

1 Pile Cluster 15'0" out from end of wale; 6 outside piles to be equally spaced on a 6' diameter circle at top and latter 16' int. Draw the piles together at the top and wrap with 3 strands of 4x19-55# galvanized cable at elevations 5.75 and 10.25. Cable shall be secured with 3/8" galvanized staples.

7 Pile Cluster at end of wales; 6 outside piles to be equally spaced on a 6' diameter circle and draw together at top. Wrap with 3 strands of 4x19-55# galvanized cable at elevations 5.15 and 10.25. Cable shall be secured with 3/8" galvanized staples.

Note: All ends of cables to be secured with three strand cable clamps of minimum 4" spacing.

Drive piles on 3ft centers and draw together at top with 3 strands of 4x19-55# galvanized cables at elevations (Typical) 5.75 and 10.25. Cable shall be secured with 3/8" galvanized staples.

DETAIL OF 3-PILE CLUSTER WALES (Typical)

Wale 7
2 3/8" Dome head spike
WALE FASTENING DETAIL AT 7-PILE CLUSTER

3 Pile Cluster (Typical)
Wales C (Typical)
7 Pile Cluster

Channel

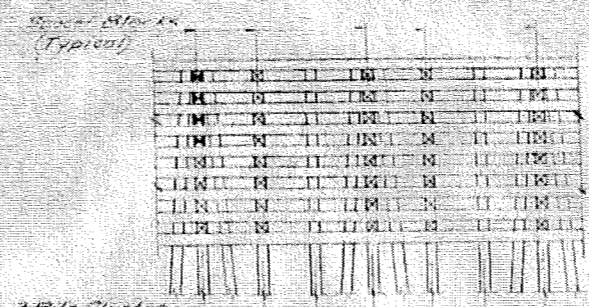
Sta. 132+16.00
Bridge & Channel

Sta. 132+50.00
Bent 50

Header No. 10's 7'0" (Typical)

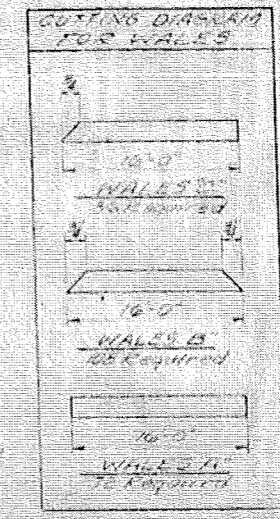
PLAN OF FENDER SYSTEM

Rev. #1 - To change bottom piles adjacent to seat. By JER/RY/RAE



ELEVATION

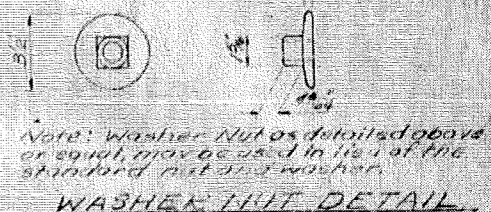
Note: The Contractor will be required to remove the portion of the existing fender system that will be in the way of construction of the new fender system. No separate payment will be made for this removal. This work to be included in the cost of the several pay items.



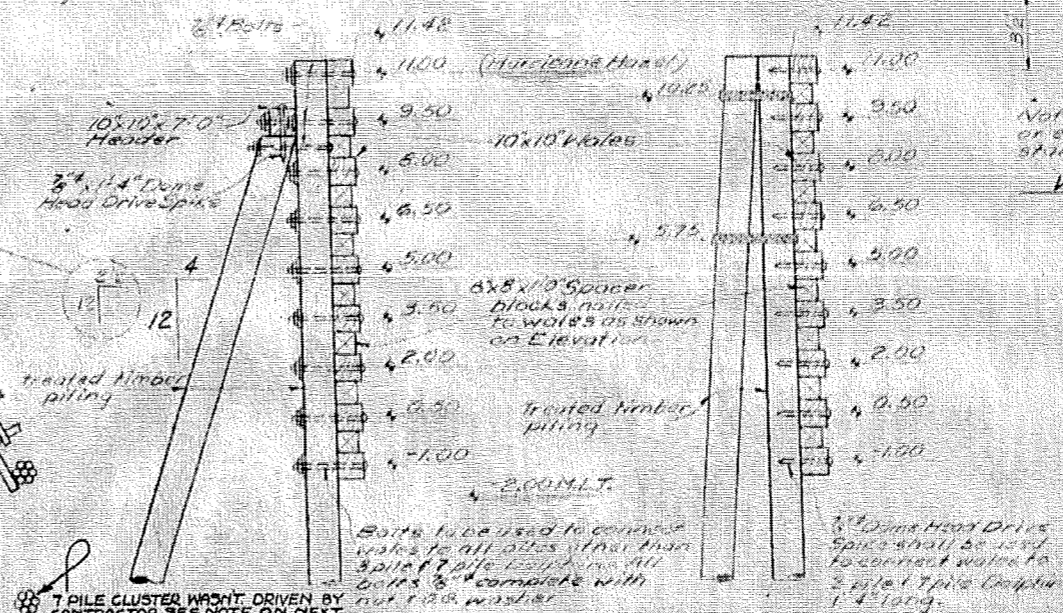
FENDER TOTAL BILL OF MATERIAL				
Crossed Timber				
Item No.	Size	Structure	Length	Weight
Wales	210 10x10	10x10	16'0"	22,500
Spacers	400 6x6	6x6	1'0"	2,133
Headers	24 10x10	10x10	7'0"	1,400
Crossed Timber Piles				
Item No.	Size	Length	Total Weight	
1100	10x10	16'0"	11,880	
Hardware				
No.	Size	Length	Weight	
Dome Head Bolts	48	16'0"	2'2"	492
Dome Head Bolts	48	16'0"	2'11"	320
Dome Head Bolts	354	16'0"	2'0"	15,160
D.O. Washers	460	16'0"		718
Dome Head Spikes	516	16'0"	1'4"	1,536
3/8" Cable	348	58'	1,875	1,220
Cable Clamps	1512	30'		345
Nails	1512	6d		9
Nails	400	16d		163
Staples	240	1 1/2"		656
TOTAL WEIGHT				32,555
Total Crossed Timber H.B.T.				



General Notes
All hardware shall be galvanized. All nuts, bolts, washers and spikes shall be as manufactured by Vansey Bolt & Spike Corp. or Lewis Bolt and Nut Company or Steel Bolt Corp. Pittsburgh Pa. or equal. Grading shall be in accordance with the General Notes sheet 9-3.
All piles in the fender system shall be driven to the elevations shown on plans.
Galvanized hardware will not be paid for as a separate item. The entire cost of same to be included in the unit prices bid for the several pay items.



Note: Washer Nut as detailed above or equal, may be used in lieu of the standard nut and washer.

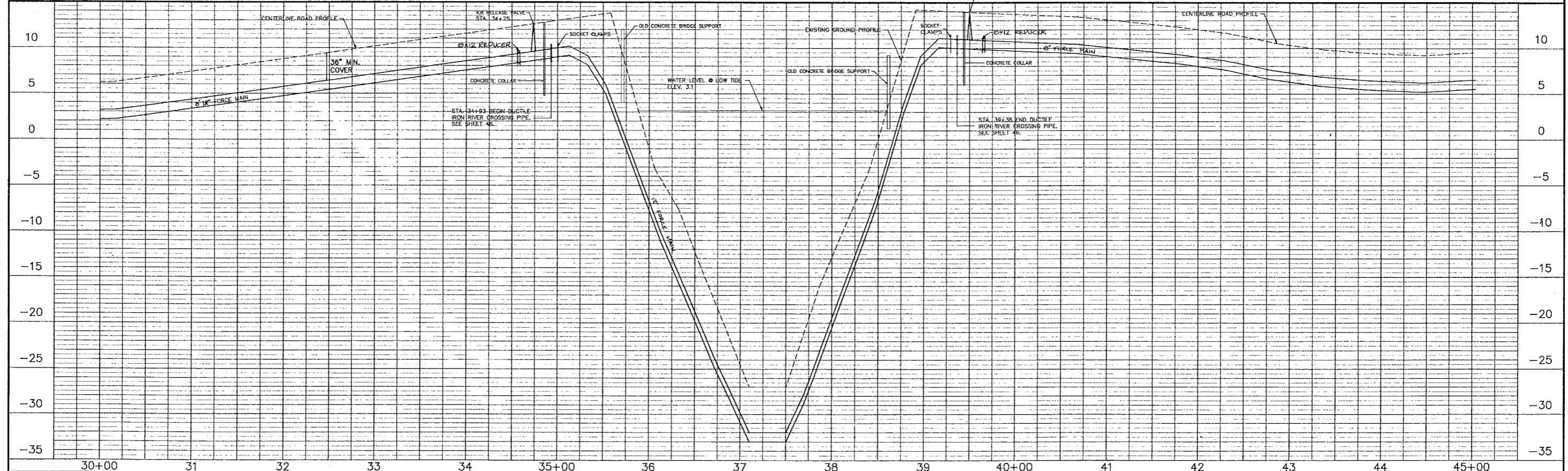
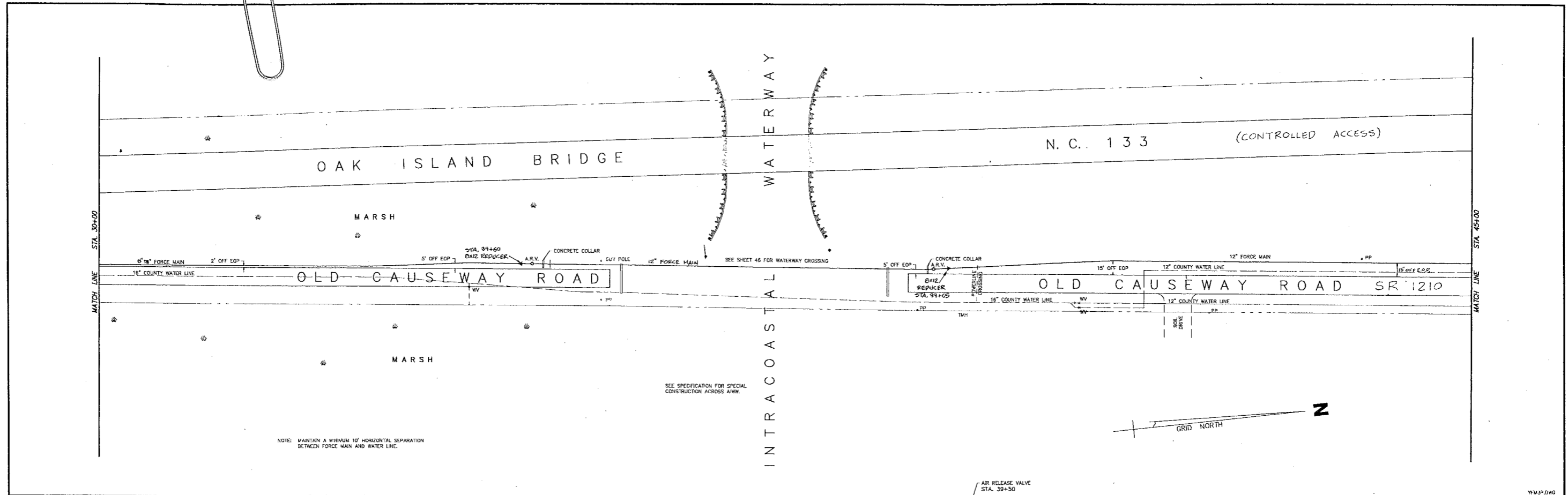


7-PILE CLUSTER WAGON DRIVEN BY CONTRACTOR. SEE NOTE ON NEXT SHEET.

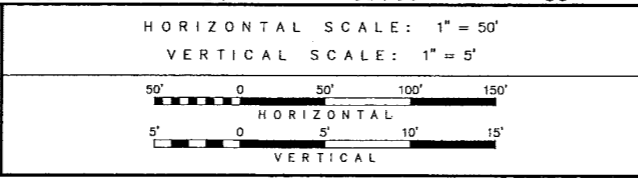
PROJECT No. 8-1313502
FORSYTH COUNTY
STATION: 132+16.00

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
FENDER SYSTEM

JULY 1972					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	JER	7/17/72	1		



REVISIONS		
DATE	DESCRIPTION	BY
3/26/92	LOWERED CONCRETE COLLARS & ADDED AIR RELEASE VALVES	MDW
5/18/92	REVISED PER STATE COMMENTS	MDW
10/20/92	CHANGED FORCE MAIN SIZE	MDW
12/22/92	ADDED REDUCERS IN PROFILE & STATIONS ON PLAN	MDW

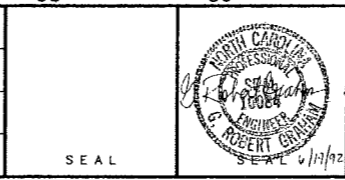


DATE: JULY 1991

DRAWN BY: MDW

CHECKED BY: GRG

APPROVED BY: JFB



TOWN OF YAUPON BEACH, NORTH CAROLINA

SANITARY SEWER SYSTEM

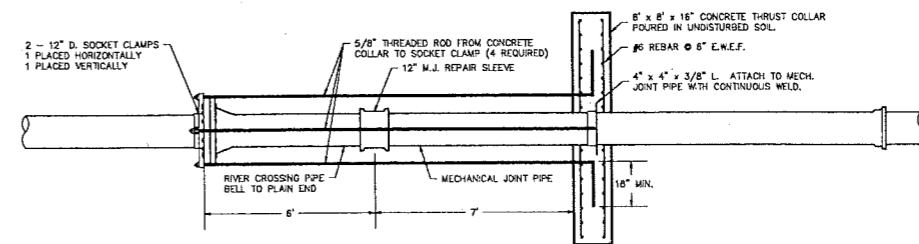
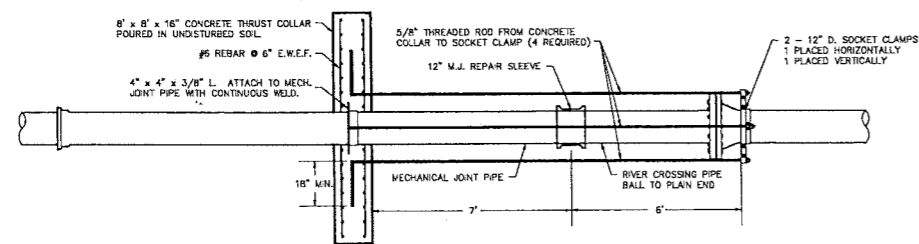
FORCE MAIN STA. 30+00 - 45+00

bony and associates, inc. - engineering & surveying - raleigh, n.c.

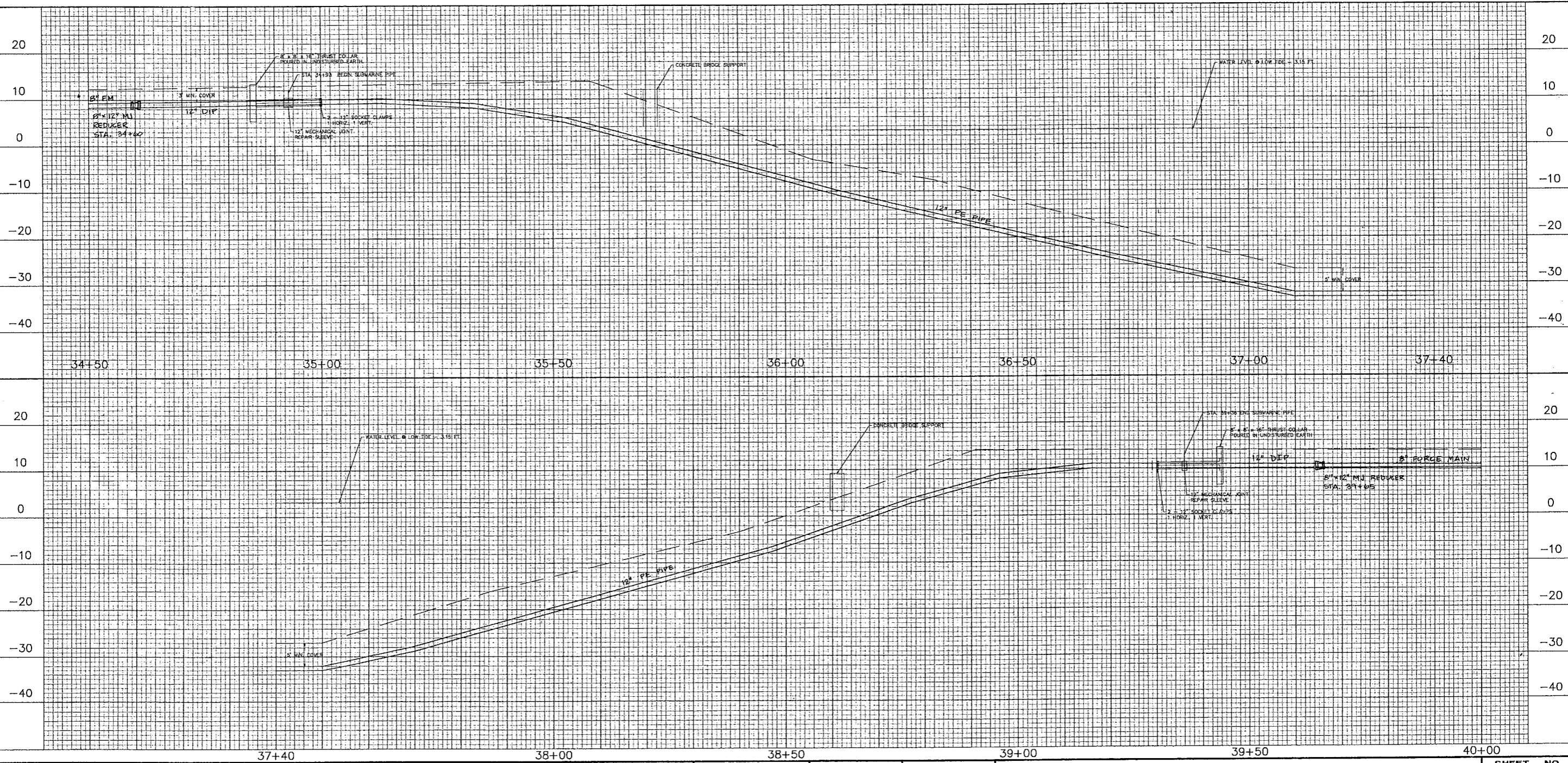
SHEET NO.

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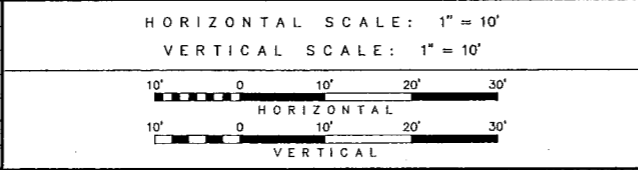
OF 48 SHEETS



YONGP.DWG



REVISIONS		
DATE	DESCRIPTION	BY
12/30/92	ADDED 8" X 12" REDUCERS	GRG



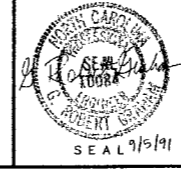
DATE: JULY 1991

DRAWN BY: MDW

CHECKED BY: GRG

APPROVED BY: JFB

SEAL



TOWN OF YAUPON BEACH, NORTH CAROLINA

SANITARY SEWER SYSTEM

CHANNEL CROSSING DETAILS

ba boney and associates, inc. - engineering & surveying - raleigh, n.c.

SHEET NO.

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OF 48 SHEETS