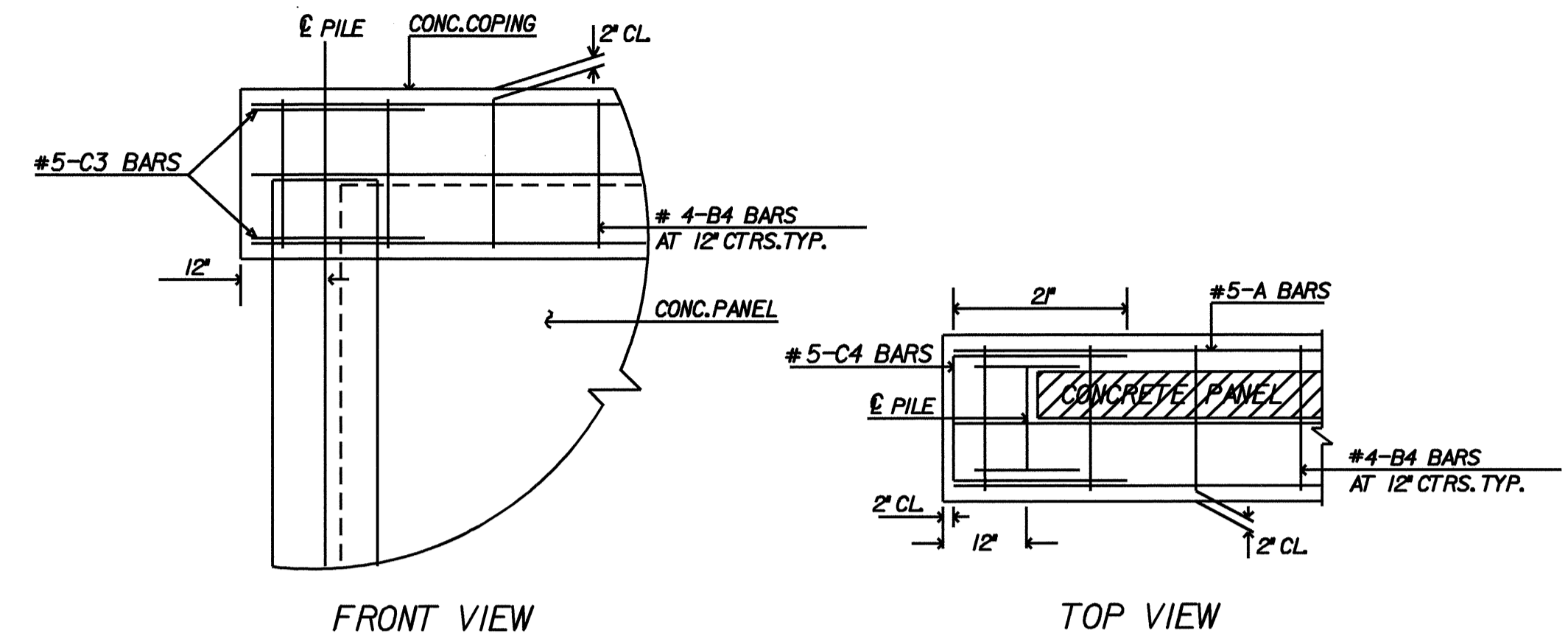


FULL COPING DETAIL
N.T.S.
* - 22" FOR BOTH HP12X53 AND HP14X73 PILES



END OF COPING DETAIL
N.T.S.

BILL OF MATERIALS

PRECAST CONCRETE PANELS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LB)
H1	353	#4	STR	9' - 2"	2210
H2	126	#4	STR	6' - 8"	574
V1	133	#4	STR	2' - 8"	242
V2	285	#4	STR	3' - 8"	714
V3	144	#4	STR	4' - 8"	363
V4	57	#4	STR	5' - 8"	221
V5	76	#4	STR	6' - 8"	346
V6	76	#4	STR	7' - 8"	398
V7	61	#4	STR	8' - 8"	361
V8	42	#4	STR	9' - 8"	277

REINFORCING STEEL LBS 6648
CLASS 'A' CONCRETE CUBIC YARDS 42

C. I. P. COPING

A	NO.	SIZE	TYPE	VAR	WEIGHT (LB)
B4	445	#4	STR	1	3445
C3	4	#5	STR	1	861
					20

REINFORCING STEEL (COPING) LBS 4326
CLASS 'A' CONCRETE (COPING) CUBIC YARDS 26

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
C. I. P. COPING	LINEAR FEET	447
#57 STONE BACKFILL	CUBIC YARDS	123
SHAFT EXCAVATION	LINEAR FEET	892
SHAFT CONCRETE	CUBIC YARDS	84
3" TIMBER LAGGING	FBM	6840
PRECAST CONCRETE PANEL TYPE 'A1'	NO.	7
PRECAST CONCRETE PANEL TYPE 'B1'	NO.	15
PRECAST CONCRETE PANEL TYPE 'C1'	NO.	6
PRECAST CONCRETE PANEL TYPE 'D1'	NO.	3
PRECAST CONCRETE PANEL TYPE 'E1'	NO.	4
PRECAST CONCRETE PANEL TYPE 'F1'	NO.	4
PRECAST CONCRETE PANEL TYPE 'G1'	NO.	1
PRECAST CONCRETE PANEL TYPE 'G2'	NO.	3
PRECAST CONCRETE PANEL TYPE 'H2'	NO.	3

HP 12X53 STEEL PILES NO. = 32 LF = 501
HP 14X73 STEEL PILES NO. = 15 LF = 391

PILE ELEVATIONS AND PANEL TYPES

PILE STATION	PILE NO.	PILE SIZE	PILE SPACE	PILE LENGTH	TOP SHAFT CONC ELEV	CUTOFF ELEV	PANEL TYPE
1+50	1	HP 12X53		10.78	762.37	765.87	
1+60	2	HP 12X53	10	11.6	762.37	766.25	A1
1+70	3	HP 12X53	10	11.6	762.75	766.63	A1
1+80	4	HP 12X53	10	11.6	763.13	767.01	A1
1+90	5	HP 12X53	10	11.6	763.51	767.40	A1
2+00	6	HP 12X53	10	11.6	763.90	767.78	A1
2+10	7	HP 12X53	10	11.0	764.28	768.10	A1
2+20	8	HP 12X53	10	13.53	764.60	768.42	A1
2+30	9	HP 12X53	10	14.53	763.92	768.73	B1
2+40	10	HP 12X53	10	14.53	764.23	769.05	B1
2+50	11	HP 12X53	10	14.53	764.55	769.37	B1
2+60	12	HP 12X53	10	14.43	764.87	769.59	B1
2+70	13	HP 12X53	10	14.43	765.09	769.82	B1
2+80	14	HP 12X53	10	14.43	765.32	770.04	B1
2+90	15	HP 12X53	10	14.43	765.54	770.26	B1
3+00	16	HP 12X53	10	14.43	765.76	770.49	B1
3+10	17	HP 12X53	10	14.49	766.00	770.77	B1
3+20	18	HP 12X53	10	14.49	766.27	771.05	B1
3+30	19	HP 12X53	10	14.49	766.55	771.33	B1
3+40	20	HP 12X53	10	14.49	766.83	771.61	B1
3+50	21	HP 12X53	10	14.49	767.11	771.89	B1
3+60	22	HP 12X53	10	14.55	767.39	772.23	B1
3+70	23	HP 12X53	10	16.96	767.73	772.57	B1
3+80	24	HP 12X53	10	17.96	767.07	772.91	C1
3+90	25	HP 12X53	10	17.96	767.41	773.25	C1
4+00	26	HP 12X53	10	17.96	767.75	773.59	C1
4+10	27	HP 12X53	10	18.15	768.09	774.2	C1
4+20	28	HP 12X53	10	20.59	768.62	774.65	C1
4+30	29	HP 12X53	10	21.59	768.15	775.18	D1
4+40	30	HP 12X53	10	21.59	768.68	775.71	D1
4+50	31	HP 12X53	10	21.3	769.21	776.23	D1
4+60	32	HP 14X73	10	22.08	768.73	776.72	E1
4+70	33	HP 14X73	10	22.08	769.22	777.20	E1
4+80	34	HP 14X73	10	24.09	769.70	777.68	E1
4+90	35	HP 14X73	10	25.09	769.18	778.16	F1
5+00	36	HP 14X73	10	25.09	769.66	778.65	F1
5+10	37	HP 14X73	10	25.16	770.15	779.20	F1
5+20	38	HP 14X73	10	27.18	770.70	779.74	F1
5+30	39	HP 14X73	10	28.18	770.24	780.29	G1
5+37.5	40	HP 14X73	7.5	28.88	770.79	780.70	G2
5+45	41	HP 14X73	7.5	28.88	771.20	781.11	G2
5+52.5	42	HP 14X73	7.5	29.76	770.61	781.41	H2
5+60	43	HP 14X73	7.5	29.53	770.91	781.47	H2
5+67.5	44	HP 14X73	7.5	29.00	770.97	781.00	H2*
5+75	45	HP 14X73	7.5	25.08	771.50	779.50	G2*
5+85	46	HP 12X53	10	19.69	772.00	777.59	E1*
5+95	47	HP 12X53	10	13.70	772.09	775.72	C1*

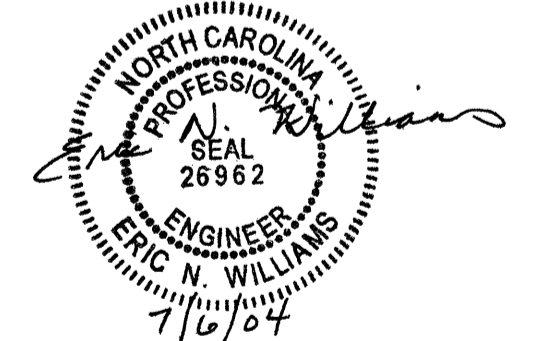
* DENOTES SPECIAL PANELS. SEE EXAMPLE BLOCKED OUT PRECAST PANEL DETAIL AND NOTES.

NOTES:

- PILES SHALL BE INSTALLED TO THE CUT OFF ELEVATIONS AND LENGTHS SHOWN ON THE PLANS. ROCK EXCAVATION IS ANTICIPATED IN SOME OF THE SHAFTS. IF 5 FEET OF ROCK IS ENCOUNTERED PRIOR TO PLAN LENGTH, THEN THE SHAFT CAN TERMINATE AND THE PILE LENGTH ADJUSTED.
- USE ASTM A572 GRADE 50 STEEL PILES WITH THE ADDITION OF 0.2% MINIMUM COPPER.
- SPlicing OF PILES IS NOT ALLOWED.
- THE TOP OF THE INSTALLED PILES SHALL BE WITHIN 2 INCH OF THEIR PLAN LOCATION IN ANY DIRECTION.
- CONCRETE PANELS SHALL HAVE A MINIMUM BEARING DISTANCE OF 2 INCH ON THE PILE FLANGE. 1/2 INCH THICK EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE CONCRETE PANELS AND PILE FLANGES FOR THE WIDTH OF THE BEARING SURFACE.
- THE CONCRETE PANELS SHALL HAVE A DARK GRAY EXPOSED AGGREGATE FACE. SEE SPECIAL PROVISIONS FOR COLOR, TEXTURE AND AGGREGATE REQUIREMENTS.
- CONCRETE PANELS SHALL BE HELD SECURELY AGAINST PILES UNTIL BACKFILL IS PLACED. BACKFILL SHALL BE BROUGHT UP UNIFORMLY.
- BACKFILL MATERIAL, BOTH CUSHIONING MATERIAL AND BACKFILL BEHIND PANELS, SHALL BE COMPACTED AS REQUIRED BY THE ENGINEER. THE STONE SHALL BE RODDED AND SPREAD IN ORDER TO FILL ALL VOIDS AND INSURE MAXIMUM DENSITY. FLUSHING THE STONE WITH WATER TO AID COMPACTION WILL NOT BE ALLOWED.
- BACKFILLING SHALL BE COMPLETED PRIOR TO FORMING THE COPING.
- TOP OF COPING TO BE ADJUSTED BY ENGINEER TO GIVE A UNIFORM APPEARANCE.
- CONSTRUCTION JOINTS IN COPING ARE PERMITTED AT LOCATIONS WHERE COPING CHANGES SLOPE AND AT 90 FOOT CENTERS. EXPANSION JOINTS ARE NOT PERMITTED.
- BLOCK OUT ONE OF THE H2 PANELS TO PROVIDE A 12J (HV) SLOPE AT THE TOP OF THE PANEL MEASURED FROM LEFT BACK FACE DOWNWARD TO RIGHT BACK FACE.
- BLOCK OUT ONE OF THE G2 PANELS, ONE OF THE E1 PANELS AND ONE OF THE C1 PANELS TO PROVIDE A 5J (HV) SLOPE AT THE TOP OF THE PANEL MEASURED FROM LEFT BACK FACE DOWNWARD TO RIGHT BACK FACE.
- THE RESIDENT ENGINEER SHALL VERIFY THE LOCATION OF DRAINAGE STRUCTURES AND UTILITIES PRIOR TO INSTALLING PILES. THE LAYOUT OF THE WALL MAY NEED TO BE ADJUSTED TO AVOID UNANTICIPATED INTERFERENCE.
- CONSTRUCTION SEQUENCE:
- DRILL 24 INCH DIAMETER SHAFTS FOR HP12X53 PILES AND 30 INCH DIAMETER SHAFTS FOR HP14X73 PILES FROM NATURAL GROUND. INSTALL PILES AND BACKFILL WITH CONCRETE TO THE TOP OF SHAFT CONCRETE ELEVATION BEFORE EXCAVATING TO INSTALL PANELS OR TIMBER LAGGING.
- EXCAVATION TO INSTALL THE PANELS OR LAGGING SHALL BE VERTICAL, HAVE A MAXIMUM LIFT HEIGHT OF 4 FEET AND BE LIMITED IN EXTENT TO ONLY WHAT IS NECESSARY.
- TIMBER LAGGING IS NEEDED ONLY TO MEET OSHA REQUIREMENTS FOR SAFE EXCAVATION HEIGHTS. IF CUT IS LESS THAN 4 FEET HIGH, LAGGING IS NOT REQUIRED.
- THE LAGGING SHALL HAVE A MINIMUM BEARING DISTANCE OF 3 INCHES ON THE PILE FLANGE.
- UNTREATED STRUCTURAL TIMBERS SHALL BE A MINIMUM OF 3 INCHES THICK AND SHALL CONFORM TO THE APPLICABLE PARTS OF SECTIONS 445 AND 1082 OF THE STANDARD SPECIFICATIONS.
- PLACE BACKFILL BEHIND THE LAGGING IMMEDIATELY AFTER INSTALLATION.
- WHERE PRACTICAL, THE TOP FEW PIECES OF LAGGING SHALL BE REMOVED PRIOR TO BACKFILLING BEHIND PANELS. ALL OTHER LAGGING SHALL BE LEFT IN PLACE.
- THE CONTRACTOR MAY ELECT TO USE AN ALTERNATIVE METHOD OF PROVIDING A SAFE EXCAVATION. HOWEVER, THE ALTERNATE METHOD MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
- IF NECESSARY, SPECIAL MEASURES SHALL BE TAKEN TO INSURE THE STABILITY OF THE SHAFT SUCH AS INSTALLING TEMPORARY CASING PRIOR TO DRILLING, INSTALLING THE PILE AND PLACING CONCRETE IMMEDIATELY AFTER A SHAFT IS EXCAVATED BEFORE CAVING OCCURS. INSTALLING WELL POINTS OR OTHER MEASURES, IF CAVING OCCURS, THE SHAFT EXCAVATION OPERATION SHALL BE HALTED UNTIL SPECIAL MEASURES ARE IMPLEMENTED.
- PILE/PANEL WALL MUST BE BUILT BEFORE PLACING ANY FILL MATERIAL BEHIND THE WALL.
- PILES SHALL BE PAINTED BLACK FROM THE TOP OF THE PILE DOWN TO 18" BELOW GRADE.
- FOR DESIGN CRITERIA AND DETAILS, SEE SPECIAL PROVISIONS.

BILL OF MATERIALS

PILE/PANEL RETAINING WALL 8,695 SQ. FT.



PROJECT 1-2102
FORSYTH COUNTY
STATION 1+50.000 TO 5+95.000 -RVC-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE/PANEL WALL

DRAWN BY ENW DATE 07/03
CHECKED BY CAK DATE 07/03