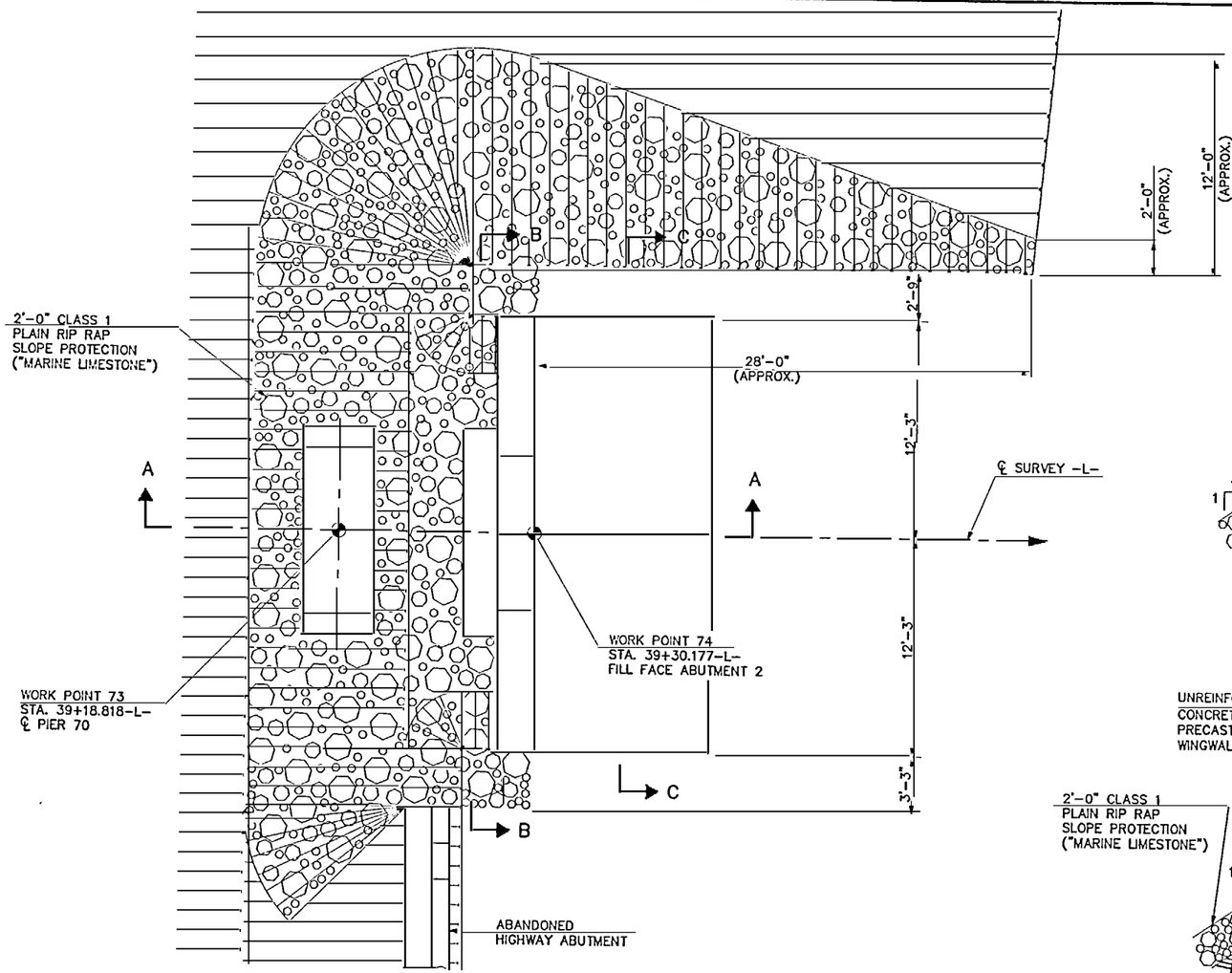
NAME: P:\2783A\DWGS\As Built Dwgs\834ERCON.DWG DATE: MAR 2, 2000

NOTES

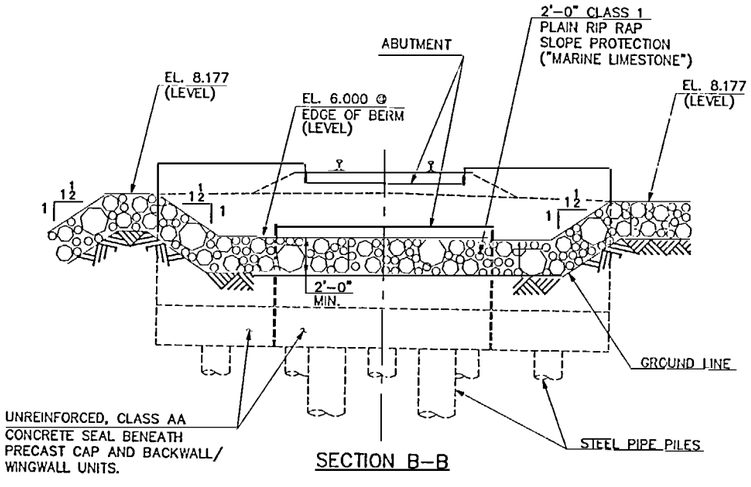
RIP RAP IS CLASS 1 PLAIN ("MARINE LIMESTONE") CONFORMING TO THE STANDARD SPECIFICATIONS. TOTAL QUANTITY CLASS 1 PLAIN RIP RAP FURNISHED IS 108 TONS (80 CY).

BACKFILL MATERIALS AND PROCEDURES CONFORM TO THE STANDARD SPECIFICATIONS OR AS APPROVED BY THE ENGINEER.

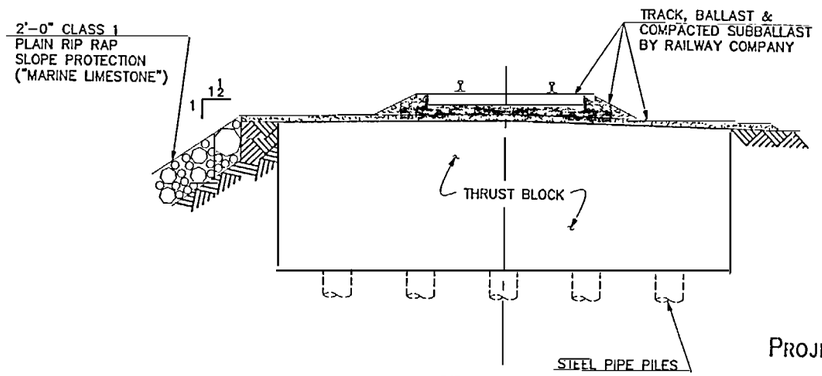
FOR SEQUENCE OF CONSTRUCTION AT ABUTMENT 2 AND PIER 70, SEE "ABUTMENT 2 (SHEET 2 OF 3)" AND "SEQUENCE OF CONSTRUCTION" SHEETS.



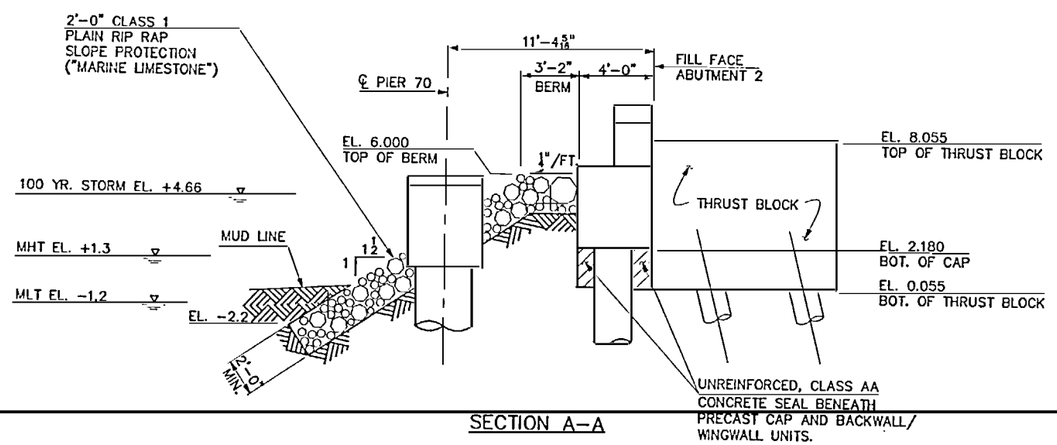
PLAN



SECTION B-B



SECTION C-C



SECTION A-A

NAME P:\27634_bmh\DWGS\As Built Dwgs\834SLPR2.DWG DATE MAR 8, 2000

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
SLOPE PROTECTION
@ ABUTMENT 2

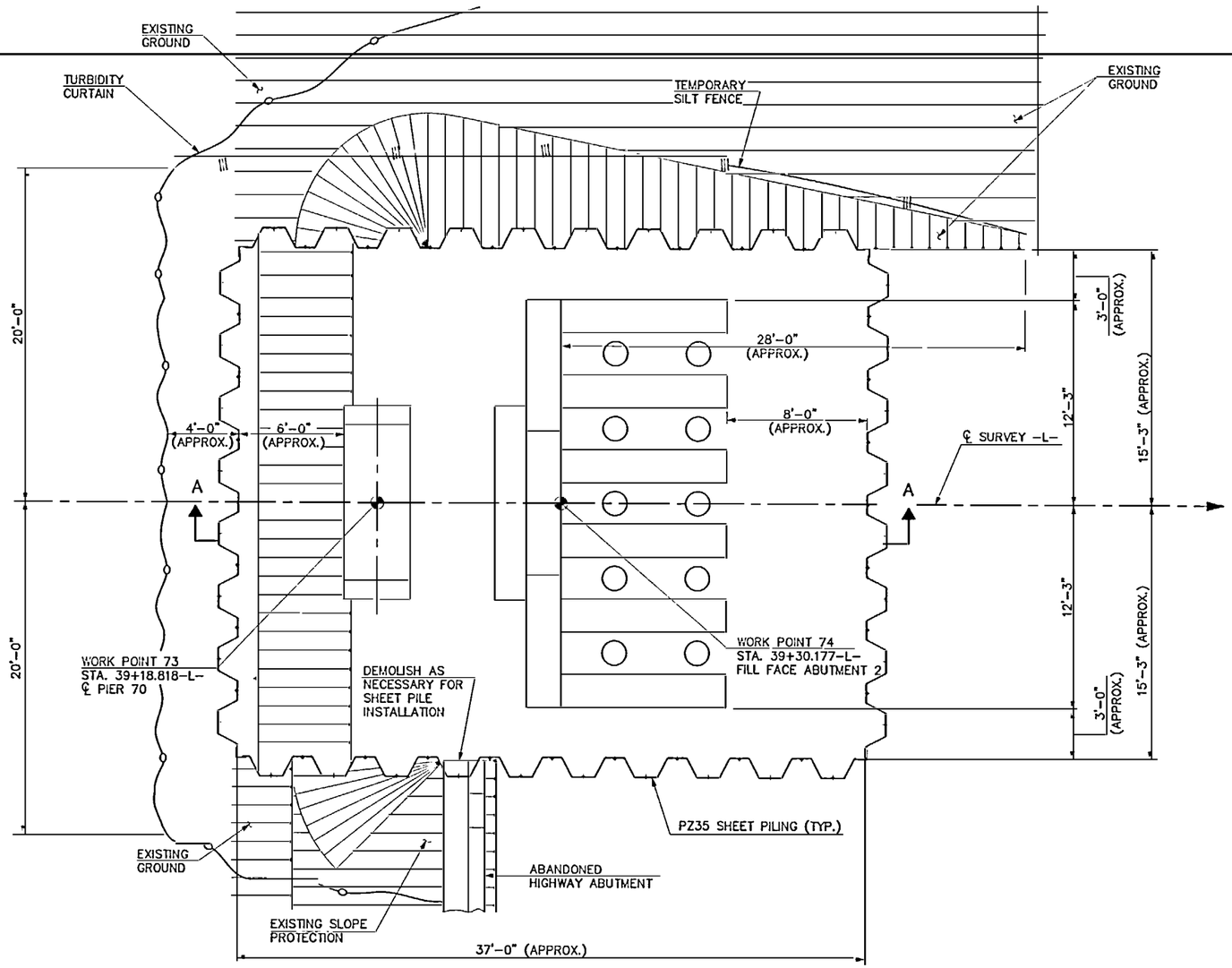
NORTH CAROLINA SEAL 19313 ENGINEER NEIL T. GREENLEE 3/99

HNTB NORTH CAROLINA, P.C.
343 E Six Forks Road, Suite 200, Raleigh, NC 27609

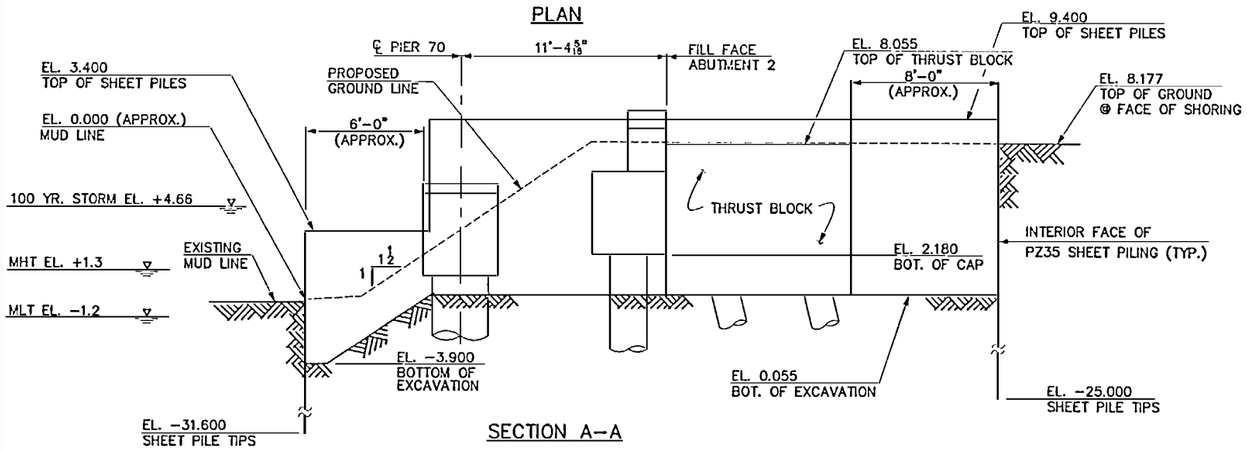
DRAWN BY J. BAYNE DATE 3/99
CHECKED BY N. GREENLEE DATE 3/99
DWG. NO. 34

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 34
TOTAL SHEETS 43
DISTRIBUTION No. 11



PLAN



SECTION A-A

NOTES

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS SHOWN ON THIS SHEET. THEY SHALL BE EMPLOYED PRIOR TO INSTALLATION OF TEMPORARY SHEET PILING AND SHALL REMAIN IN PLACE UNTIL PERMANENT BACKFILL AND SLOPE PROTECTION ARE PLACED.

THE CONTRACTOR SHALL SUBMIT A PLAN FOR BRACING OF TEMPORARY SHORING AND TRACK SUPPORT FOR APPROVAL BY THE ENGINEER SHOULD IT BE NECESSARY TO RUN TRAINS BEFORE THE EXCAVATED AREA CAN BE BACKFILLED.

FOR DETAILS OF PIER 70, SEE "PIERS 1 – 70" SHEETS.

FOR DETAILS OF ABUTMENT 2, SEE "ABUTMENT 2" SHEETS.

FOR DETAILS OF PROPOSED PERMANENT SLOPE PROTECTION, SEE "SLOPE PROTECTION @ ABUTMENT 2" SHEET.

NAME: P:\27834_Jsmith\DWGS\44 Built Dwgs\B34ECG02.DWG DATE: MAR 3, 2000

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

NORTH CAROLINA SEAL 9343 ENGINEER NEIL T. GREENLEE 3/99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
TEMPORARY SHORING & EROSION CONTROL @ ABUTMENT 2

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, NC 27609

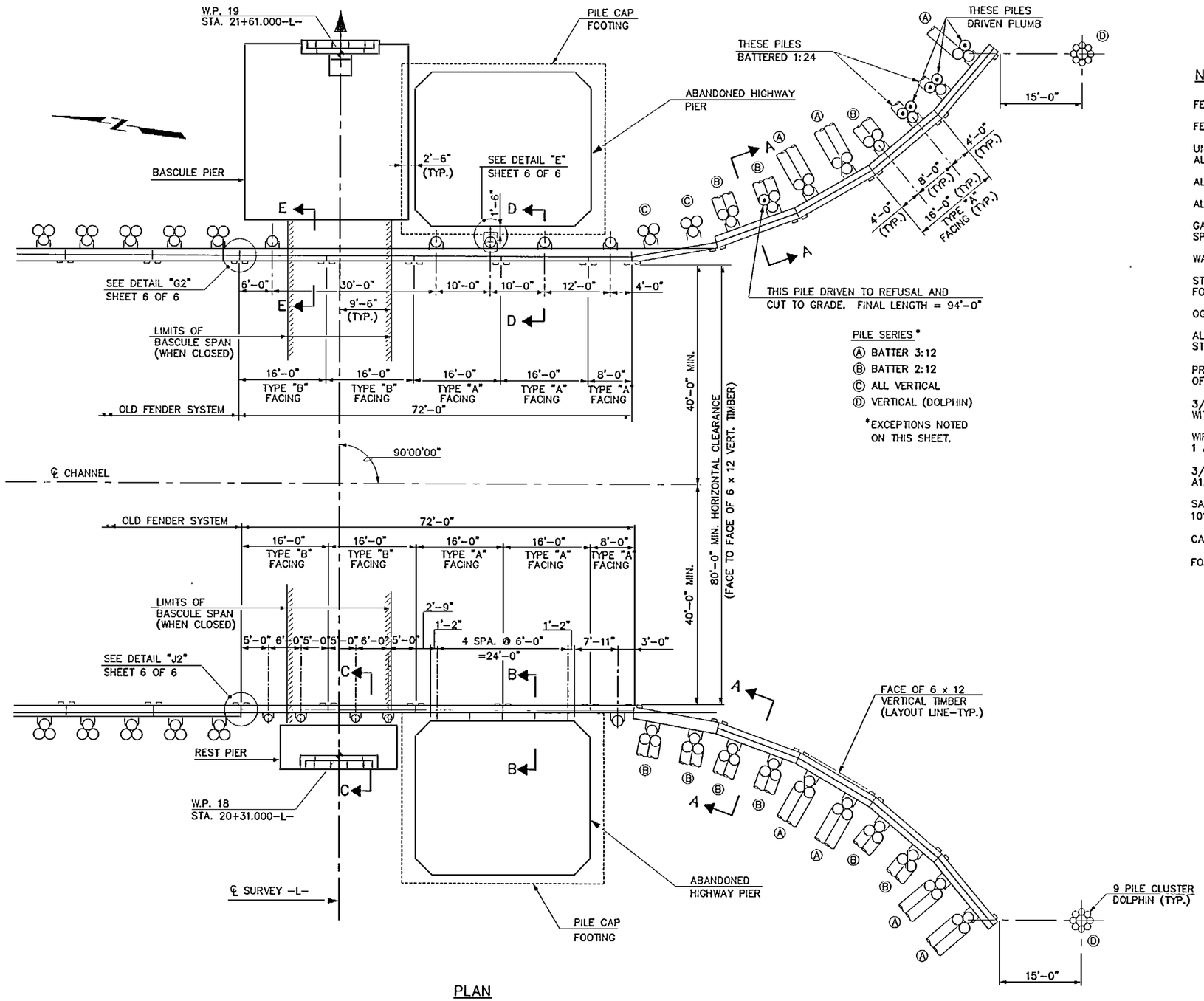
DRAWN BY J BAYNE DATE 3/99
CHECKED BY N GREENLEE DATE 3/99
DWG. NO. 35

AS-BUILT PLANS

CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 35
TOTAL SHEETS 43

DISTRIBUTION No. 11



PLAN

NOTES:

FENDER SYSTEM DESIGNED FOR DEAD LOAD OF SYSTEM COMPONENTS ONLY.

FENDER SYSTEM CONSTRUCTED OF NEW MATERIAL.

UNLESS NOTED, STEEL PIPE PILES ARE A252 GRADE 3 WITH 0.2% Cu ADDED. ALL OTHER STRUCTURAL STEEL IS A36 WITH 0.2% Cu ADDED.

ALL HIGH STRENGTH BOLTS AND ASSOCIATED HARDWARE IS A325 GALVANIZED.

ALL A307 BOLTS AND ASSOCIATED HARDWARE IS GALVANIZED.

GALVANIZING, IS IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS OR AS NOTED ON THE PLANS.

WASHERS ARE USED UNDER HEADS AND NUTS.

STANDARD WASHERS USED FOR STRUCTURAL STEEL AND OGEE WASHERS USED FOR TIMBER.

OGEE WASHERS CONFORM TO ASTM A47 CLASS 30.

ALL TREATED TIMBER CONFORMS TO SECTION 1082-2 AND 1082-3 OF THE STANDARD SPECIFICATIONS AS APPLICABLE.

PRESERVATIVE IS CHROMATED COPPER ARSENATE (CCA) WITH MINIMUM RETENTION OF 2.5 LBS OF DRY CHEMICAL PER CUBIC FOOT OF WOOD.

3/4" DIA. WIRE ROPE IS CLASS 6x19 FIBRE CORE GALVANIZED IN ACCORDANCE WITH ASTM A603 CLASS A.

WIRE ROPE CLIPS CONFORM TO FEDERAL SPECIFICATION FF-C-450 TYPE 1 CLASS 1 AND ARE GALVANIZED IN ACCORDANCE WITH ASTM A123.

3/8" DIA. STAPLES ARE 5" LONG AND GALVANIZED IN ACCORDANCE WITH ASTM A123.

SAND FILL IN PIPE PILES MEETS THE APPLICABLE REQUIREMENTS OF SECTION 1014-1(A) OF THE STANDARD SPECIFICATIONS.

CAST-IN-PLACE CONCRETE IS CLASS "AA" PER THE STANDARD SPECIFICATIONS.

FOR PILE SPLICE DETAILS SEE "PIERS 1-70 (SHEET 2 OF 2)".

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FENDER SYSTEM

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE 3/25/99

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 1/99
CHECKED BY N. GREENLEE DATE 1/99

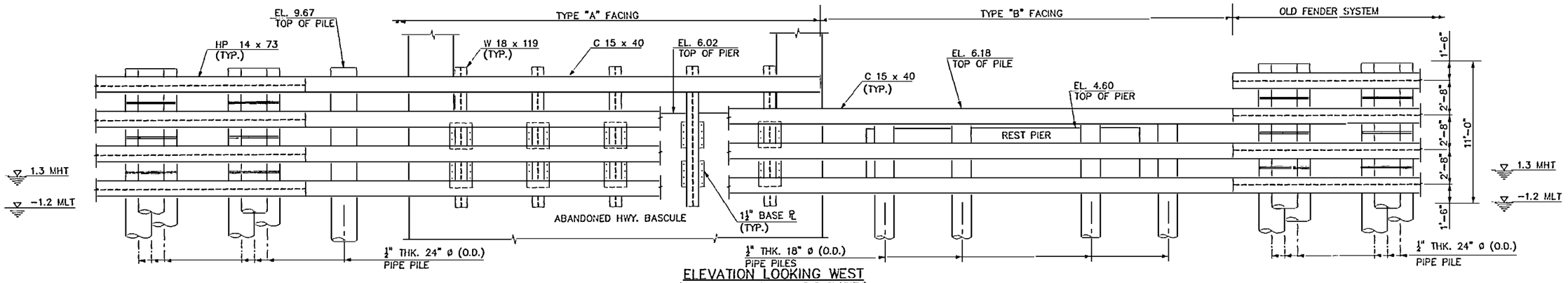
DWG. NO. 36

AS-BUILT PLANS

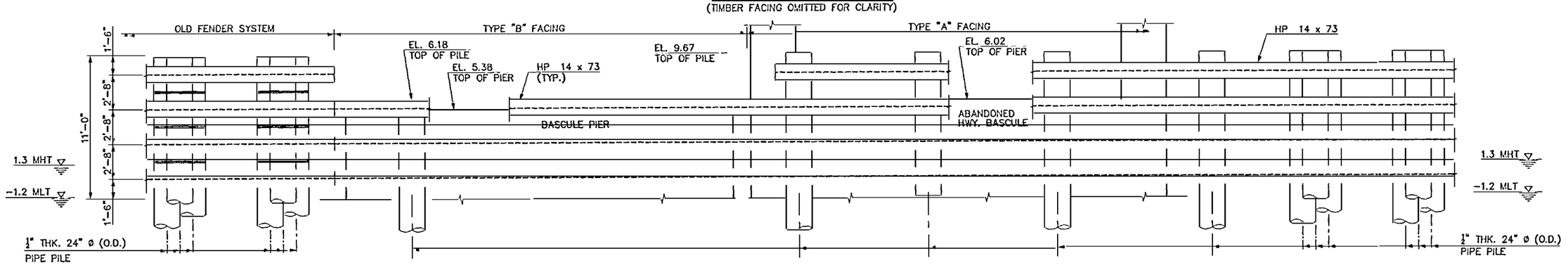
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 36
TOTAL SHEETS 43

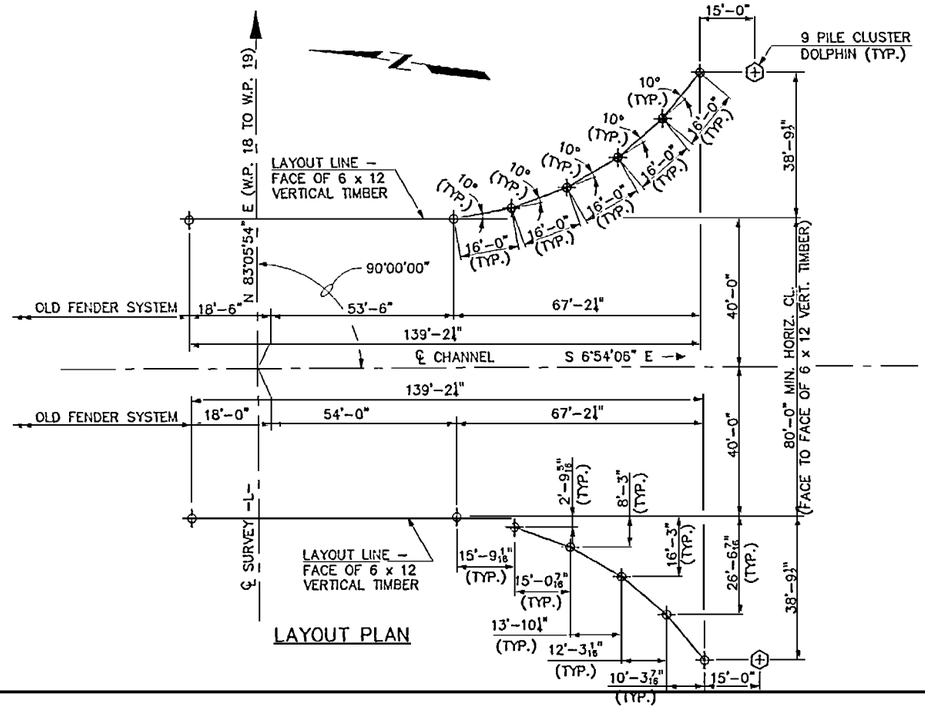
DISTRIBUTION No. 10



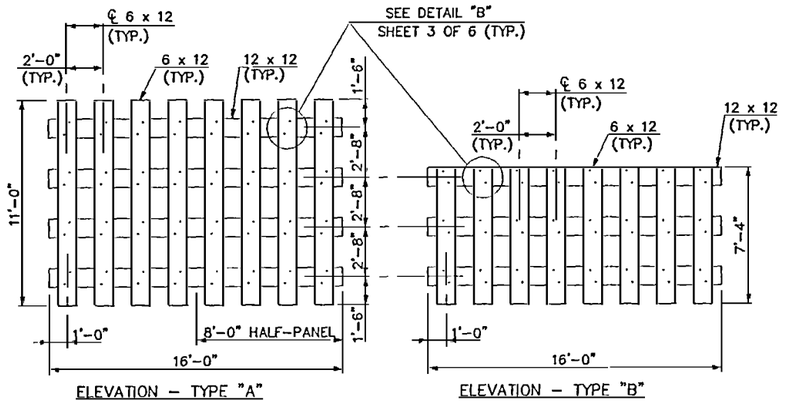
ELEVATION LOOKING WEST
(TIMBER FACING OMITTED FOR CLARITY)



ELEVATION LOOKING EAST
(TIMBER FACING OMITTED FOR CLARITY)



LAYOUT PLAN



TIMBER FACING

PROJECT NO. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90
SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FENDER SYSTEM

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE 3/25/99

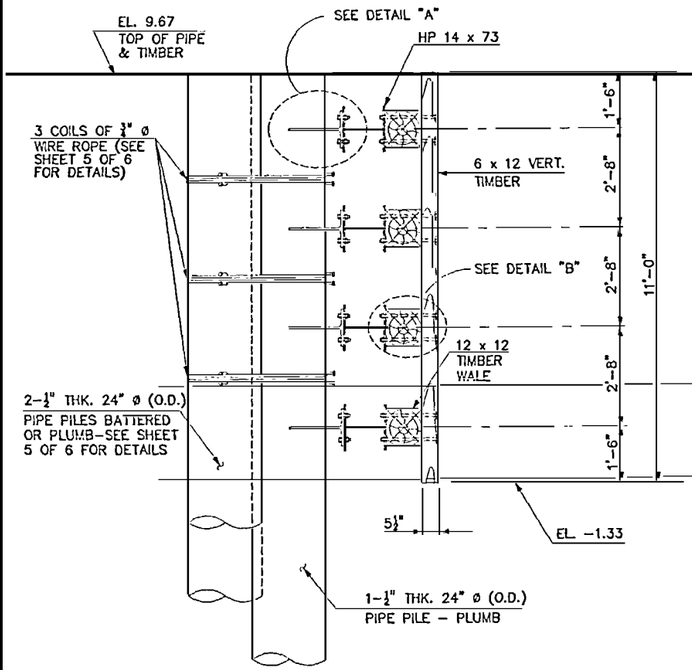
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 1/99
CHECKED BY: N. GREENLEE DATE: 1/99
DWG. NO. 37

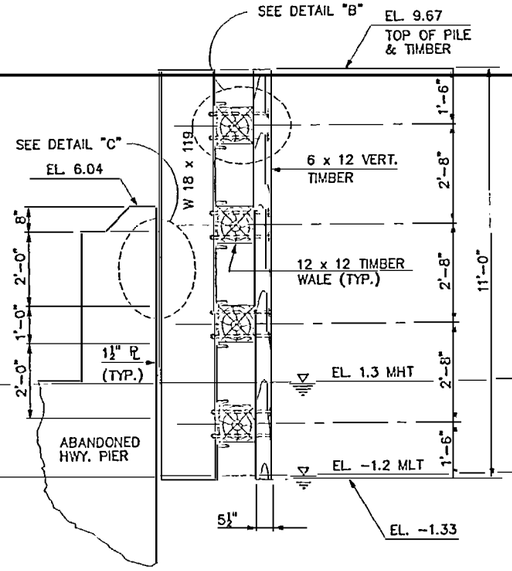
AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 37
TOTAL SHEETS 43
DISTRIBUTION No. 10

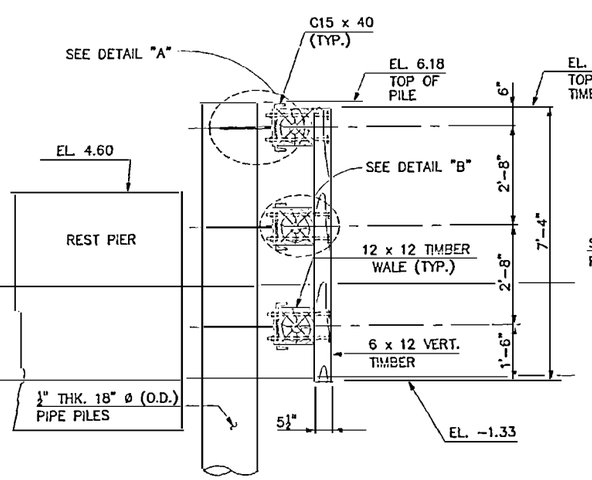
NAME: P:\27834_6mh\OWGS\AS BUILT DWGS\834FNDR2.DWG DATE: MAR 9, 2000



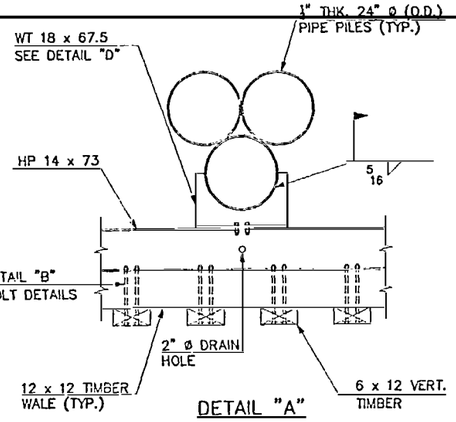
SECTION A-A



SECTION B-B



SECTION C-C



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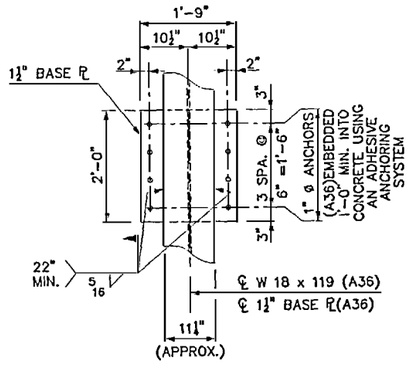

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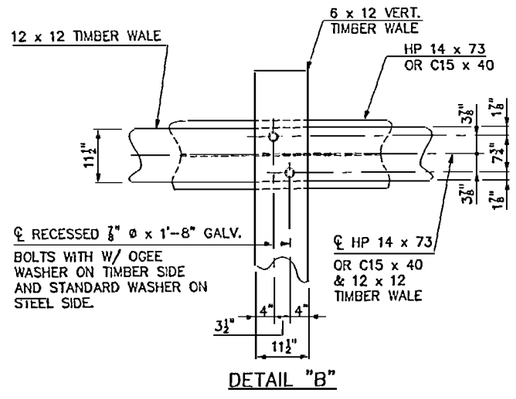

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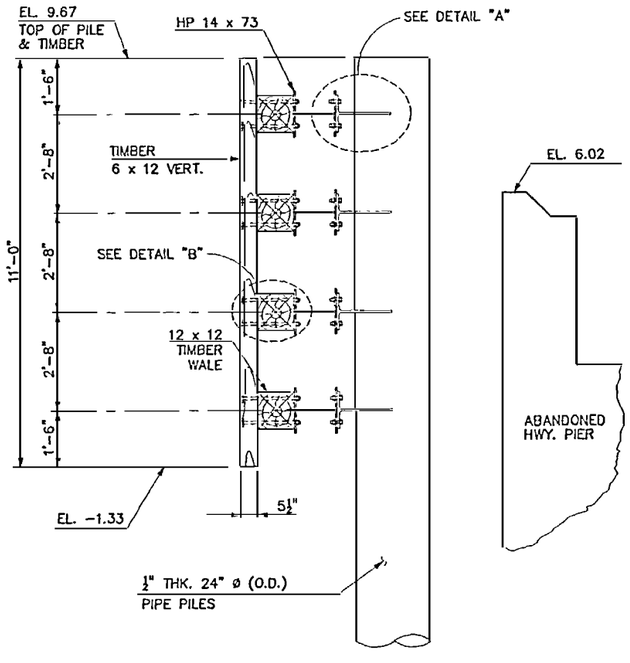
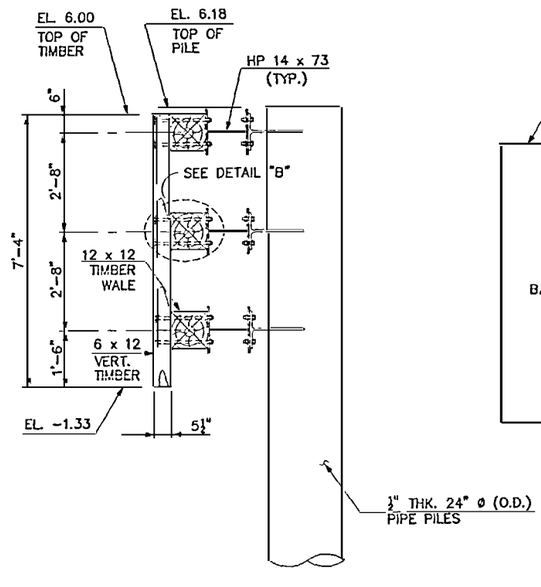
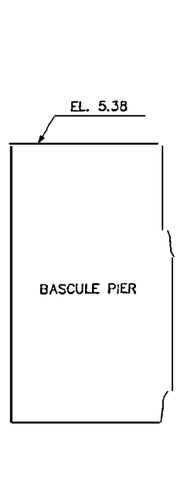
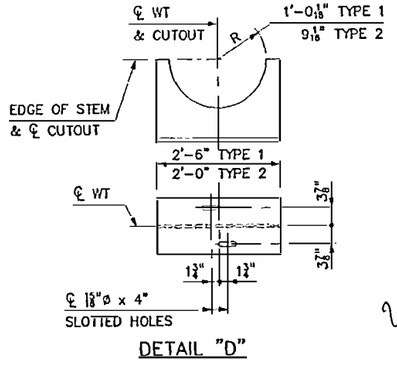


SECTION D-D



SECTION E-E





DETAIL "D"

PROJECT NO. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FENDER SYSTEM

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

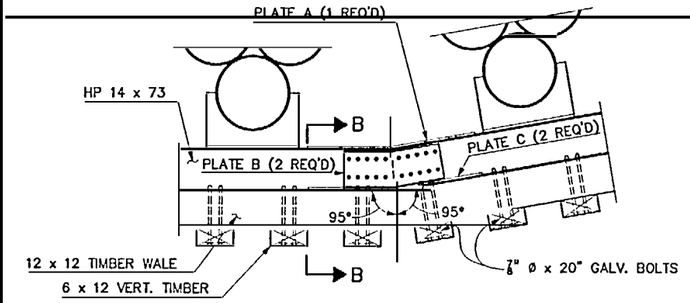
AS-BUILT PLANS

DRAWN BY: M. WRIGHT DATE 1/99
CHECKED BY: N. GREENLEE DATE 1/99
DWG. NO. 38
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 38
TOTAL SHEETS 43

DISTRIBUTION No. 10

NAME: P:\27834_conn\DWGS\AS BUILT DWGS\9341ENGR3.DWG DATE: MAR 9, 2000



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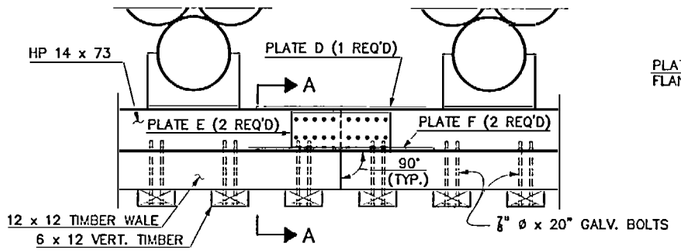

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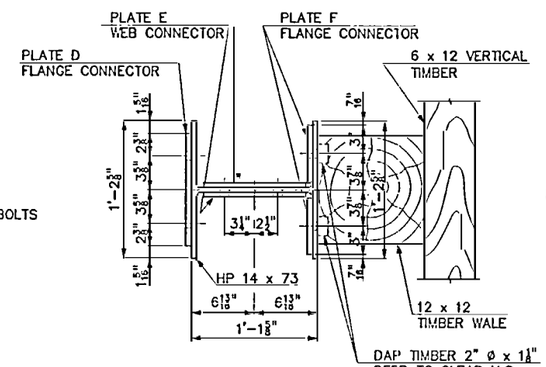
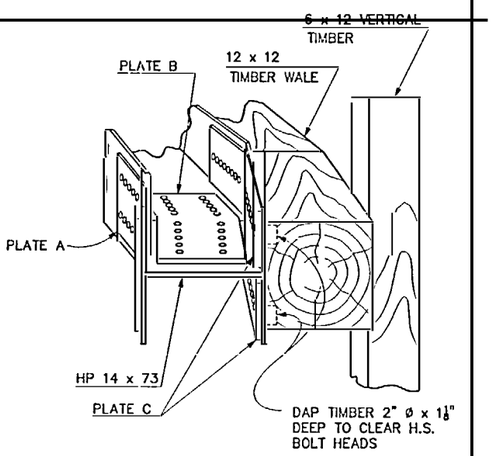
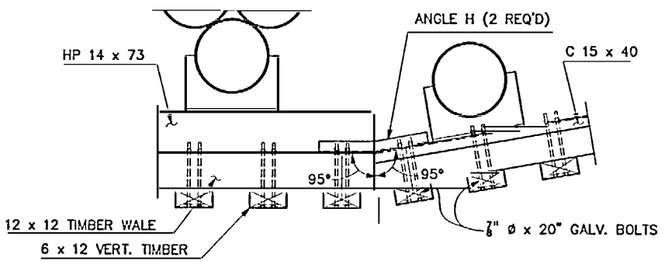


SECTION A–A
(FROM DETAIL "G")



SECTION B–B
(FROM DETAIL "F")



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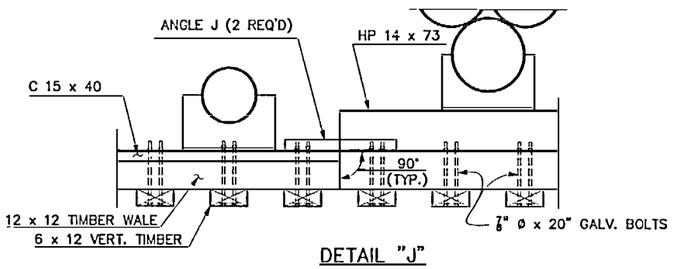
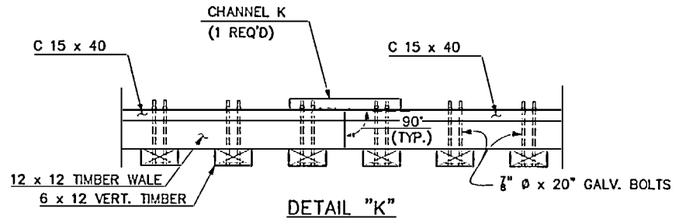


DETAIL "J"



DETAIL "K"

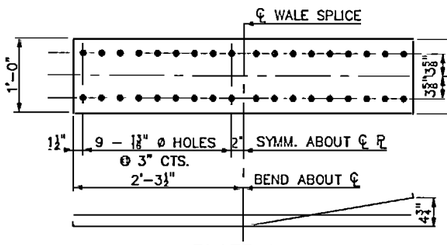


PLATE A
(PL 5/8" x 12" x 55")

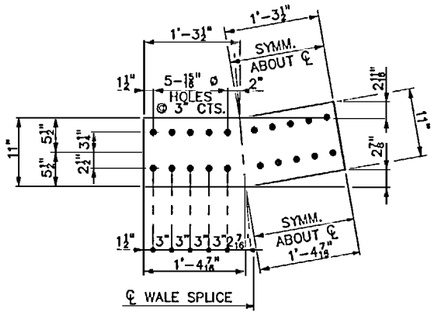


PLATE B
(PL 1/2" x 11" x 32")

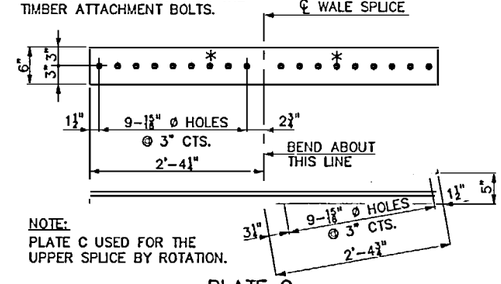
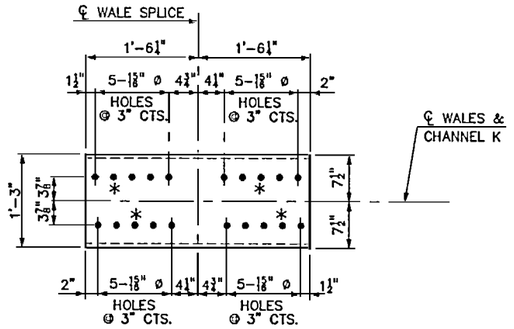


PLATE C
(PL 5/8" x 6" x 57")
(LOWER PL SHOWN)



CHANNEL K
(C 15 x 40 x 36 1/2")

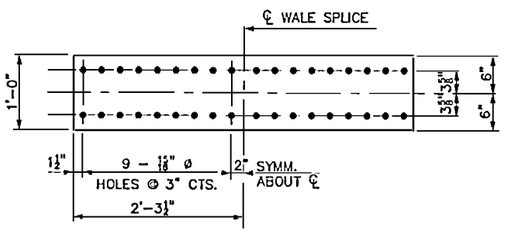


PLATE D
(PL 5/8" x 12" x 55")

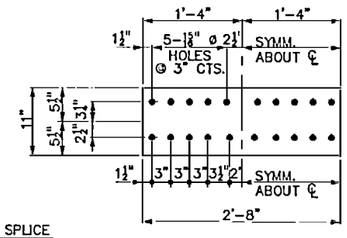


PLATE E
(PL 1/2" x 11" x 32")

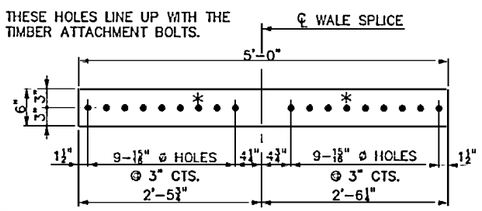
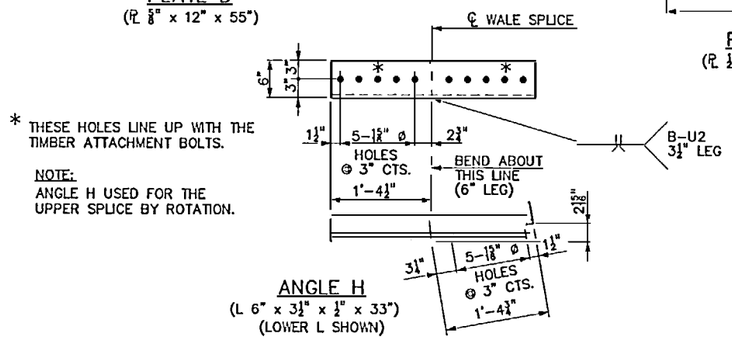
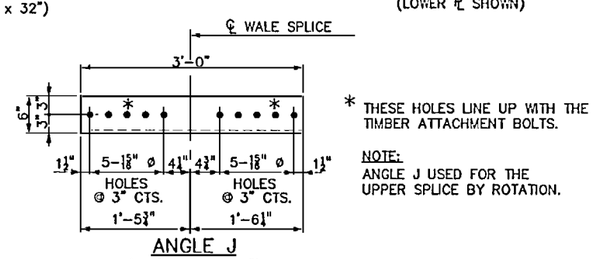


PLATE F
(PL 5/8" x 6" x 60")
(LOWER PL SHOWN)



ANGLE H
(L 6" x 3 1/2" x 1/2" x 33")
(LOWER L SHOWN)



ANGLE J
(L 6" x 3 1/2" x 36")
(LOWER L SHOWN)

NOTE

SPLICE QUANTITIES SHOWN ARE PER SPLICE. SEE SHEET 5 OF 6 FOR TOTAL FENDER SYSTEM QUANTITIES.

USE 7/8" Ø H.S. BOLTS IN SPLICE PLATES (EXCLUDING 7/8" Ø x 20" GALV. TIMBER ATTACHMENT BOLTS).

PROJECT No. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

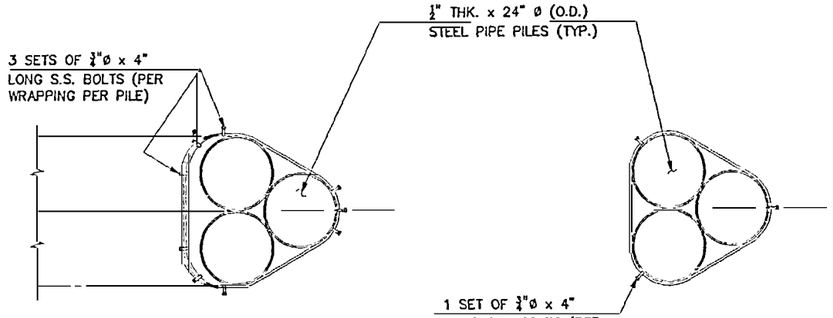
FENDER SYSTEM

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

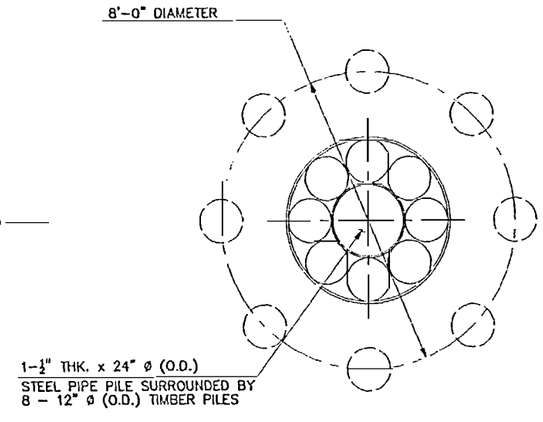
AS-BUILT PLANS

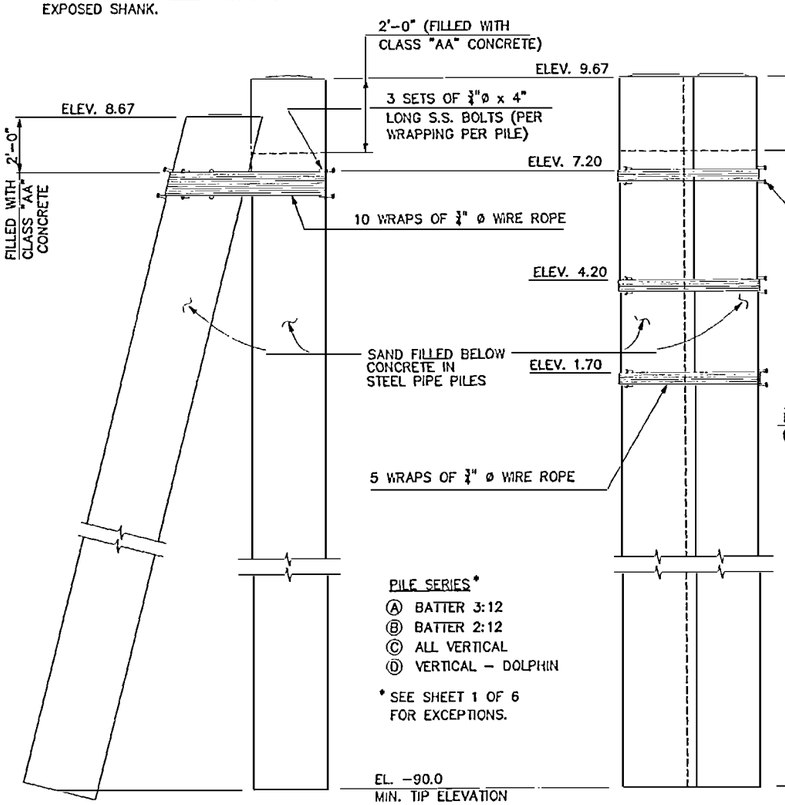
DRAWN BY J BAYNE DATE 1/99
CHECKED BY N GREENLEE DATE 1/99
DWG. NO. 39
CERTIFIED BY: NTG DATE: 3/00
SHEET NO. 39
TOTAL SHEETS 43
DISTRIBUTION No. 10

NAME P:\27634_pmm\DWGS\AS BUILT DWGS\8347NORM.DWG DATE: MAR 9, 2000

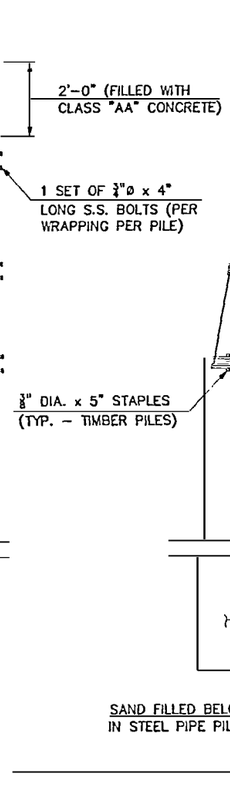


NOTE: HOLES IN PIPE PILES FOR STAINLESS STEEL BOLTS WERE DRILLED AND TAPPED AFTER PILES WERE DRIVEN. BOLTS WERE INSTALLED WITH 3" OF EXPOSED SHANK.





Ⓐ OR Ⓑ
BATTERED
3-PILE CLUSTER



Ⓒ
VERTICAL
3-PILE CLUSTER

Ⓓ
VERTICAL – DOLPHIN
9-PILE CLUSTER

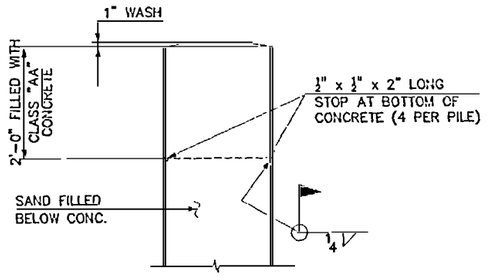
TIMBER AND PIPE PILE DETAILS

NOTE: VERTICAL 3-PILE CLUSTER WRAPPED WITH FIVE TURNS OF 3/4" ø WIRE ROPE AT THREE POINTS. WIRE ROPE SECURED WITH TWO WIRE ROPE CLIPS. ALL PILES DRIVEN VERTICAL. IN THE BATTERED 3-PILE CLUSTER, THE FRONT PILE IS DRIVEN VERTICAL, THE BACK TWO PILES ARE BATTERED AND ALL THREE ARE DRAWN TOGETHER AT THE TOP AND WRAPPED WITH TEN TURNS OF 3/4" ø WIRE ROPE AT ONE POINT. THE WIRE ROPE IS SECURED WITH TWO WIRE ROPE CLIPS AT EACH END.

NOTE: IN THE VERTICAL 9-PILE CLUSTER (1 STEEL PIPE PILE AND 8 TIMBER PILES) DOLPHIN, THE EIGHT OUTSIDE TIMBER PILES WERE DRIVEN VERTICAL ON AN 8'-0" DIA. CIRCLE (EQUALLY SPACED ON CIRCLE), DRAWN TOGETHER AT THE TOP AND WRAPPED WITH FIVE TURNS OF 3/4" ø WIRE ROPE AT THREE POINTS. WIRE ROPE SECURED WITH 3/8" DIA. x 5" STAPLES AND TWO WIRE ROPE CLIPS AT EACH END. THE CENTER STEEL PIPE PILE IS DRIVEN VERTICAL.

BILL OF MATERIAL FOR FENDER SYSTEM

ITEM	UNIT	PIECE LENGTH	NO. PCS.	TOTAL QUANTITY	SPECIFICATIONS
STRUCTURAL STEEL					
24" DIA. PIPE PILES (TYPE "A" FACING)	LF	100'-0"	65	6500.0	1/2" WALL, A252 GRADE 3 W/0.2% Cu
24" DIA. PIPE PILES (CLUSTER DOLPHINS)	LF	100'-0"	2	200.0	" "
24" DIA. PIPE PILES (TYPE "B" FACING)	LF	95'-0"	1	95.0	" "
18" DIA PIPE PILES	LF	95'-0"	4	380.0	" "
HP 14 x 73 WALES	LF	32'-0"	3	96.0	A36 W/0.2% Cu
HP 14 x 73 WALES	LF	40'-0"	4	160.0	" "
HP 14 x 73 WALES	LF	16'-0"	40	640.0	" "
C 15 x 40 WALES	LF	32'-0"	3	96.0	" "
C 15 x 40 WALES	LF	40'-0"	4	160.0	" "
C 15 x 40 (CHANNEL K)	LF	3'-0½"	3	9.1	" "
WT 18 x 67.5 BRACKETS (TYPE 1)	LF	2'-6"	103	257.5	" "
WT 18 x 67.5 BRACKETS (TYPE 2)	LF	2'-0"	15	30.0	" "
W 18 x 119 VERTICAL RIBS	LF	11'-0"	5	55.0	" "
L 6" x 3½" x ½" (ANGLE H)	LF	2'-9"	8	22.0	" "
L 6" x 3½" x ½" (ANGLE J)	LF	3'-9"	6	18.0	" "
PL ⅝" x 1'-0" x 4'-7" (PLATE A)	EA	--	--	36	" "
PL ½" x 11" x 2'-8" (PLATE B)	EA	--	--	36	" "
PL ⅝" x 6" x 4'-9" (PLATE C)	EA	--	--	80	" "
PL ⅝" x 1'-0" x 4'-7" (PLATE D)	EA	--	--	3	" "
PL ½" x 11" x 2'-8" (PLATE E)	EA	--	--	3	" "
PL ⅝" x 6" x 5'-0" (PLATE F)	EA	--	--	12	" "
PL 1½" x 1'-9" x 2'-0" (BASE PLATE)	EA	--	--	10	" "
TIMBER					
6" x 12" VERTICAL TIMBERS (TYPE "A" FACING)	LF	11'-0"	120	1320.0	NCDOT SECTION 1082 W/2.5 PCF CCA
6" x 12" VERTICAL TIMBERS (TYPE "B" FACING)	LF	7'-4"	32	234.7	" "
12" x 12" TIMBER WALES	LF	16'-0"	72	1152.0	" "
12" DIA. TIMBER WALES	LF	70'-0"	16	1120.0	" "
MISCELLANEOUS					
⅞" DIA. BOLTS(W/NUTS & STD. WASHERS)	EA	1'-8"	--	1152	A307, GALV.
⅞" DIA. H.S. BOLTS(W/NUTS & STD. WASHERS)	EA	3"	--	4914	A325, GALV.
⅞" DIA. OGEE WASHERS	EA	--	--	1152	A47 CLASS 30, GALV.
¾" DIA. BOLTS	EA	4"	--	360	STAINLESS STEEL
1" DIA. ADHESIVELY ANCHORED ANCHORS	EA	1'-4"	--	80	A325, GALV.
¾" DIA. WIRE ROPE	LF	--	--	3500.0	CLASS 6 x 19 FIBRE CORE, GALV.
¾" DIA. x 5" STAPLES	EA	--	--	48	GALV.
WIRE ROPE CLIPS	EA	--	--	136	FED. SPEC. FF-C-450, GALV.
CLASS AA CONCRETE	CY	--	--	16.0	NCDOT SECTION 1000
SAND FILL	CY	--	--	300.0	NCDOT SECTION 1014-1(A)



TYPICAL PIPE PILE DETAILS
(NOTE: FOR PILE SPLICE DETAILS, SEE PIERS 1-70, SHEET 2 OF 2.)

PROJECT NO. P-3100
CARTERET COUNTY
STATION: POT 10+00.00 -L-
MILE POST EC94.90
SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FENDER SYSTEM

HNTB HNTB NORTH CAROLINA, P.C.
343 E Six Forks Road, Suite 200, Raleigh, N.C. 27609

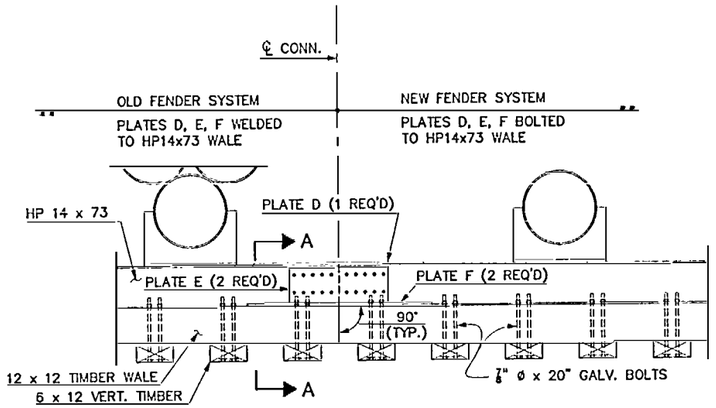
DRAWN BY J. BAYNE DATE 1/99
CHECKED BY N. GREENLEE DATE 1/99
DWG. NO. 40

AS-BUILT PLANS
CERTIFIED BY: NTG DATE: 3/00

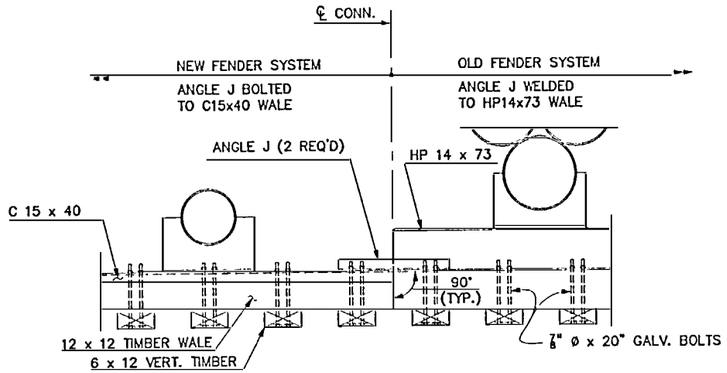
SHEET NO. 40
TOTAL SHEETS 43

DISTRIBUTION No. 10

NAME: P_V2834 - mm\DWGS\AS BUILT DWGS\BRIDGES.DWG DATE: MAR 2, 2000

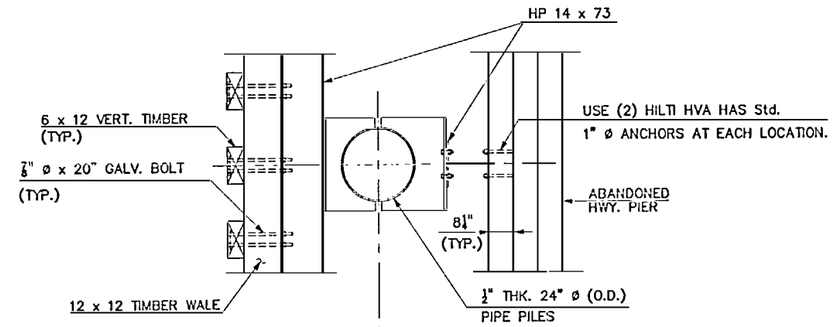


DETAIL "G2"

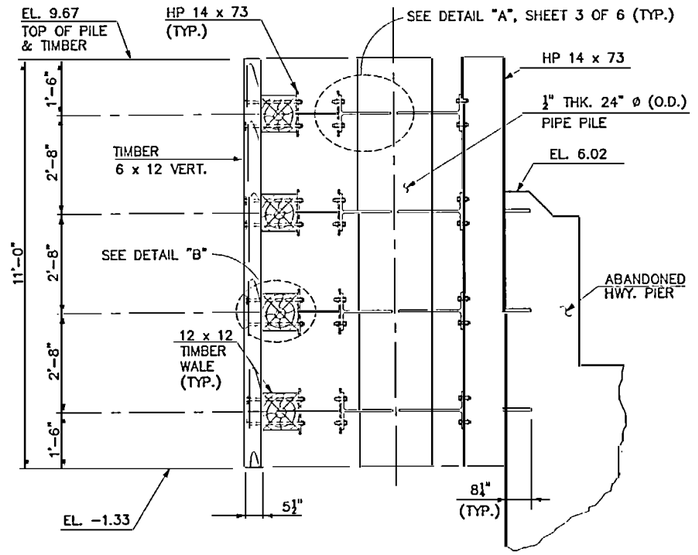


DETAIL "J2"

NOTE: WELDED CONNECTIONS AT OLD FENDER SYSTEM WERE MADE USING 1/4" FILLET WELDS AROUND EDGES OF PLATES AND ANGLES AND PLUG WELDS IN BOLT HOLES.



PLAN



SECTION

DETAIL "E"

PROJECT No. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FENDER SYSTEM

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 2/00
CHECKED BY N. GREENLEE DATE 2/00
DWG. NO. 41

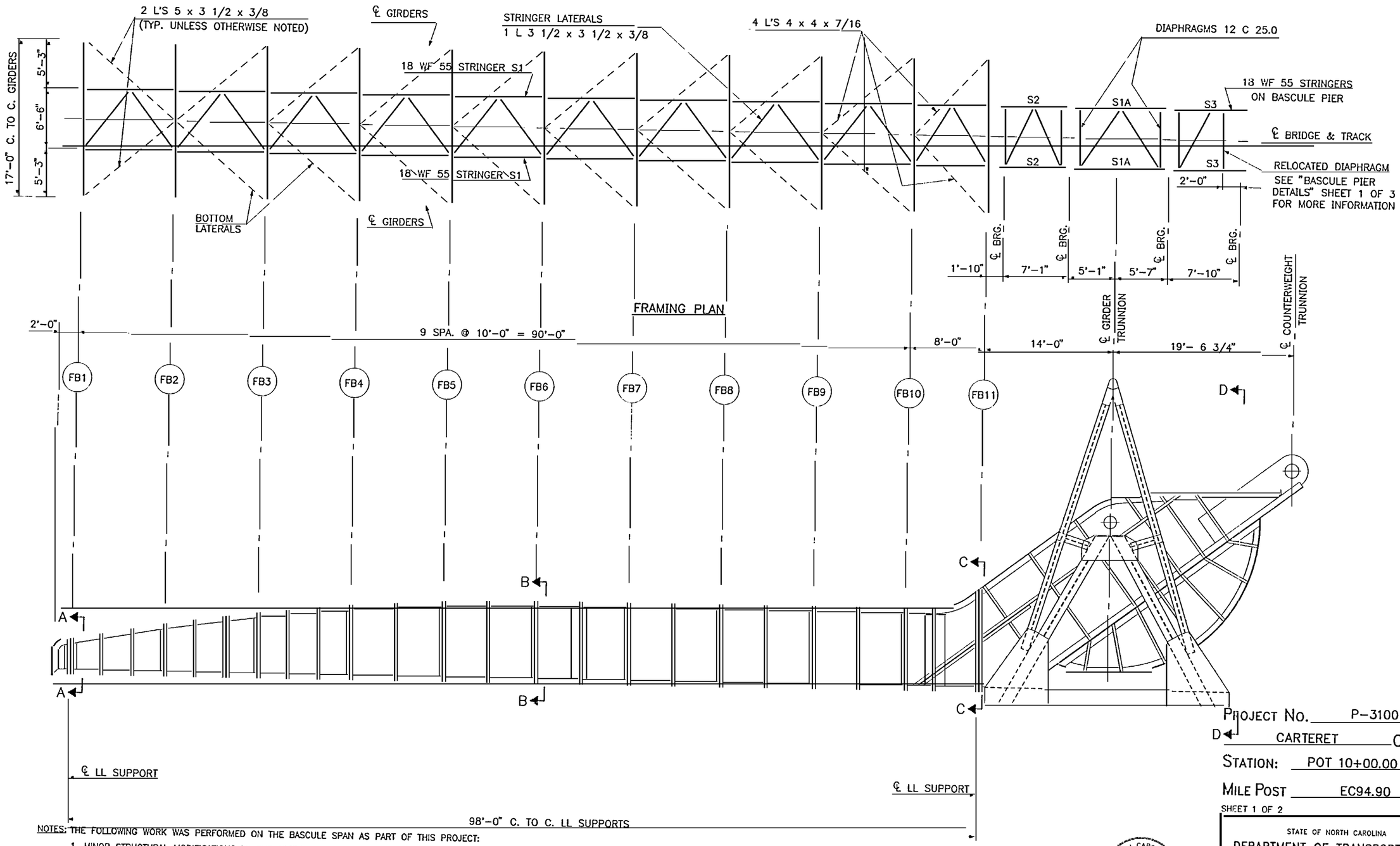
AS-BUILT PLANS

CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 41
TOTAL SHEETS 43

DISTRIBUTION No. AB

NAME: P:\27834_cmh\DWGS\AS BUILT DWGS\834FNDR6.DWG DATE: MAR 6, 2000



FRAMING PLAN

GIRDER ELEVATION

NOTES: THE FOLLOWING WORK WAS PERFORMED ON THE BASCULE SPAN AS PART OF THIS PROJECT:

1. MINOR STRUCTURAL MODIFICATIONS TO THE EASTERNMOST FIXED SPAN ON THE BASCULE PIER AS INDICATED ON THIS DRAWING.
2. STRUCTURAL INSPECTION AND LIVE LOAD RATING OF THE LIFT SPAN AND CLEARANCE CHECK OF THE LIFT SPAN AND TRUNNION SUPPORT TOWERS. FINAL REPORT AND SUPPORTING DOCUMENTATION SUBMITTED TO NCDOT ON JANUARY 17, 2000.
3. REPLACEMENT OF OLD 100 LB. RAIL ON THE LIFT SPAN AND FIXED SPANS WITH 131 LB. RELAY RAIL AND ASSOCIATED HARDWARE. RAIL CLIPS ON THE LIFT SPAN WERE TIGHTENED AS PART OF THIS WORK.

NO OTHER MODIFICATIONS WERE MADE TO THE BASCULE SPAN AS PART OF THIS PROJECT.

NAME: P:\27834\DWGS\As Built Dwgs\0234BSTL1.DWG DATE: FEB 26, 2000

NORTH CAROLINA SEAL 19313 ENGINEER NEIL T. GREENLEE

PROJECT No. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 -L-

MILE POST EC94.90

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BASCULE SPAN

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

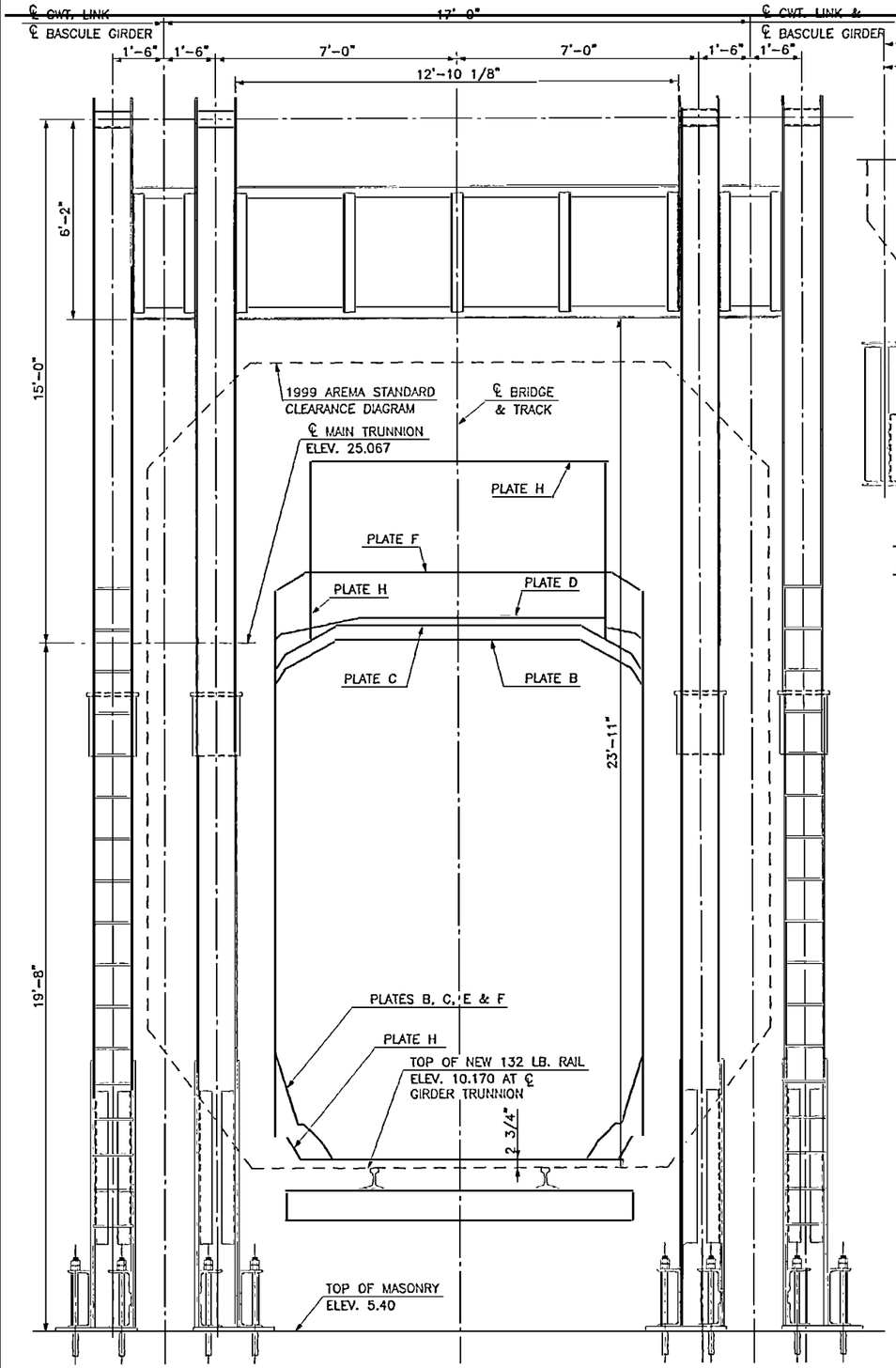
DRAWN BY M. WRIGHT DATE 12/99
CHECKED BY N. GREENLEE DATE 12/99
DWG. NO. 42

AS-BUILT PLANS

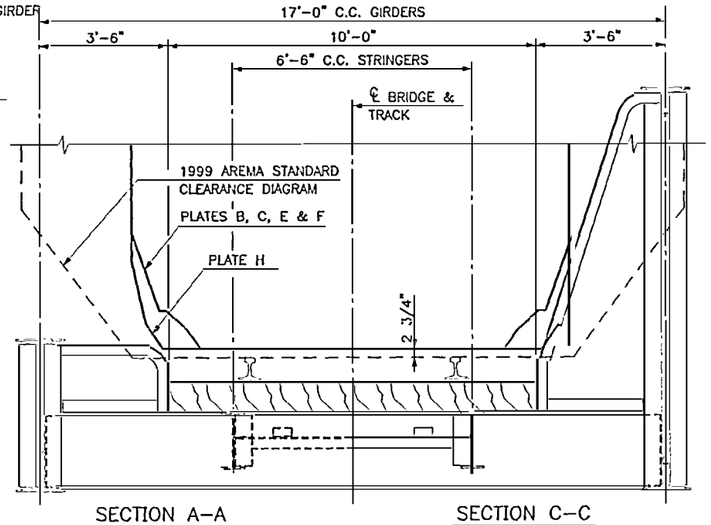
CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 42
TOTAL SHEETS 43

DISTRIBUTION No. AB

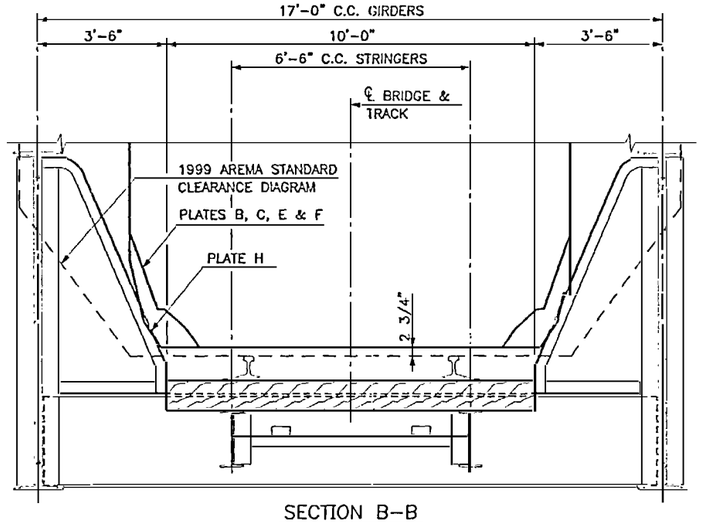


SECTION D–D
ELEVATION AT COUNTERWIEGHT FRAME

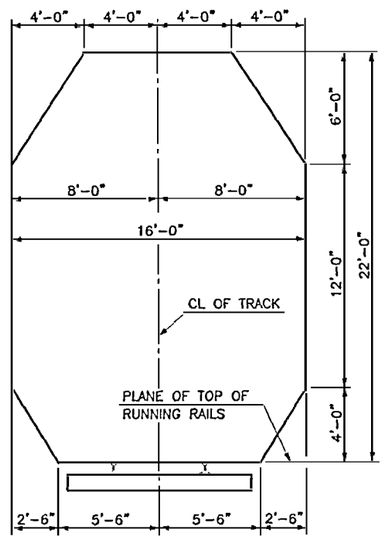


SECTION A–A
HALF CROSS SECTION
AT END FLOORBEAM 1

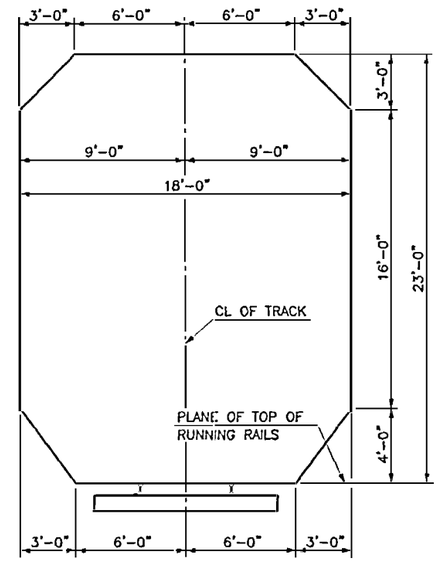
SECTION C–C
HALF CROSS SECTION
AT END FLOORBEAM 11



SECTION B–B
CROSS SECTION AT
INTERIOR FLOORBEAM



1946 AREA STANDARD CLEARANCE DIAGRAM



1999 AREMA STANDARD CLEARANCE DIAGRAM

NOTES: THE FOLLOWING WORK WAS PERFORMED ON THE BASCULE SPAN AS PART OF THIS PROJECT:

1. MINOR STRUCTURAL MODIFICATIONS TO THE EASTERNMOST FIXED SPAN ON THE BASCULE PIER AS INDICATED ON THIS DRAWING.
2. STRUCTURAL INSPECTION AND LIVE LOAD RATING OF THE LIFT SPAN AND CLEARANCE CHECK OF THE LIFT SPAN AND TRUNNION SUPPORT TOWERS. FINAL REPORT AND SUPPORTING DOCUMENTATION SUBMITTED TO NCDOT ON JANUARY 17, 2000.
3. REPLACEMENT OF OLD 100 LB. RAIL ON THE LIFT SPAN AND FIXED SPANS WITH 131 LB. RELAY RAIL AND ASSOCIATED HARDWARE. RAIL CLIPS ON THE LIFT SPAN WERE TIGHTENED AS PART OF THIS WORK.

NO OTHER MODIFICATIONS WERE MADE TO THE BASCULE SPAN AS PART OF THIS PROJECT.

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

PROJECT No. P-3100

CARTERET COUNTY

STATION: POT 10+00.00 –L–

MILE POST EC94.90

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BASCULE SPAN

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 12/99
CHECKED BY N. GREENLEE DATE 12/99
DWG. NO. 43

AS-BUILT PLANS

CERTIFIED BY: NTG DATE: 3/00

SHEET NO. 43
TOTAL SHEETS 43

DISTRIBUTION No. AB

NAME: P:\2784\DGN\as Built Dgns\B24E2E.DGN DATE: MAR. 9, 2000