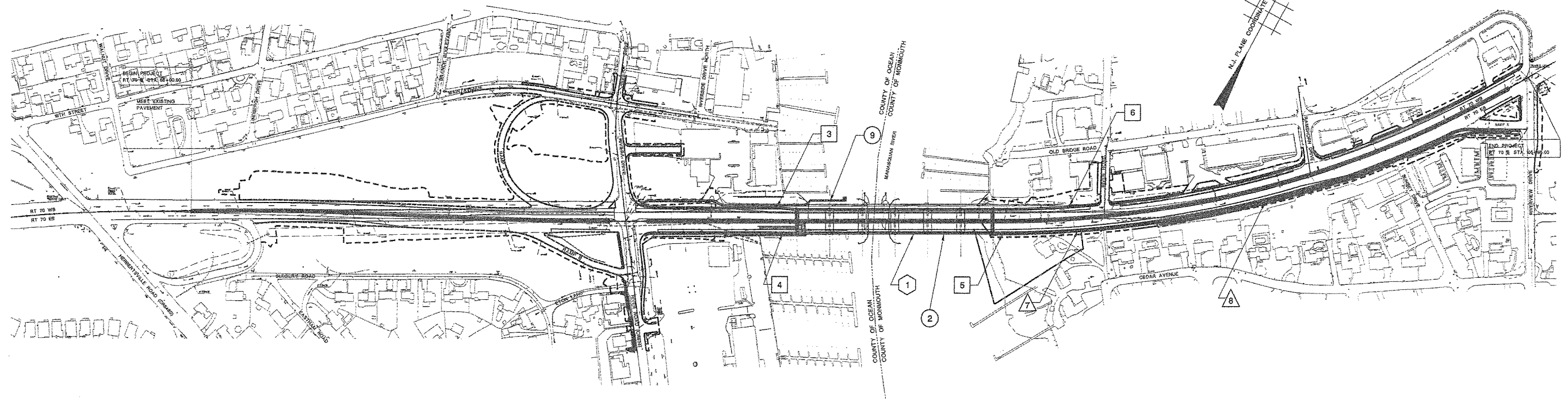


STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(148)		
STRUCTURE NO. 1511-150			
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



**KEY PLAN**  
SCALE: 1"=200'

STRUCTURES IN THIS CONTRACT		
NO.	DESCRIPTION	STRUCTURE NO.
<b>BRIDGE AND MISCELLANEOUS STRUCTURES</b>		
1	ROUTE 70 OVER MANASQUAN RIVER	1511-150
2	TEMPORARY PEDESTRIAN WALKWAY	
9	ROUTE 70 PUBLIC ACCESS PLATFORM	
<b>RETAINING WALLS</b>		
3	RETAINING WALL NO. 1	
4	RETAINING WALL NO. 2	
5	RETAINING WALL NO. 3	
6	RETAINING WALL NO. 4	
<b>NOISE WALLS</b>		
7	NOISE WALL NO. 1	
8	GROUND MOUNTED NOISE WALL NO. 2	

INDEX OF STRUCTURES DRAWINGS		
BRIDGE NO.	DESCRIPTION	STRUCTURE NO.
B1 - B77	ROUTE 70 OVER MANASQUAN RIVER	1511-150
B78 - B82	TEMPORARY PEDESTRIAN WALKWAY	
B83 - B92	RETAINING WALLS	
B93 - B98	NOISE WALLS	
B99 - B100	PUBLIC ACCESS PLATFORM	

**PART 3 OF 3**

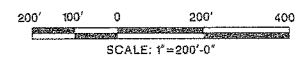
NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**KEY PLAN OF STRUCTURES**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Vermack*  
ERIC VERMACK  
N.J. P.E. LIC. NO. 38046

SCALE 1"=200'  
BRIDGE SHEET NO. B1 OF B100



REVISION	BY	C/K'D	DATE

SECTION CONTROL 151 JOB NO. 1511513

DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

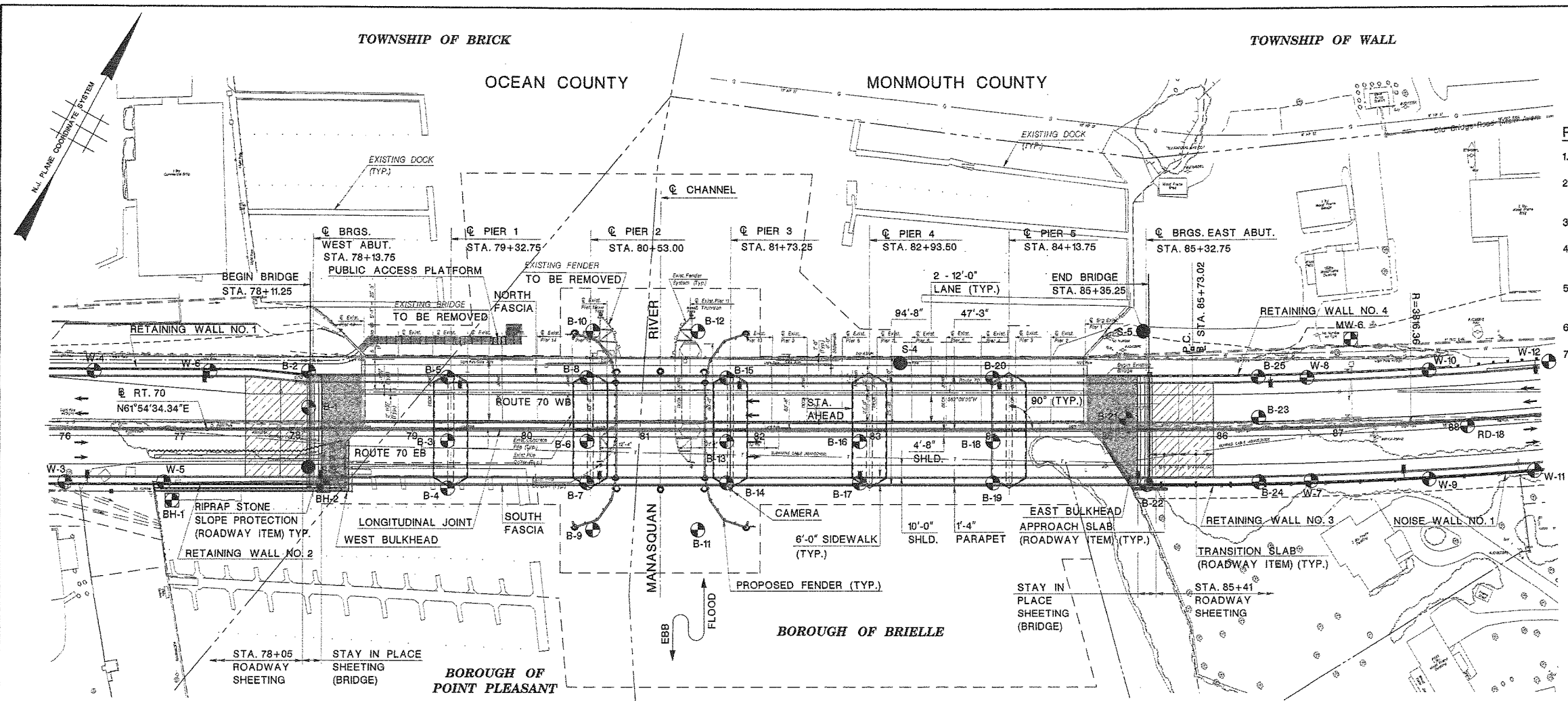
IN CHARGE OF *Paul C. Pascale*

User Name: vsmar  
Plot Time: 12:30:00 PM  
Design File: J:\BRICK\Coastal\Structural\Final\Print\SSA-000KEY.dgn

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

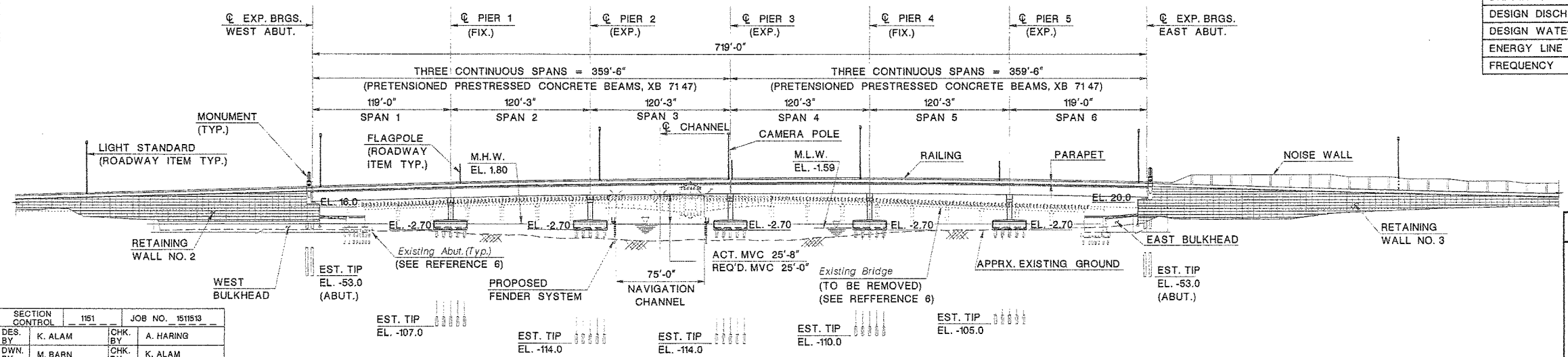
- REFERENCES:**
- FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
  - FOR STAKEOUT PLAN AND PROFILE, SEE BRIDGE SHEET NO. B6.
  - FOR DEMOLITION PLANS, SEE BRIDGE SHEET NO'S. B9-B12.
  - FOR CONSTRUCTION STAGING PLANS, SEE BRIDGE SHEET NO'S. B7, B8.
  - FOR BRIDGE FENDER SYSTEM LAYOUTS, SEE BRIDGE SHEET NO'S. B63, B64 AND B65.
  - FOR LIMITS OF DEMOLITION, SEE BRIDGE SHEET NO. B10.
  - TEMPORARY SHIELDING SHALL BE PROVIDED OVER THE NAVIGATION CHANNEL AND AREA OF WORK IN ACCORDANCE WITH SPECIFICATION.

- LEGEND:**
- BORINGS PERFORMED (2001)
  - BORINGS PERFORMED (2004)
  - SUPPLEMENTAL BORINGS PERFORMED (2004)



**PLAN**  
SCALE: 1"=50'

HYDRAULIC AND HYDROLOGIC DATA	
DRAINAGE AREA (SQ. MI)	71.4
DESIGN DISCHARGE (C.F.S.)	21,445
DESIGN WATER SURFACE ELEVATION (FT)	7.4
ENERGY LINE ELEVATION (FT)	7.5
FREQUENCY	100 YEAR



**ELEVATION**  
SCALE: 1"=50'

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**GENERAL PLAN AND ELEVATION**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

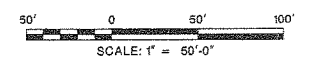
*Eric Yermack*  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38046

SCALE 1"=50'  
BRIDGE SHEET NO. B3 OF B100

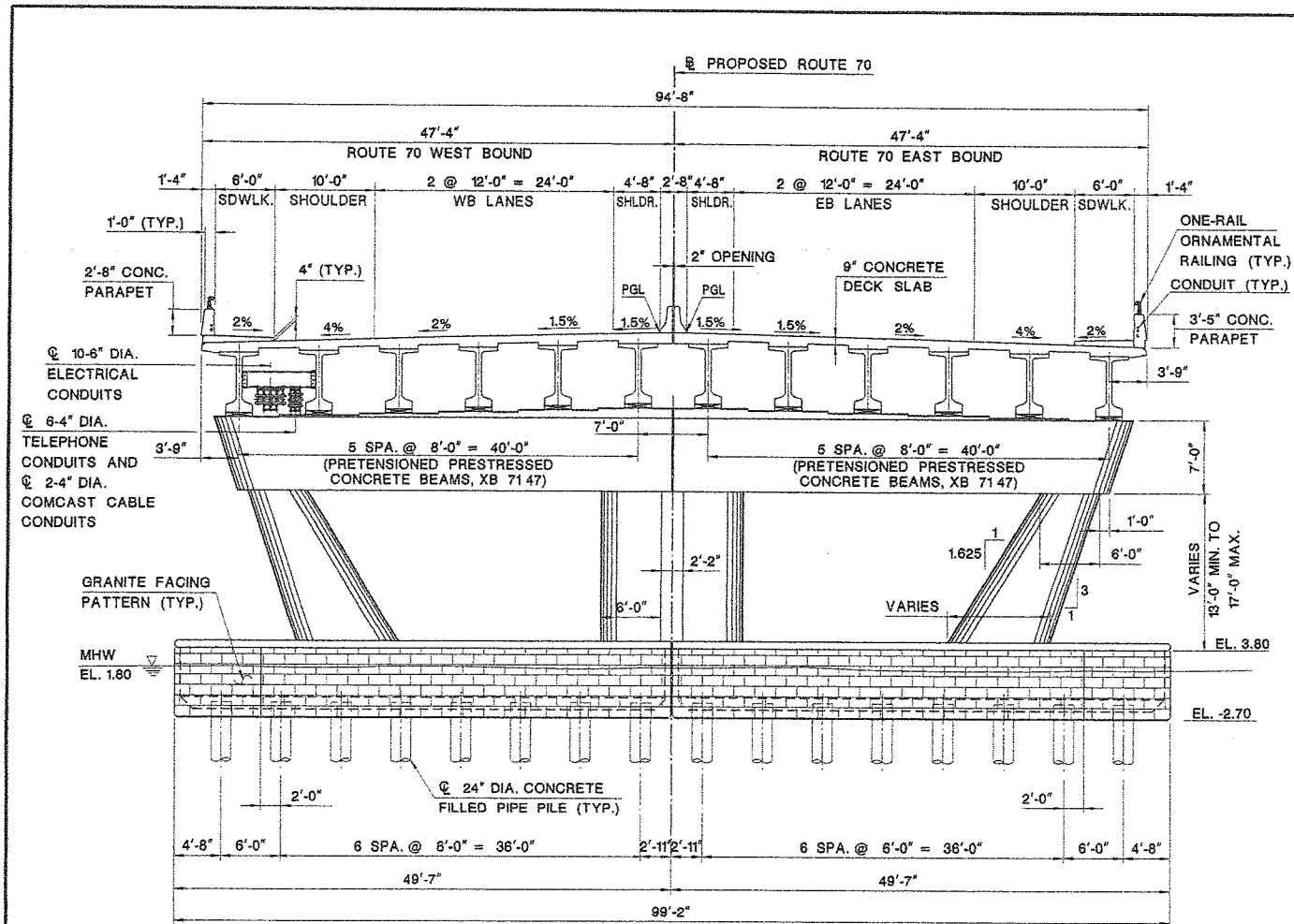
SECTION CONTROL	151	JOB NO.	1511513
DES. BY	K. ALAM	CHK. BY	A. HARING
DWN. BY	M. BARN	CHK. BY	K. ALAM
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

IN CHARGE OF *John C. Roscioli*

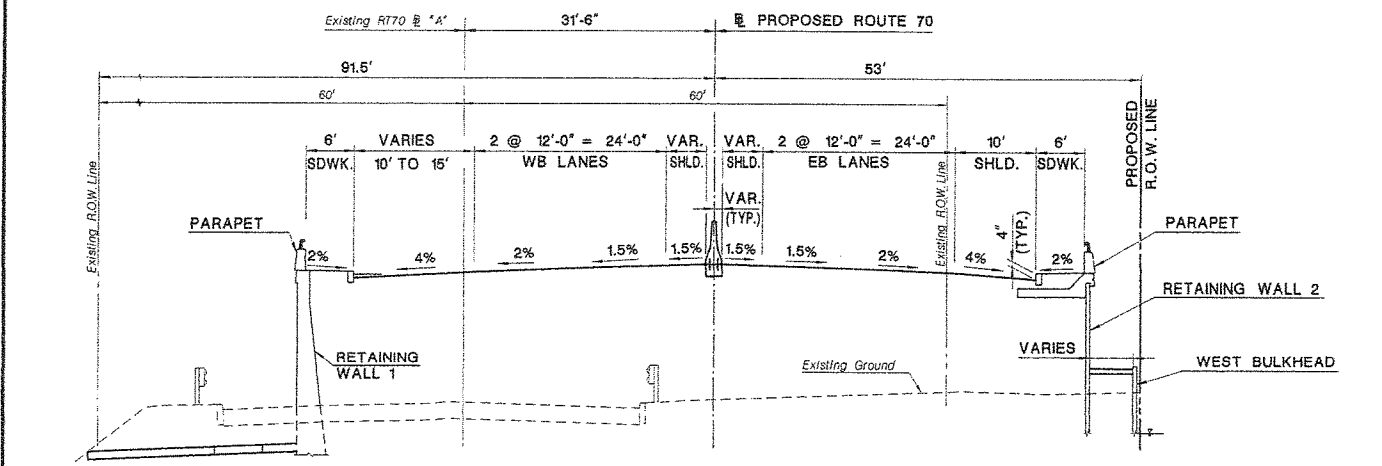
DATUM - N.A.V.D. 1988



REVISION	BY	C'K'D	DATE



TYPICAL SECTION  
SCALE: 1/8" = 1'-0"



WEST APPROACH SECTION  
N.T.S.

SECTION CONTROL	151	JOB NO.	1511513
DES. BY	K. ALAM	CHK. BY	LW
DWN. BY	M. BARN	CHK. BY	K. ALAM
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF	<i>Adela C. Roscioli</i>		

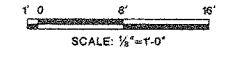
SUMMARY OF QUANTITIES

PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY
315	N1G01	CHANNEL SURVEY	LS	LS
316	2A21B	TEMPORARY SHIELDING	LS	LS
317	2A31C	CLEARING SITE, BRIDGE (STRUCTURE NO. 1511-150)	LS	LS
318	2A41C	CLEARING SITE, STRUCTURE (FENDER)	LS	LS
319	2F10A	COARSE AGGREGATE LAYER	CY	469
320	2F2E	FOUNDATION EXCAVATION	CY	1,808
321	2F21F	COFFERDAMS	LS	LS
322	N2F04	PRECAST CONCRETE COFFERDAMS, HPC	U	10
323	N2F05	FOUNDATION EXCAVATION, REGULATED WASTE	CY	441
324	N2F06	FOUNDATION EXCAVATION, RIVERBED	CY	389
325	5A21A	CONCRETE IN STRUCTURES, FOOTINGS	CY	548
326	5A12B	CONCRETE IN SUBSTRUCTURES, ABUTMENT WALLS	CY	126
327	5A21D	CONCRETE SEAL IN COFFERDAMS	CY	278
328	5A21E	REINFORCEMENT STEEL IN STRUCTURES	LBS	146,131
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	734,776
330	5A31G	EPOXY WATERPROOFING SEAL COAT	SY	2,700
331	5A23J	STRIP SEAL EXPANSION DAM	LF	284
332	5A21L	SAWCUT GROOVED DECK SURFACE	SF	52,600
333	N5A07	CONCRETE IN STRUCTURES, FOOTINGS CLASS A HPC	CY	2,732
334	N5A01	CONCRETE IN SUPERSTRUCTURE, DECK SLABS, HPC	CY	2,520
335	N5A02	CONCRETE IN SUPERSTRUCTURE, SIDEWALKS, HPC	CY	190
336	N5A03	CONCRETE IN SUPERSTRUCTURES, PARAPET, 2'-8" HIGH, HPC	LF	724
337	N5A04	CONCRETE IN SUPERSTRUCTURES, PARAPET, 3'-5" HIGH, HPC	LF	724
338	N5A05	CONCRETE IN SUPERSTRUCTURES, BRIDGE MONUMENT, HPC	CY	18
339	N5A06	CONCRETE IN SUBSTRUCTURES, PIER COLUMNS AND CAPS, HPC	CY	104
340	N5B01	PRETENSIONED PRESTRESSED CONCRETE BEAMS, XB 7147	LF	8,568
341	N5B02	PRETENSIONING STRAND IN CAP BEAM, EPOXY COATED	LBS	10,736
342	5C19A	STRUCTURAL STEEL (192820 LBS)	LS	LS
343	N5C01	REINFORCED ELASTOMERIC BEARING ASSEMBLY	U	144
344	N5D01	COMPOSITE LUMBER	CF	2,695
345	5E19B	TEST PILES, DRIVEN	LF	3,356
346	5E19C	TEST PILES, FURNISHED	LF	3,356
347	5E28L	DYNAMIC PILE LOAD TESTS	U	28
348	5E21M	FURNISHING EQUIPMENT FOR DRIVING PILES	LS	LS
349	N5E01	CONCRETE FILLED STEEL PIPE PILES, FURNISHED, 24" DIAMETER	LF	36,225
350	N5E02	CONCRETE FILLED STEEL PIPE PILES, DRIVEN, 24" DIAMETER	LF	36,225
351	N5E03	SPLICES, FOR STEEL PIPE PILES, 24" DIAMETER	U	371
352	N5E04	COMPOSITE PILES, 16" DIAMETER	LF	2,852
353	5F21G	TIE RODS	LBS	5,960
354	N5F01	MANSAFE/UNISTRUT SYSTEM	LS	LS
355	N5F02	STEEL SHEET PILING, WEST BULKHEAD	SF	6,180
356	N5F03	STEEL SHEET PILING, EAST BULKHEAD	SF	2,541
357	N5E06	RESTRIKING	U	10
358	5H01E	METAL RAILING (1 RAIL, ALUMINUM)	LF	1,448
359	5J10A	ELECTRIC CONDUITS	LF	7,340
360	5J16B	TELEPHONE CONDUITS	LF	4,410
361	5M21C	TEMPORARY SHEETING	SF	2,700
362	5M31C	SHEETING LEFT IN PLACE	SF	850
363	N5W01	CONCRETE IN SUBSTRUCTURES, PRECAST 8000 PSI, HPC	CY	508
364	N5X01	POST TENSIONING STRAND IN SUBSTRUCTURE, EPOXY COATED	LBS	17,938
365	N5X02	POST TENSIONING BAR IN SUBSTRUCTURE	LBS	5,934
366	N5Z01	VIBRATION MONITORING AND CONTROL	LS	LS
367	N6E01	16" X 32" CONCRETE BARRIER CURB, BRIDGE, HPC	LF	1,448
368	N6W01	BRONZE PLAQUES	U	4
369	7A11C	1 1/4" FLEXIBLE METAL CONDUIT	LF	14
370	7A26C	1.5" RIGID METALLIC CONDUIT, TYPE CUG	LF	150
371	7A31C	2" RIGID METALLIC CONDUIT, TYPE CUG	LF	830
372	7A41C	3" RIGID METALLIC CONDUIT, TYPE CUG	LF	1,448
373	7A75J	JUNCTION BOX FRAMES AND COVERS	U	30
374	N7A01	1 1/4" RIGID METALLIC CONDUIT, TYPE CUG	LF	230
375	N7A02	4 - 1 1/4" RIGID METALLIC CONDUIT, TYPE CUG	LF	724
376	N7G01	EMERGENCY BACKUP GENERATOR	LS	LS
377	6C73H	NEW MANHOLE CASTINGS, SQUARE FRAME, CIRCULAR COVER	U	1
378	N5E07	NAVIGATIONAL CLEARANCE GAUGE	LS	LS
379	N6J01	COMCAST CABLE CONDUITS	LF	1,488

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

REFERENCES:

- FOR GENERAL PLAN AND ELEVATION, SEE BRIDGE SHEET NO. B3.
- FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
- FOR STAKEOUT PLAN AND PROFILE, SEE BRIDGE SHEET NO. B6.
- FOR TYPICAL PIER FOOTING, SEE BRIDGE SHEET NO. B23.
- FOR FRAMING PLANS, SEE BRIDGE SHEET NO'S. B31, B32.
- FOR GIRDER DETAILS, SEE BRIDGE SHEET NO'S. B33-B36.



NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

TYPICAL SECTION AND SUMMARY OF QUANTITIES

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

ERIC YERMACK SCALE AS SHOWN 316  
BRIDGE SHEET NO. B5 OF B100  
N.J. P.E. LIC. NO. 38046

REVISION	BY	C/K/D	DATE

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-001B(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME:		ROUTE 70 OVER MANASQUAN RIVER	

**NOTES:**

- CROSS SECTIONS ARE DRAWN LOOKING UPSTATION (EAST).
- TEMPORARY LANE WIDTH FOR STAGING TRAFFIC IS 10'-11" MINIMUM.

**SUGGESTED CONSTRUCTION SEQUENCE**

**STAGE 1B**

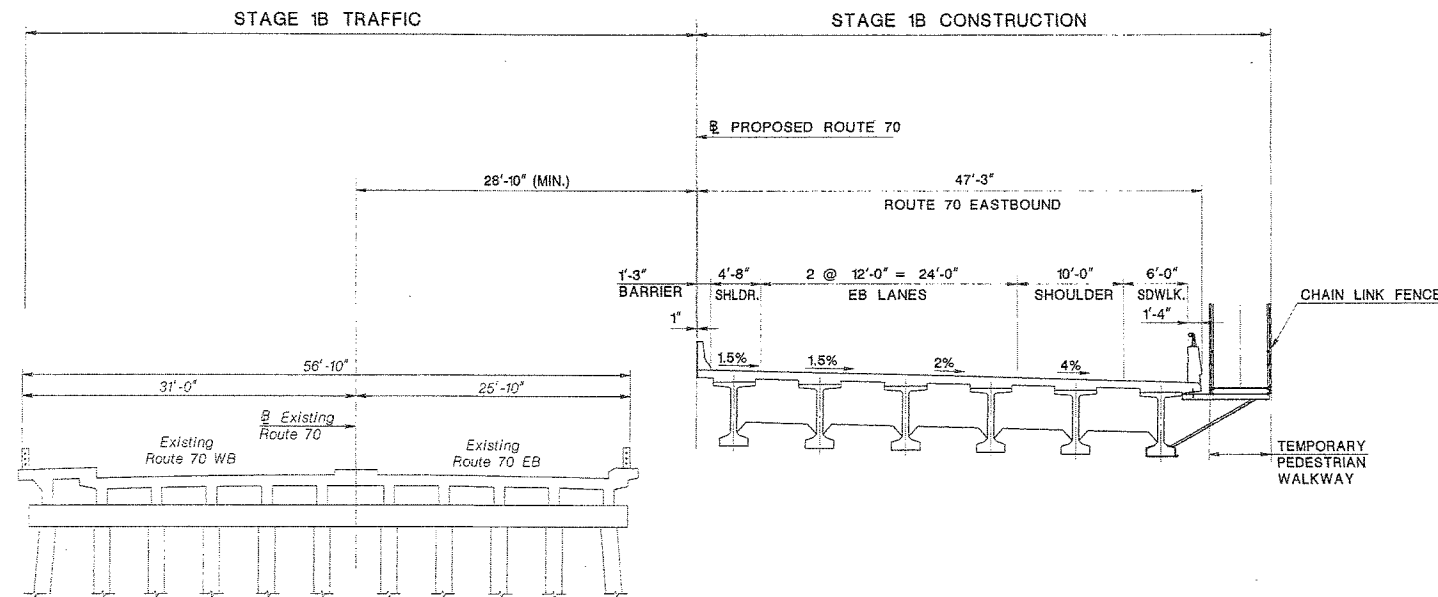
- REMOVE AND RELOCATE CAMERA AND GENERATOR FROM SOUTH AUXILIARY OPERATOR'S HOUSE PRIOR TO STAGE 1 CONSTRUCTION
- PLACE TEMPORARY SHEETING AT EACH ABUTMENT LONGITUDINALLY TO RETAIN APPROACH ROADWAY FILL.
- CONSTRUCT SOUTH HALF OF SUPERSTRUCTURE WHILE MAINTAINING TRAFFIC ON THE EXISTING RT. 70 BRIDGE.
- INSTALL TEMPORARY SHIELDING AFTER GIRDERS ARE ERECTED TO PROTECT MARINE TRAFFIC.
- CONSTRUCT TEMPORARY CANTILEVERED SIDEWALK, RETAINING WALLS NOS. 2 AND 3 AND GROUND MOUNTED NOISEWALL NO. 2.

**STAGE 2**

- RELOCATE TRAFFIC FROM THE EXISTING RT. 70 BRIDGE TO THE NEWLY CONSTRUCTED SOUTH HALF OF BRIDGE.
- INSTALL TEMPORARY SHIELDING UNDER THE EXISTING SUPERSTRUCTURE TO PROTECT THE MARINE TRAFFIC.
- DEMOLISH THE EXISTING STRUCTURE.
- CONSTRUCT THE NORTH HALF OF THE BRIDGE.
- INSTALL TEMPORARY SHIELDING AFTER GIRDERS ARE ERECTED TO PROTECT THE MARINE TRAFFIC.
- CONSTRUCT RETAINING WALLS NOS. 1 AND 4, PEDESTRIAN ACCESS PLATFORM AND REMAINING PORTIONS OF FENDERING.

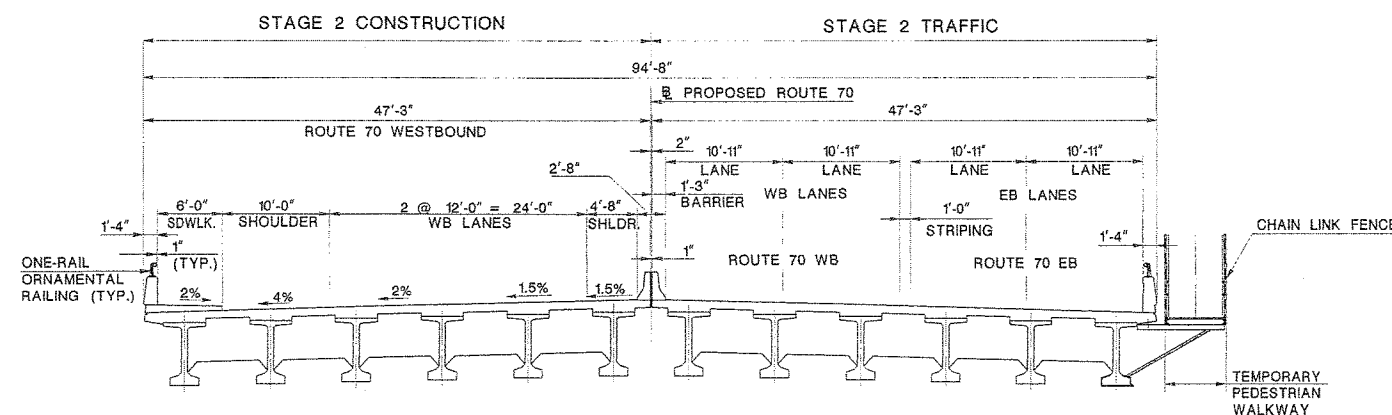
**REFERENCES:**

- FOR GENERAL PLAN AND ELEVATION, SEE BRIDGE SHEET NO. B3.
- FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
- FOR DEMOLITION PLANS, SEE BRIDGE SHEET NO'S. B9-B12.
- FOR TEMPORARY WALKWAY, SEE BRIDGE SHEET NO'S. B78 AND B79.
- FOR FRAMING PLANS, SEE BRIDGE SHEET NO'S. B31, B32.



EXISTING BRIDGE

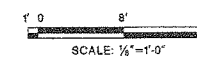
**STAGE 1B**  
SCALE: 1/8"=1'-0"



**STAGE 2**  
SCALE: 1/8"=1'-0"

Plot Date: 07/20/05  
 Plot Time: 7:43:53 AM  
 Plot Path: I:\Projects\050808\Structure\final\plate8 (B3-B12).dgn

SECTION CONTROL	1151	JOB NO.	151151
DES. BY	K. ALAM	CHK. BY	A. HARING
DWN. BY	M. BARN	CHK. BY	K. ALAM
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>Adriano Roscioli</i>			



REVISION	BY	C'K'D	DATE

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**CONSTRUCTION STAGING - 1**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMAK  
N.J. P.E. LIC. NO. 38048

SCALE: 1/8"=1'-0"  
BRIDGE SHEET NO. **B7** OF **B100**

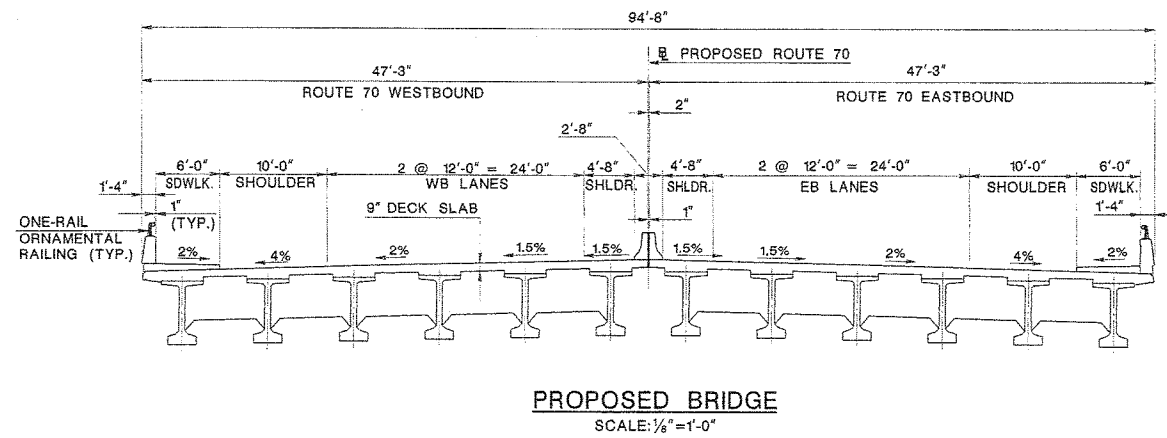
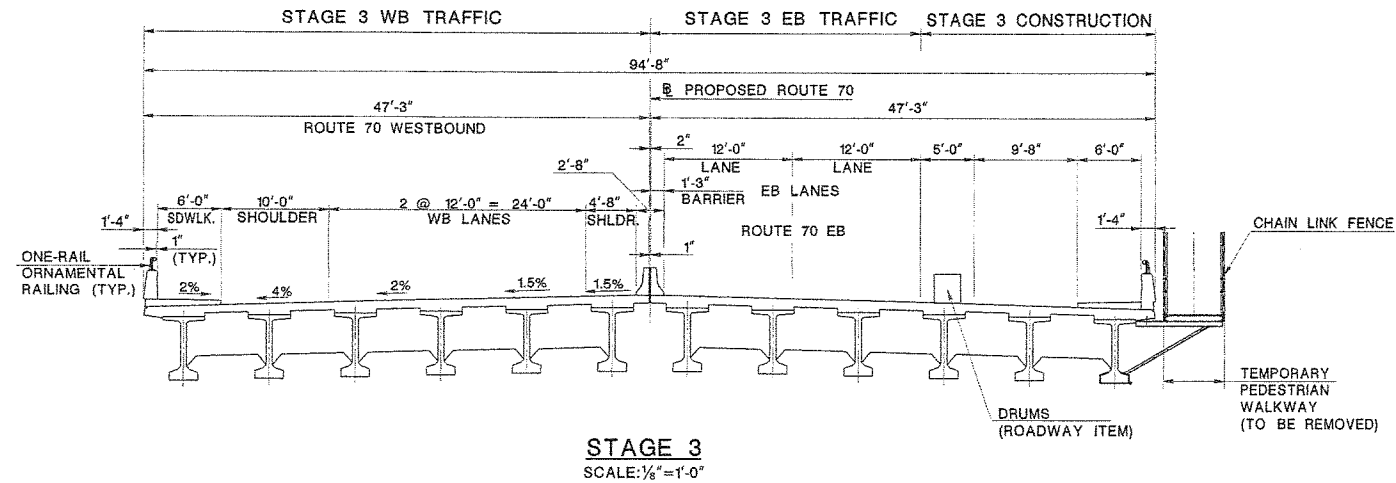
318

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0016(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

**SUGGESTED CONSTRUCTION SEQUENCE  
(CONTINUED)**

**STAGE 3**

1. SHIFT WB TRAFFIC TO THE NEWLY CONSTRUCTED NORTH HALF OF THE BRIDGE. SHIFT EB LANES AS SHOWN.
2. ADJUST DRUM LOCATION AS WELL AS THE TEMPORARY EB LANES AS NECESSARY TO CONSTRUCT THE SIDEWALK AND STRIPING.
3. REMOVE TEMPORARY CANTILEVERED SIDEWALK.
4. REMOVE DRUMS AND SHIFT EB LANES TO FINAL CONFIGURATION.



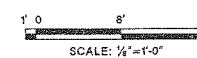
**REFERENCES:**

1. FOR GENERAL PLAN AND ELEVATION, SEE BRIDGE SHEET NO. B3.
2. FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
3. FOR CONSTRUCTION STAGING - I, SEE BRIDGE SHEET NO. B7.
4. FOR FRAMING PLANS, SEE BRIDGE SHEET NO'S. B31, B32.

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**CONSTRUCTION STAGING - 2**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

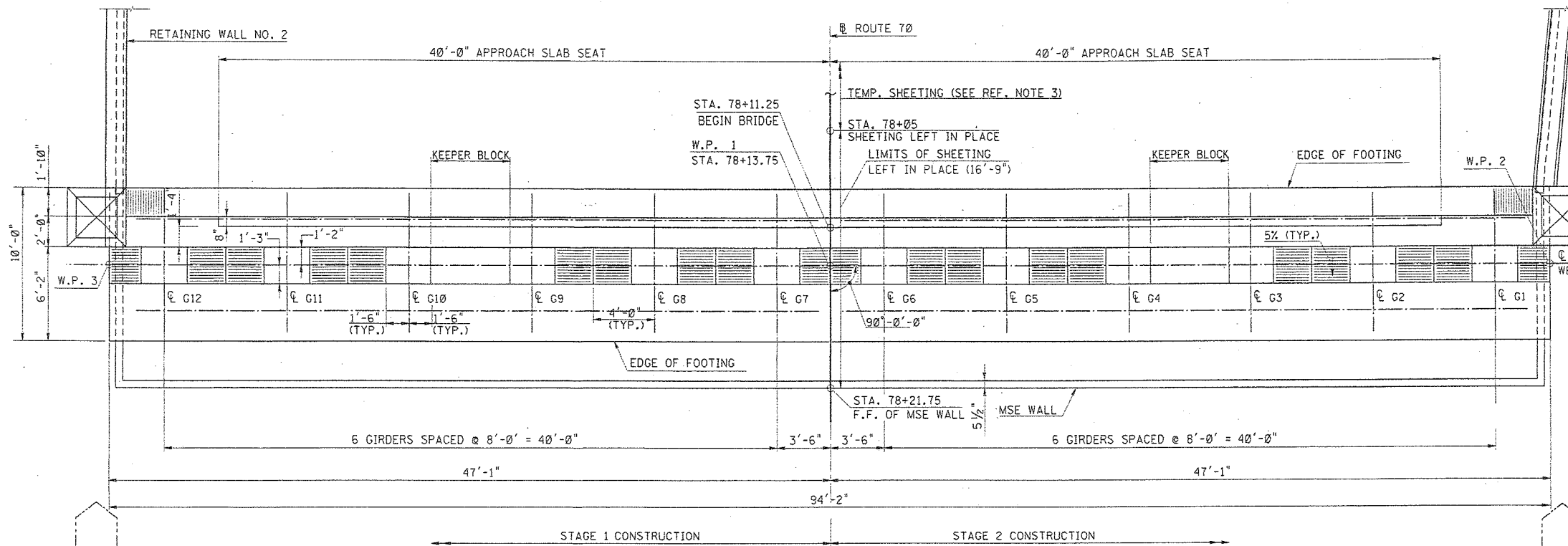


REVISION	BY	C/K'D	DATE	SCALE	1/8" = 1'-0"	319
				BRIDGE	B8	
				SHEET NO.	B8	OF B100
				ERIC YERMACK		
				N.J. P.E. LIC. NO. 38945		

SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	K. ALAM	CHK. BY	A. HARING
DWN. BY	M. BARN	CHK. BY	K. ALAM
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>Adrian C. Bosic</i>			

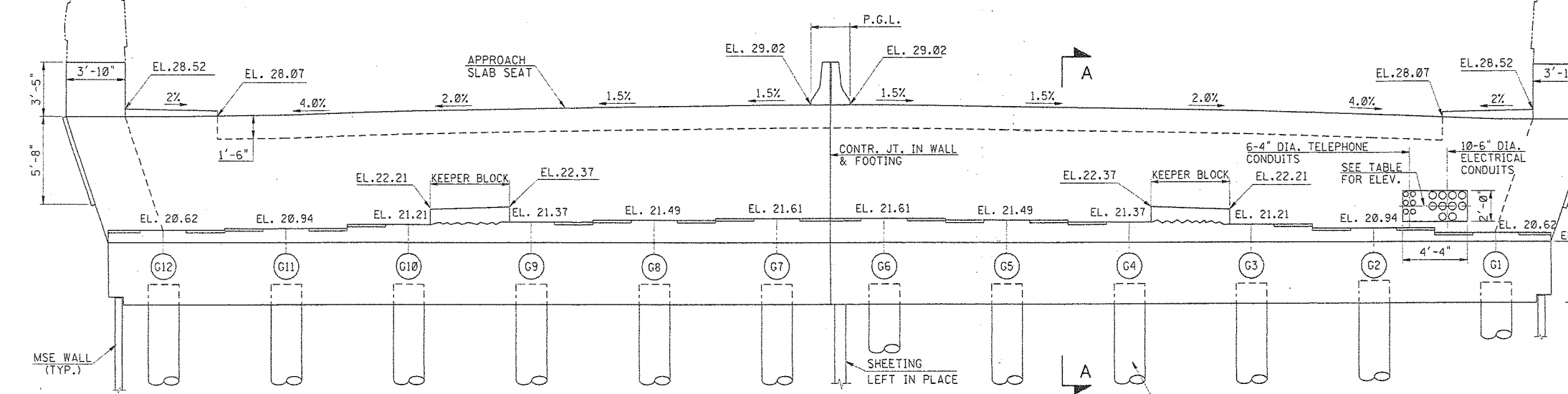
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STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME:		ROUTE 70 OVER MANASQUAN RIVER	

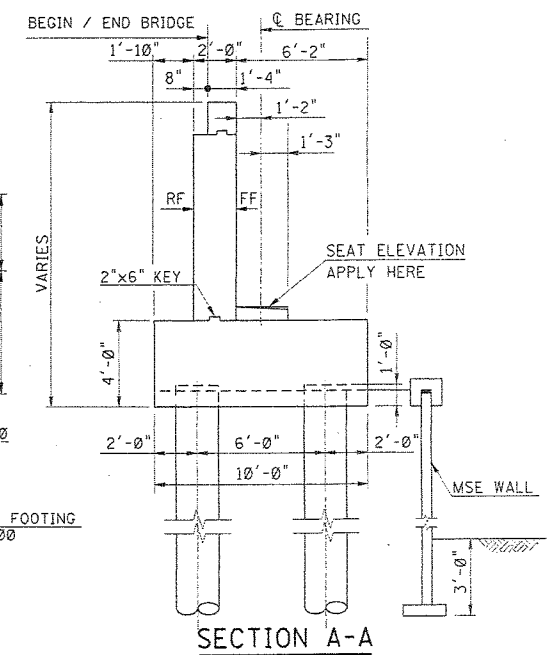


**PLAN - WEST ABUTMENT**  
SCALE: 1/4" = 1'-0"

- REFERENCES:**
- FOR BRIDGE WORKING POINTS SEE SHEET NO. B6. FOR WALL WORKING POINTS SEE RETAINING WALL DRAWINGS.
  - FOR REINFORCEMENT AND ADDL. DETAILS, SEE SHEET NO. B15.
  - REFER TO ROADWAY PLANS FOR LIMITS OF SHEETING.
- NOTES:**
- COORDINATE THIS DRAWING WITH THE RETAINING WALL DRAWINGS.
  - KEEPER BLOCK SHALL BE POURED AFTER THE SUPERSTRUCTURE AND BEARINGS ARE SET IN THE FINAL POSITION.
  - 1/2" THICK NEOPRENE ELASTOMERIC PAD SHALL BE BONDED TO THE BOTTOM GIRDER FLANGE EDGE PRIOR TO POURING THE CONCRETE KEEPER BLOCK. THE BONDING SYSTEM SHALL CONFORM TO ASTM C881, TYPE IV. PRIOR TO BONDING THE PAD, THE FACE OF THE PAD SHALL BE ROUGHENED BY USING A MECHANICAL SANDER. COST SHALL BE INCLUDED UNDER ITEM 5C41H.



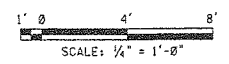
**ELEVATION - WEST ABUTMENT**  
SCALE: 1/4" = 1'-0"



**SECTION A-A**  
SCALE: 1/4" = 1'-0"

PAY ITEM NO.	STD. ITEM NO.	QUANTITIES	UNIT	CONTRACT QUANTITY
325	5A21A	CONCRETE IN STRUCTURES, FOOTINGS	CY	140
326	5A12B	CONCRETE IN SUBSTRUCTURES, ABUTMENT WALLS	CY	63
328	5A21E	REINFORCEMENT STEEL IN STRUCTURES	LBS	18090
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	7850
330	5A31G	EPOXY WATERPROOFING SEAL COAT	SY	47
345	5E19B	TEST PILES, DRIVEN	LF	360
346	5E19C	TEST PILES, FURNISHED	LF	360
347	5E28L	DYNAMIC PILE LOAD TESTS	U	4
349	N5E01	CONCRETE FILLED STEEL PIPE PILES, FURNISHED, 24" DIAMETER	LF	1680
350	5NE02	CONCRETE FILLED STEEL PIPE PILES, DRIVEN, 24" DIAMETER	LF	1680
351	N5E03	SPLICES, FOR STEEL PIPE PILES, 24" DIAMETER	U	24
362	5M31C	SHEETING LEFT IN PLACE	SF	390

ELEVATION @ UTILITY	
UTILITY	ELEVATION
10-6" ELECTRICAL CONDUITS	22.10
6-4" TELEPHONE CONDUITS	



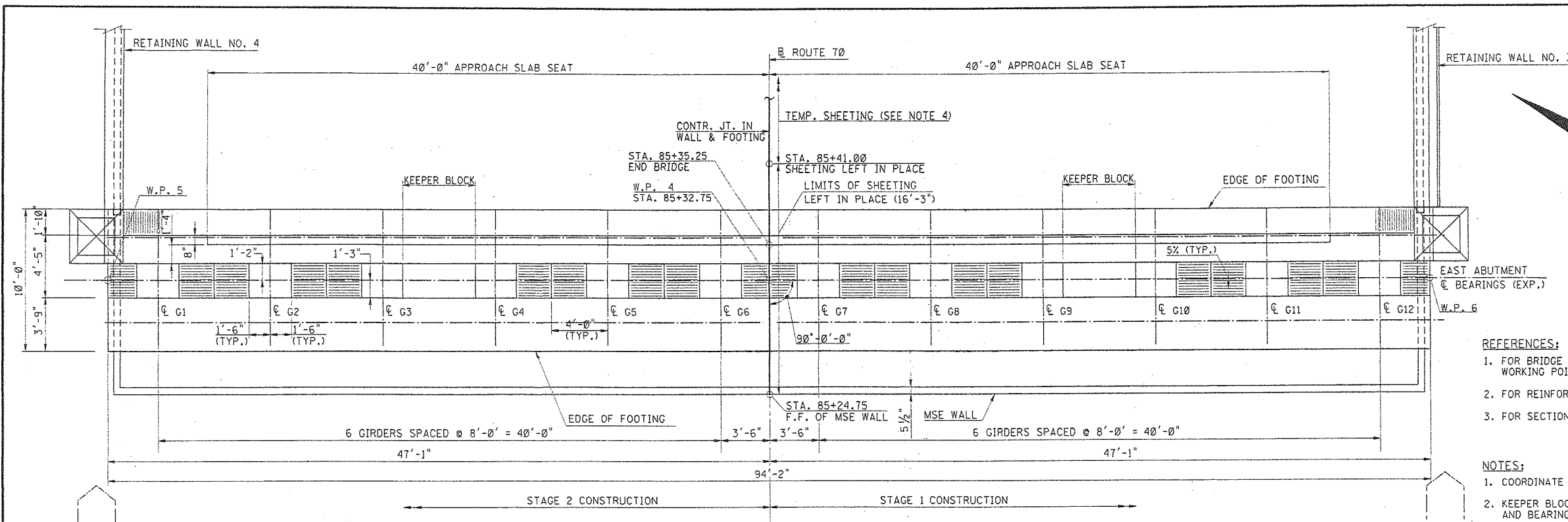
DES. BY	K. PAGAN	CHK. BY	R. NAVALURKAR
DWN. BY	O. BROOKS	CHK. BY	R. NAVALURKAR
ISS. BY	K. PAGAN	CHK. BY	R. NAVALURKAR
SPECS. BY	D. DIZUZZO		
IN CHARGE OF THOMAS J. CLANCY, P.E.			

<b>URS CORPORATION</b> THOMAS J. CLANCY N.J. P.E. LIC. NO. 24875	NEW JERSEY DEPARTMENT OF TRANSPORTATION BUREAU OF STRUCTURAL ENGINEERING
	<b>WEST ABUTMENT PLAN AND ELEVATION</b> ROUTE 70 CONTRACT NO. 058980109 BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY ARORA and ASSOCIATES, P.C.
REVISION BY C'K'D DATE	SCALE AS SHOWN BRIDGE SHEET NO. B14 OF B100

User Name: oim00040  
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 Plot Time: 10:47:48 AM  
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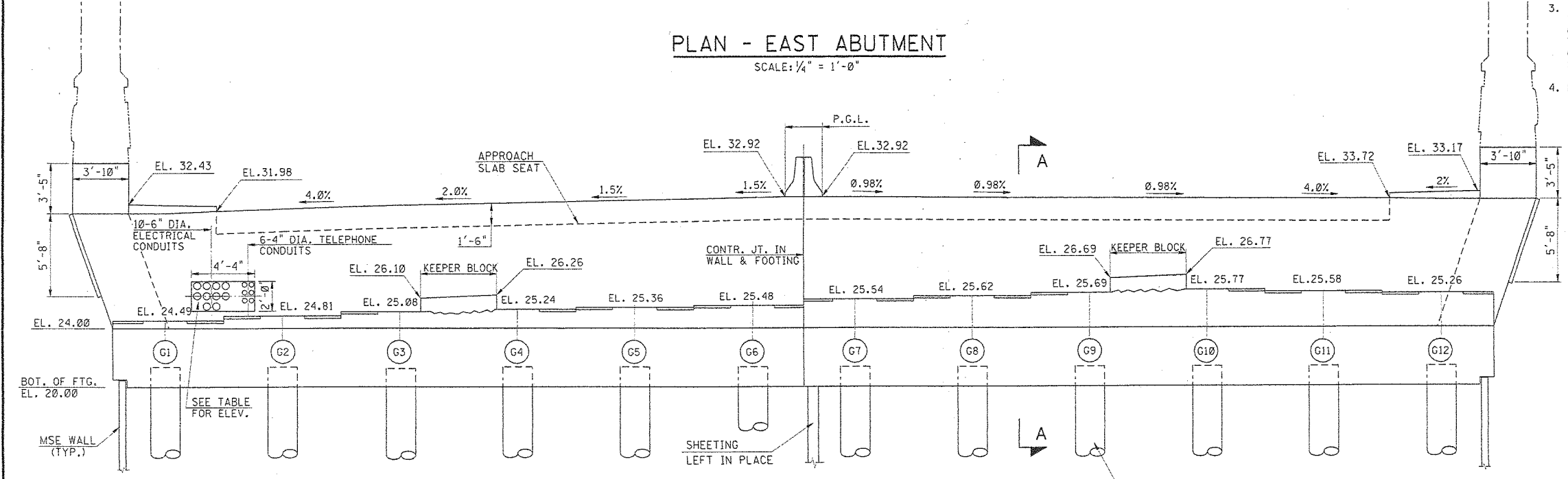
STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME:		ROUTE 70 OVER MANASQUAN RIVER	



- REFERENCES:
- FOR BRIDGE WORKING POINTS SEE SHEET NO. B6. FOR WALL WORKING POINTS SEE RETAINING WALL DRAWINGS.
  - FOR REINFORCEMENT AND ADDL. DETAILS, SEE SHEET NO. B17.
  - FOR SECTIONS A-A SEE SHEET NO. B14.

- NOTES:
- COORDINATE THIS DRAWING WITH THE RETAINING WALL DRAWINGS.
  - KEEPER BLOCK SHALL BE POURED AFTER THE SUPERSTRUCTURE AND BEARINGS ARE SET IN THE FINAL POSITION.
  - 1/2" THICK NEOPRENE ELASTOMERIC PAD SHALL BE BONDED TO THE BOTTOM GIRDER FLANGE EDGE PRIOR TO POURING THE CONCRETE KEEPER BLOCK. THE BONDING SYSTEM SHALL CONFORM TO ASTM C881, TYPE IV. PRIOR TO BONDING THE PAD, THE FACE OF THE PAD SHALL BE ROUGHENED BY USING A MECHANICAL SANDER. COST SHALL BE INCLUDED UNDER ITEM 5C41H.
  - REFER TO ROADWAY PLANS FOR LIMITS OF SHEETING.

ELEVATION @ UTILITY	
UTILITY	ELEVATION
10-6" ELECTRICAL CONDUITS	26.18
6-4" TELEPHONE CONDUITS	

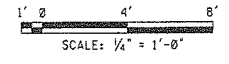


PAY ITEM NO.	STD. ITEM NO.	QUANTITIES	UNIT	CONTRACT QUANTITY
325	5A21A	CONCRETE IN STRUCTURES, FOOTINGS	CY	140
326	5A12B	CONCRETE IN SUBSTRUCTURES, ABUTMENT WALLS	CY	63
328	5A21E	REINFORCEMENT STEEL IN STRUCTURES	LBS	18330
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	8340
330	5A31G	EPOXY WATERPROOFING SEAL COAT	SY	44
345	5E19B	TEST PILES, DRIVEN	LF	376
346	5E19C	TEST PILES, FURNISHED	U	4
347	5E20L	DYNAMIC PILE LOAD TESTS	U	4
349	5NE01	CONCRETE FILLED STEEL PIPE PILES, FURNISHED, 24" DIAMETER	LF	1776
350	5NE02	CONCRETE FILLED STEEL PIPE PILES, DRIVEN, 24" DIAMETER	LF	1776
351	5NE03	SPLICES, FOR STEEL PIPE PILES, 24" DIAMETER	U	24
362	5M31C	SHEETING LEFT IN PLACE	SF	460

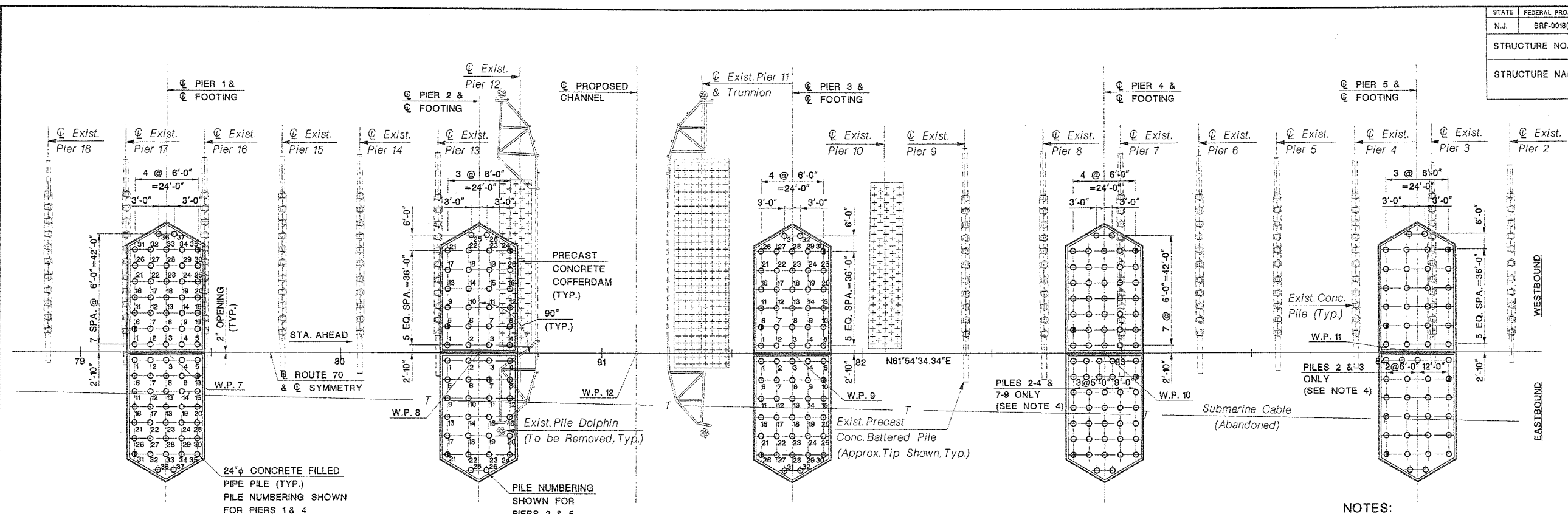
<b>URS CORPORATION</b> THOMAS J. CLANCY N.J. P.E. LIC. NO. 24875		NEW JERSEY DEPARTMENT OF TRANSPORTATION BUREAU OF STRUCTURAL ENGINEERING	
		<b>EAST ABUTMENT PLAN AND ELEVATION</b>	
		ROUTE 70 CONTRACT NO. 058980109 BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY	
		ARORA AND ASSOCIATES, P.C.	
		<i>Eric Yermack</i> ERIC YERMACK N.J. P.E. LIC. NO. 38046	
REVISION BY C.K'D DATE		SCALE AS SHOWN BRIDGE SHEET NO. B16 OF B100	

User: oxtrookd  
 Plot Date: 06/09/2005  
 Plot Time: 10:47:55 AM  
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SECTION CONTROL	1511	JOB NO.	1511513
DES. BY	K. PAGAN	CHK. BY	R. NAVALURKAR
DNW. BY	O. BROOKS	CHK. BY	R. NAVALURKAR
EST. BY	K. PAGAN	CHK. BY	R. NAVALURKAR
SPECS. BY	D. DIZUZIO		
IN CHARGE OF THOMAS J. CLANCY P.E.			



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PLAN  
SCALE: 1"=20'-0"

LEGEND:  
● TEST PILES

NOTES:

1. ULTIMATE PILE CAPACITY DURING DRIVING AT PIERS IS 800 KIPS.
2. WAVE EQUATION ANALYSIS (WEAP) SHALL BE USED TO EVALUATE THE PILE DRIVING EQUIPMENT USING SOIL PROPERTIES CONTAINED ON THIS SHEET. TRIANGULAR SKIN FRICTION DISTRIBUTION SHALL BE ASSUMED.
3. ALL TEST PILES ARE TO BE DYNAMICALLY LOAD TESTED USING PDA WITH CAPWAP ANALYSIS PERFORMED TO VERIFY CAPACITY. IF THE DESIGN ULTIMATE RESISTANCE IS NOT ACHIEVED AT ESTIMATED TIP ELEVATION, EITHER RESTRIKING WITH CAPWAP ANALYZES SHALL BE CONDUCTED AT 7 AND 14 DAYS TO EVALUATE SOIL SETUP OR DRIVING BELOW THE ESTIMATED TIP. SEE SPECIAL PROVISIONS.
4. CONTRACTOR MAY MODIFY LOCATIONS OF PILE OPENINGS IN BOTTOM OF COFFERDAMS TO AVOID CONFLICTS WITH EXISTING PILES DURING PILE DRIVING ON EASTBOUND FOUNDATIONS, AS REQUIRED. LOCATION OF EXISTING FOUNDATION BASED ON EXISTING AS-BUILT PLAN, CONTRACTOR TO VERIFY. CONTRACTOR SHALL NOTIFY THE ENGINEER FOR APPROVAL PRIOR TO MODIFYING ANY PILE LOCATION.

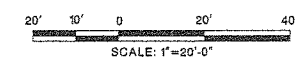
PIER NOS.	1	2 & 3	4	5
ESTIMATED PILE TIP ELEVATION	-107	-114	-110	-105
MINIMUM PILE TIP ELEVATION	-90	-95	-90	-90

	ASSUMED SOIL SET-UP FACTOR	SOIL DAMPING VALUE (SEC/FT)		QUAKE VALUE (INCH)	
		SKIN	TOE	SKIN	TOE
PIERS	1.3	0.12	0.15	0.10	0.40
ABUTMENTS	1.0	0.05	0.15	0.10	0.30

PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	
				EASTBOUND	WESTBOUND
323	N2F05	FOUNDATION EXCAVATION, REGULATED WASTE	CY	26	26
324	N2F06	FOUNDATION EXCAVATION, RIVERBED	CY	26	26
345	5E19B	TEST PILES, DRIVEN	LF	1310	1310
346	5E19C	TEST PILES, FURNISHED	LF	1310	1310
347	5E28L	DYNAMIC PILE LOAD TESTS	U	10	10
348	5E21M	FURNISHING EQUIPMENT FOR DRIVING PILES	LS	LS	-
349	N5E01	CONCRETE FILLED STEEL PIPE PILES, FURNISHED, 24" DIAMETER	LF	16190	16190
350	N5E02	CONCRETE FILLED STEEL PIPE PILES, DRIVEN, 24" DIAMETER	LF	16190	16190
351	N5E03	SPLICES, FOR STEEL PIPE PILES, 24" DIAMETER	U	158	158
357	N5E06	RESTRIKING	U	5	5
366	N5Z01	VIBRATION MONITORING AND CONTROL	LS	LS	-

REFERENCES:

1. FOR STAKEOUT PLAN AND PROFILE, SEE BRIDGE SHEET NO. B6.
2. FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
3. FOR PRECAST CONCRETE COFFERDAM, SEE BRIDGE SHEET NOS. B21 AND B22.
4. FOR PILE DETAILS, SEE BRIDGE SHEET NO. B24.



REVISION	BY	CHK'D	DATE

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PIER FOUNDATION LAYOUT PLAN**

ROUTE 70 CONTRACT NO. 058980109

BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY

ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38046

SCALE 1"=20'-0"  
BRIDGE SHEET NO. B20 OF B100

331

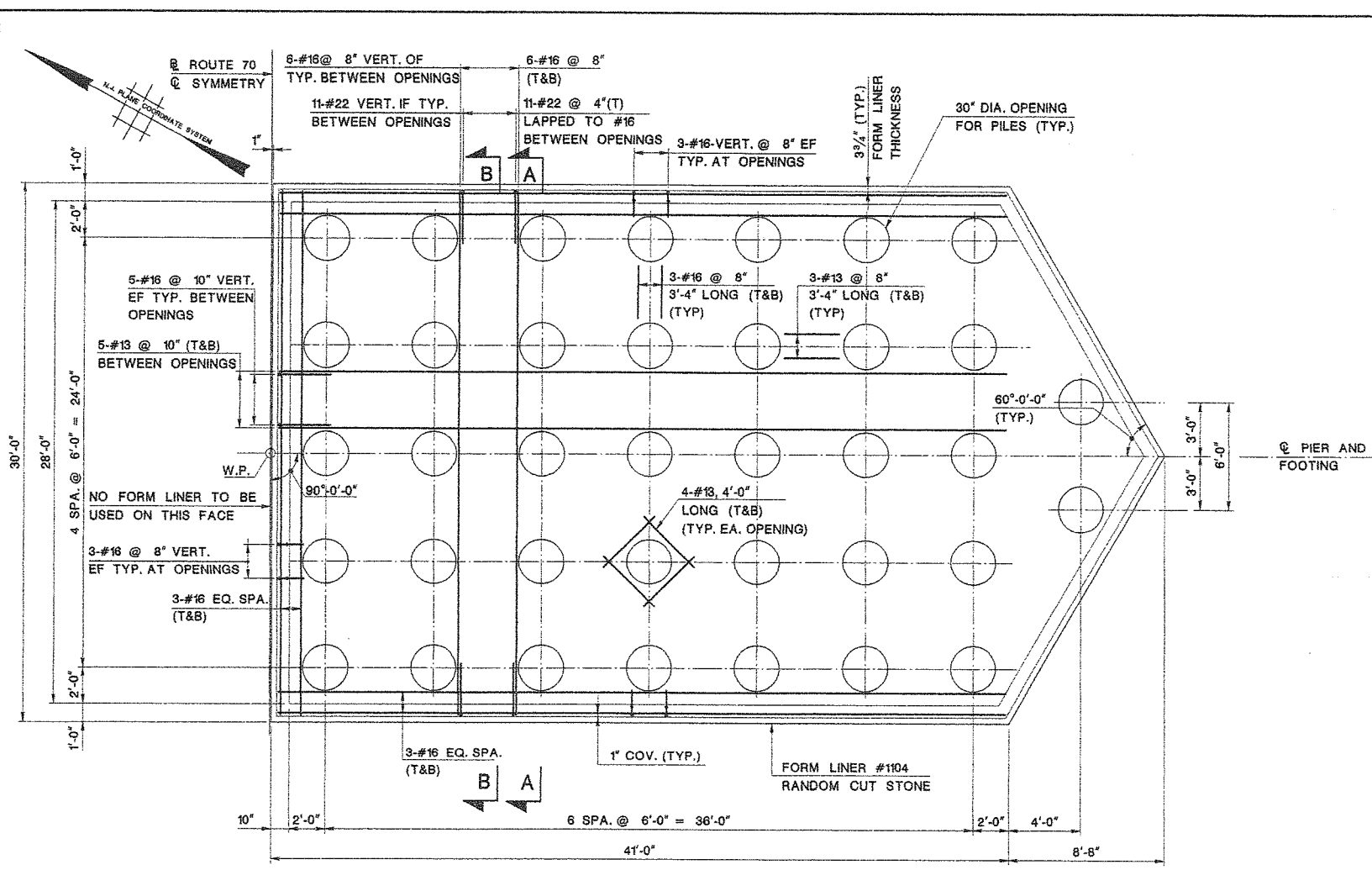
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SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	F. GOLDOVSKY	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

IN CHARGE OF *Ulrich C. Roscioli*



STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



**COFFERDAM PLAN**  
SCALE: 1/4" = 1'-0"

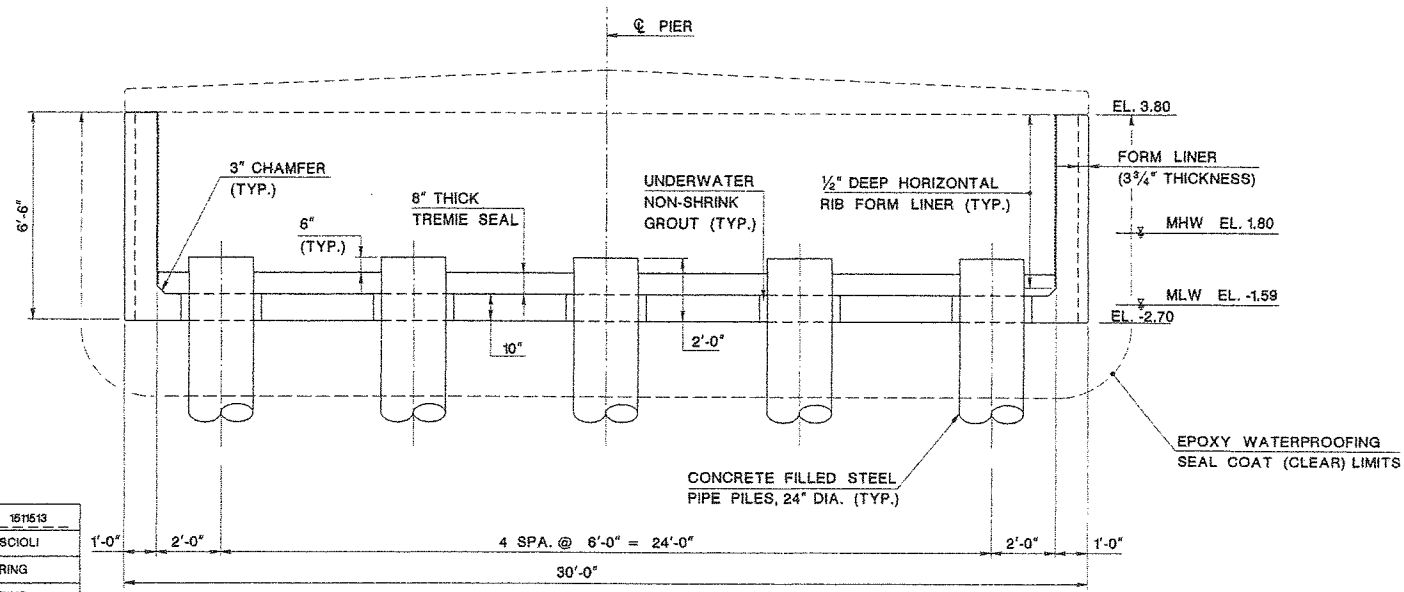
**NOTES:**

1. PRECAST CONCRETE COFFERDAM SHOWN ASSUMES SUPPORT TO BE PROVIDED FROM THE TOP OF VERTICAL WALL. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ADEQUACY OF COFFERDAM BASED ON PROPOSED CONSTRUCTION MEANS AND METHODS.
2. COFFERDAM WITH TREMIE SEAL DESIGNED TO RESIST BUOYANCY FOR WATER SURFACE ELEVATION OF 2.2.
3. COFFERDAM SHOWN FOR FOUNDATION OF EASTBOUND PIER 1. COFFERDAMS AT ALL OTHER LOCATIONS VARY.
4. CONCRETE IN COFFERDAM SHALL BE CLASS A HPC.

**REFERENCES:**

1. FOR GENERAL PLAN AND ELEVATION, SEE BRIDGE SHEET NO. B3.
2. FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
3. FOR ADDITIONAL DETAILS, SEE BRIDGE SHEET NO. B22.
4. FOR PIER FOUNDATION LAYOUT PLAN, SEE BRIDGE SHEET NO. B20.

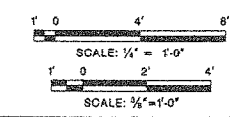
ESTIMATE OF QUANTITIES					
PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	
				EASTBOUND	WESTBOUND
322	N2F04	PRECAST CONCRETE COFFERDAMS, HPC	U	5	5
330	5A31G	EPOXY WATERPROOFING SEAL COAT	SY	1260	1260



**TYPICAL SECTION**  
SCALE: 3/8" = 1'-0"

SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

IN CHARGE OF *Abel C. Roscioli*



NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST CONCRETE COFFERDAM PLAN**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

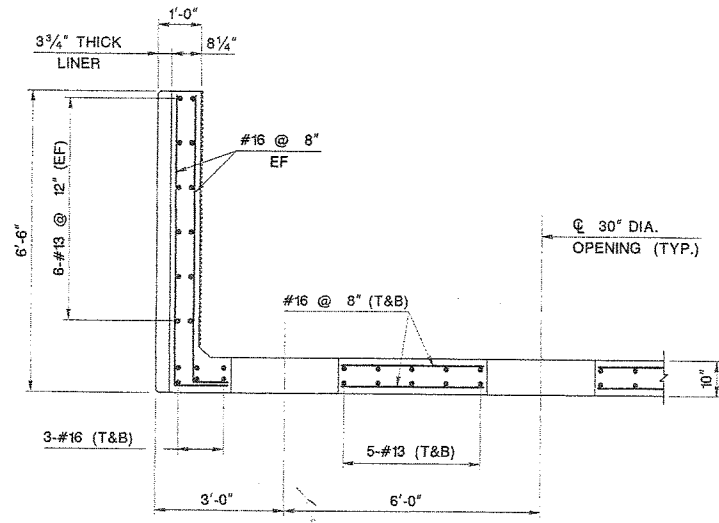
*Eric Yermack*  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38046

SCALE AS SHOWN  
BRIDGE SHEET NO. B21 OF B100

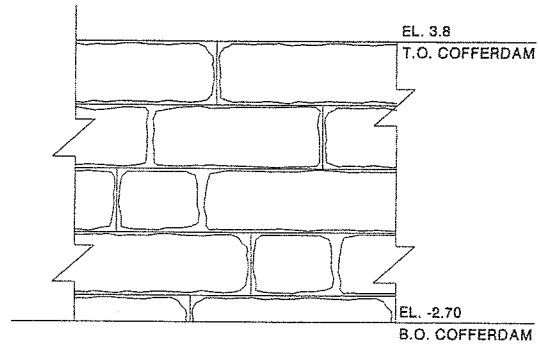
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 Plot Date: 8/20/2018  
 Plot Time: 10:58:00 AM  
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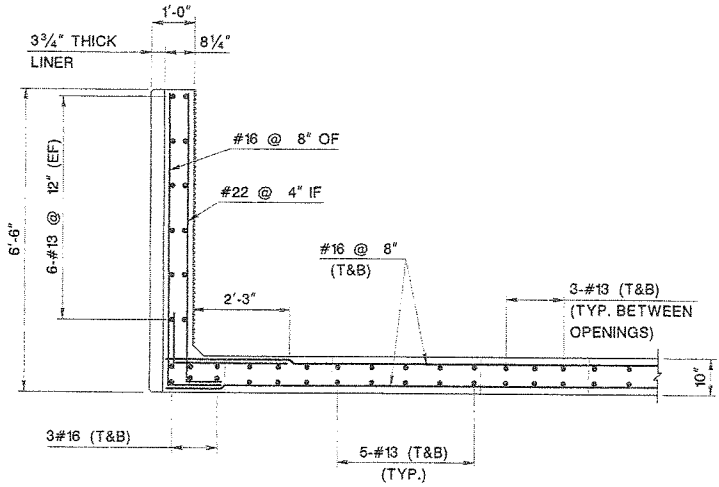
STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO. 1511-150			
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



**SECTION A-A**  
SCALE: 1/2"=1'-0"



**#1104 RANDOM CUT STONE DETAIL**  
SCALE: 1"=20'-0"



**SECTION B-B**  
SCALE: 1/2"=1'-0"

**NOTES:**

1. REINFORCEMENT IN COFFERDAM SHALL BE EPOXY COATED.
2. INFORMATIONAL QUANTITIES ARE PER COFFERDAM BASED ON PLANS. NO GUARANTEE IS EXPRESSED OR IMPLIED FOR FINAL QUANTITIES TO BE FURNISHED BY CONTRACTOR.
3. COFFERDAM ARCHITECTURAL TREATMENT SHOWN AS #1104 RANDOM CUT STONE SHALL BE PROVIDED USING FORMLINERS AS MANUFACTURED BY CUSTOM ROCK INTERNATIONAL OR APPROVED EQUAL.
4. EPOXY WATERPROOFING SEAL COAT (CLEAR) SHALL BE PAID UNDER PAY ITEM, "EPOXY WATERPROOFING SEAL COAT".

**REFERENCES:**

1. FOR PLAN & TYPICAL SECTION OF COFFERDAM, SEE BRIDGE SHEET NO. B21.
2. FOR PERMIT RESTRICTIONS, SEE ENVIRONMENTAL PLANS.

**RECOMMENDED CONSTRUCTION PROCEDURE:**

1. FABRICATE AND DELIVER THE PRECAST CONCRETE COFFERDAM. APPLY A EPOXY WATERPROOFING SEAL COAT (CLEAR) TO THE EXTERIOR SURFACES AT THE PLANT PRIOR TO SHIPMENT TO SITE.
2. INSTALL TEMPORARY COFFERDAM SUPPORT FRAME AND SET THE COFFERDAM IN ITS FINAL POSITION. CONTRACTOR TO SUBMIT A PROPOSED TEMPORARY SUPPORT METHOD FOR APPROVAL. SUBMITTAL TO CONTAIN LAYOUT AND INSTALLATION PLANS INCLUDING DESIGN CALCULATIONS SIGNED BY LICENSED NEW JERSEY PROFESSIONAL ENGINEER.
3. PERMANENT FOUNDATION PILES TO BE DRIVEN THROUGH THE OPENINGS IN THE BOTTOM OF THE COFFERDAM.
4. SEAL THE ANNULAR SPACE AROUND EACH PILE WITH AN UNDERWATER NON-SHRINK GROUT. GROUT SHALL FILL THE ENTIRE THICKNESS OF THE BOTTOM OF THE BOX AS SHOWN.
5. PLACE A TREMIE CONCRETE SEAL TO THE LIMITS INDICATED. DEWATER COFFERDAM AFTER CONCRETE SEAL OBTAINS A MINIMUM STRENGTH OF 2500 PSI.
6. CONSTRUCT REMAINDER OF FOOTING.
7. THE TEMPORARY SUPPORTS MAY BE REMOVED AFTER 28 DAYS OR AFTER THE CONCRETE FOOTING (1ST POUR) HAS REACHED DESIGN STRENGTH.

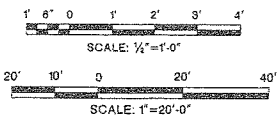
NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST CONCRETE  
COFFERDAM DETAILS**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMACK SCALE AS SHOWN  
BRIDGE SHEET NO. B22 OF B100  
N.J. P.E. LIC. NO. 38046

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REVISION	BY	C/K/D	DATE

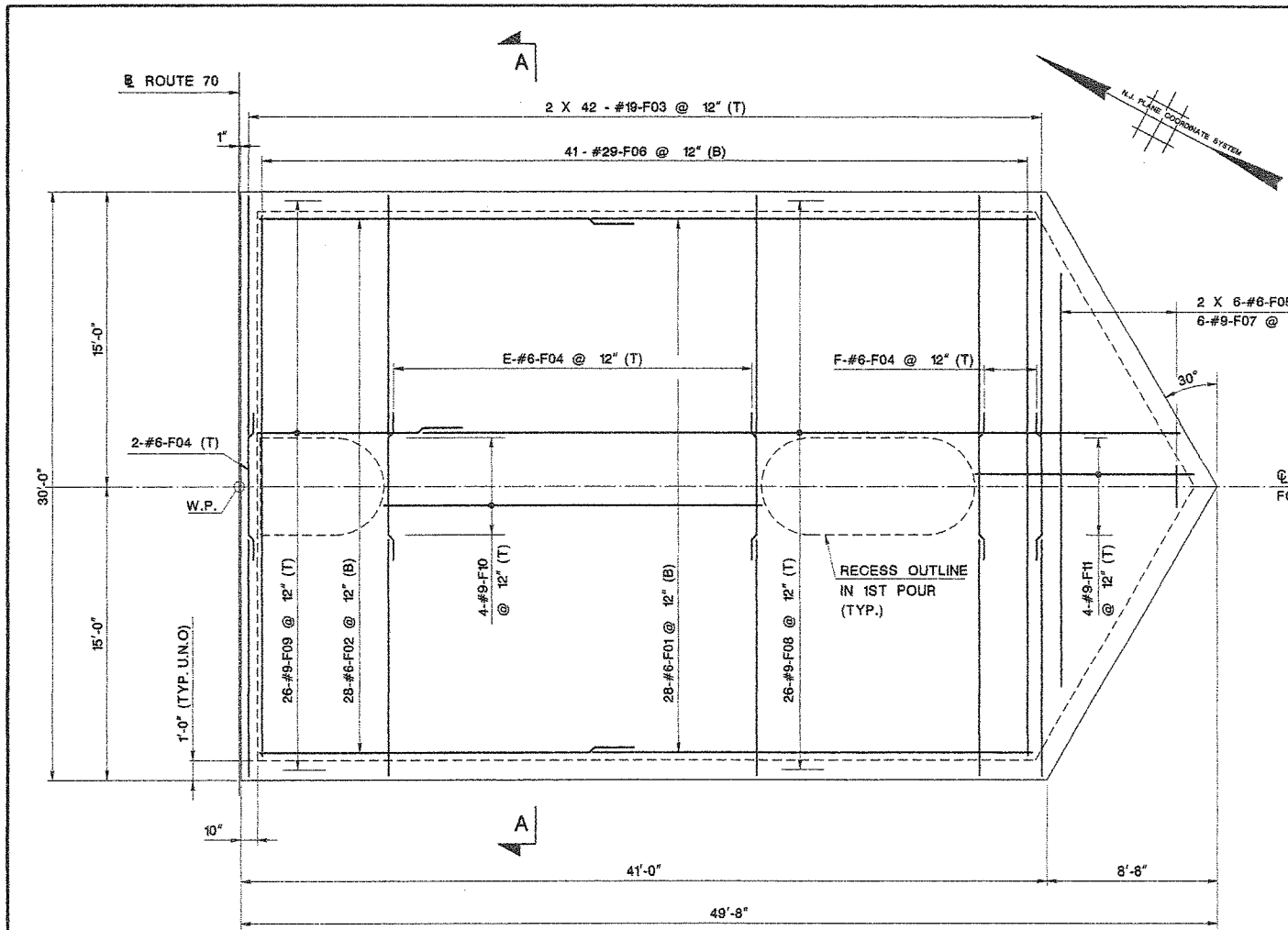
SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

IN CHARGE OF *A. Roscioli*

Draw Name: vlsaur  
Plot Title: 02/27/20 PM  
Design File: I:\8354\cadd\structure\line plan\8354-02.dgn

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO. 1511-150			
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	
				EASTBOUND	WESTBOUND
327	5A21D	CONCRETE SEAL IN COFFERDAMS	CY	139	139
328	5A21E	REINFORCEMENT STEEL IN STRUCTURES	LBS	30420	30420
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	34029	34029
333	N5A07	CONCRETE IN STRUCTURES, FOOTINGS CLASS A HPC	CY	1366	1366



PIER NO.	NO. OF BARS	
	E	F
1	21	3
2	19	4
3	19	5
4	19	5
5	19	4

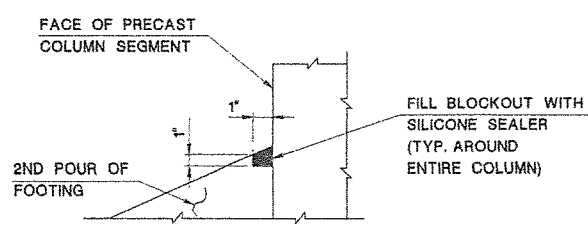
NOTE: WORK THIS TABLE WITH TYPICAL FOOTING PLAN.

**NOTES:**

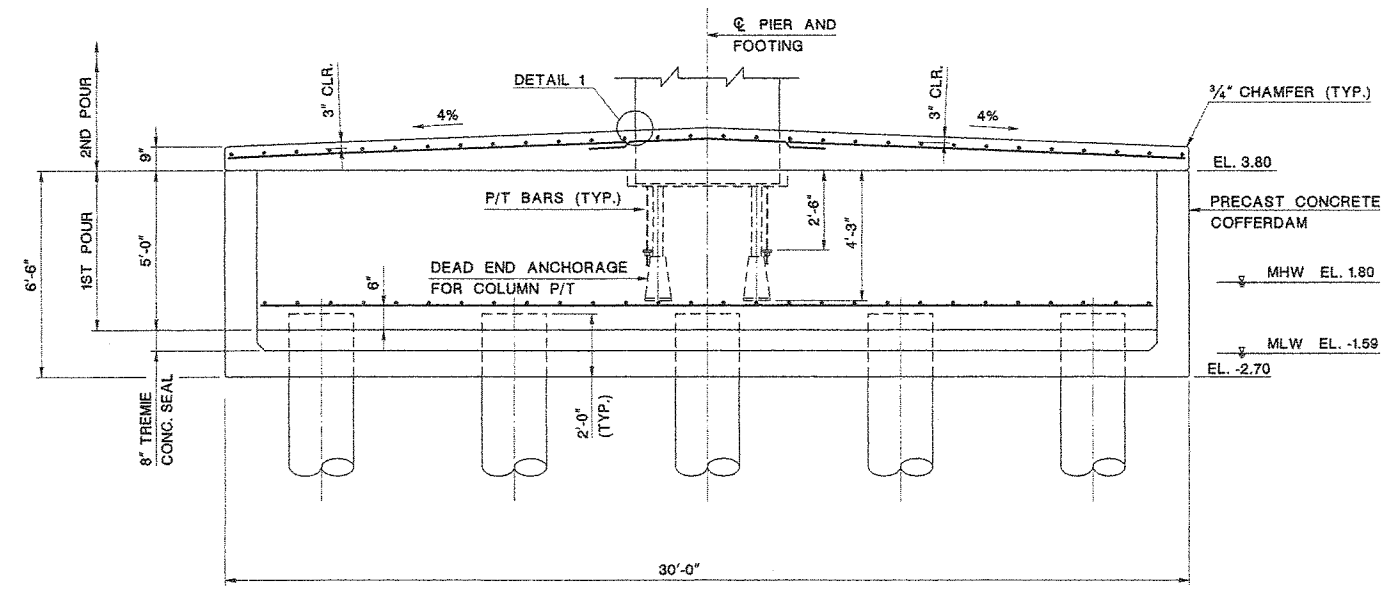
1. GROUT TUBES FOR DEAD-END ANCHORAGE SHALL BE INSTALLED TO THE TOP OF FOOTING.
2. ESTIMATED QUANTITIES PROVIDED ARE FOR EACH FOOTING.
3. SILICON SEALER TO BE INCLUDED IN ITEM NO. 5A21A.
4. CONCRETE IN FOOTING SHALL BE CLASS A HPC.
5. THE FIRST FOOTING CONCRETE POUR IS CONSIDERED TO BE MASS CONCRETE. POUR TO CONFORM WITH SPECIAL PROVISIONS.

**REFERENCES:**

1. FOR COFFERDAM DETAILS, SEE BRIDGE SHEET NOS. B21 & B22.
2. FOR PRECAST PIER COLUMN DETAILS, SEE BRIDGE SHEET NOS. B26 & B27.
3. FOR FOOTING AND PILE DETAILS, SEE BRIDGE SHEET NO. B24.
4. FOR FOOTING REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NO. B72.
5. FOR SIZE OF RECESS IN 1ST POUR, SEE BRIDGE SHEET NO. B24.

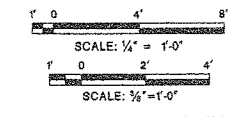


**DETAIL 1**  
N.T.S.



**SECTION A-A**  
SCALE: 3/8" = 1'-0"

**NOTE:**  
PILE REINFORCEMENT NOT SHOWN FOR CLARITY



SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>Adh. C. Roscioli</i>			

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**TYPICAL PIER FOOTING**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

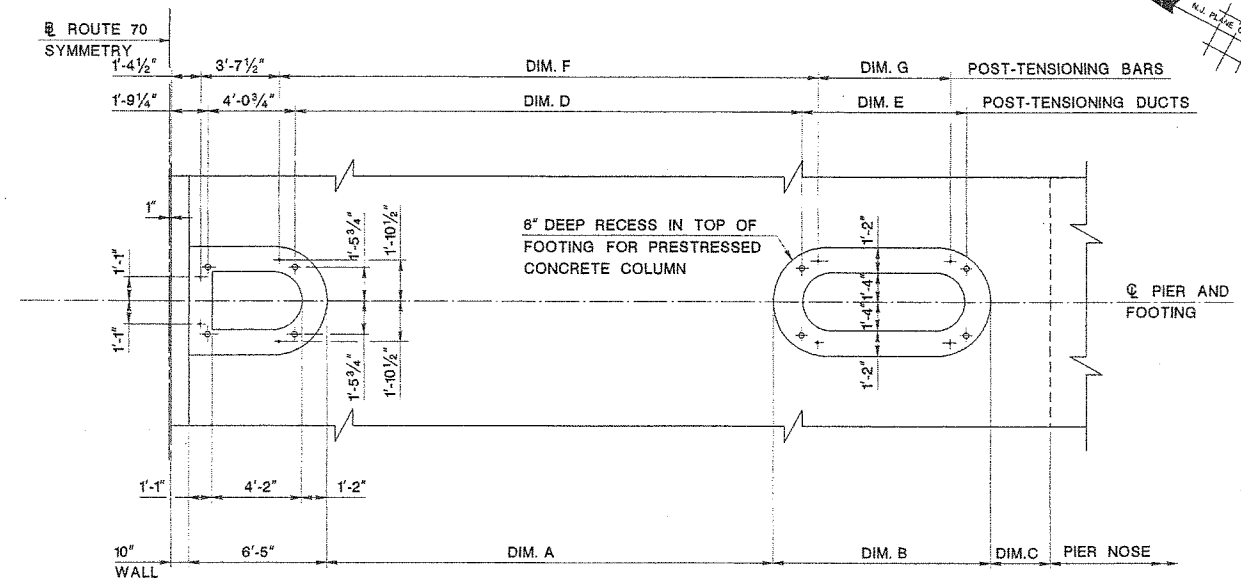
SCALE AS SHOWN **334**  
BRIDGE SHEET NO. **B23** OF **B100**

ERIC YERMACK  
N.J. P.E. LIC. NO. 38046

REVISION	BY	C/K'D	DATE

User Name: Ispolovsky  
 Plot Date: 8/20/2008  
 Design File: I:\BIDDING\1511513\Structure\final plans\BES-DH.dgn

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



**FOOTING COLUMN RECESSES AND POST TENSIONING LAYOUT PLAN**  
SCALE: 1/4" = 1'-0"

PIER	DIMENSIONS						
	A	B	C	D	E	F	G
1 WB & EB	21'-1 1/8"	9'-11 7/8"	2'-8"	24'-1 3/4"	6'-11 9/8"	25'-9 3/8"	5'-3 3/8"
2 WB & EB	19'-6 1/8"	10'-8 3/8"	3'-6 3/8"	22'-6 3/4"	7'-8 1/4"	24'-2 1/4"	6'-0 1/8"
3 WB & EB	18'-8 1/4"	11'-1 1/8"	3'-11 5/8"	21'-9 7/8"	8'-0 5/8"	23'-4 3/4"	6'-4 5/8"
4 WB & EB	18'-7 7/8"	11'-1 1/8"	4'-0"	21'-8 1/4"	8'-1"	23'-3 3/4"	6'-4 1/8"
5 WB & EB	19'-4 1/4"	10'-9 1/2"	3'-7 7/8"	22'-4 1/8"	7'-9"	24'-0 3/8"	6'-1"

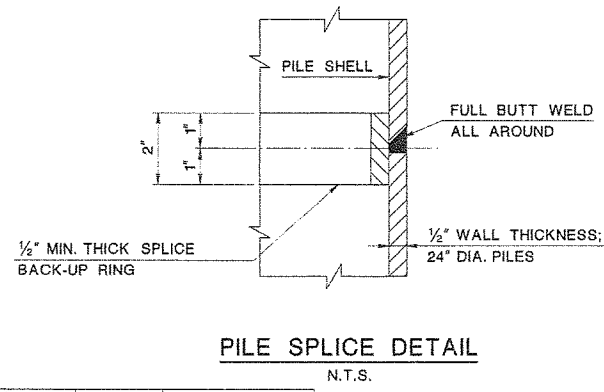
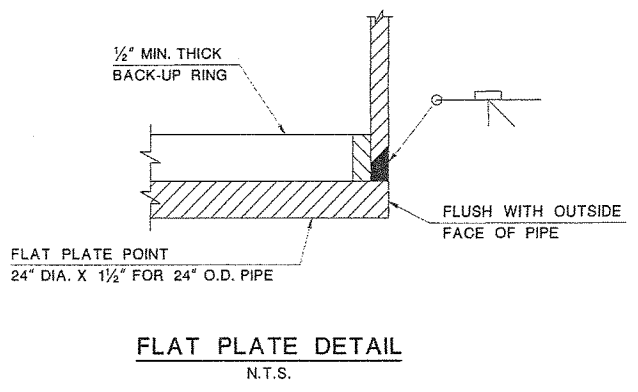
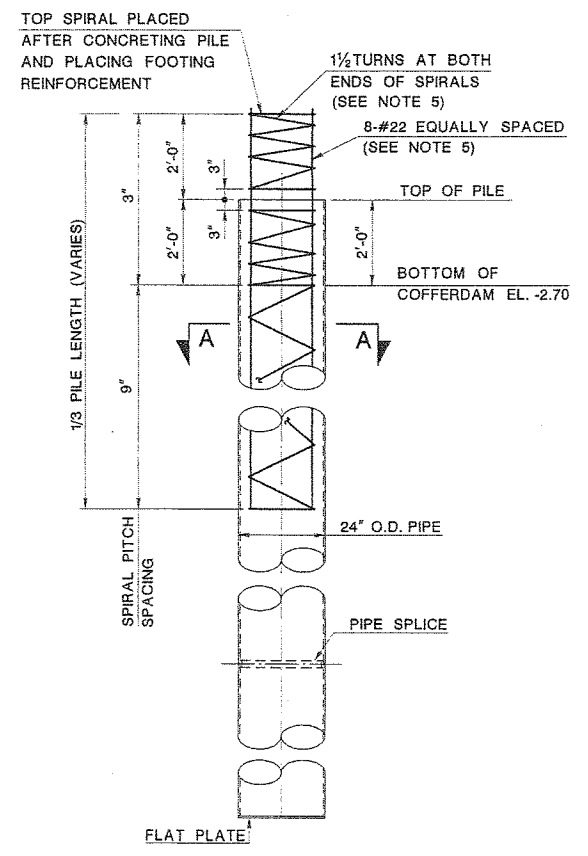
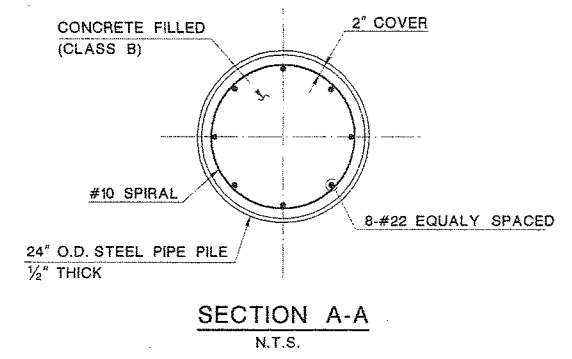
DIMENSIONS G AND E ARE TAKEN AT BOTTOM OF RECESS, 6" BELOW TOP OF 1ST FOOTING POUR.

**NOTES:**

1. GROUT TUBES FOR DEAD-END ANCHORAGE SHALL BE INSTALLED TO THE TOP OF FOOTING.
2. APPROVED METAL SPACES SHALL BE ATTACHED TO THE TOP AND BOTTOM TIES OF THE PIPE PILE REINFORCEMENT TO INSURE THAT THE REQUIRED CLEAR DISTANCE TO SHELL IS MAINTAINED.
3. APPROVED COMMERCIAL SPLICE BACK-UP RING MAY BE USED IN LIEU OF DETAIL A. BACK-UP RING SHALL HAVE A TIGHT FIT.
4. TOP 30-FOOT OF STEEL PIPE PILE TO BE COATED USING COAL TAR EPOXY-POLYAMIDE PAINT (COLOR BLACK). COST TO BE INCLUDED UNDER THE VARIOUS ITEMS OF CONCRETE FILLED STEEL PIPE PILES.
5. COST OF REINFORCEMENT, INCLUDING SPIRALS, SHALL BE INCLUDED UNDER CONCRETE FILLED STEEL PIPE PILES.

**REFERENCES:**

1. FOR COFFERDAM DETAILS, SEE BRIDGE SHEET NO. B21 & B22.
2. FOR PRECAST PIER COLUMN DETAILS, SEE BRIDGE SHEET NOS. B26 & B27.
3. FOR POST TENSIONING DETAILS, SEE BRIDGE SHEET NO. B30.



User Name: Upadrashty  
 Plot Date: 07/20/09  
 Design File: D:\Projects\BRF-0018\Structure\final plan\B151-05.dwg

SECTION CONTROL	151	JOB NO.	151513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>Eric Yermack</i>			

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

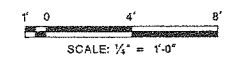
**PIER FOOTING AND PILE DETAILS**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38048

SCALE AS SHOWN  
BRIDGE SHEET NO. B24 OF B100

335



REVISION	BY	C'K'D	DATE

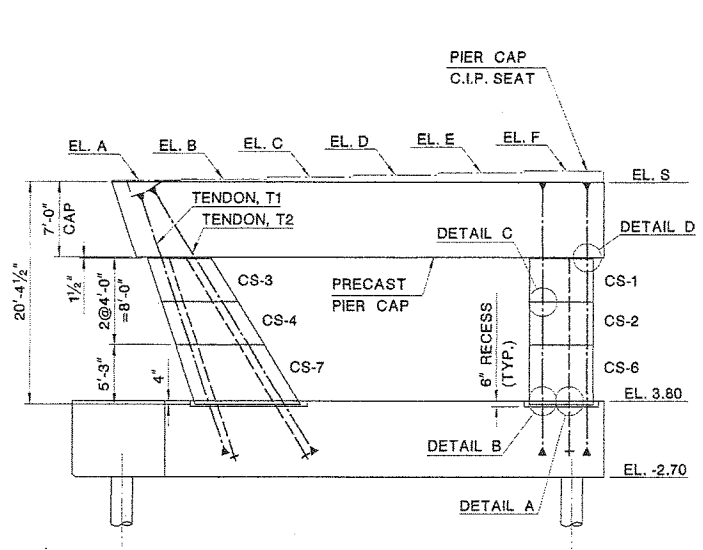
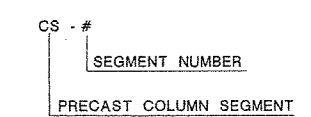
**NOTES:**

- WESTBOUND PIERS ARE SHOWN LOOKING UPSTATION. EASTBOUND PIERS ARE SIMILAR EXCEPT MIRRORED ABOUT THE ROUTE 70 BASELINE.
- COLUMN SEGMENT DESIGNATIONS GIVEN ARE FOR BOTH WESTBOUND AND EASTBOUND PIERS.
- VERTICAL COLUMN SHALL BE POST TENSIONED BEFORE STRESSING SLOPED COLUMN.
- PRECASTER MAY MODIFY THE COLUMN SEGMENT HEIGHTS TO ACCOMMODATE FABRICATION, SHIPPING AND ERECTION MEANS AND METHODS OF CONSTRUCTION SUBJECT TO THE REVIEW AND APPROVAL OF ENGINEER.

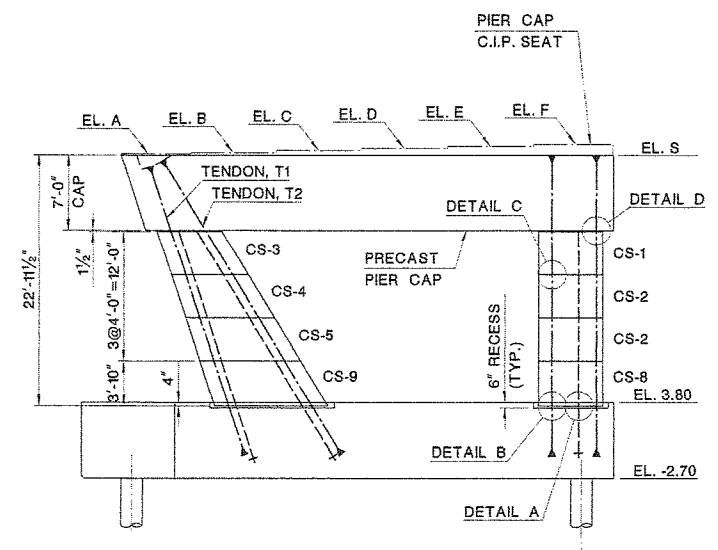
**REFERENCES:**

- FOR PRECAST PIER CAP DETAILS, SEE BRIDGE SHEET NO. B28 & B29.
- FOR FOOTING DETAILS, SEE BRIDGE SHEET NO. B23 & B24.
- FOR PRECAST COLUMN SEGMENT DETAILS, SEE BRIDGE SHEET NOS. B26 & B27.
- FOR POST-TENSIONING DETAILS A, B, C AND D, SEE BRIDGE SHEET NO. B30.

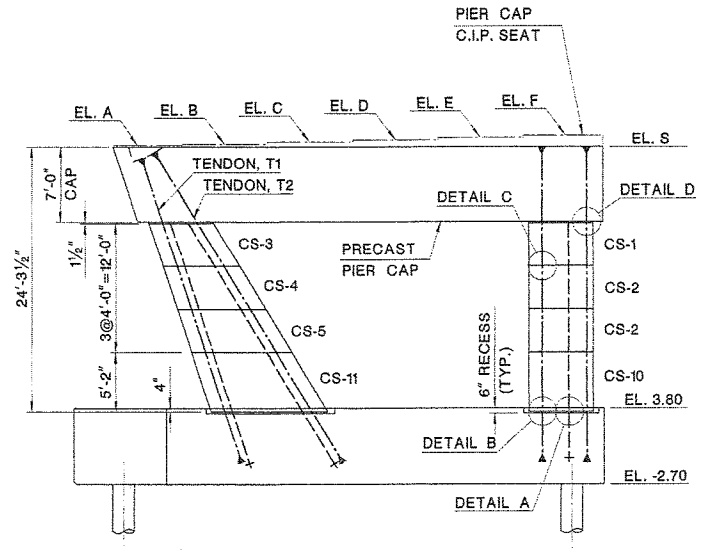
**LEGEND:**



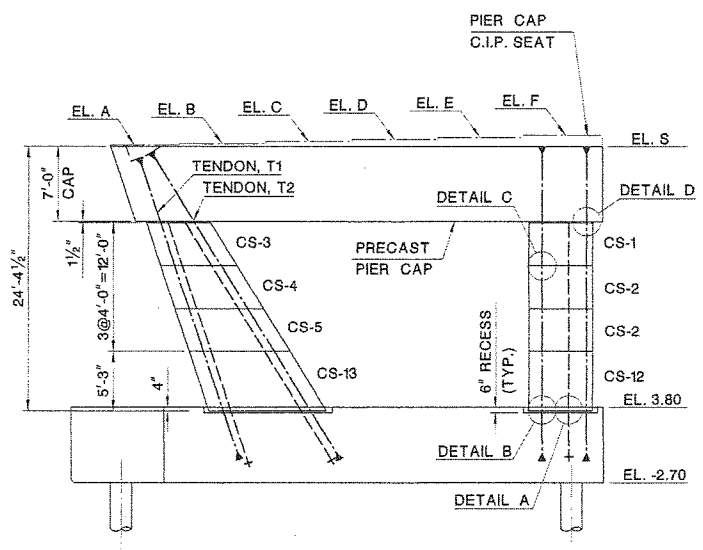
**PIER 1**  
SCALE: 1/8"=1'-0"



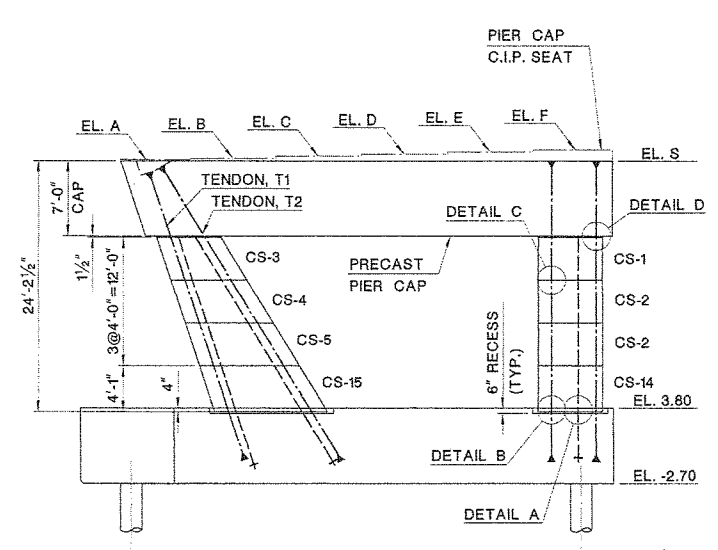
**PIER 2**  
SCALE: 1/8"=1'-0"



**PIER 3**  
SCALE: 1/8"=1'-0"

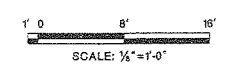


**PIER 4**  
SCALE: 1/8"=1'-0"



**PIER 5**  
SCALE: 1/8"=1'-0"

PIER NO.	BEARING SEAT ELEVATIONS						EL. S
	A	B	C	D	E	F	
1 EB	24.09	24.41	24.68	24.84	24.96	25.08	23.84
	24.15	24.47	24.74	24.90	25.03	25.15	
2 EB	26.67	26.99	27.26	27.42	27.55	27.67	26.42
	26.71	27.03	27.30	27.46	27.59	27.71	
3 EB	28.01	28.33	28.60	28.76	28.88	29.00	27.76
	28.02	28.34	28.61	28.77	28.90	29.02	
4 EB	28.09	28.41	28.68	28.84	28.97	29.09	27.83
	28.08	28.40	28.67	28.83	28.95	29.07	
5 EB	26.95	27.27	27.53	27.67	27.79	27.91	26.66
	26.91	27.23	27.50	27.63	27.75	27.87	
1 WB	24.09	24.41	24.68	24.84	24.96	25.08	23.84
	24.15	24.47	24.74	24.90	25.03	25.15	
2 WB	26.67	26.99	27.26	27.42	27.55	27.67	26.42
	26.71	27.03	27.30	27.46	27.59	27.71	
3 WB	28.01	28.33	28.60	28.76	28.88	29.00	27.76
	28.02	28.34	28.61	28.77	28.90	29.02	
4 WB	28.09	28.41	28.68	28.84	28.97	29.09	27.83
	28.08	28.40	28.67	28.83	28.95	29.07	
5 WB	26.91	27.23	27.50	27.66	27.79	27.91	26.63
	26.88	27.20	27.47	27.63	27.75	27.87	



REVISION	BY	C/K'D	DATE			

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST PIER LAYOUT**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

Eric Yermack  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38048

SCALE 1/8"=1'-0"  
BRIDGE SHEET NO. B25 OF B100

336

SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	T. BONAPARTE	CHK. BY	A. HARING
PST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>A. Roscioli</i>			

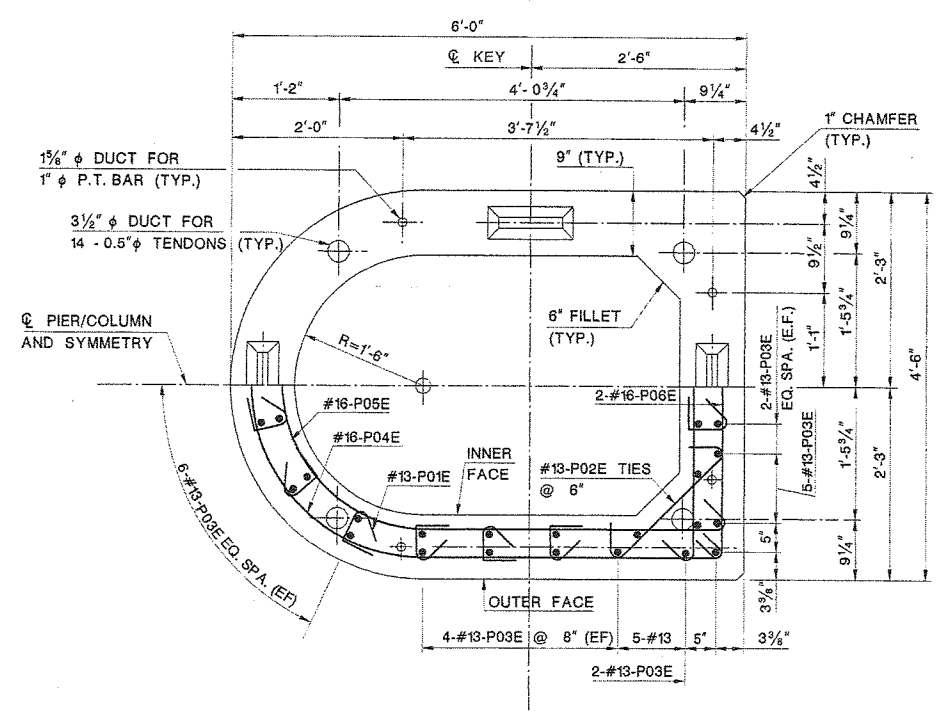
User Name: Ippolito, A.  
 Plot Date: 07/2006  
 Design File: I:\Projects\1511513\Structure\1511513.dwg

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

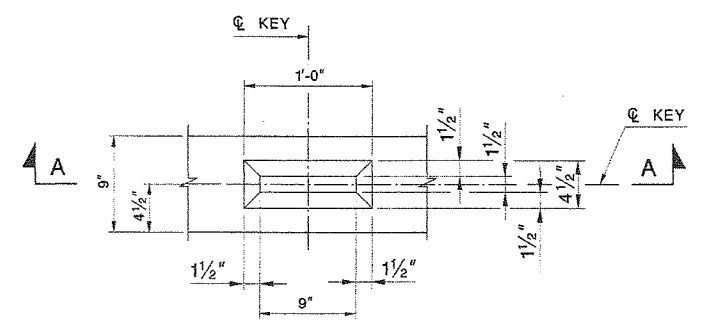
ESTIMATE OF QUANTITIES				
PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY
				EASTBOUND
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	10721
363	N5W01	CONCRETE IN SUBSTRUCTURES, PRECAST 8000 PSI, HPC	CY	33
364	N6X01	POST TENSIONING STRAND IN SUBSTRUCTURE, EPOXY COATED	LBS	4145
365	N5X02	POST TENSIONING BAR IN SUBSTRUCTURE	LBS	1253

- NOTES:**
- MINIMUM CONCRETE COVER SHALL BE 1/2" ON THE INSIDE FACE AND 2 1/2" ON THE OUTSIDE FACE.
  - SHEAR KEYS ARE TO BE OMITTED ON THE BOTTOM FACE OF THE FIRST COLUMN SEGMENT PLACED ON TOP OF THE FOOTING.

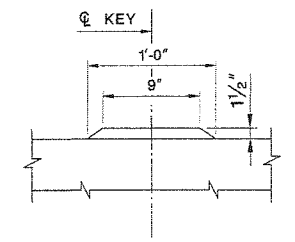
- REFERENCES:**
- FOR POST-TENSIONING ANCHORAGE AND COUPLING DETAILS SEE BRIDGE SHEET NO. B30
  - FOR PIER COLUMN SEGMENT REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NOS. B72 AND B73.



**COLUMN SECTION**  
SCALE: 1"=1'-0"

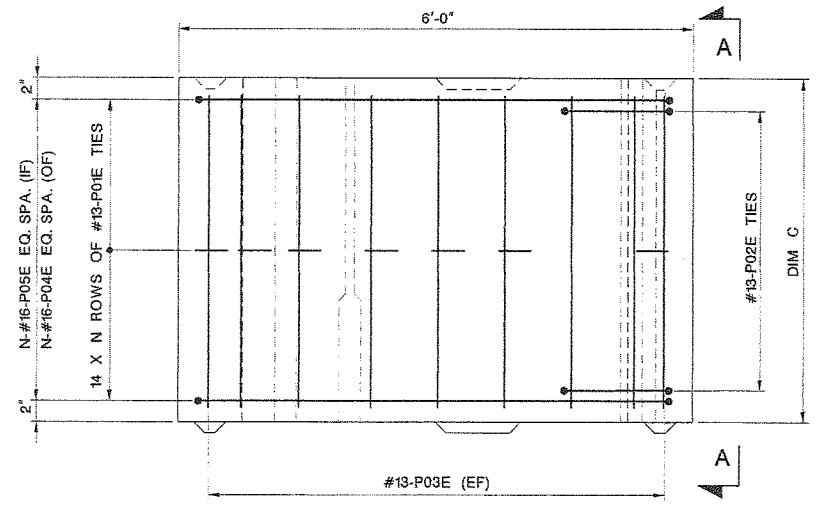


**PLAN**

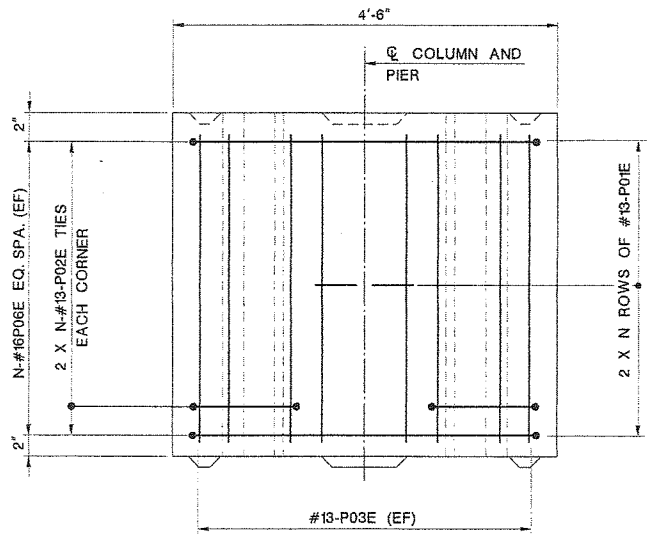


**SECTION A-A**

**TYPICAL SHEAR KEY DETAIL**  
SCALE: 1 1/2"=1'-0"



**ELEVATION**  
SCALE: 1"=1'-0"

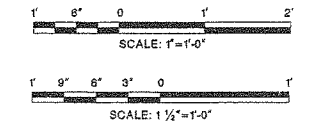


**VIEW A-A**  
SCALE: 1"=1'-0"

PRECAST COLUMN SEGMENT	DIM. C	NO. OF ROWS N	CONCRETE VOLUME (C.Y.)	WEIGHT OF REINFORCEMENT (LB.)
CS-1	4'-0"	8	1.60	540
CS-2	4'-0"	8	1.60	540
CS-6	5'-3"	10	2.14	685
CS-8	3'-10"	8	1.57	535
CS-10	5'-2"	10	2.10	680
CS-12	5'-3"	11	2.14	740
CS-14	4'-1"	8	1.67	540

QUANTITIES SHOWN ARE FOR EACH TYPICAL VERTICAL COLUMN SEGMENT

**LEGEND:**  
EF - EACH FACE  
IF - INNER FACE  
OF - OUTER FACE



NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST PIER COLUMN DETAILS - 1**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

Eric Yermack  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38046

SCALE AS SHOWN  
BRIDGE SHEET NO. B26 OF B100

User Name: kchick  
 Plot Date: 6/7/2005  
 Plot Time: 10:25:44 AM  
 Plot Path: C:\Program Files\Autodesk\AutoCAD 2005\acad.ctb  
 Plot Device: HP DesignJet 5000 Series  
 Plot Scale: 1/8"=1'-0"

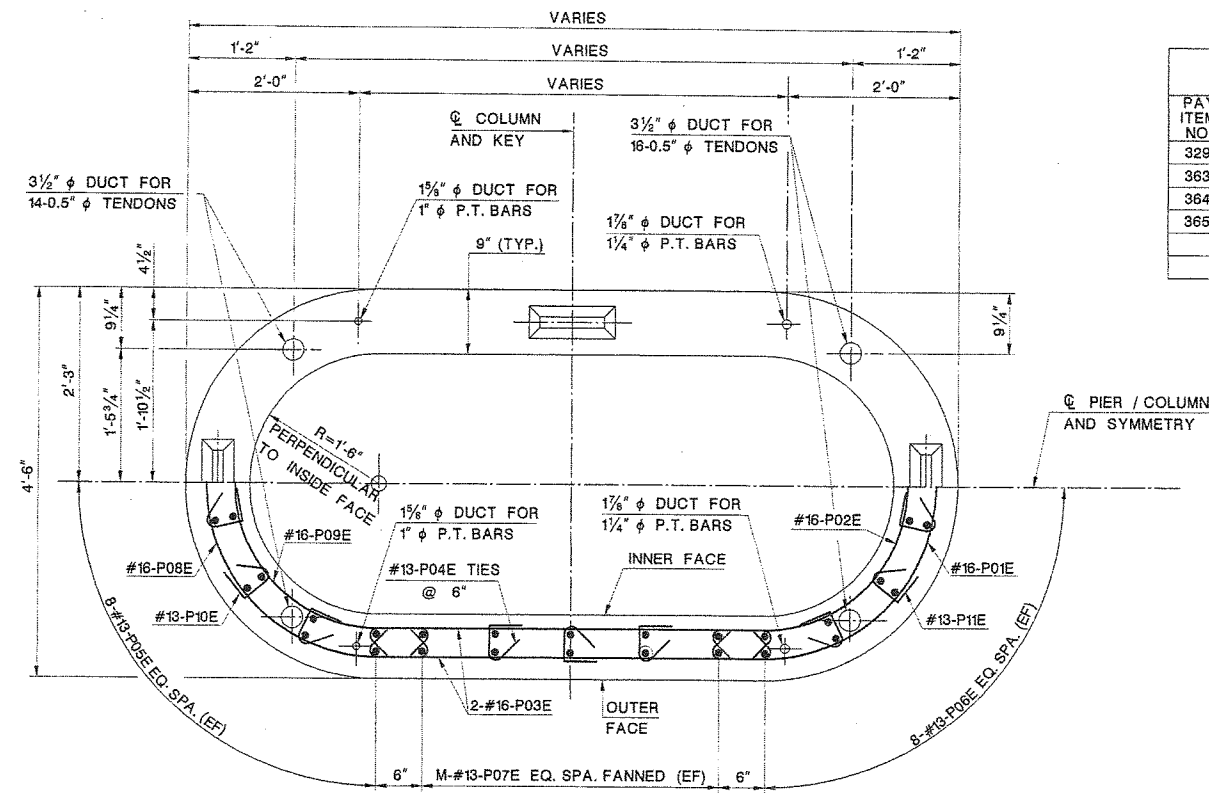
SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>A. Roscioli</i>			



STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	
				EASTBOUND	WESTBOUND
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	14318	14318
363	N5W01	CONCRETE IN SUBSTRUCTURES, PRECAST 8000 PSI, HPC	CY	44	44
364	N5X01	POST TENSIONING STRAND IN SUBSTRUCTURE, EPOXY COATED	LBS	4824	4824
365	N5X02	POST TENSIONING BAR IN SUBSTRUCTURE	LBS	1714	1714

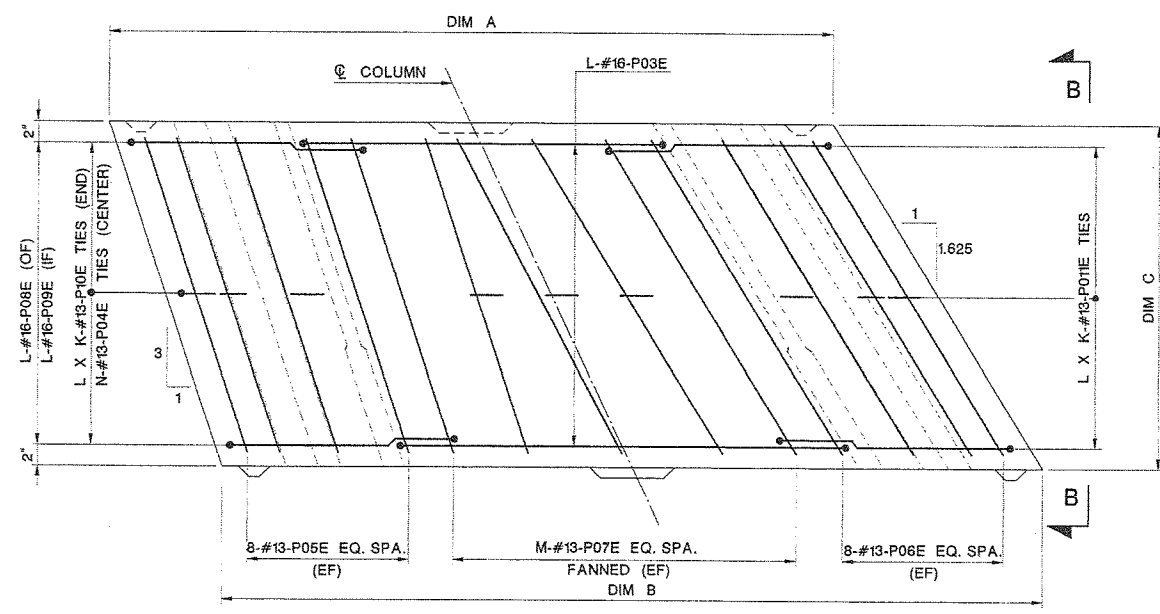
- REFERENCES:**
- FOR POST-TENSIONING ANCHORAGE AND COUPLING DETAILS, SEE BRIDGE SHEET NO. B30.
  - FOR SHEAR KEY DETAILS, SEE BRIDGE SHEET NO. B26.
  - FOR ADDITIONAL NOTES, SEE BRIDGE SHEET NO. B26.
  - FOR REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NOS. B72 AND B73.
  - FOR NAVIGATION LIGHTING CONDUITS AT PIERS 2 AND 3 SEE BRIDGE SHEET NO. B53.



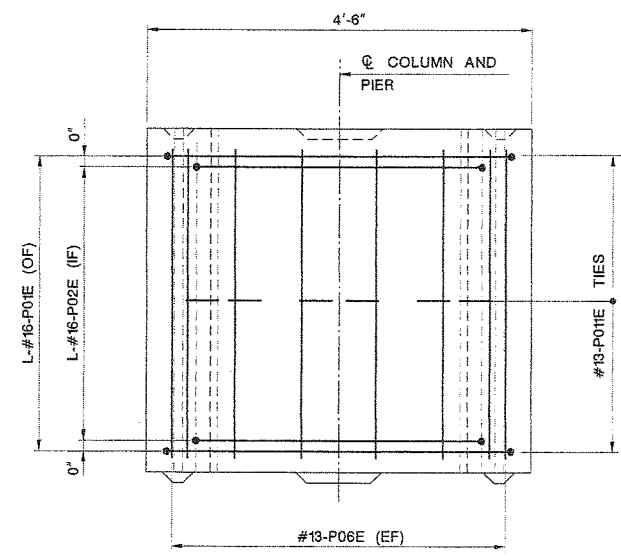
**COLUMN SECTION**  
SCALE: 1"=1'-0"

PRECAST COLUMN SEGMENT	DIMENSION			NO. OF ROWS/BARS			CONC. VOLUME (C.Y.)	WEIGHT OF REINF. (LB.)
	A	B	C	K	L	M		
CS-3	6'-0"	7'-1 1/2"	4'-0"	8	8	3	1.80	565
CS-4	7'-1 1/2"	8'-3"	4'-0"	48	8	5	2.05	680
CS-5	8'-3"	9'-4 3/8"	4'-0"	80	8	7	2.30	765
CS-7	8'-3"	9'-8 3/8"	5'-3"	132	11	8	3.12	1050
CS-9	9'-4 3/8"	10'-5 1/2"	3'-10"	112	8	9	2.50	815
CS-11	9'-4 3/8"	10'-10 1/8"	5'-2"	176	11	10	3.40	1175
CS-13	9'-4 3/8"	10'-10 1/8"	5'-3"	176	11	10	3.46	1165
CS-15	9'-4 3/8"	10'-8 1/2"	4'-1"	128	8	10	2.66	850

QUANTITIES SHOWN ARE FOR EACH TYPICAL SLOPED COLUMN SEGMENT

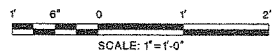


**ELEVATION**  
SCALE: 1"=1'-0"



**VIEW B-B**  
SCALE: 1"=1'-0"

**LEGEND:**  
EF - EACH FACE  
IF - INNER FACE  
OF - OUTER FACE



User Name: Ippolovsky  
Title: Project Engineer  
Date: 10/20/05  
Design File: N:\GIS\44\cadd\structure\final\plan\1511-150.dgn

SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

IN CHARGE OF *Adriano C. Roscioli*

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST PIER COLUMN  
DETAILS - 2**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMACK  
N.J. P.E. LIC. NO. 38048

SCALE 1"=1'-0"  
BRIDGE SHEET NO. B27 OF B100

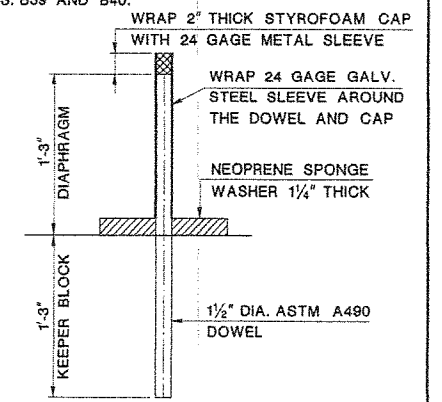
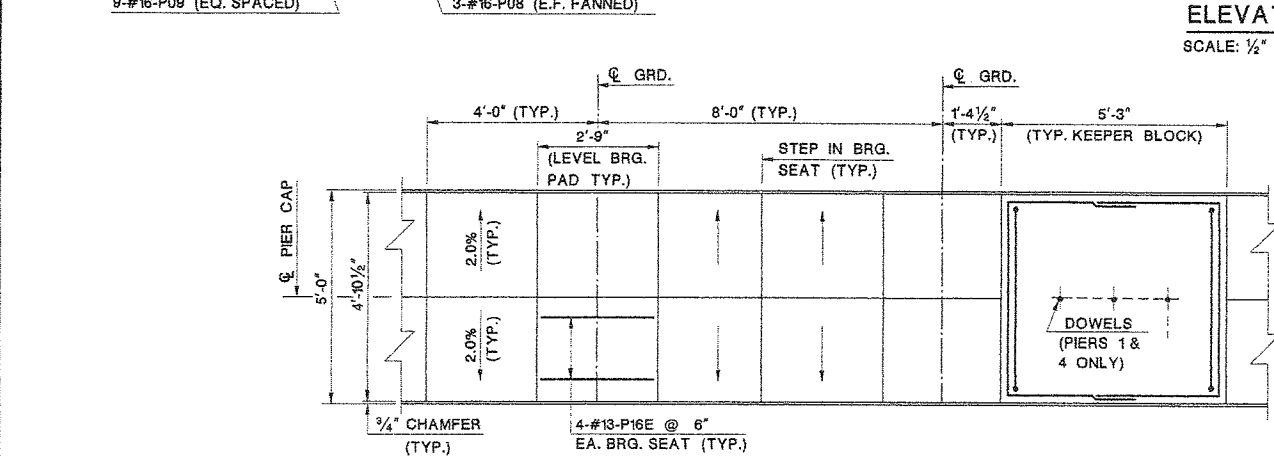
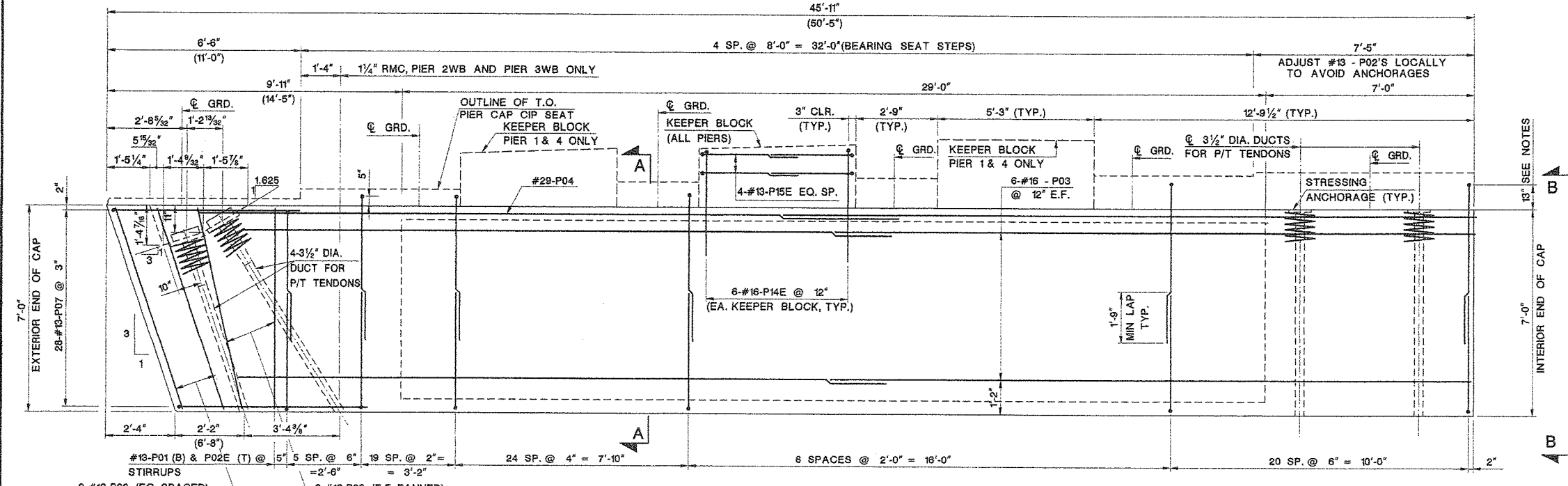
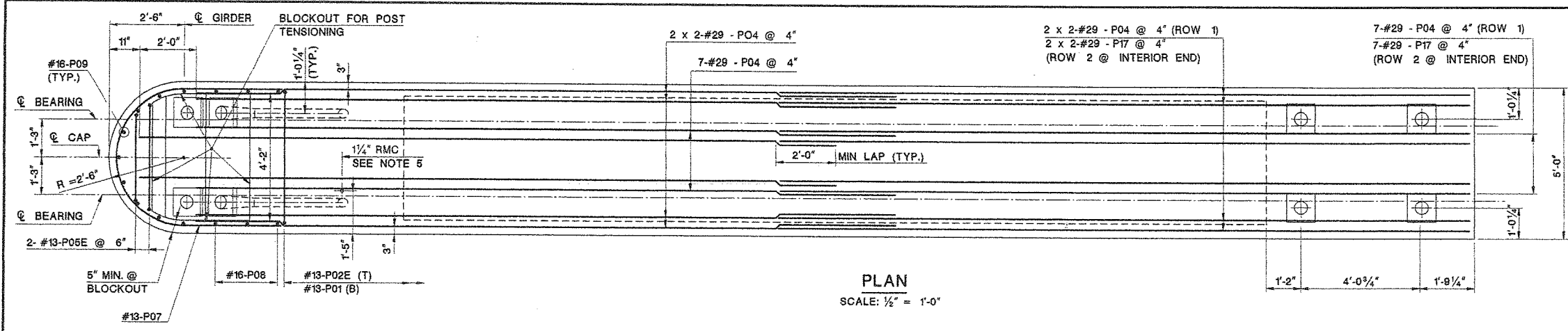
338

REVISION	BY	C'D	DATE

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

- NOTES:**
- EXTEND #4-P02E AS SHOWN IN ELEVATION. INCREMENT EXTENSION BY 2 INCHES AT EACH STEP IN CIP BEARING SEAT.
  - KEEPER BLOCKS SHALL BE POURED AFTER GIRDERS ARE SET IN FINAL LOCATION.
  - VALUES SHOWN IN ( ) ARE FOR PIER 3EB ONLY.
  - CONTRACTOR MAY CONSTRUCT THE ROUNDED ENDS OF THE PIER CAPS USING CAST-IN-PLACE END SECTIONS WITH THE REVIEW AND APPROVAL OF THE ENGINEER AND AT NO ADDITIONAL COST.
  - NAVIGATION LIGHTING CONDUIT (1/4" RMC) TO BE PROVIDED THROUGH EXTERIOR END OF CAPS, ADJACENT TO NAVIGATIONAL CHANNEL FOR PIERS 2WB AND 3WB ONLY.
  - CONCRETE IN PRECAST PIER CAP SHALL BE CLASS P-4.
  - CONCRETE IN PIER CAP CIP SEAT SHALL BE CLASS A HPC.
  - CONCRETE FOR THE PIER CAP CIP SEAT SHALL BE PAID FOR UNDER "CONCRETE IN SUBSTRUCTURE, PIER COLUMNS AND CAPS, HPC".

- REFERENCES:**
- FOR PRECAST PIER CAP DETAILS, SECTIONS A-A & B-B, SEE BRIDGE SHEET NO. B29.
  - FOR PIER 3EB END CAP DETAILS, SEE BRIDGE SHEET NO. B29.
  - FOR REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NO. B74.
  - FOR ADDITIONAL KEEPER BLOCK DETAILS, SEE BRIDGE SHEET NO'S. B39 AND B40.



PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	
				EASTBOUND	WESTBOUND
328	5A21E	REINFORCEMENT STEEL IN STRUCTURES	LBS	20021	19620
329	5A31E	REINFORCEMENT STEEL IN STRUCTURES, EPOXY-COATED	LBS	5672	5575
330	5A31G	EPOXY WATERPROOFING SEAL COAT	SY	46	43
339	N5A06	CONCRETE IN SUBSTRUCTURES, PIER COLUMNS AND CAPS, HPC	CY	52	52
341	N5B02	PRETENSIONING STRAND IN CAP BEAM, EPOXY COATED	LBS	5423	5313
363	N5W01	CONCRETE IN SUBSTRUCTURES, PRECAST 8000 PSI, HPC	CY	179	173

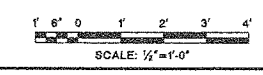
NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST PIER CAP  
PLAN AND ELEVATION**  
ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

ERIC YERMACK  
N.J. P.E. LIC. NO. 38048  
SCALE: 1/2" = 1'-0"  
BRIDGE SHEET NO. B28 OF B100

SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

IN CHARGE OF *A. Roscioli*



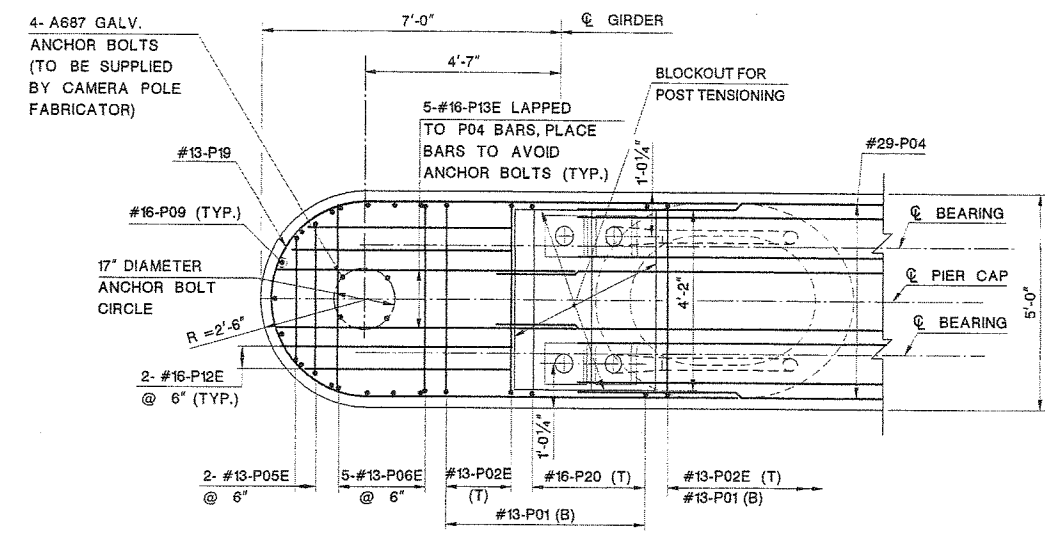
STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO. 1511-150			
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			

**NOTES:**

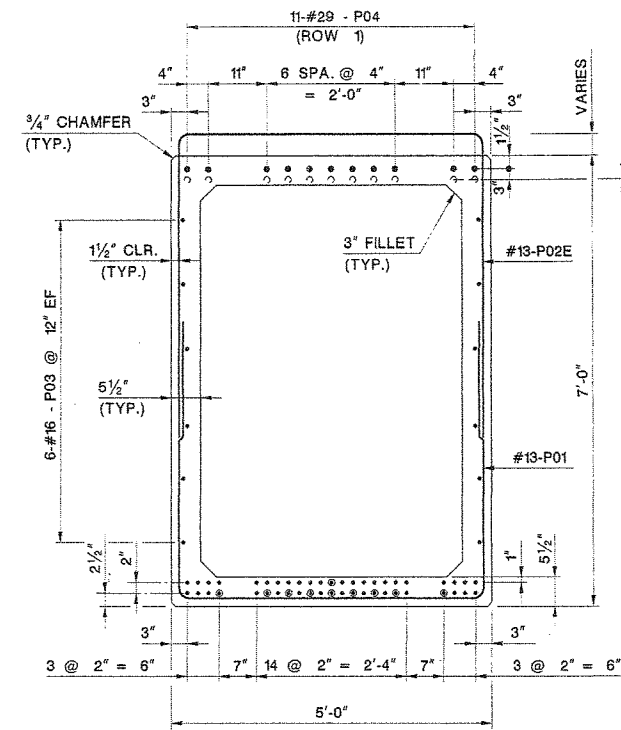
- CANTILEVER DISTANCE FOR PIER 3EB IS 5'-6" TO SUPPORT CAMERA POLE, SEE DETAILS THIS SHEET. CANTILEVER DISTANCE FOR ALL OTHER PIERS IS 1'-0".

**REFERENCES:**

- FOR PRECAST PIER CAP PLAN & ELEVATION, SEE BRIDGE SHEET NO. B28.
- FOR REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NO B74.



**PLAN**  
SCALE: 1/2" = 1'-0"

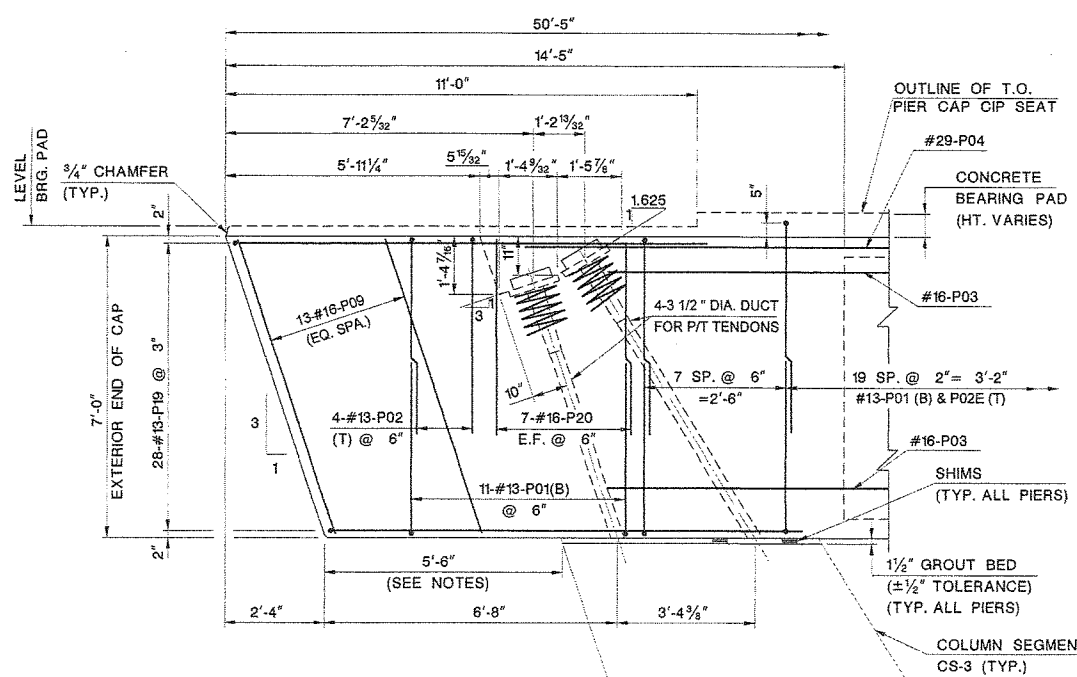


**SECTION A-A**  
SCALE: 3/4" = 1'-0"

**STRAND LEGEND:**

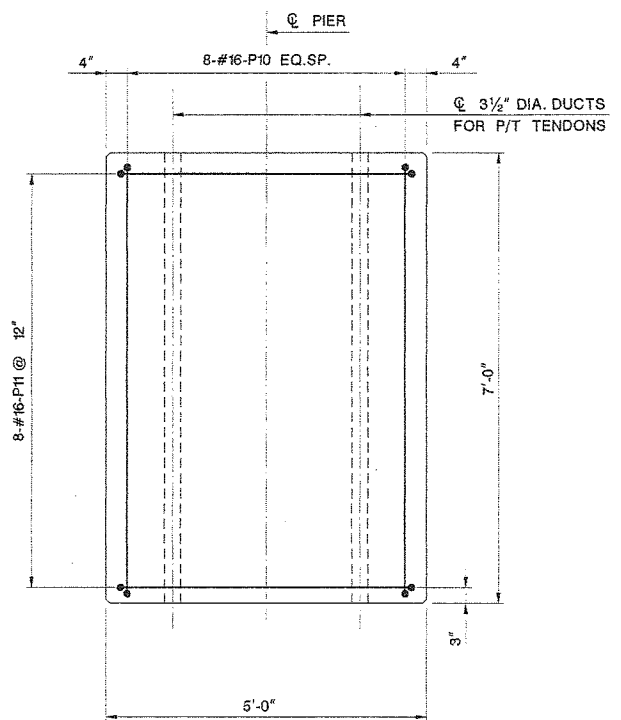
- BONDED STRAND
- DEBONDED STRANDS

DEBONDING STRAND SCHEDULE		
PIER CAPS	CAP END	DEBONDING LENGTH
ALL	INTERIOR	6'-0"
1, 2, 4, 5 (WB & EB) AND PIER 3WB	EXTERIOR	9'-7"
PIER 3EB (ONLY)	EXTERIOR	14'-1"

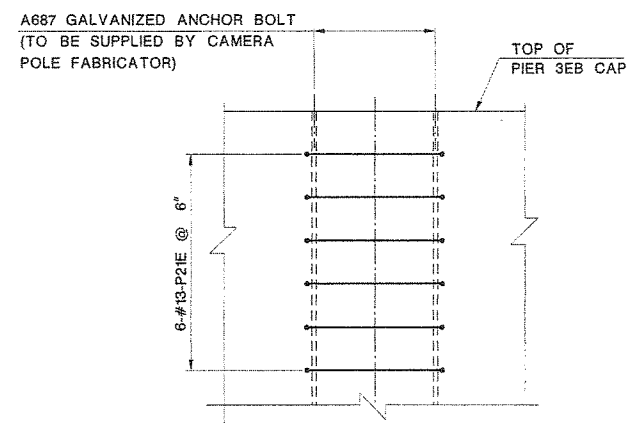


**ELEVATION**

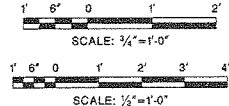
**PIER 3 EB CAP END DETAILS**  
SCALE: 1/2" = 1'-0"



**SECTION B-B**  
(INTERIOR END)  
SCALE: 3/4" = 1'-0"



**CAMERA POLE REINFORCEMENT DETAIL**  
N.T.S.



NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**PRECAST PIER CAP DETAILS**

ROUTE 70 CONTRACT NO. 058980109  
BRICKPOINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

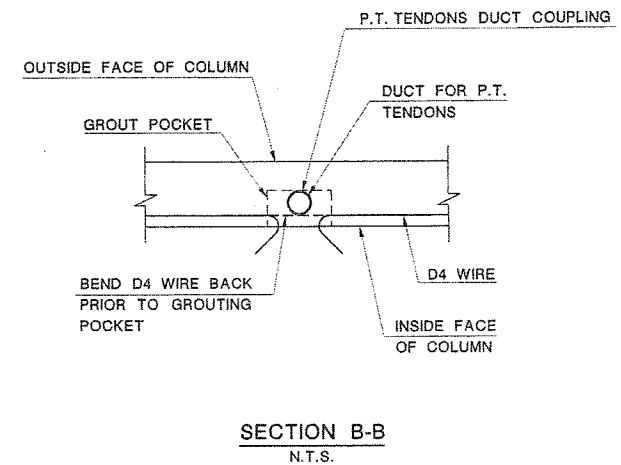
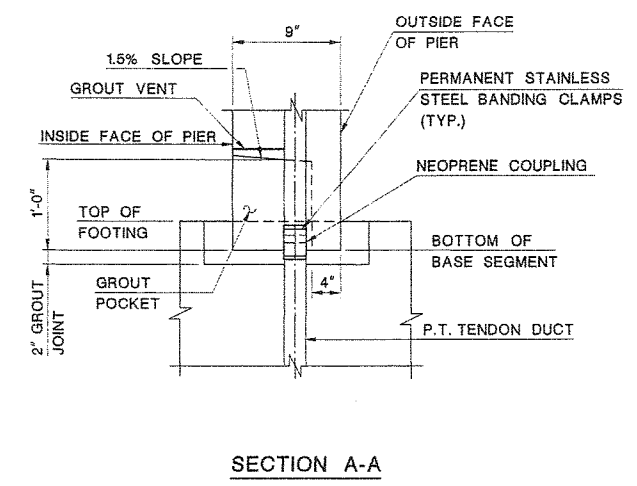
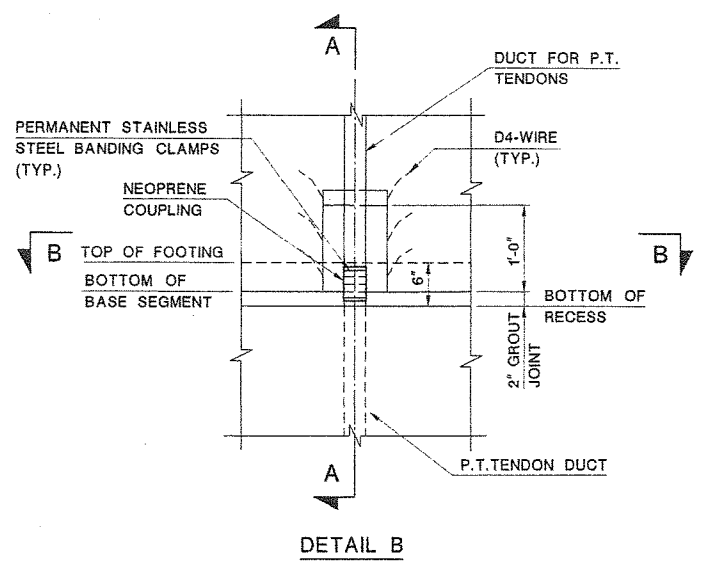
SCALE AS SHOWN  
BRIDGE SHEET NO. **B29** OF B100

ERIC YERMACK  
N.J. P.E. LIC. NO. 38046

User Name: igoldovsky  
 Plot Date: 6/7/2006  
 Design File: I:\Projects\BRF-0018(149)\Structure\Final Plans\B104-021.dgn

SECTION CONTROL	1151	JOB NO.	151153
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF: <i>Adela C. Roscioli</i>			

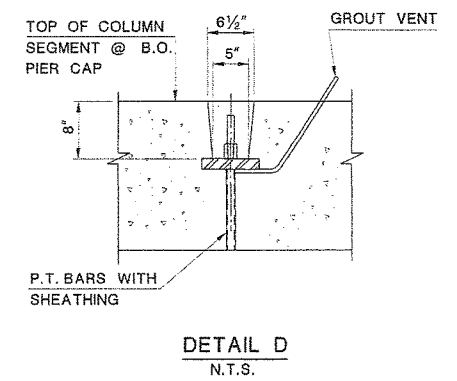
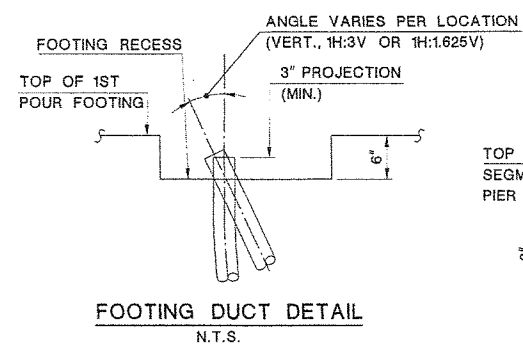
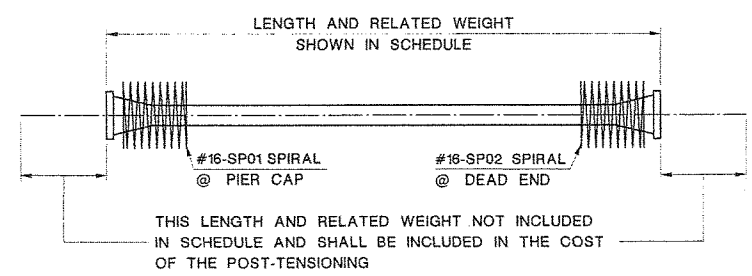
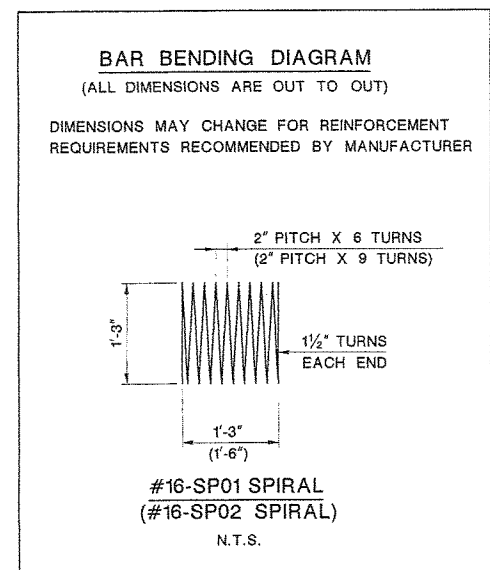
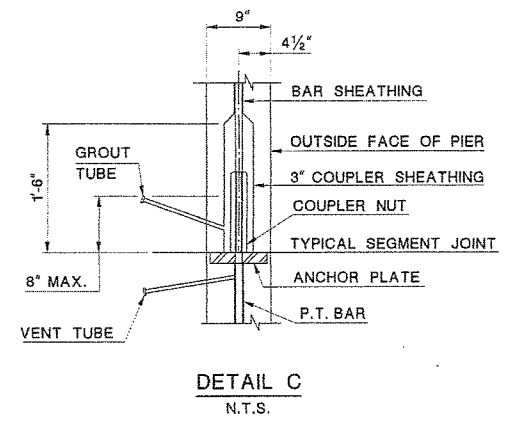
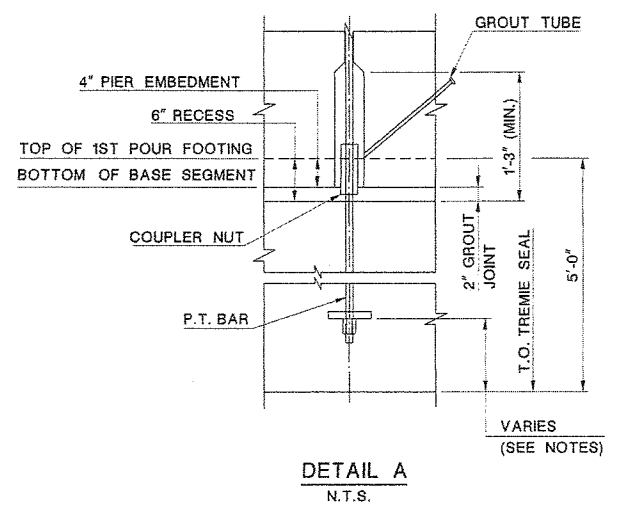
STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



- NOTES:**
- CONTRACTOR SHALL PROVIDE MEANS OF SECURING P.T. BARS AT EMBEDMENT WHILE PLACING CONCRETE FOR FOOTING.
  - POST-TENSIONING STRAND SHALL BE ASTM A416 SEVEN WIRE, GRADE 270, LOW RELAXATION, EPOXY COATED. POST TENSIONING BARS SHALL BE ASTM A722, GRADE 150, TYPE II.

- REFERENCES:**
- FOR PRECAST PIER LAYOUT DETAILS, SEE BRIDGE SHEET NO B25.

**BLOCKOUT COUPLING DETAILS**  
N.T.S.



PIER	EXTERIOR/INTERIOR COLUMN	TENDON SIZE	NO. TENDONS	TENDON LENGTH (FT.)	TENDON WEIGHT (LBS.)	TOTAL WEIGHT PER PIER (LBS.)	JACKING FORCE (KIPS)	ELONGATION (INCH)
1 WB & EB	EXTERIOR, T1	14 X 0.5" Dia.	2	25.434	377	1616	289	1.32
	EXTERIOR, T2	16 X 0.5" Dia.	2	28.937	491		496	2.27
	INTERIOR	14 X 0.5" Dia.	4	25.208	748		434	1.95
2 WB & EB	EXTERIOR, T1	14 X 0.5" Dia.	2	28.245	419	1790	289	1.47
	EXTERIOR, T2	16 X 0.5" Dia.	2	32.068	544		496	2.54
3 WB & EB	EXTERIOR, T1	14 X 0.5" Dia.	4	27.875	827	1877	434	2.18
	EXTERIOR, T2	16 X 0.5" Dia.	2	29.651	440		289	1.55
	INTERIOR	14 X 0.5" Dia.	4	33.634	570		496	2.67
4 WB & EB	EXTERIOR, T1	14 X 0.5" Dia.	2	29.208	867	1883	434	2.29
	EXTERIOR, T2	16 X 0.5" Dia.	2	29.739	441		289	1.56
	INTERIOR	14 X 0.5" Dia.	4	33.732	572		496	2.68
5 WB & EB	EXTERIOR, T1	14 X 0.5" Dia.	4	29.292	869	1801	434	2.30
	EXTERIOR, T2	16 X 0.5" Dia.	2	28.421	422		289	1.48
	INTERIOR	14 X 0.5" Dia.	4	32.284	547		496	2.55
				28.042	832		434	2.19

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**POST-TENSIONING DETAILS**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

SCALE AS SHOWN  
BRIDGE SHEET NO. B30 OF B100

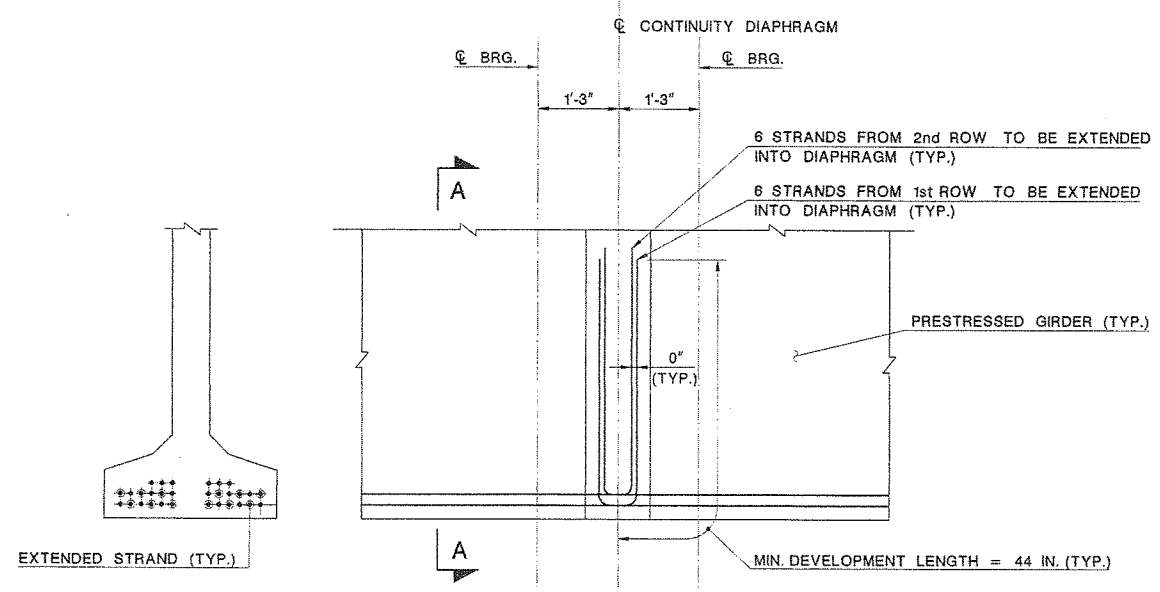
341

SECTION CONTROL	151	JOB NO.	1511513
DES. BY	A. HARING	CHK. BY	A. ROSCIOLI
DWN. BY	M. BARN	CHK. BY	A. HARING
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

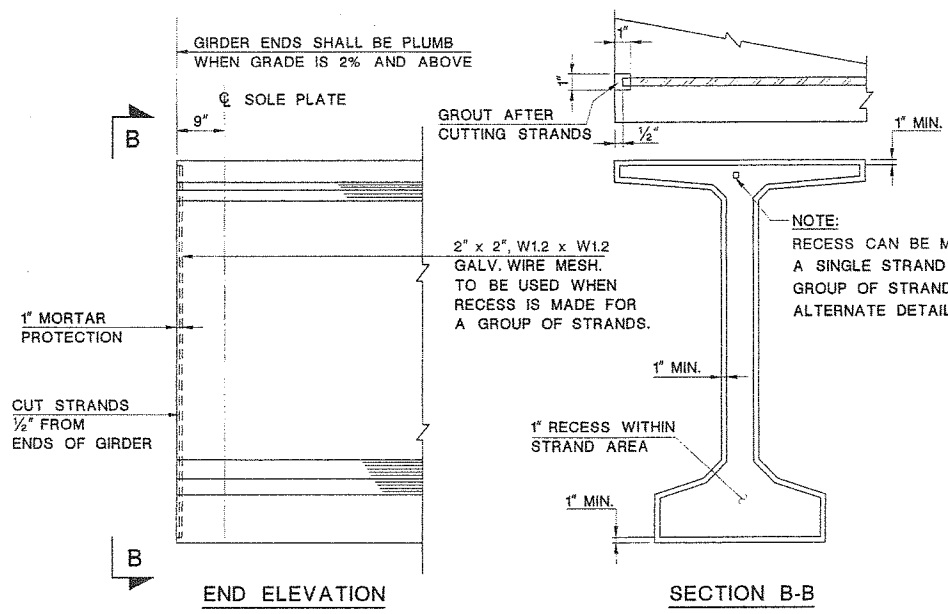
IN CHARGE OF *Adelle C. Roscioli*

REVISION	BY	C'D	DATE

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(148)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



SECTION A-A STRAND EXTENTION FOR POSITIVE MOMENT CONNECTION  
N.T.S.



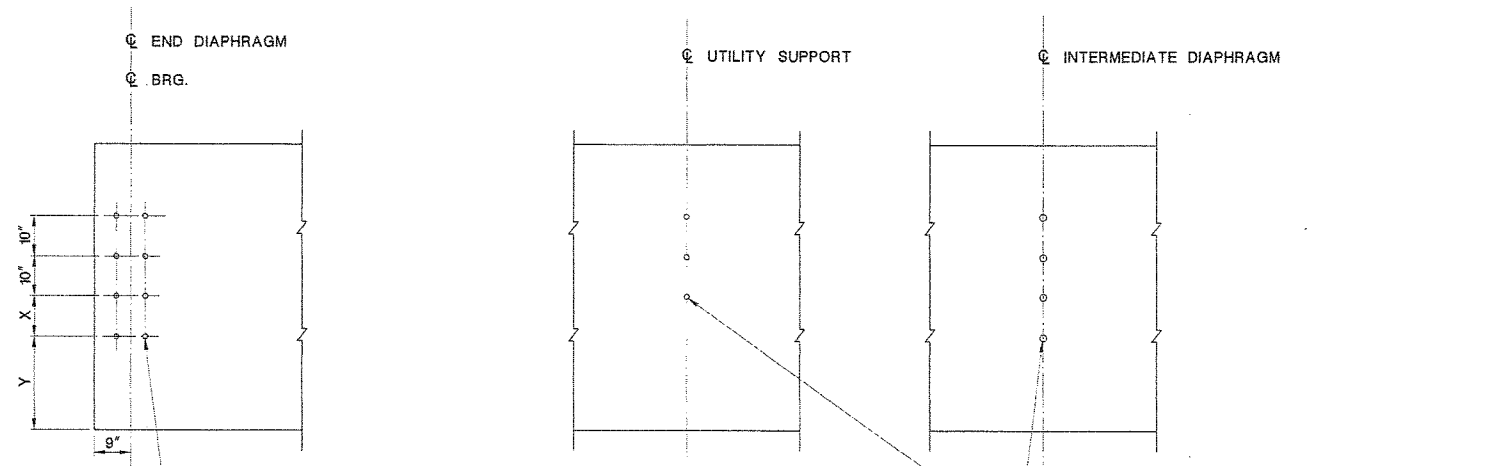
GROUTED RECESS FOR STRAND AT GIRDER ENDS  
N.T.S.

NOTES:

1. INSERTS AND PIPE SLEEVES SHALL BE INSTALLED BY THE PRECAST GIRDER MANUFACTURER. NO DRILLING AND GROUTING OF THE PRECAST GIRDER WILL BE ALLOWED.
2. HOLES FOR INSERTS AND PIPE SLEEVES, IN THE GIRDER SHALL BE LOCATED TO AVOID PRESTRESSING STRANDS.
3. NUMBER AND LOCATION OF INSERTS AND PIPE SLEEVES TO CONNECT UTILITY SUPPORTS AND INTERMEDIATE DIAPHRAGMS SHALL BE COORDINATED WITH SHOP DRAWINGS FOR UTILITY SUPPORTS AND INTERMEDIATE DIAPHRAGMS.

REFERENCES:

1. FOR FRAMING PLANS, SEE BRIDGE SHEET NO'S. B31 AND B32.
2. FOR PRESTRESSED CONCRETE GIRDER NOTES, SEE BRIDGE SHEET NO. B35.



THREADED INSERT FOR #22 THREADED BAR AT INSIDE FACE OF EXTERIOR GIRDERS (TYP.)  
1 1/4" DIA. HOLE WITH PIPE SLEEVE FOR #22 BAR AT ALL INTERIOR GIRDERS (TYP.)

THREADED INSERT FOR 7/8" DIA. H.S. BOLT AT INSIDE FACE OF EXTERIOR GIRDERS (TYP.) (SEE NOTE 3)  
1 1/4" DIA. HOLE WITH PIPE SLEEVE FOR 7/8" DIA. H.S. BOLT AT ALL INTERIOR GIRDERS (TYP.) (SEE NOTE 3)

X=0", Y=2'-8 7/8" AT NORTH FACIA GIRDERS  
X=10", Y=1'-10 1/8" AT ALL OTHER GIRDERS.

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**GIRDER DETAILS - 4**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

Eric Yermack  
ERIC YERMAK  
N.J. P.E. LIC. NO. 38046

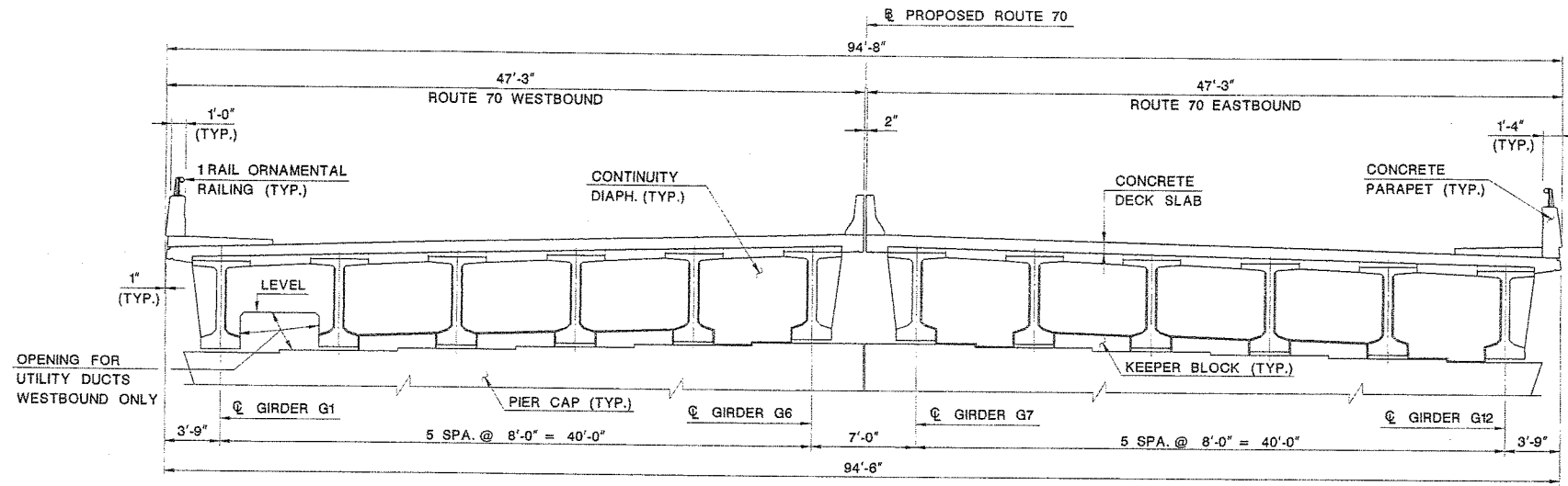
SCALE N.T.S. **347**  
BRIDGE SHEET NO. B36 OF B100

SECTION CONTROL	1151	JOB NO.	1511513
DES. BY	K. ALAM	CHK. BY	B. TANGIRALA
DWN. BY	S. PATEL	CHK. BY	B. TANGIRALA
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		

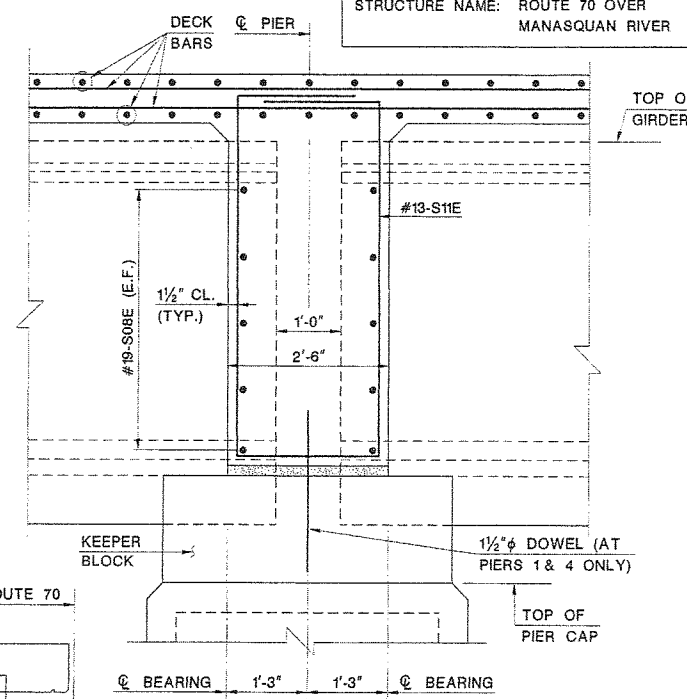
IN CHARGE OF *Mike C. Borek*

User Name: jgudovsky  
 Plot Date: 6/17/2015  
 Output File: R:\3044\058980109\structural\final\plans\B364-028.dgn

STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



TYPICAL SECTION AT PIERS 1 & 4  
SCALE: 3/16"=1'-0"

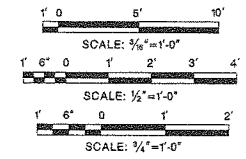


SECTION B-B  
SCALE: 3/4"=1'-0"

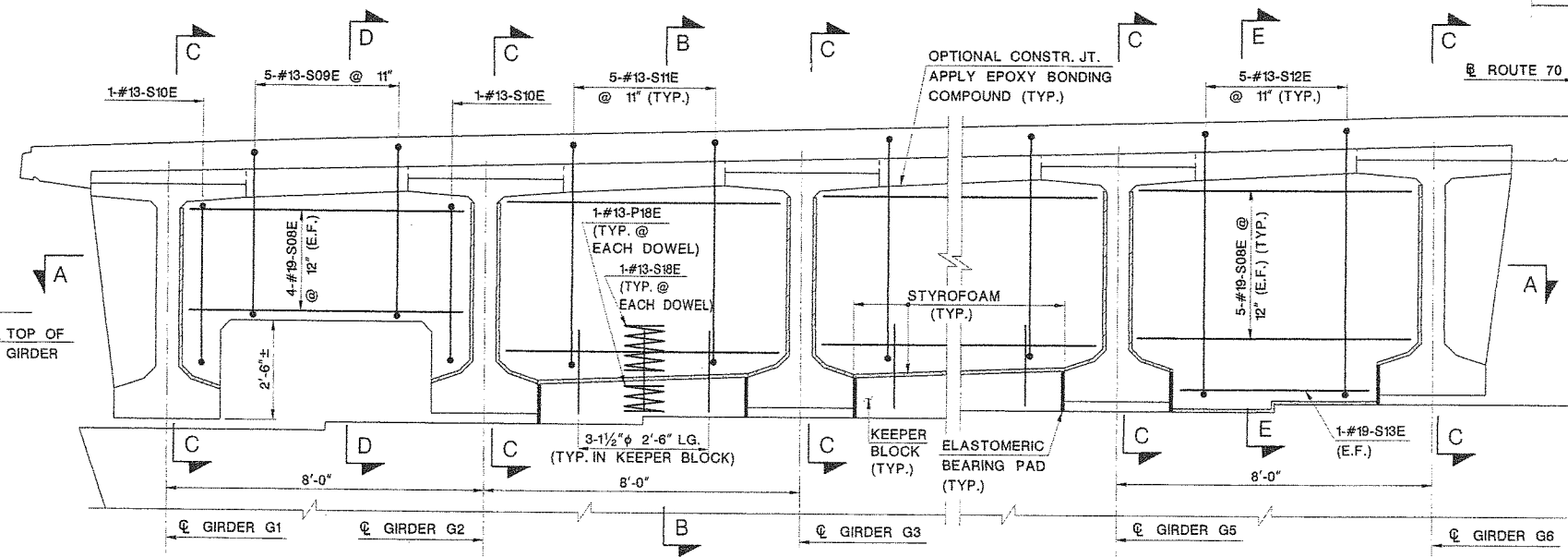
SYM. ABOUT  $\bar{x}$  UNLESS OTHERWISE NOTED

- NOTES:
- ALL COST ASSOCIATED WITH FURNISHING AND INSTALLING ROOFING FELT, STYROFOAM PAD, 1/2" ELASTOMERIC PAD AND 1/2" DIA. DOWELS ARE INCIDENTAL TO CONCRETE PLACING IN DECK SLAB.

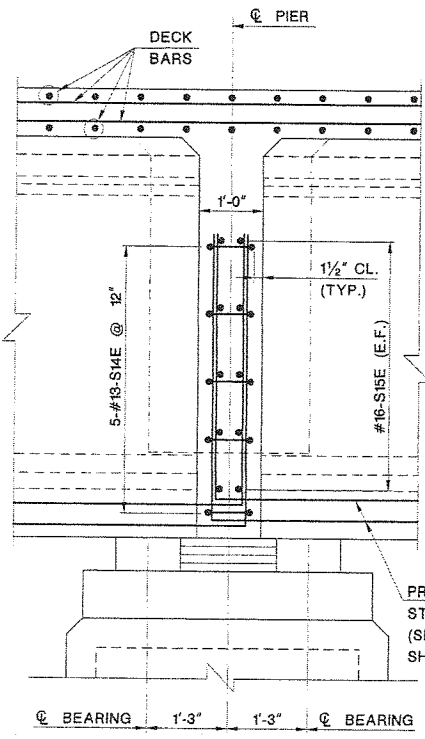
- REFERENCES:
- FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
  - FOR FRAMING PLANS, SEE BRIDGE SHEET NO'S. B31, B32.
  - FOR SECTIONS D-D AND E-E, SEE BRIDGE SHEET NO. B40.
  - FOR SUPERSTRUCTURE TYPICAL SECTION, SEE BRIDGE SHEET NO. B45.
  - FOR REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NO. B75.
  - FOR ADDITIONAL DOWEL DETAIL, SEE BRIDGE SHEET NO. B28.



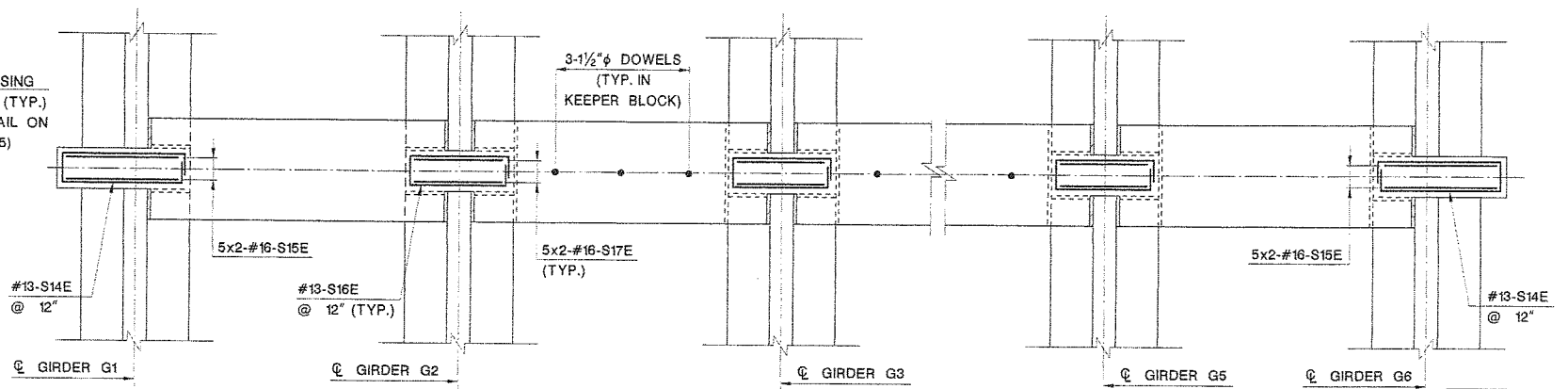
- LEGEND:
- ROOFING FELT (90 LBS)
  - 1/2" ELASTOMER BEARING PAD
  - STYROFOAM PAD



ELEVATION OF CONTINUITY DIAPHRAGM  
SCALE: 1/2"=1'-0"



SECTION C-C  
SCALE: 3/4"=1'-0"



SECTION A-A  
SCALE: 1/2"=1'-0"

SECTION CONTROL	1511	JOB NO.	151513
DES. BY	K. ALAM	CHK. BY	B. TANGIRALA
DWN. BY	F. GOLDOVSKY	CHK. BY	A. ROSCIOLI
EST. BY	A. ROSCIOLI	CHK. BY	A. HARING
SPECS. BY	A. HARING		
IN CHARGE OF <i>Adel C. Roscioli</i>			

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

**CONTINUITY DIAPHRAGM DETAILS - 1**

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH COUNTY  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMAK  
N.J. P.E. LIC. NO. 38046

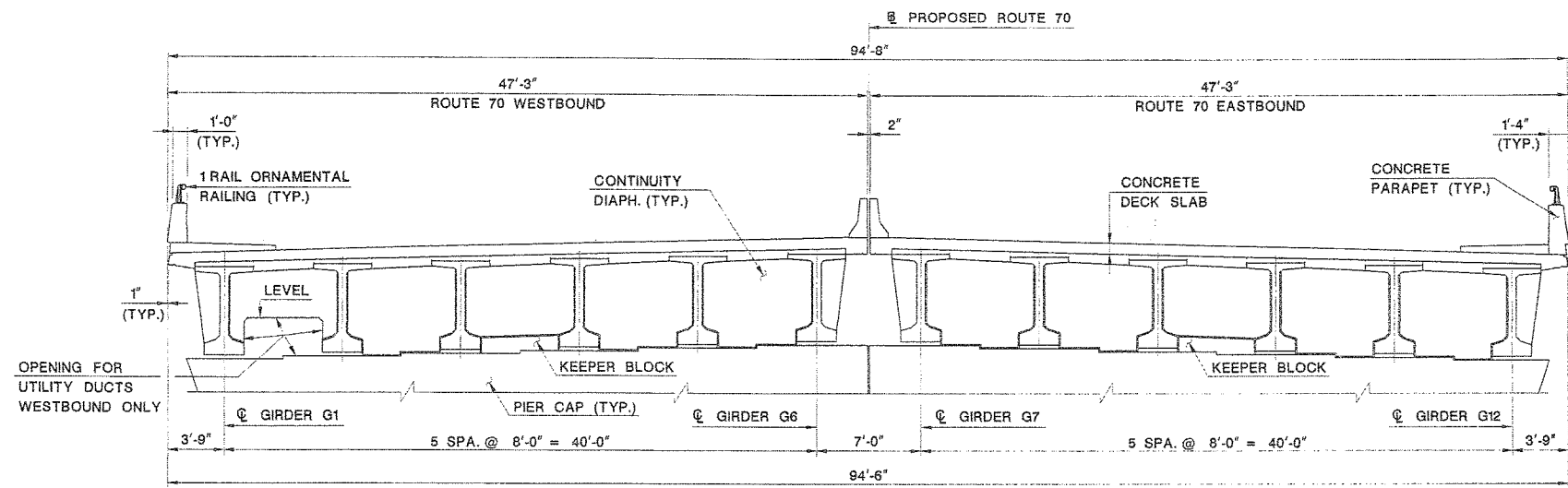
SCALE AS SHOWN  
BRIDGE SHEET NO. B39 OF B100

350

REVISION	BY	C'D	DATE



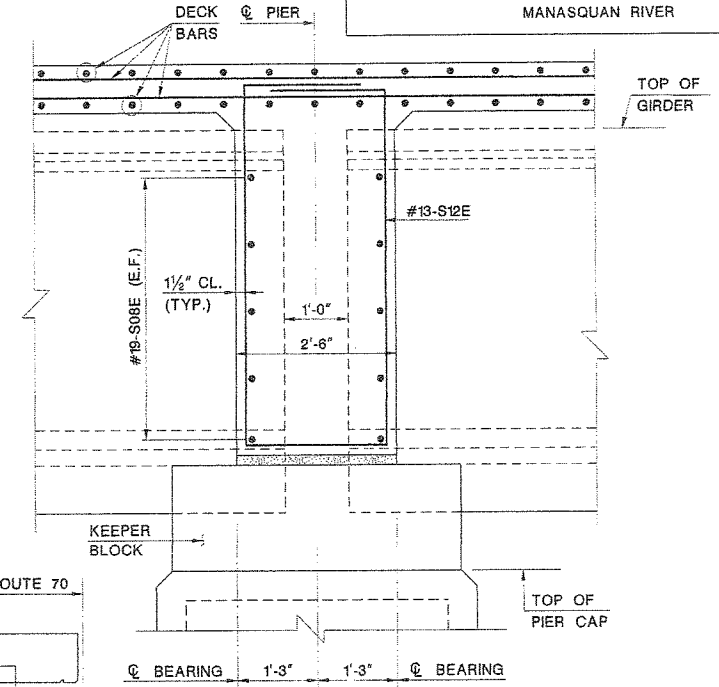
STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
N.J.	BRF-0018(149)		
STRUCTURE NO.		1511-150	
STRUCTURE NAME: ROUTE 70 OVER MANASQUAN RIVER			



TYPICAL SECTION AT PIERS 2 & 5  
SCALE: 3/16" = 1'-0"

LEGEND:

- ROOFING FELT (90 LBS)
- 1/2" ELASTOMER BEARING PAD
- STYROFOAM PAD



SECTION E-E  
SCALE: 3/4" = 1'-0"

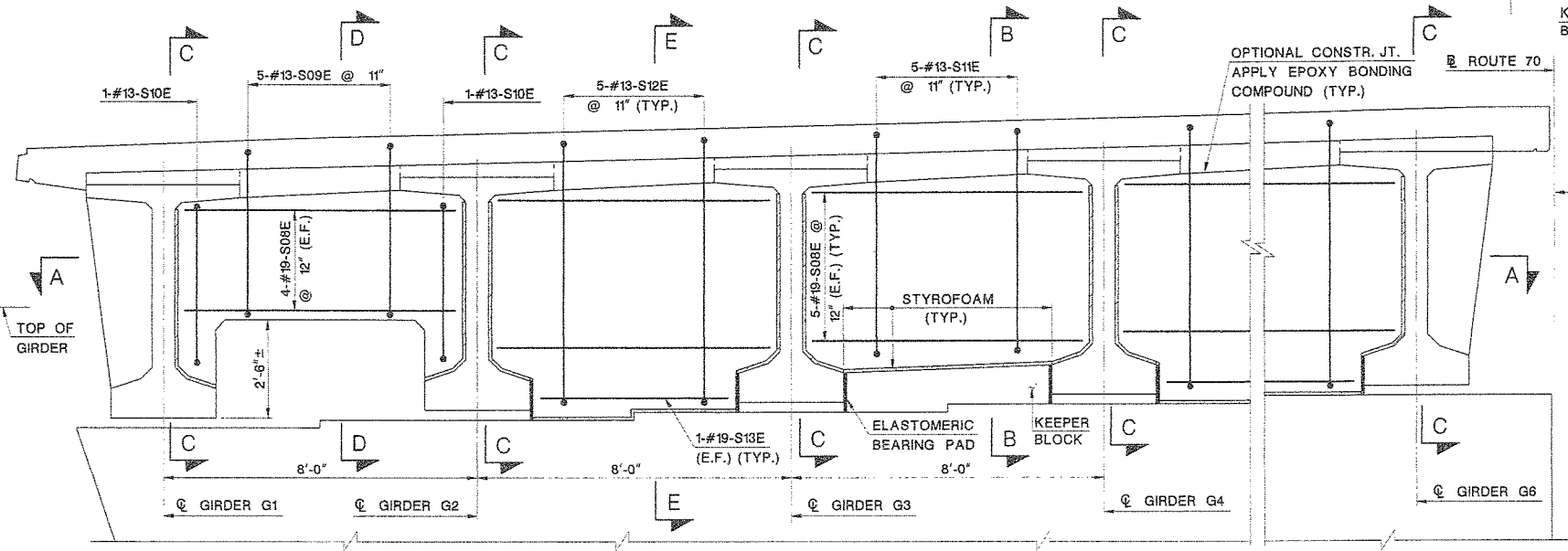
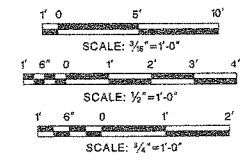
SYM. ABOUT @ UNLESS OTHERWISE NOTED

NOTES:

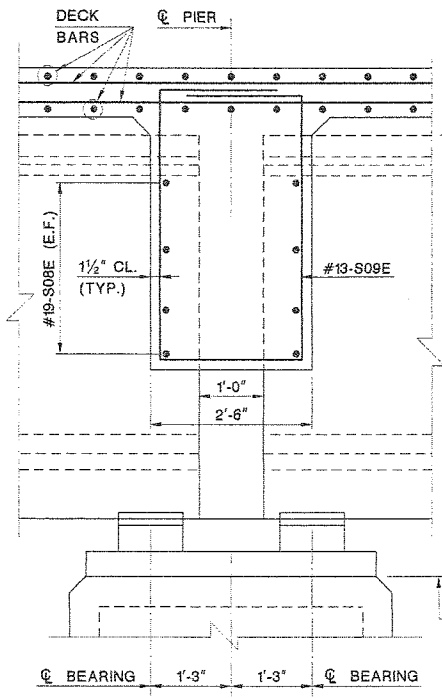
- ALL COST ASSOCIATED WITH FURNISHING AND INSTALLING ROOFING FELT, STYROFOAM PAD AND 1/2" ELASTOMERIC PAD ARE INCIDENTAL TO CONCRETE PLACING IN DECK SLAB.

REFERENCES:

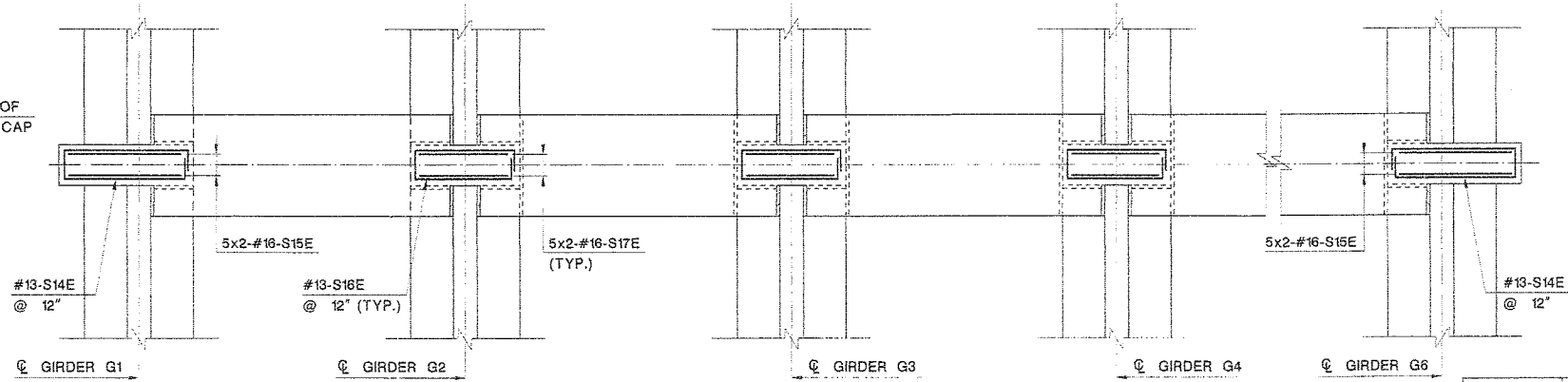
- FOR GENERAL NOTES, SEE BRIDGE SHEET NO. B4.
- FOR FRAMING PLANS, SEE BRIDGE SHEET NO'S. B31, B32.
- FOR SECTIONS B-B AND C-C, SEE BRIDGE SHEET NO. B39.
- FOR SUPERSTRUCTURE TYPICAL SECTION, SEE BRIDGE SHEET NO. B45.
- FOR REINFORCEMENT SCHEDULE, SEE BRIDGE SHEET NO. B75.



ELEVATION OF CONTINUITY DIAPHRAGM  
SCALE: 1/2" = 1'-0"



SECTION D-D  
SCALE: 3/4" = 1'-0"



SECTION A-A  
SCALE: 1/2" = 1'-0"

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL ENGINEERING

CONTINUITY DIAPHRAGM  
DETAILS - 2

ROUTE 70 CONTRACT NO. 058980109  
BRICK/POINT PLEASANT/BRIELLE/WALL OCEAN/MONMOUTH  
MUNICIPALITY COUNTY  
ARORA and ASSOCIATES, P.C.

*Eric Yermack*  
ERIC YERMAK  
N.J. P.E. LIC. NO. 38946

SCALE AS SHOWN  
BRIDGE SHEET NO. B40 OF B100

351

REVISION	BY	C/K/D	DATE

User Name: vj...  
Plot Time: 9:28:42 AM  
Plot Path: ...

SECTION CONTROL	1151	JOB NO. 1511513
DES. BY	K. ALAM	CHK. BY B. TANGIRALA
DWN. BY	F. GOLDOVSKY	CHK. BY A. ROSCIOLI
EST. BY	A. ROSCIOLI	CHK. BY A. HARING
SPECS. BY	A. HARING	

IN CHARGE OF *Eric Yermack*