

A PORTION OF CUMBERLAND COUNTY

1/2 MILE 0 1/2 MILE 1 MILE

LOCATION MAP

HYDROLOGIC DATA

Drainage Area -----38.9 sq. miles
 * Design Discharge (Q50) at Elev. +9.6 ---43,850 cfs
 * Check Discharge (Q100) at Elev. +9.8 ---47,400 cfs
 Mean High Water-----Elev. +4.8
 Mean Tide Level-----Elev. +0.3
 Mean Low Water -----Elev. -4.3
 1992 Predicted High Tide -----Elev. +7.0
 Area of river channel for existing
 and proposed bridges at Elev. 0 -----24,000 sq.ft
 * Discharge includes both runoff and tidal effects.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION



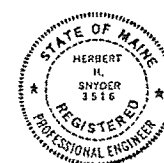
PORTLAND - SOUTH PORTLAND CUMBERLAND COUNTY

PORTLAND - SOUTH PORTLAND BRIDGE OVER THE FORE RIVER

BASCULE SPAN SUBSTRUCTURE CONTRACT

PROJECT NO.: DPI-0068(004)

PROJECT LENGTH: 0.0695 MILE



NOTE

ALL work contemplated under this contract to be governed by and in conformity with the STANDARD SPECIFICATIONS (revision of October 1990) and supplementals thereto, except as modified on the plans and in the special provisions.

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COAST GUARD PERMIT NO. 5-93-1

APPROVED:

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

DATE

10/14/93

10/14/93

UNITED STATES
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 1

APPROVED:

DIVISION ADMINISTRATOR

ESTIMATED QUANTITIES			
ESTIMATE OF ITEMS COMMON TO BOTH H-PILE AND DRILLED SHAFT ALTERNATIVES			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
108.51	Prosecution of Work - Initial Schedule	1	LS
108.52	Prosecution of Work - Monthly Update	20	EA
206.10	Structural Earth Excavation - Piers	13,800	CY
501.20	Timber pile, Treated	730	LF
501.253	Pile Protective Coating	1	LS
501.70	Steel Pipe Piles, Delivered	3,500	LF
501.701	Steel Pipe Piles, In Place	3,500	LF
501.90	Pile Tips - Pipe Piles	46	EA
501.91	Pile Splices - Pipe Piles	46	EA
501.92	Pile Mobilization - Pipe Piles	1	LS
503.17	Mechanical/Welded splice	3624	EA
504.50	Fender System	1	LS
504.55	Temporary Fender System	1	LS
511.07	Cofferdam North Bascule Pier	1	LS
511.07	Cofferdam South Bascule Pier	1	LS
514.06	Curing Box for Concrete Cylinders	2	EA
525.30	Granite Masonry	6,370	SF
638.021	Temporary Navigation Lighting	1	LS
639.23	Testing Facilities Concrete	1	LS
652.31	Type I Barricade	20	EA
652.33	Drum	20	EA
652.34	Cone	20	EA
652.35	Construction Signs	700	SF
652.361	Maintenance of Traffic Control Devices	1	LS
652.38	Flagger	1,000	MH
656.64	Boom Supported Floating Silt Fence	1,000	LF
659.10	Mobilization	1	LS
660.20	On-the-job Training	14,000	MH

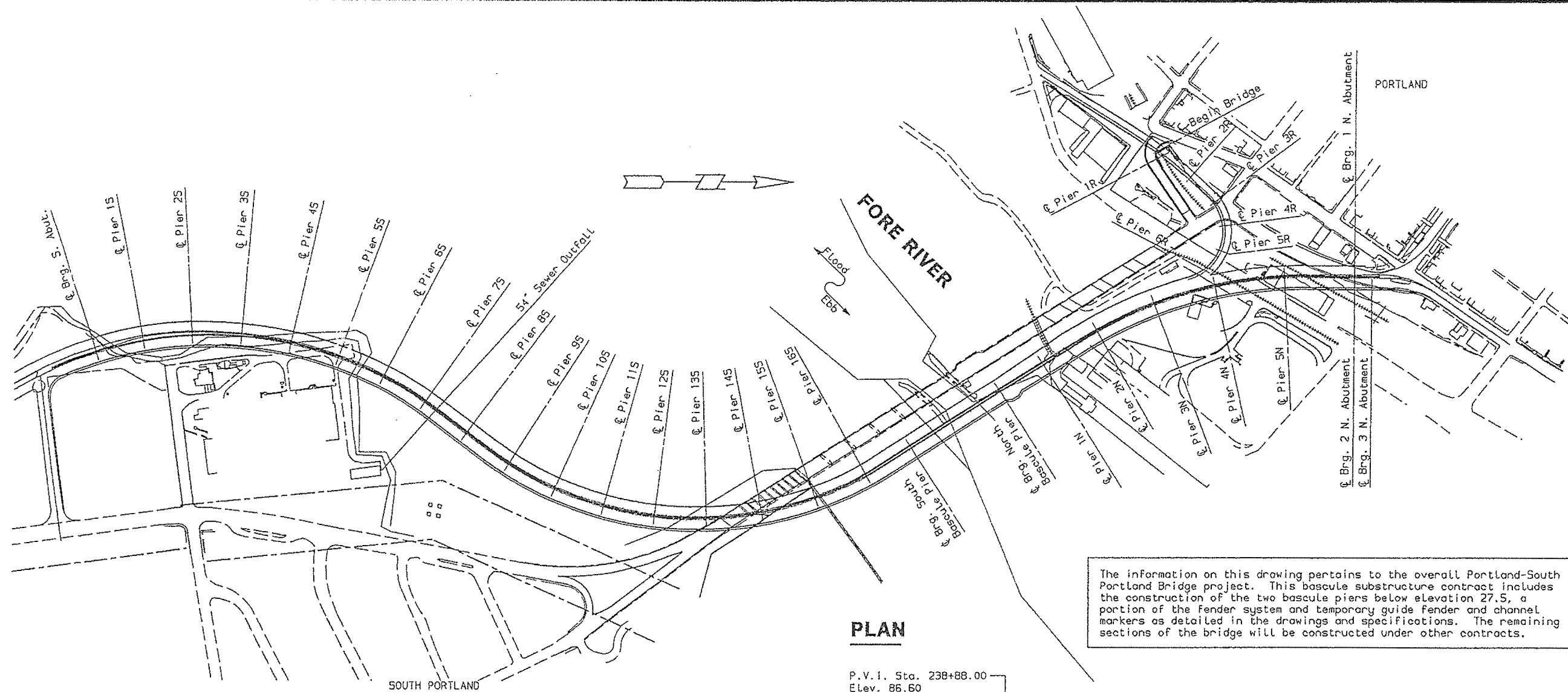
ESTIMATED QUANTITIES			
ESTIMATE OF ITEMS SPECIFIC TO H-PILE ALTERNATIVE			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
501.230	Static Loading Test	2	EA
501.231	Dynamic Loading Test	14	EA
501.54	Steel H-Beam Piles 117 lbs/ft, Delivered	33,000	LF
501.541	Steel H-Beam Piles 117 lbs/ft, in place	33,000	LF
501.90	Pile Tips - H-Piles	462	EA
501.91	Pile Splices - H-Piles	462	EA
501.92	Pile Mobilization - H-Piles	1	LS
502.239	Structural Concrete Piers	1	LS
502.24	Structural Concrete Piers (Placed Under Water)	14,364	CY
503.14	Epoxy-Coated Reinforcing Steel, Fabricated and Delivered	1,474,000	LB
503.15	Epoxy-Coated Reinforcing Steel, Placing	1,474,000	LB
ESTIMATED QUANTITIES OF LUMP SUM ITEMS			
502.239	Structural Concrete Piers	13,482	CY

ESTIMATED QUANTITIES			
ESTIMATE OF ITEMS SPECIFIC TO DRILLED SHAFT ALTERNATIVE			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
501.232	Osterberg Cell Load Test	2	EA
501.801	7 Foot Diameter Drilled Shaft	3,114	LF
501.802	Rock Socket	288	LF
501.803	Exploratory Drilling	540	LF
502.239	Structural Concrete Piers	1	LS
502.24	Structural Concrete Piers (Placed Under Water)	12,979	CY
503.14	Epoxy-Coated Reinforcing Steel, Fabricated and Delivered	1,565,700	LB
503.15	Epoxy-Coated Reinforcing Steel, Placing	1,565,700	LB
ESTIMATED QUANTITIES OF LUMP SUM ITEMS			
502.239	Structural Concrete Piers	13,405	CY

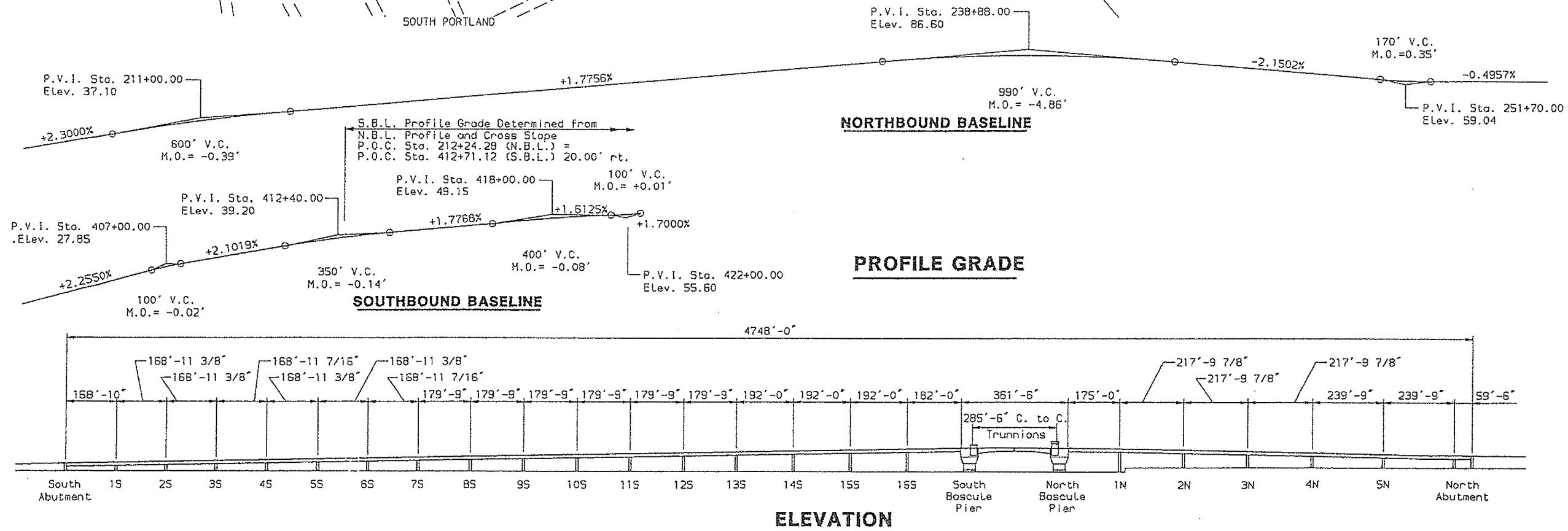
BASCULE SUBSTRUCT
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

CHECKED
REVISION
FIELD CHANGES
DMP
9/93
PLANS



The information on this drawing pertains to the overall Portland-South Portland Bridge project. This bascule substructure contract includes the construction of the two bascule piers below elevation 27.5, a portion of the fender system and temporary guide fender and channel markers as detailed in the drawings and specifications. The remaining sections of the bridge will be constructed under other contracts.



NOTES:

For general notes, see sheet 6.
For key geometry, see sheet 5.

BASCULE SUBSTRUCT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLANE

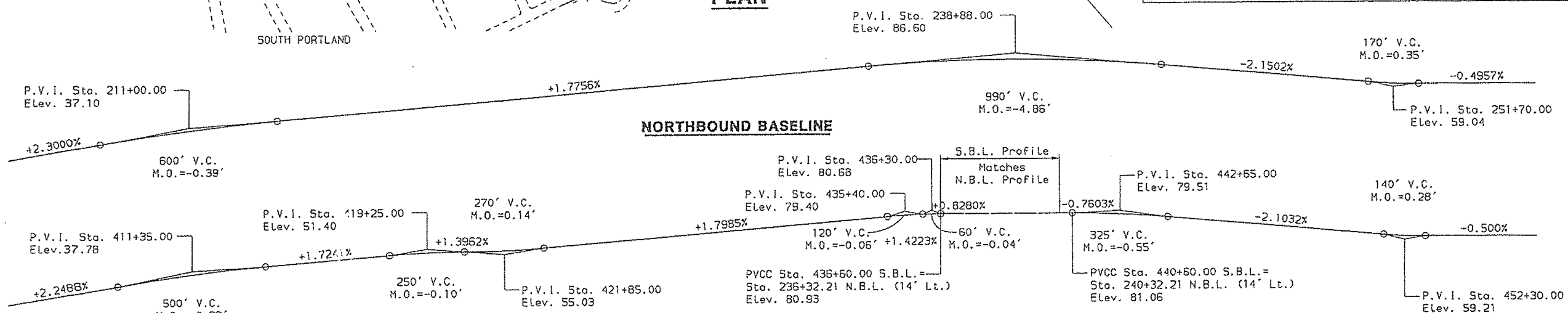
OVER FORE RIVER

CUMBERLAND COUN

GENERAL PLAN AND ELEVATION

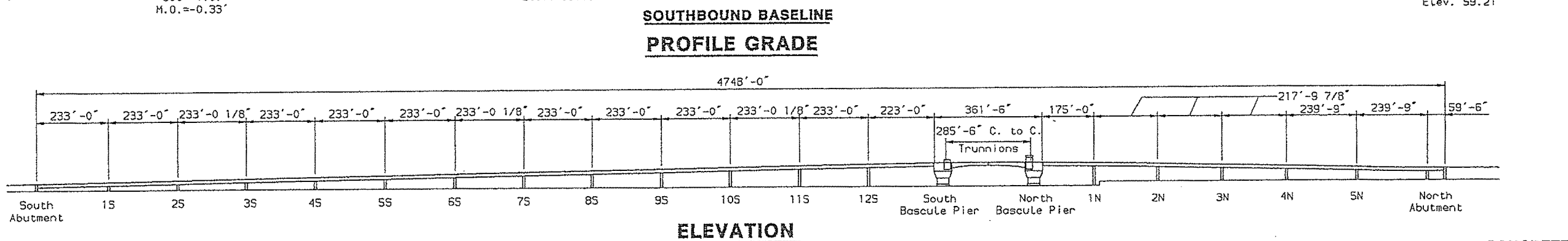
STEEL ALTERNATIVE

SHEET 3 OF 54: AUGUSTA, MAINE

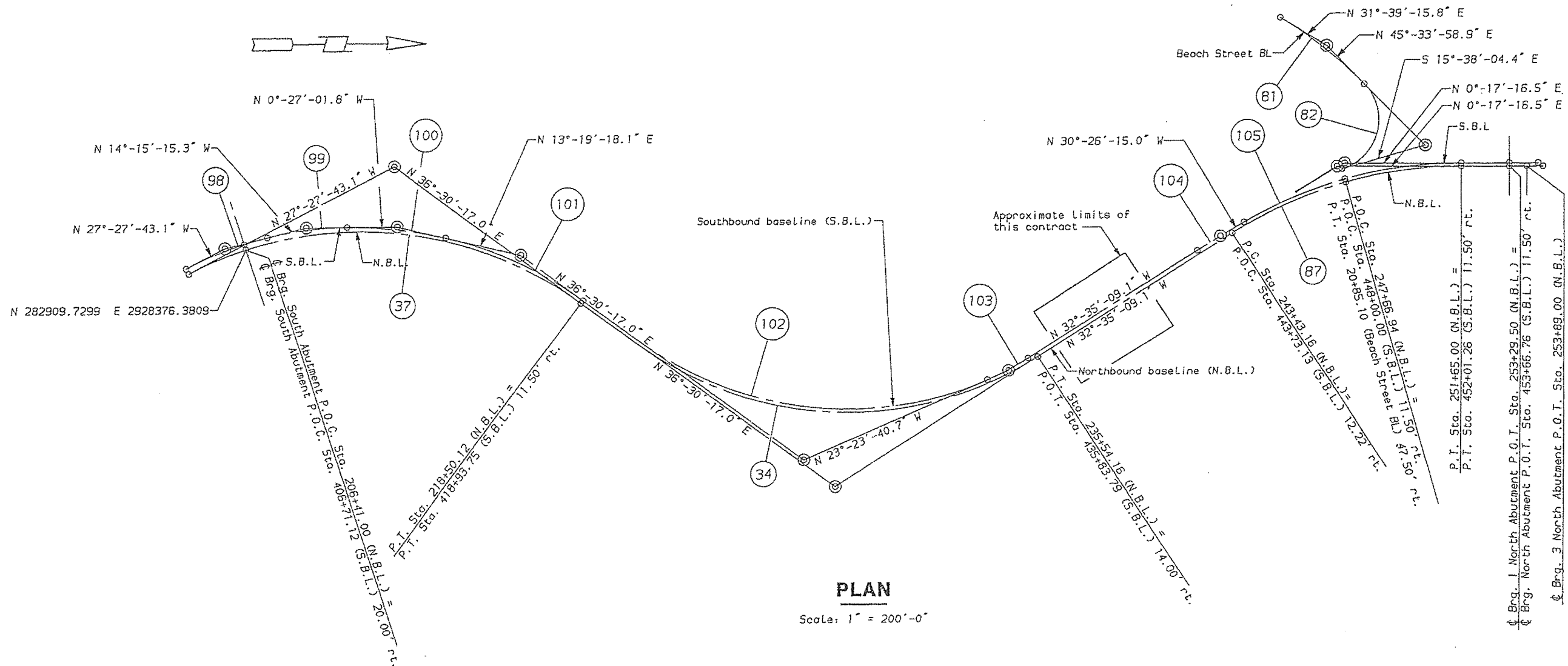


The information on this drawing pertains to the overall Portland-South Portland Bridge project. This bascule substructure contract includes the construction of the two bascule piers below elevation 27.5, a portion of the fender system and temporary guide fender and channel markers as detailed in the drawings and specifications. The remaining sections of the bridge will be constructed under other contracts.

For general notes, see sheet 6
For key geometry, see sheet 5.



BASCULE SUBSTRUCTURE
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY
GENERAL PLAN
AND ELEVATION
SHEET 4 OF 54, AUGUSTA, MAINE



PLAN

Scale: 1" = 200'-0"

The information on this drawing pertains to the overall Portland-South Portland Bridge project. This bascule substructure contract includes the construction of the two bascule piers below elevation 27.5, a portion of the fender system and temporary guide fender and channel markers as detailed in the drawings and specifications. The remaining sections of the bridge will be constructed under other contracts.

NOTES:

For general notes, see sheet 6.

(37) Indicates curve number

The horizontal geometry shown on drawing is for the steel approach. The concrete approach alternative except for the Southbound Baseline contract, references will be made to the Northbound Baseline. Coordinates are referenced to the State Coordinate Grid, North America of 1983.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY

KEY GEOMETRIC DATA

Curve No. 37 (N.B.L.)
P.I. Sta. 212+23.73 (Ahd.)
Δ = 63°-58'-00.1" Rt.
Dc = 4°-30'-00.0"
R = 1273.2396'
T = 795.09'
Lc = 1421.48'
E = 227.86'
SE = 0.038 ft./ft.
P.C.C. Sta. 204+28.64
P.T. Sta. 218+50.12

Curve No. 34 (N.B.L.)
P.I. Sta. 229+30.04 (Ahd.)
Δ = 69°-05'-26.1" Lt.
Dc = 4°-45'-00.0"
R = 1206.2269'
T = 830.42'
Lc = 1454.54'
E = 258.21'
SE = 0.039 ft./ft.
P.C. Sta. 220+99.62
P.T. Sta. 235+54.16

Curve No. 87 (N.B.L.)
P.I. Sta. 247+65.74 (Ahd.)
Δ = 32°-52'-25.6" Rt.
Dc = 4°-00'-00.0"
R = 1432.3945'
T = 422.58'
Lc = 821.84'
E = 61.03'
SE = 0.037 ft./ft.
P.C. Sta. 243+43.16
P.T. Sta. 251+65.00

Curve No. 98 (S.B.L.)
P.I. Sta. 406+05.14 (Ahd.)
Δ = 13°-12'-27.8" Rt.
Dc = 4°-25'-49.5"
R = 1293.2396'
T = 149.72'
Lc = 298.12'
E = 8.64'
SE = 0.038 ft./ft.
P.C.C. Sta. 404+55.42
P.C.C. Sta. 407+53.54

Curve No. 99 (S.B.L.)
P.I. Sta. 408+92.25 (Ahd.)
Δ = 13°-48'-13.5" Rt.
Dc = 5°-00'-00.0"
R = 1145.9156'
T = 138.71'
Lc = 276.07'
E = 8.36'
SE = 0.039 ft./ft.
P.C.C. Sta. 407+53.54
P.C.C. Sta. 410+29.61

Curve No. 100 (S.B.L.)
P.I. Sta. 412+02.60 (Ahd.)
Δ = 13°-46'-19.9" Rt.
Dc = 4°-00'-00.0"
R = 1432.3945'
T = 172.99'
Lc = 344.30'
E = 10.41'
SE = 0.037 ft./ft.
P.C.C. Sta. 410+29.61
P.C.C. Sta. 413+73.92

Curve No. 101 (S.B.L.)
P.I. Sta. 416+37.44 (Ahd.)
Δ = 23°-10'-58.9" Rt.
Dc = 4°-27'-35.0"
R = 1284.7396'
T = 263.52'
Lc = 519.83'
E = 26.75'
SE = 0.038 ft./ft.
P.C.C. Sta. 413+73.92
P.T. Sta. 418+93.75

Curve No. 102 (S.B.L.)
P.I. Sta. 428+31.63 (Ahd.)
Δ = 59°-53'-57.7" Lt.
Dc = 4°-47'-44.6"
R = 1194.7270'
T = 688.38'
Lc = 1249.02'
E = 184.13'
SE = 0.039 ft./ft.
P.C. Sta. 421+43.25
P.C.C. Sta. 433+92.27

Curve No. 103 (S.B.L.)
P.I. Sta. 434+72.65 (Ahd.)
Δ = 9°-11'-28.4" Lt.
Dc = 5°-43'-46.5"
R = 1000.0000'
T = 80.38'
Lc = 160.42'
E = 3.23'
SE = 0.039 ft./ft.
P.C.C. Sta. 433+92.27
P.T. Sta. 435+52.68

Curve No. 104 (S.B.L.)
P.I. Sta. 443+33.23 (Ahd.)
Δ = 2°-08'-54.1" Rt.
Dc = 1°-08'-45.3"
R = 5000.0000'
T = 93.75'
Lc = 187.48'
E = 0.88'
SE = 0.037 ft./ft.
P.C. Sta. 442+39.48
P.C.C. Sta. 444+26.96

Curve No. 105 (S.B.L.)
P.I. Sta. 448+23.66 (Ahd.)
Δ = 30°-43'-31.5" Rt.
Dc = 3°-58'-05.3"
R = 1443.8945'
T = 396.70'
Lc = 774.30'
E = 53.50'
SE = 0.037 ft./ft.
P.C.C. Sta. 444+26.96
P.T. Sta. 452+01.26

Curve No. 81 (Beach Street BL)
P.I. Sta. 15+41.05 (Ahd.)
Δ = 13°-54'-43.1" Rt.
Dc = 3°-49'-11.0"
R = 1500.00'
T = 183.01'
Lc = 364.21'
E = 11.12'
SE = 0.023 ft./ft.
P.C. Sta. 13+58.04
P.C.C. Sta. 17+22.25

Curve No. 82 (Beach Street BL)
P.I. Sta. 20+18.15 (Ahd.)
Δ = 118°-47'-56.6" Rt.
Dc = 32°-44'-25.7"
R = 175.00'
T = 295.90'
Lc = 362.85'
E = 168.78'
SE = 0.04 ft./ft.
P.C.C. Sta. 17+22.25
P.T. Sta. 20+85.10

Specifications

Design: AASHTO Standard Specifications for Highway Bridges, 15th Edition, 1992, and as supplemented by the State of Maine Bridge Design Manual.

AASHTO Standard Specifications for Movable Highway Bridges, 1988.

ANSI/AASHTO/AWS D1.5-88, Bridge Welding Code.

AASHTO Guide Specifications and Commentary for Vessel Collision Design of Highway Bridges, February 1991.

Contract: All materials and workmanship shall be in accordance with the State of Maine Department of Transportation Standard Specifications, Highways and Bridges, Revision of October, 1990 and the Special Provisions for this contract.

Design Loading

Live Load: AASHTO HS25 and Alternate Military Loading.

Dead Load: In addition to the dead load of the bascule structure, the maximum expected dead load reaction from the adjacent approach spans of the steel or concrete alternatives is included.

Seismic Load: Seismic design is based on the following parameters:
Acceleration coefficient, A = 0.1
Site Coefficient, S = 1
Importance Classification, IC = 1
Seismic Performance Category, SPC B

Vessel Collision Load:

Substructure fenders, and rubber fender unit design is based on the absorption of energy caused by an assumed vessel collision with the following parameters:
Vessel size: 50,000 DWT
Vessel speed: 5 Knots
Angle of impact: 15 degree

The assumed design conditions for the pile-supported fenders only, at the face of the pier are:
Vessel size: 25,000 DWT
Vessel speed: 5 knots
Angle of impact: 7 degree

Materials

Concrete: Pier shaft and Footing - Class A (Min. 28-day strength = 4,000 psi)
Pier seals - Class S (Min. 28-day strength = 3,000 psi)
Drilled shaft and H-pile - Class S (Min. 28-day strength = 3,000 psi)

Reinforcing steel: AASHTO M31 (ASTM A615), Grade 60
AASHTO M31 (ASTM A615), Grade 60, epoxy coated

Structural steel: AASHTO M223 (ASTM A572), Grade 50
AASHTO M183 (ASTM A36), Grade 36

Stainless steel bolts: ASTM F593, Stainless Alloy Group 1, Condition SH1 or SH2.

Cast steel points: ASTM A148, Grade 90-60

Fender pipe piles: ASTM A252, Grade 2

Rubber fenders: See Special Provisions

Ultra-high molecular weight polyethylene: See Special Provisions

Basic Design Stresses

Concrete: Pier shaft - $f'c = 3000$ psi
Pier footing - $f'c = 3000$ psi
Drilled shaft - $f'c = 3000$ psi

Reinforcing steel: $F_y = 60,000$ psi

Structural steel: $F_y = 50,000$ psi and $F_y = 35,000$ psi

Traffic Data

A.D.T. 1993 = 31,940	T. (X) = 4
A.D.T. 2013 = 36,330	D. (X) = 65
D.H.V. = 3270	V. = N/A
P.S.D. (X) = N/A	18 KIPS P(2.5) = 433

Hydraulic Data

Drainage area = 38.9 square miles
*Design Discharge (Q50) = 43,850 cfs at Elev. +9.6
*Check Discharge (Q100) = 47,400 cfs at Elev. +9.8

Mean High Water = Elev. +4.8
Mean Tide Level = Elev. +0.3
Mean Low Water = Elev. -4.3
1992 Predicted High Tide = Elev. +7.0

Area of river channel for existing and proposed bridges at Elev. 0 = 24,000 sq. ft.

* Discharge includes both runoff and tidal effects

Datum Based on 1929 NGVD

Coordinate Grid System

Maine State Coordinate Grid, North American Datum of 1983.

General Description of Project (See Special Provisions)

Reinforcing Steel

All reinforcing steel for the substructure shall be epoxy coated except for the reinforcing in the drilled shafts.

A concrete cover of 3" shall be provided for reinforcing steel except where noted.

Mechanical couplers shall be used for all no. 14 reinforcing bars. Couplers shall be epoxy coated, except for couplers in drilled shaft.

Concrete

Calcium nitrite additive shall be used for all concrete in the pier shaft and pier footing.

Exposed concrete edges shall be chamfered 1" x 1" except as noted.

Structural Steel and Bolted Connections

All structural steel shall conform to AASHTO M183 (ASTM A36), except steel H-piles and cover plates, which shall be AASHTO M223 (ASTM A572), Grade 50.

All structural steel fasteners are 7/8-inch diameter stainless steel bolts conforming to ASTM F593, Stainless Alloy Group 1, Condition SH2.

Alternative Pier Foundations

Bids for this contract will be accepted on the basis of alternative pier foundations.

H-pile Alternative (See Special Provisions)

All piles shall be HP14X117, conforming to AASHTO M223 (ASTM A572), Grade 50 with a design capacity of 200 tons per pile using a 2.25 factor of safety. Piles shall be fitted with points manufactured from cast steel conforming to ASTM A148, Grade 90-60. The wave equation and pile driving analyzer (PDA) shall be used on this project to control pile installation, to monitor pile driving stresses and hammer performance, and to predict ultimate pile load capacity.

Prior to installation of production piles, a pile load test program shall be performed to check length requirement and verify the design pile capacity.

Drilled Shaft Alternative (See Special Provisions)

Obstructions to Pile Driving and Drilled Shaft Installation

The Contractor is advised of the existence of cobbles and boulders in the soil layers to be penetrated by the foundation piles or drilled shafts. It is the responsibility of the Contractor to furnish the total number and capacity of H-piles or drilled shafts, and to the capacity and penetration depths shown on the plans. He shall be prepared to drill through or to remove any and all obstructions encountered while constructing the pier foundations.

Abandoned Utilities

The Contractor is advised that numerous abandoned existing utilities are located in the area of the piers and fender elements to be constructed under this contract. The plans show the approximate position of all known items. The Contractor will be responsible for removal and disposal of all abandoned utilities. Abandoned utilities will be permitted to remain in place only if they are located at an elevation below the bottom of tremie seal designated on the drawings, and provided that they do not interfere in any way with excavation of soil and placement of all piles and/or drilled shafts as shown on the plans. Removal of abandoned utilities shall be considered incidental to related contract items.

Waterway Traffic

The Contractor shall not obstruct the normal waterway traffic during the construction period except for periods of short duration under special permission, which must be obtained by the Contractor, from the U. S. Coast Guard, First Coast Guard District, Building 135A, Governor's Island, N.Y. 10004.

Temporary Aids to River Navigation

The Contractor shall be responsible for providing the required temporary navigation lighting for channel delineation as shown in the drawings in conformance to the requirements of the First Coast Guard District. He shall also be responsible for obtaining the authorization for all navigation lighting. The temporary navigation lighting shall be part of this contract and shall remain at the completion of this contract.

Cofferdams

It shall be the Contractor's sole responsibility to design, install and dewater the cofferdams required to construct the bascule piers. Hard driving conditions are to be anticipated for sections of the sheetpile installation which may require pre-excavation, jetting, pre-augering or use of protective pile tips to prevent damage to the piles. Adequate measures shall be taken to design the cofferdams for the anticipated conditions and construction method, including pressures and mooring loads.

Structural earth excavation required for the placement of seal concrete shall be accomplished so as not to disturb the riverbed outside of the cofferdam.

Protection of Existing Structures

The Contractor shall control his operations to prevent damage to existing structures and utilities. Preventive measures shall include, but not limited to, selecting construction methods and procedures that will minimize disturbance to subsurface condition under existing structures, prevent caving of excavation and controlling the vibrations from construction activities such as driving of piles and drilling of shafts.

The Department will monitor existing structures for any potential settlement or movement during construction. If movement is detected, the Department may temporarily suspend the operations of the Contractor until the problem can be resolved.

Borings

A test boring program was performed by Haley & Aldrich, Inc., Portland, Maine to determine the subsurface soil and rock conditions and also the depth of bedrock at selected locations close to the proposed alignment of the new bridge. The test borings were performed during the period from August 1988 through November 1989 and the results are presented in the two reports:

"Interim Geotechnical Report on Proposed Fore River Bridge Replacement, Portland/South Portland, Maine, January, 1989", and

"Report on Supplemental Test Boring Data, Proposed Fore River Bridge Replacement, Portland/South Portland, Maine, May 1990".

Additional test borings were taken during the period between April 1992 and October 1992 by Haley and Aldrich, Inc. at locations around the proposed bascule piers and dolphins. The test boring results are presented in the report:

"Report on Subsurface Investigation and Foundation Evaluation, Bascule Pier Foundations, Portland/South Portland Bridge Over the Fore River, Portland/South Portland, Maine" dated October, 1993.

Also, the basis for the geotechnical design recommendations is presented in a memorandum:

"Basis for Geotechnical Design Recommendations for Bascule Pier Foundations, Portland/South Portland Bridge Replacement, 19 August, 1993."

Abbreviations

N.B.L.	-	denotes Northbound baseline
S.B.L.	-	denotes Southbound baseline
N.B.P.	-	denotes North bascule pier
S.B.P.	-	denotes South bascule pier

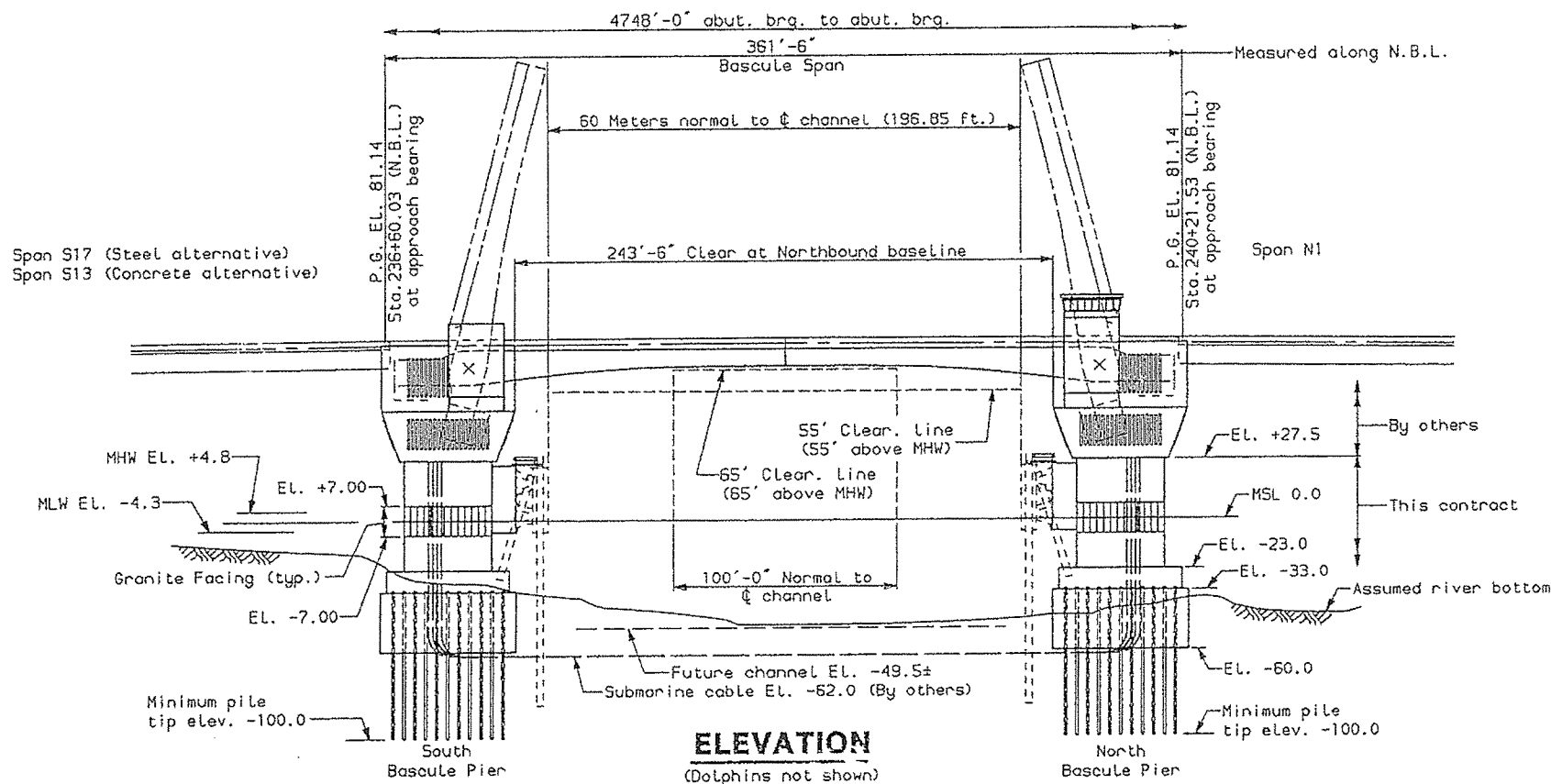
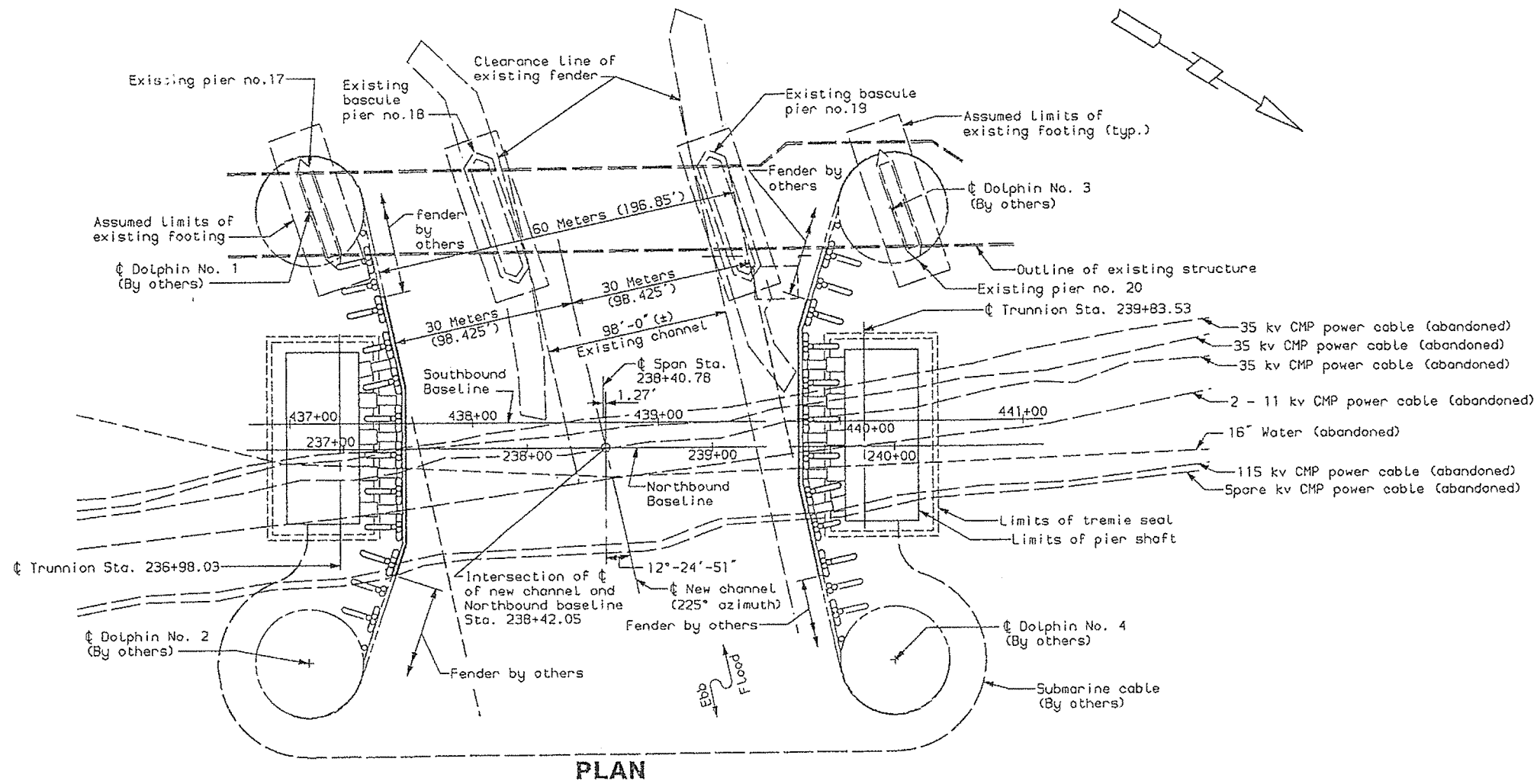
BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

GENERAL NOTES

SHEET 6 OF 54 AUGUSTA, MAINE



NOTES:

For general notes, see sheet 6.
Designations and locations of utilities are available information and are approximate or may not be as shown.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY

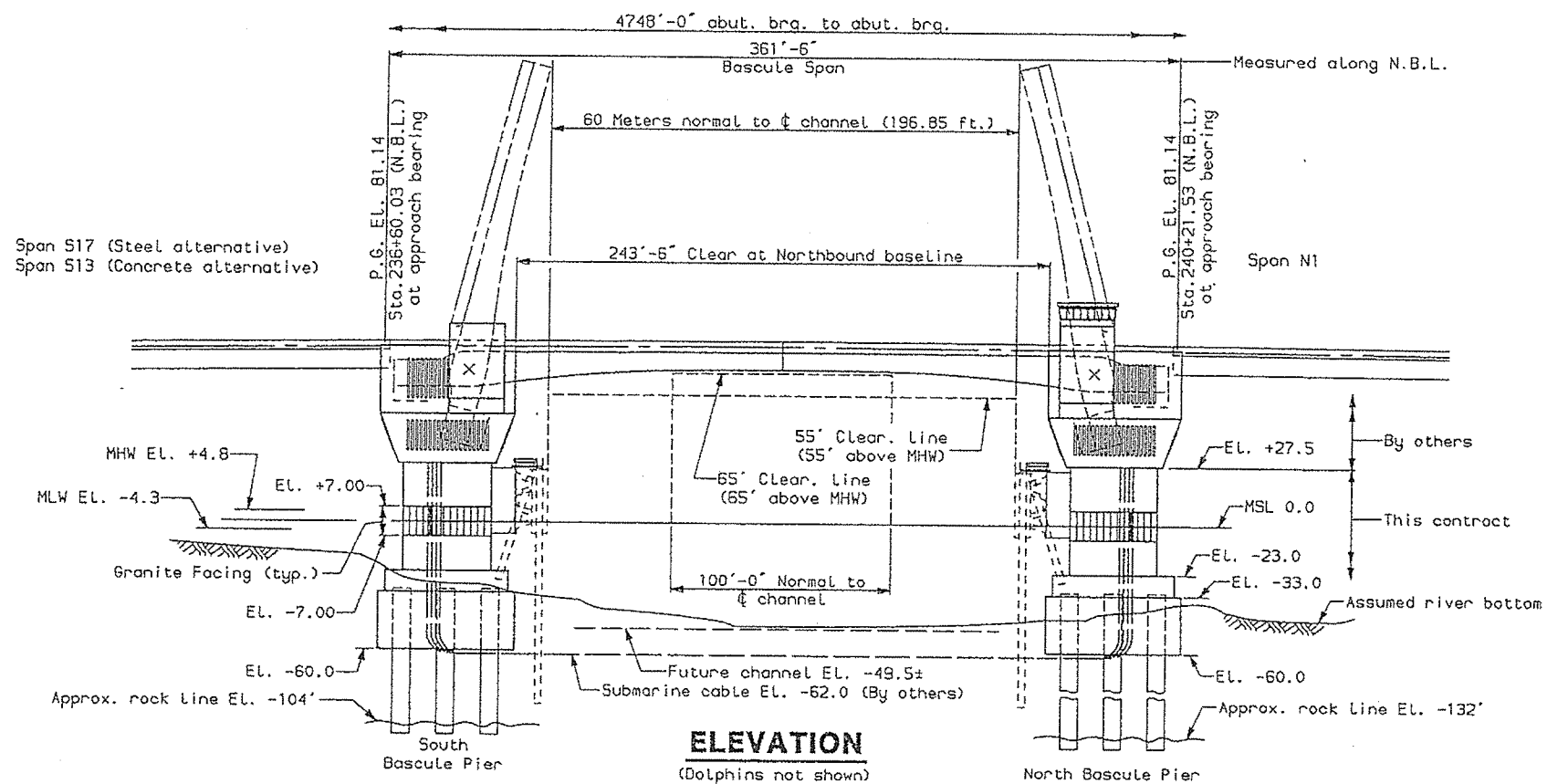
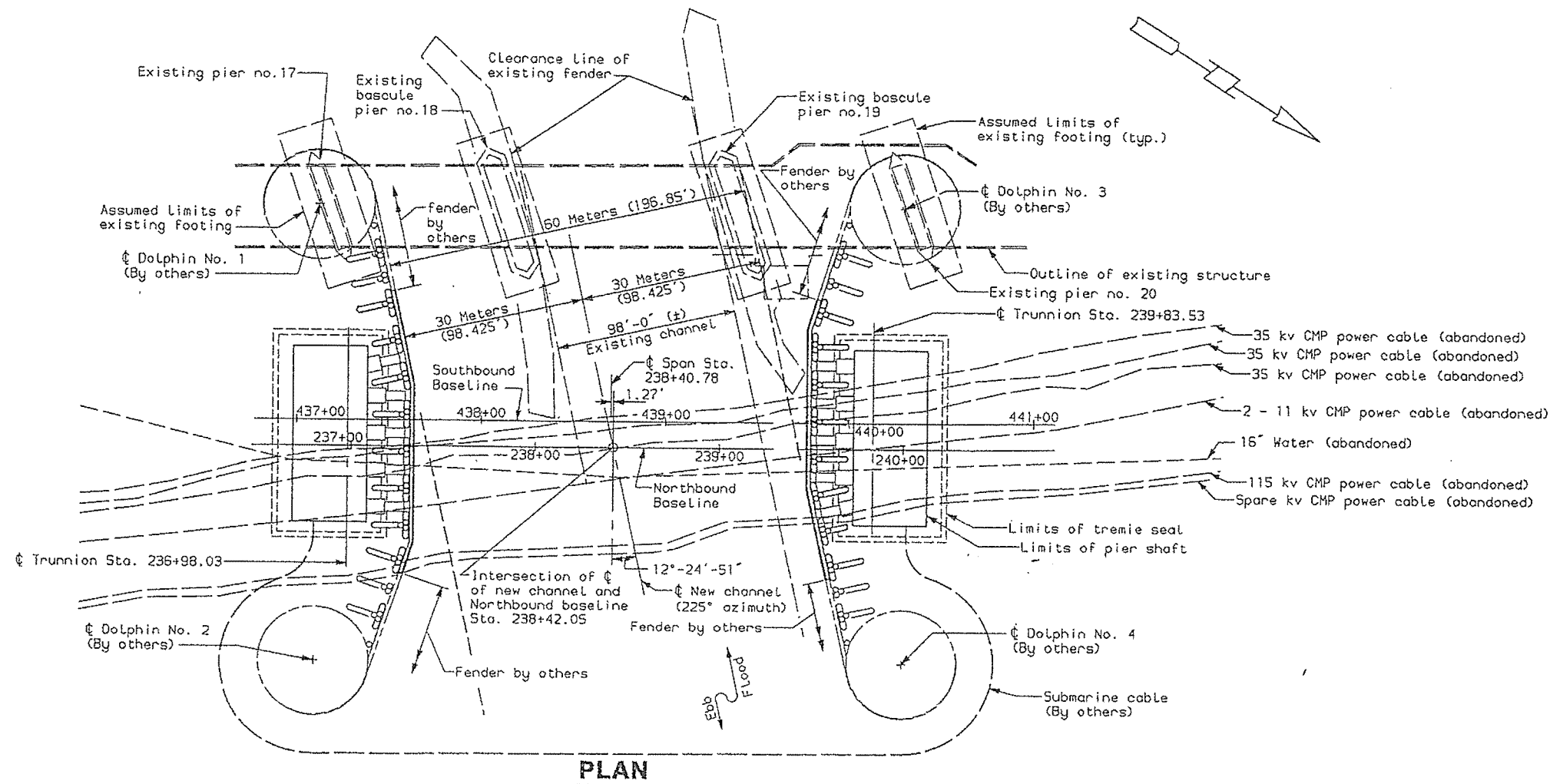
BASCULE SPAN
PLAN AND ELEVATION

SHEET 7 OF 54 AUGUSTA, MAINE

H-PILE ALTERNATIVE

PLANS
7/93
DPT
CHECKED
REVISION
FIELD CHANGES

pe-hp



NOTES:

For general notes, see sheet 6.
Designations and locations of utilities on available information and are approximate on or may not be as shown.

BASCULE SUBSTRUCTURE

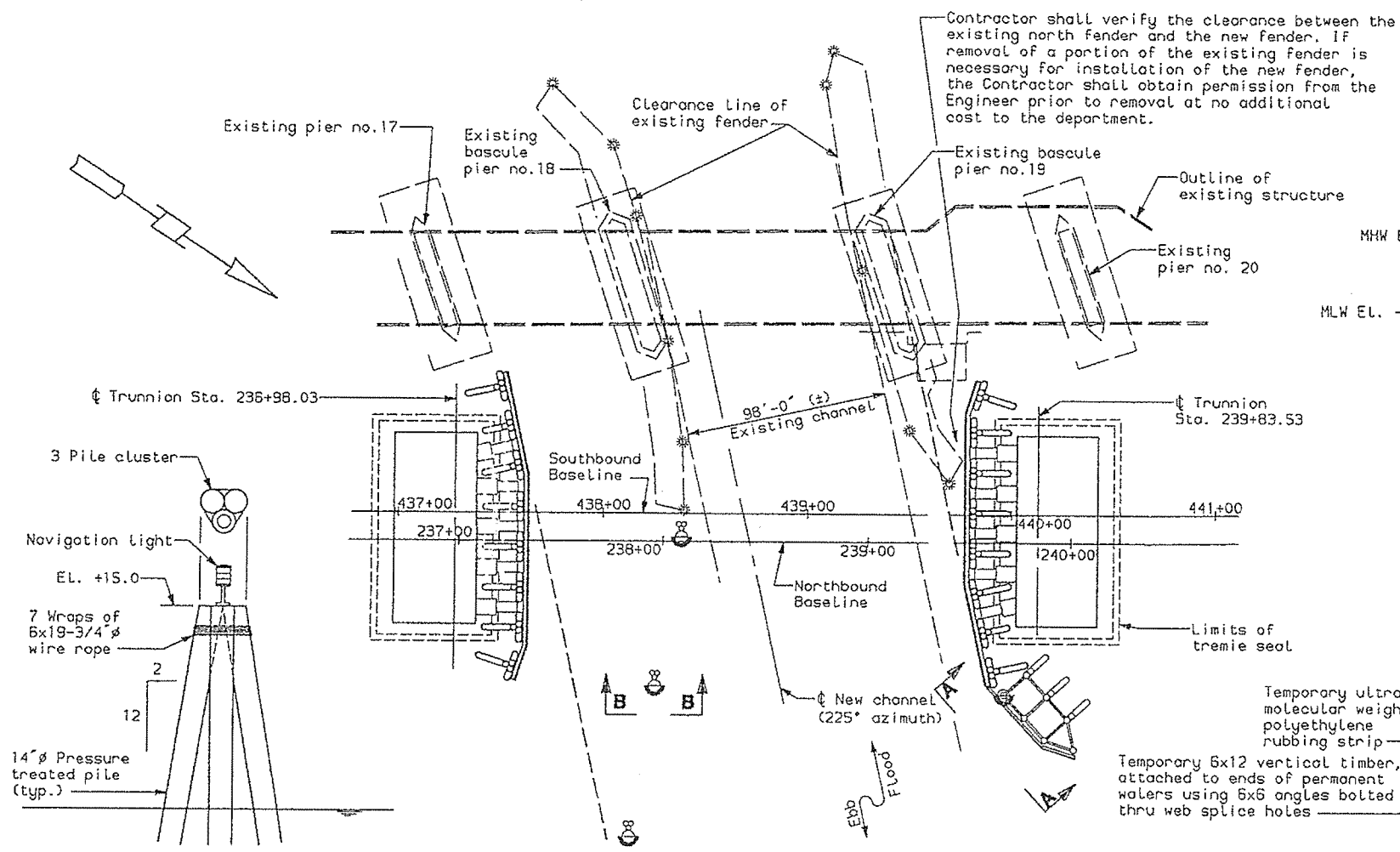
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY

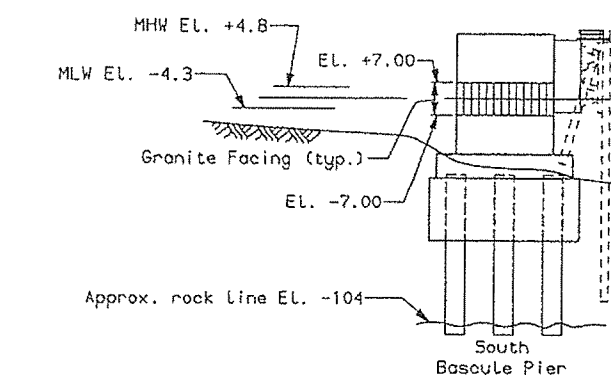
BASCULE SPAN
PLAN AND ELEVATION

SHEET 8 OF 54 AUGUSTA, MAINE

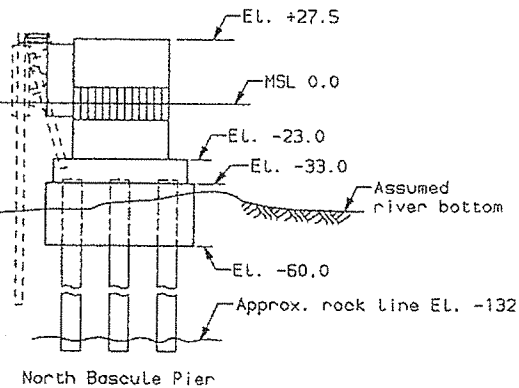
DRILLED SHAFT ALTERNATIVE



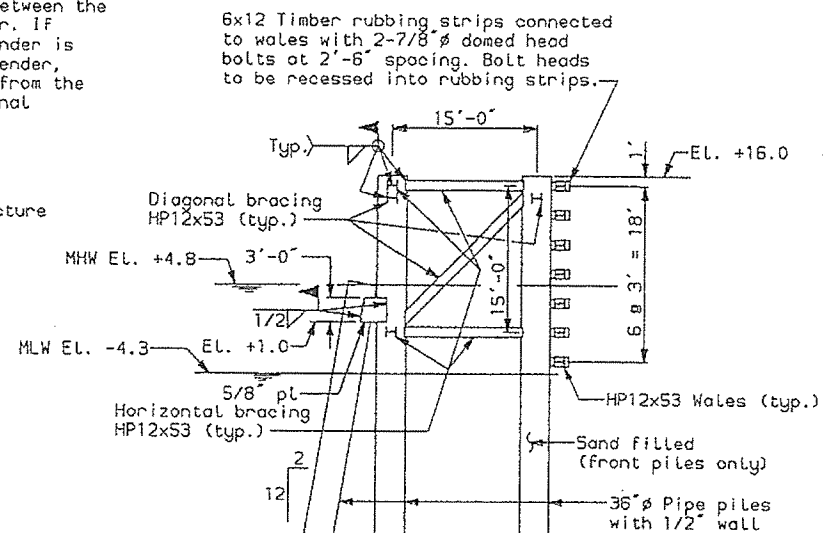
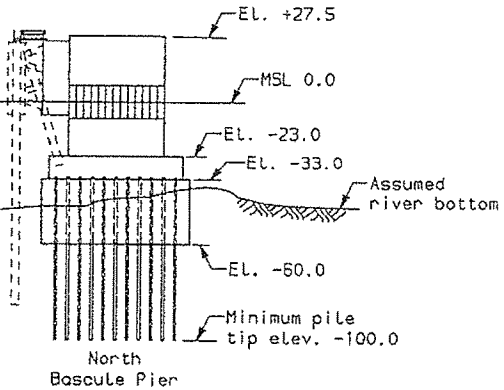
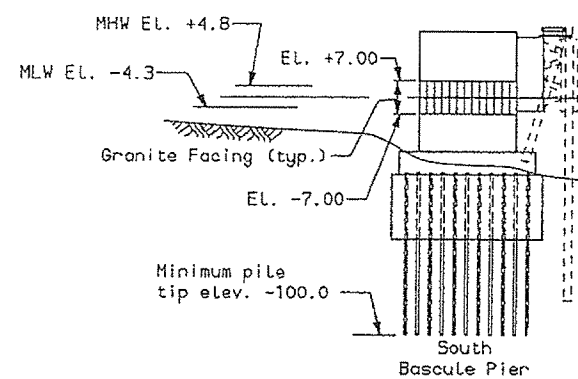
VIEW B-B
(Temporary pile cluster)



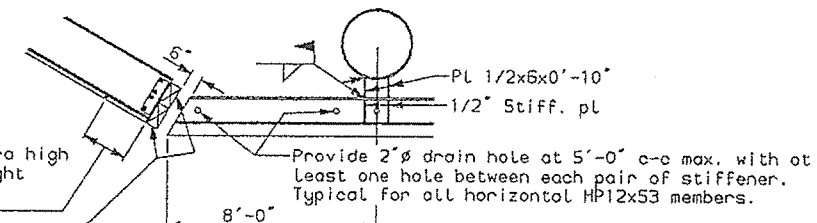
ELEVATION
(Drilled Shaft alternative)



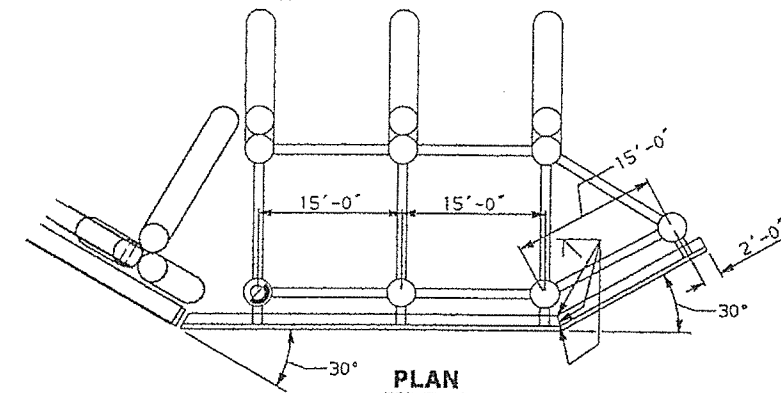
ELEVATION
(H-Pile alternative)



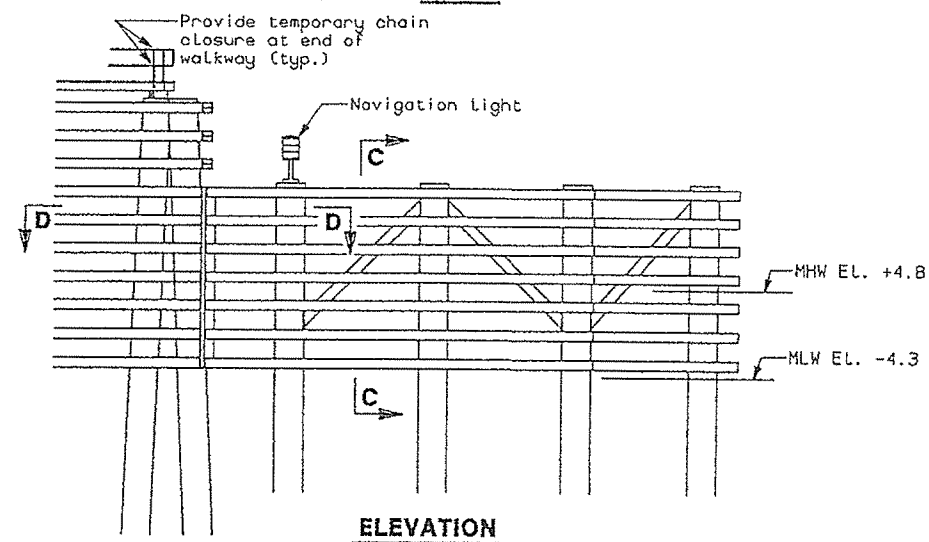
SECTION C-C
(Temporary guide fender)



SECTION D-D



PLAN



ELEVATION
VIEW A-A
(Temporary guide fender)

TEMPORARY GUIDE FENDER AND CHANNEL DEMARCATION PLAN

The Contractor shall furnish and install the temporary guide and lighted pile clusters as shown on this sheet as part of the contract. The guide fender and lighted pile clusters shall remain until the completion of the project and then removed by other.

The Contractor shall be responsible for submitting the temporary lighting plan to the Coast Guard for written approval.

The 36" diameter piles shall be driven to a minimum tip elevation of -75.0 and a load of 150 tons.

The timber pile clusters shall be located along the south edge of the existing Corps of Engineer Navigation Channel. The timber shall be driven to a minimum tip elevation of -85.0.

NOTES:

For general notes, see sheet 6.

⊗ Indicates timber pile cluster
⊗ Indicates existing navigation

⊗ Indicates existing navigation

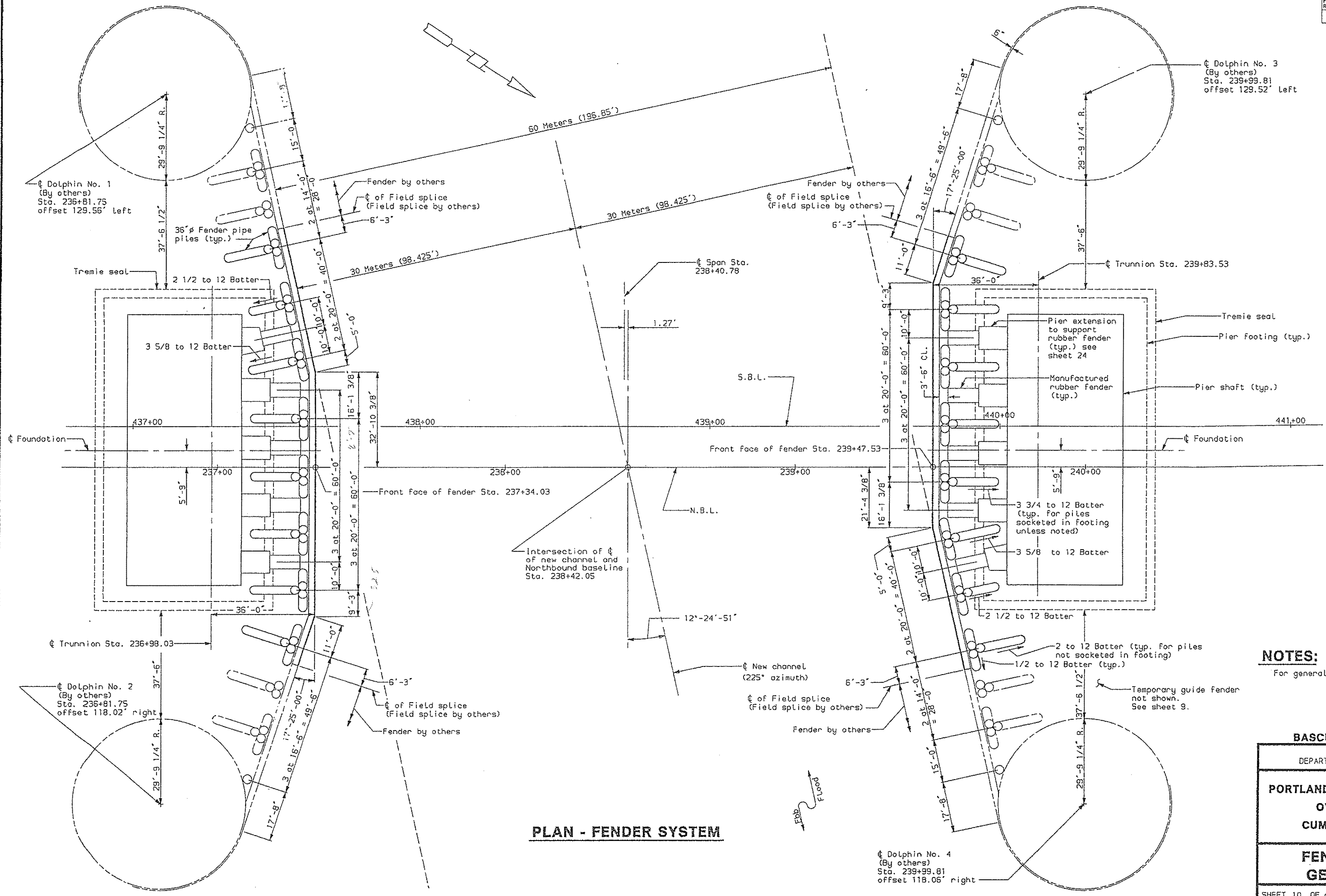
BASCULE SUBSTRUCT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

**PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY**

**PLAN AND ELEVATION
TEMPORARY FENDER**

SHEET 9 OF 34, AUGUSTA, MAINE



NOTES:

For general notes, see sheet 6

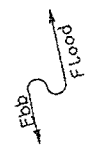
BASCULE SUBSTRUCT

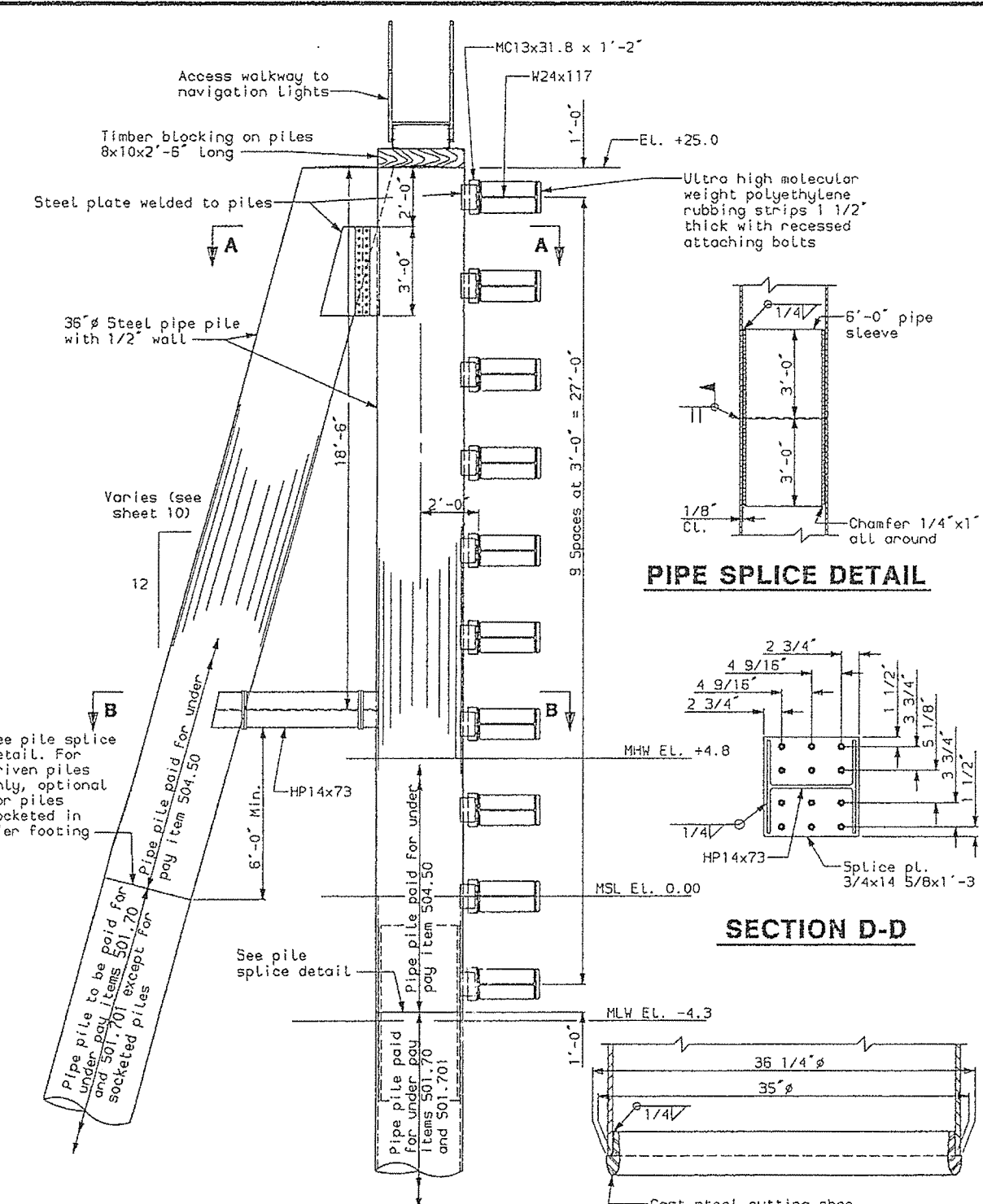
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUN

FENDER SYSTE GENERAL PLAI

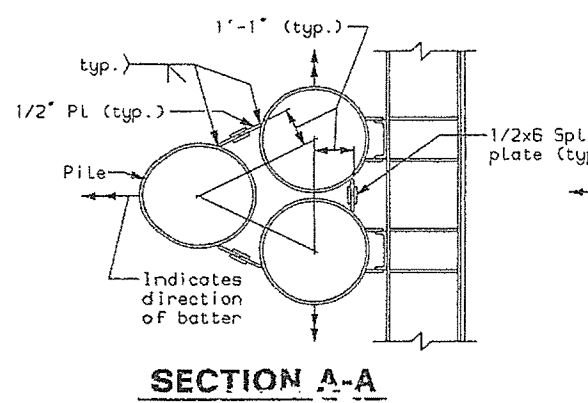
PLAN - FENDER SYSTEM



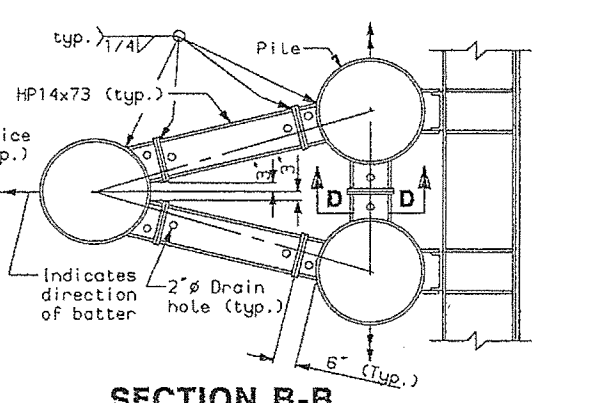


TYPICAL FENDER SECTION

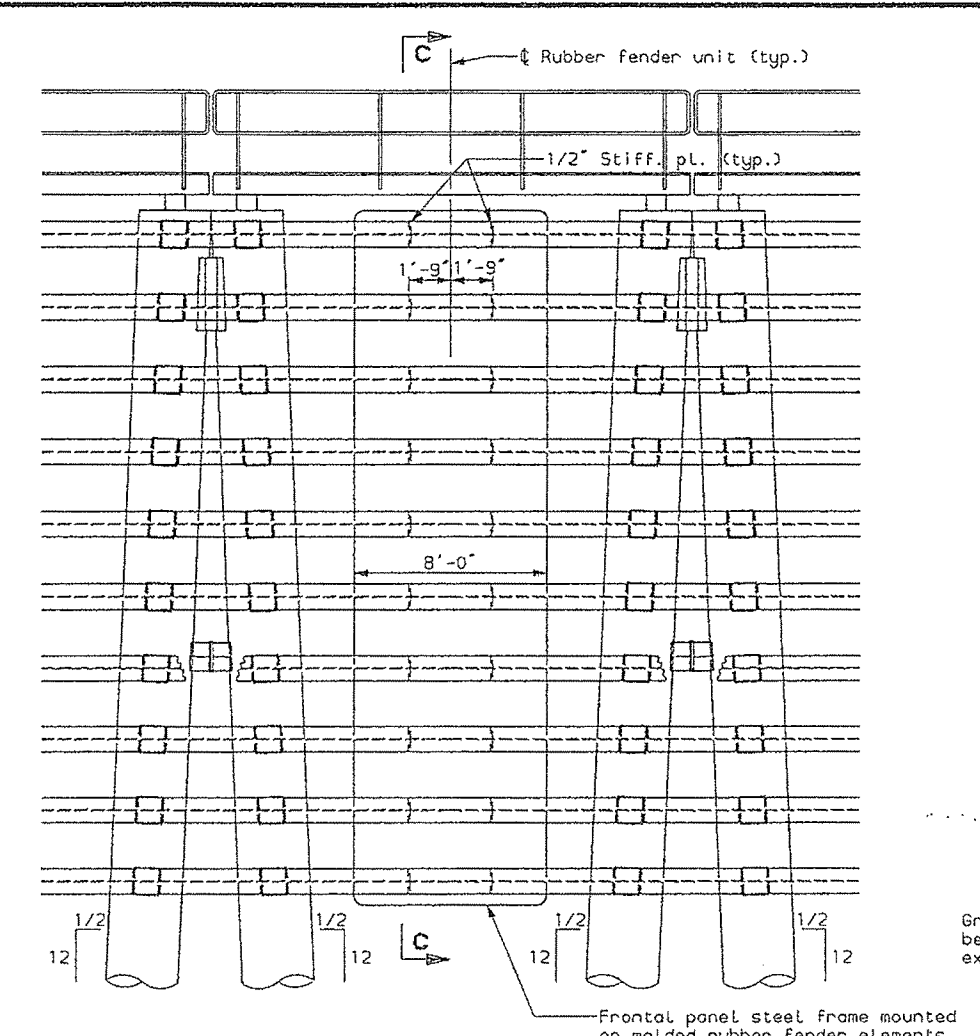
CUTTING SHOE DETAIL



SECTION A-A



SECTION B-B



FENDER ELEVATION

Pipe Pile Fender System Notes

The 3 ft. diameter pipe piles, splice plates and bracing members shall receive a protective coating as specified in the Special Provision. No welding or drilling shall be permitted after the coating has been applied except where otherwise indicated on the plans. Coating shall be removed near the area of welds prior to welding. Touch-up of the coating shall be applied after welding in accordance with the specifications. The epoxy coating is not required below elevation -15.0.

The lower portion of the pile below the splice shall be driven to a minimum tip elevation of -75.0. The maximum calculated pile dead load is 50 tons. The ultimate capacity required for fender pile is 150 tons. The Factor of safety is 3 for dead load.

All piles not driven within tolerance as specified herein and in the Standard Specifications shall be removed and driven again without any additional compensation. The cut-off elevation of piles shall not deviate by more than 2 inches from the elevation shown on the plans. Piles shall be within 2 inches of the plan position in the horizontal plane at the cut-off elevation. Piles shall be so driven that the top assembly may be placed in its proper location without inducing excessive stresses in the piles.

The Contractor's method of installing the pipe piles shall develop continuous lateral contact between the piles and the soil. The inside of the pipe shall be thoroughly cleaned out to elevation -60.0, as a minimum, prior to placing any concrete. All excavated material shall be properly disposed of at a disposal site to be designated by the Department.

After fabrication, all W24x117 fender wales and splices shall receive a protective coating as specified in the Special Provision. No welding or drilling shall be permitted after the coating has been applied. The connection channels shall be coated but the bolt holes shall be drilled in the field to allow adjustment during erection. After drilling, holes shall be touched up in accordance with the specifications.

Field splices for the fender wales shall be located between pile clusters at approximately 6'-0" from the center of a pile cluster. No more than half the wales shall be spliced between any two pile clusters with no two splices adjacent to each other. Only one splice per wale is proposed but the Contractor may provide additional splices at no additional expense to the Department.

All bolts, washers and nuts shall be stainless steel.

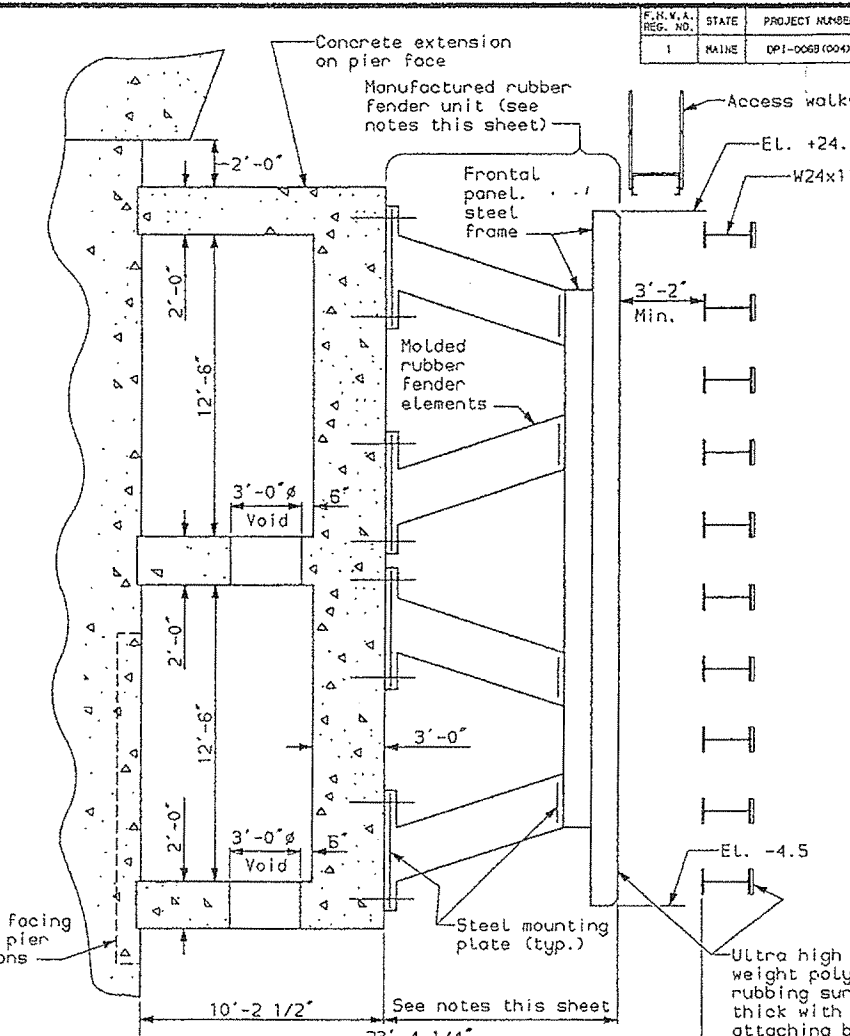
Manufactured Rubber Fender Notes

Each fender unit shall consist of two or more buckling-type molded rubber fender elements mounted on each concrete pier extension of the bascule pier. The rubber fender elements shall be attached to a common frontal panel steel frame and each fender unit shall be capable of absorbing a minimum energy of 4720 ft-kips at a maximum reaction of 1500 kips while simultaneously resisting a horizontal shearing force equal to 30% of the rated reaction.

The undeflected position of the fender from the face of the frontal panel to the mounting surface of the pier extension shall not exceed 10'-0" and the minimum deflected position shall be 5'-0".

The rubber fender elements shall be anchored by stainless steel anchor bolts and washers with stainless steel inserts embedded in the concrete. The number of anchors and the tightening procedure shall be in accordance with the recommendation of the rubber fender manufacturer.

Refer to Special Provisions for additional specifications.

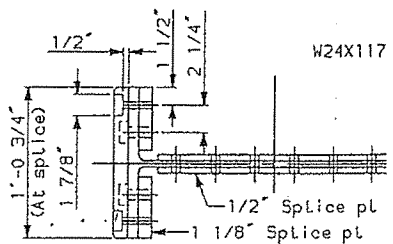
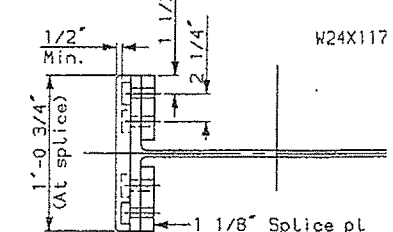
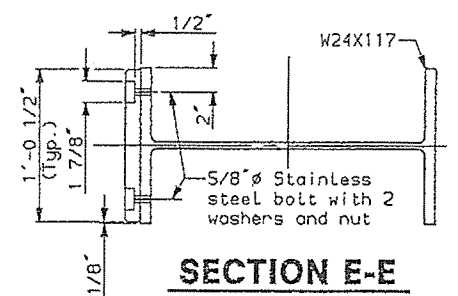
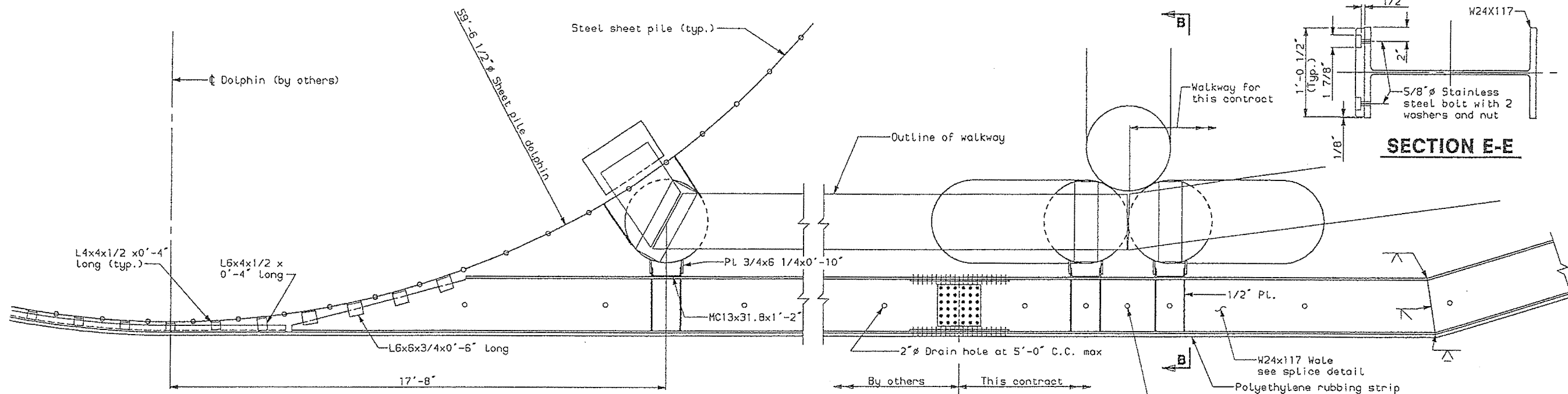


SECTION C-C

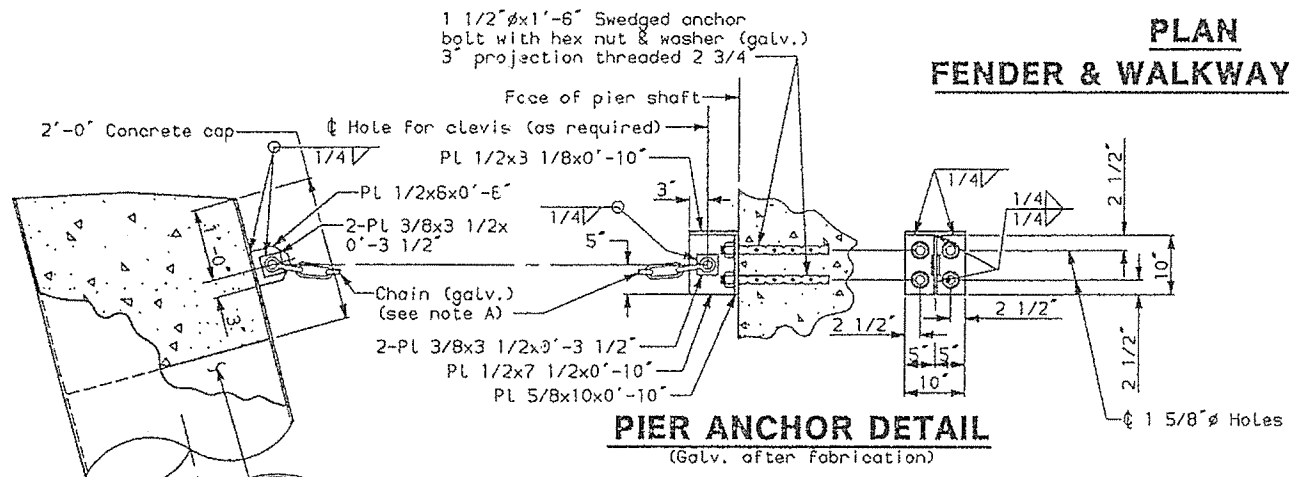
NOTES:

For general notes, see sheet 6.
For fender system layout, see sheet 10.
For additional fender details, see sheet 11.

BASCULE SUBSTRUCT	
STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
PORTLAND - S. PORTLAND OVER FORE RIVER CUMBERLAND COUN	
FENDER SYSTEM DETAILS - 1	
SHEET 11 OF 54, AUGUSTA, MAINE	

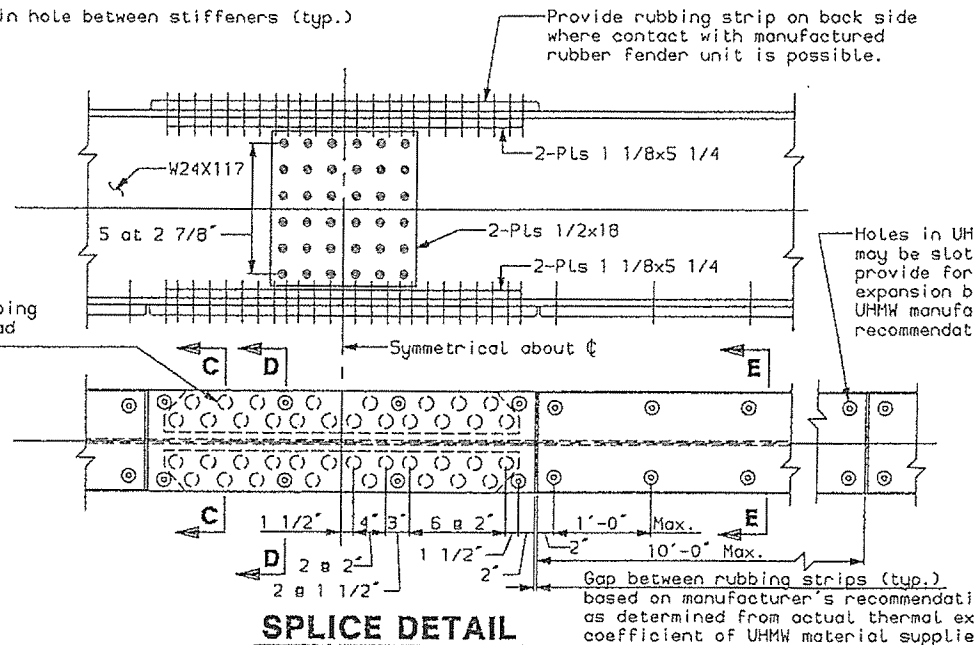


PLAN FENDER & WALKWAY DETAILS

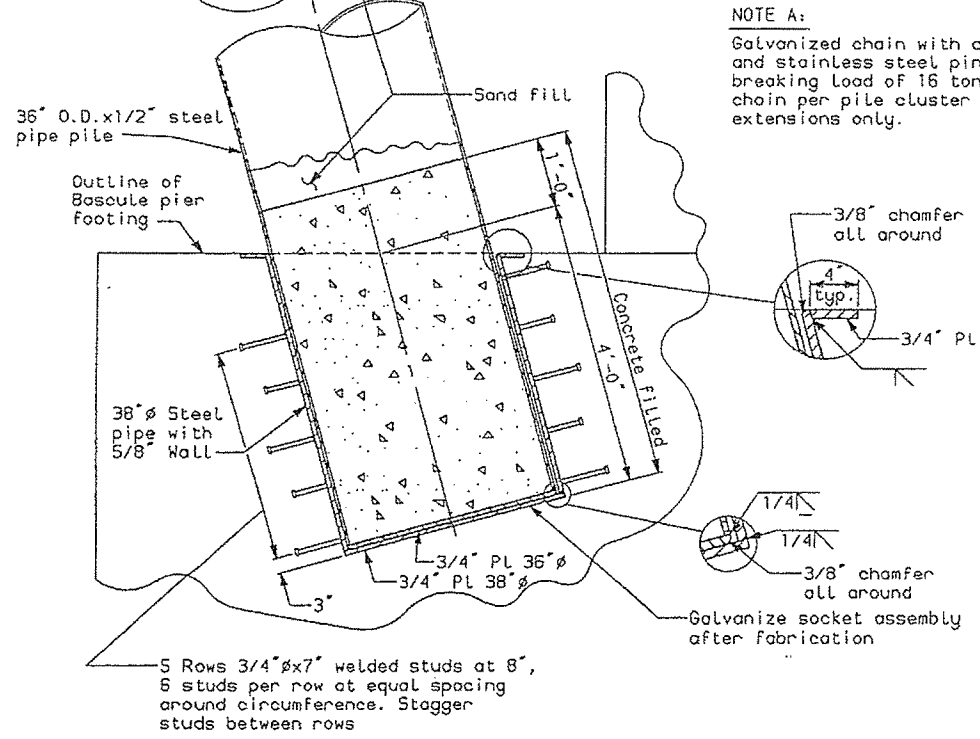


PIER ANCHOR DETAIL

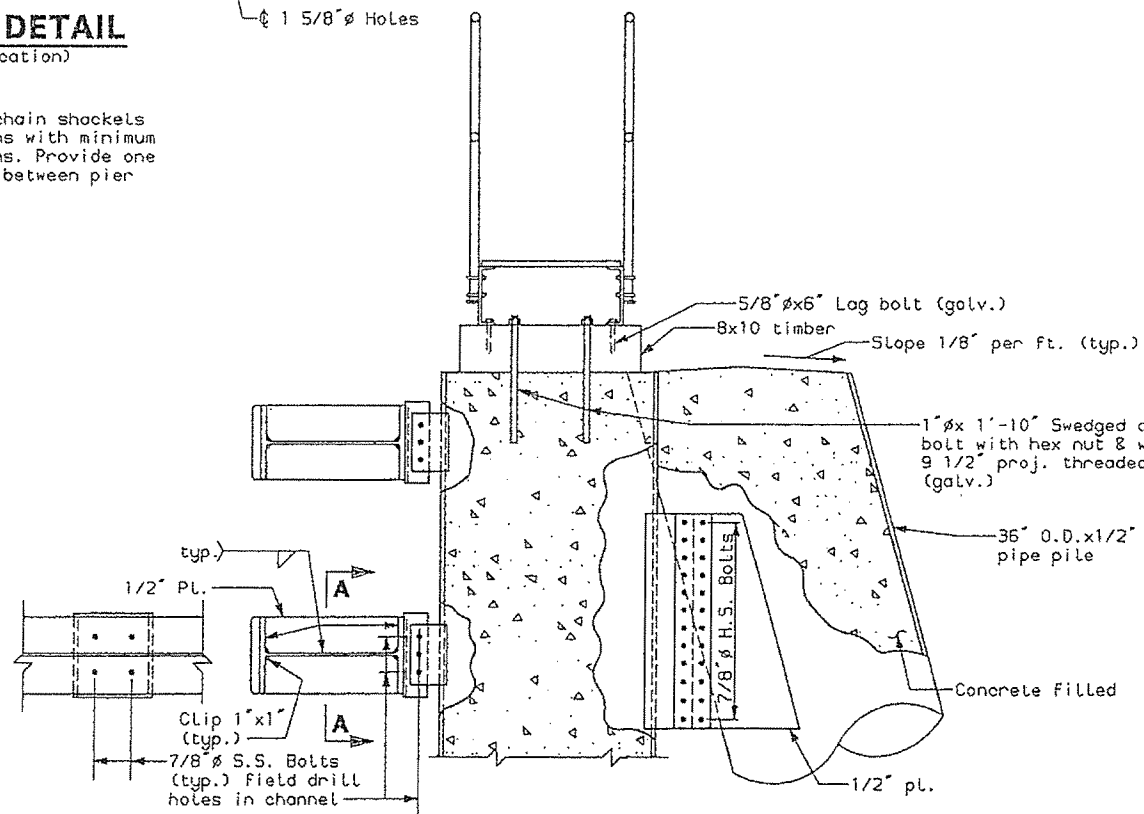
NOTE A:
Galvanized chain with chain shackles and stainless steel pins with minimum breaking load of 16 tons. Provide one chain per pile cluster between pier extensions only.



SPLICE DETAIL

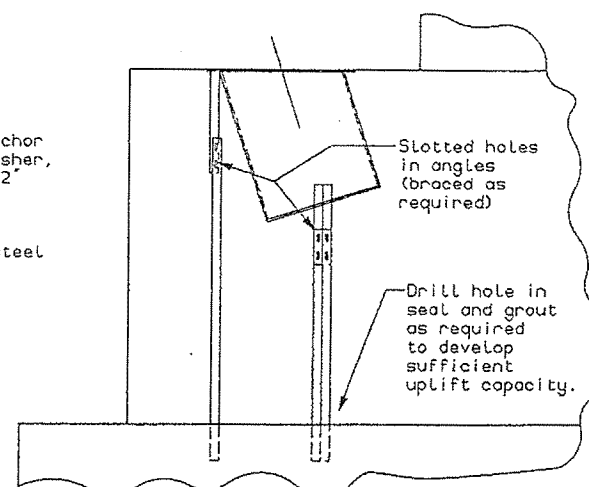


PILE DETAIL AT FOOTING



SECTION A-A

SECTION B-B



SUGGESTED TIE-DOWN DETAIL FOR PILE SOCKET

NOTES:

For general notes, see sheet 6.
For additional fender details, see sheet 7.
For fender system layout, see sheet 8.
For walkway details, see Miscellaneous Details.

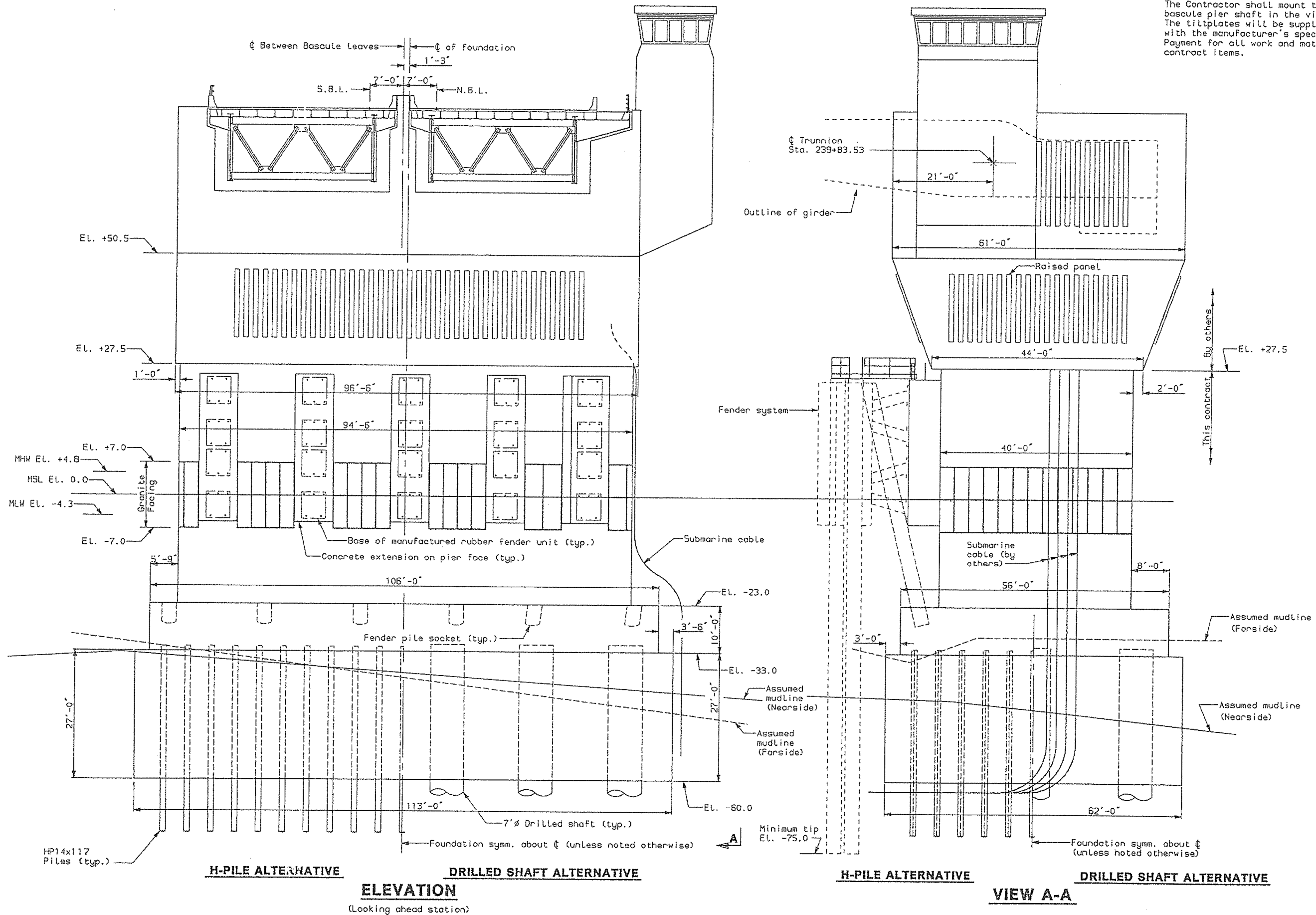
BASCULE SUBSTRUCT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUN

FENDER SYSTEM DETAILS - 2

The Contractor shall mount two (2) 5.5 inch O.D. brass tiltmeter plates to bascule pier shaft in the vicinity of the future fender system access walk. The tiltplates will be supplied by the state and shall be installed in accordance with the manufacturer's specifications at locations determined by the Engineer. Payment for all work and materials will be considered incidental to related contract items.



For general notes, see sheet 6.
For details of fender system, see sheet 15.
For H-Pile spacing, see sheet 16.
For Drilled Shaft spacing, see sheet 17.

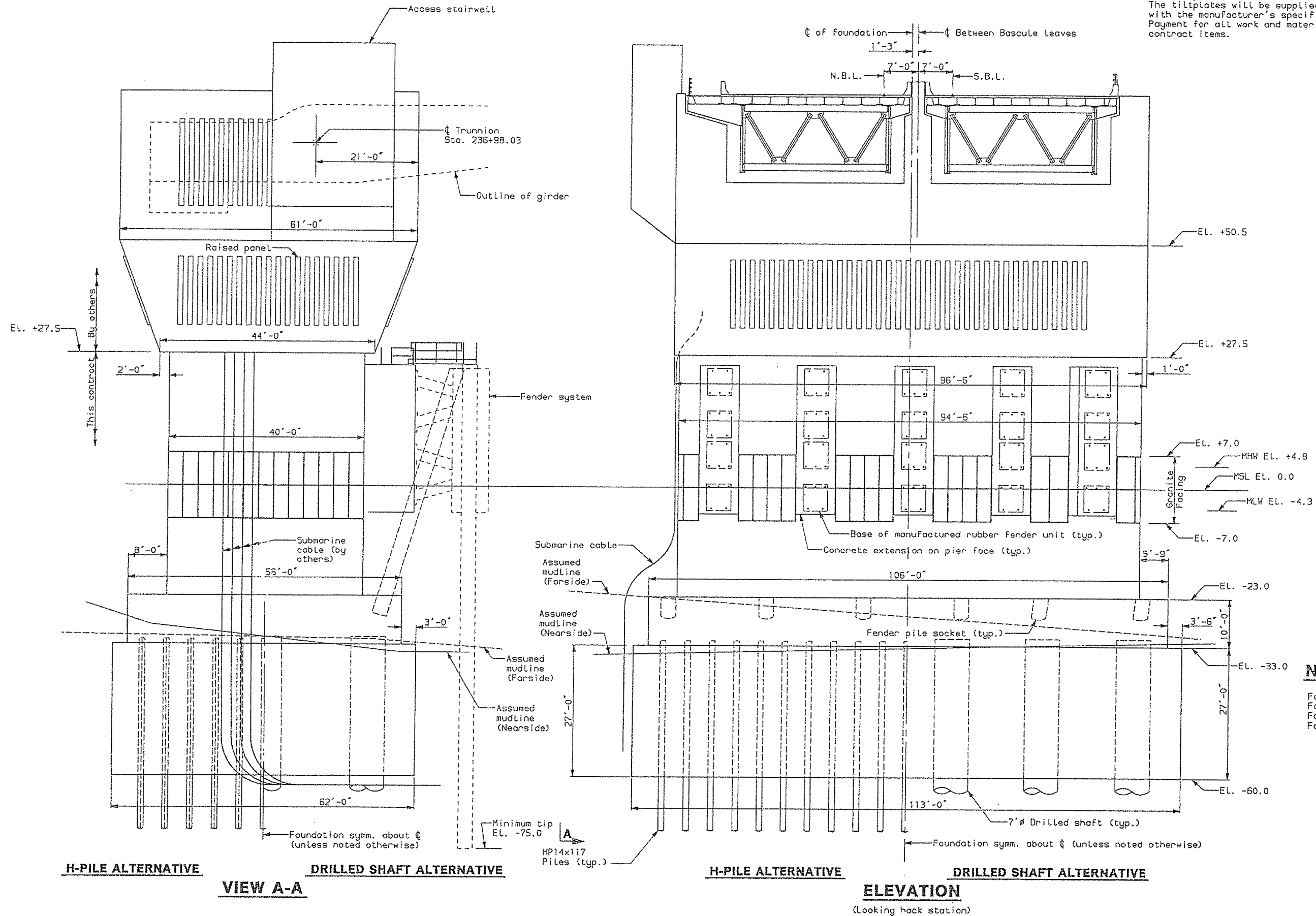
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUN

**NORTH BASCULE
GENERAL ELEVATI**

Tiltplate Note:

The Contractor shall mount two (2) 5.5 inch O.D. brass tiltmeter plates bascule pier shaft in the vicinity of the future fender system access wa. The tiltplates will be supplied by the state and shall be installed in a with the manufacturer's specifications at locations determined by the En. Payment for all work and materials will be considered incidental to rela contract items.



NOTES:

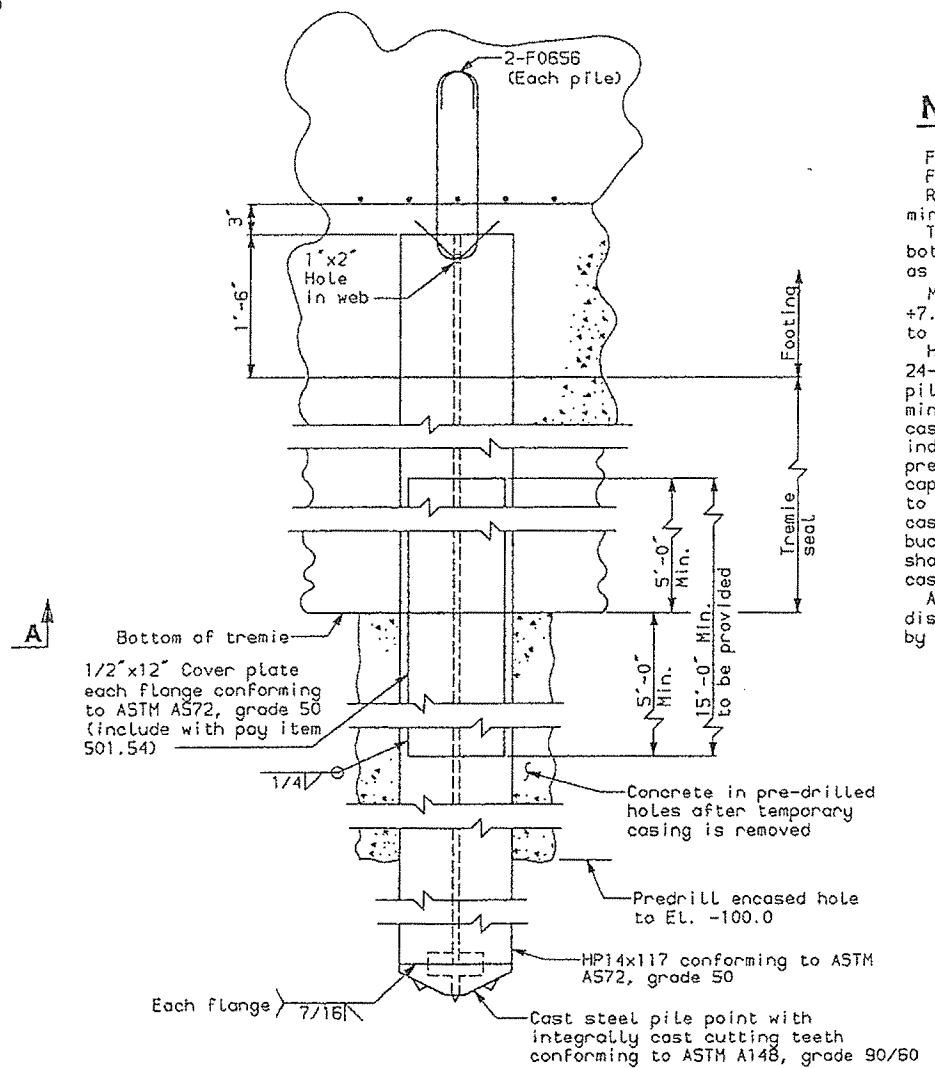
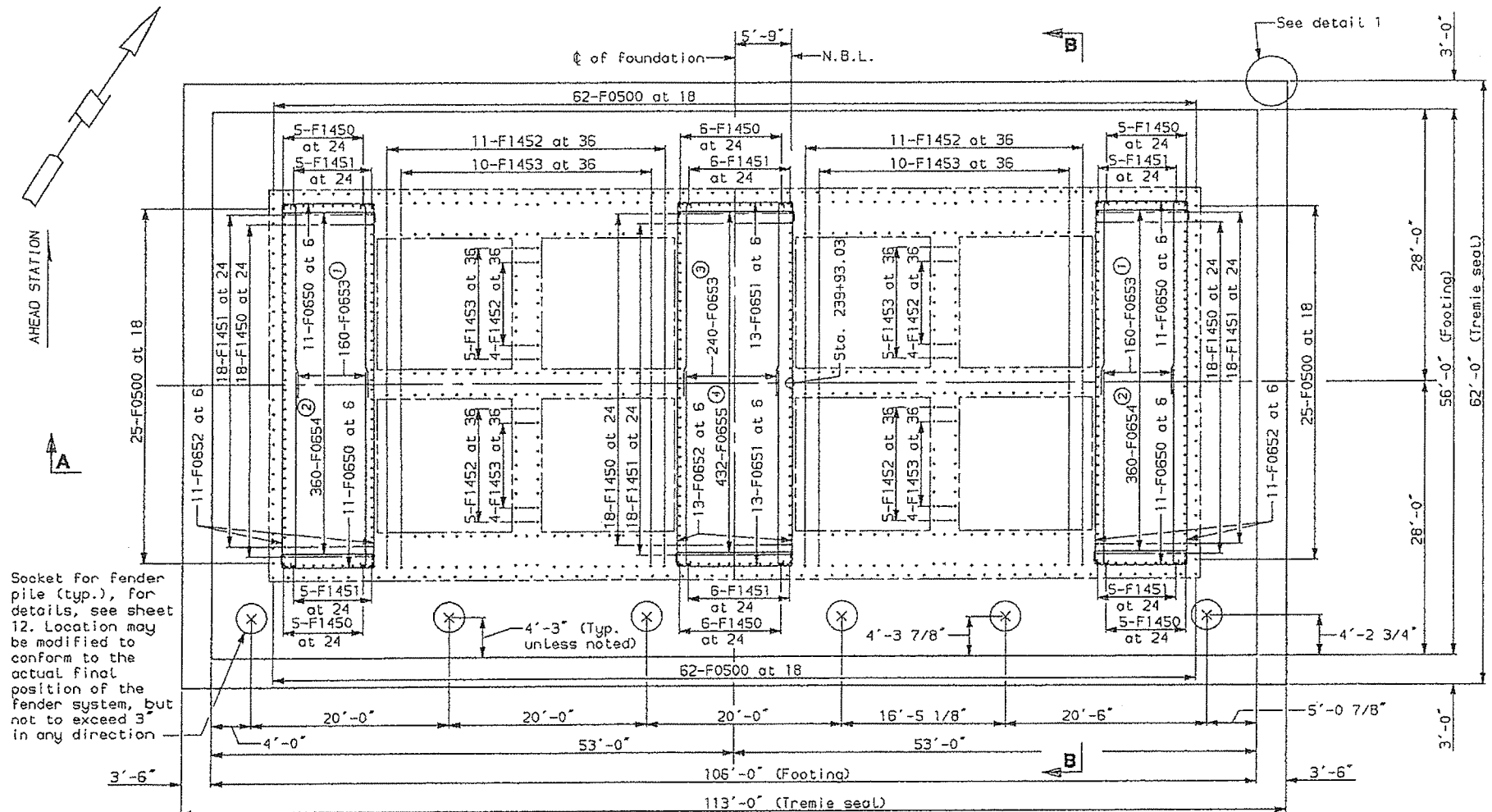
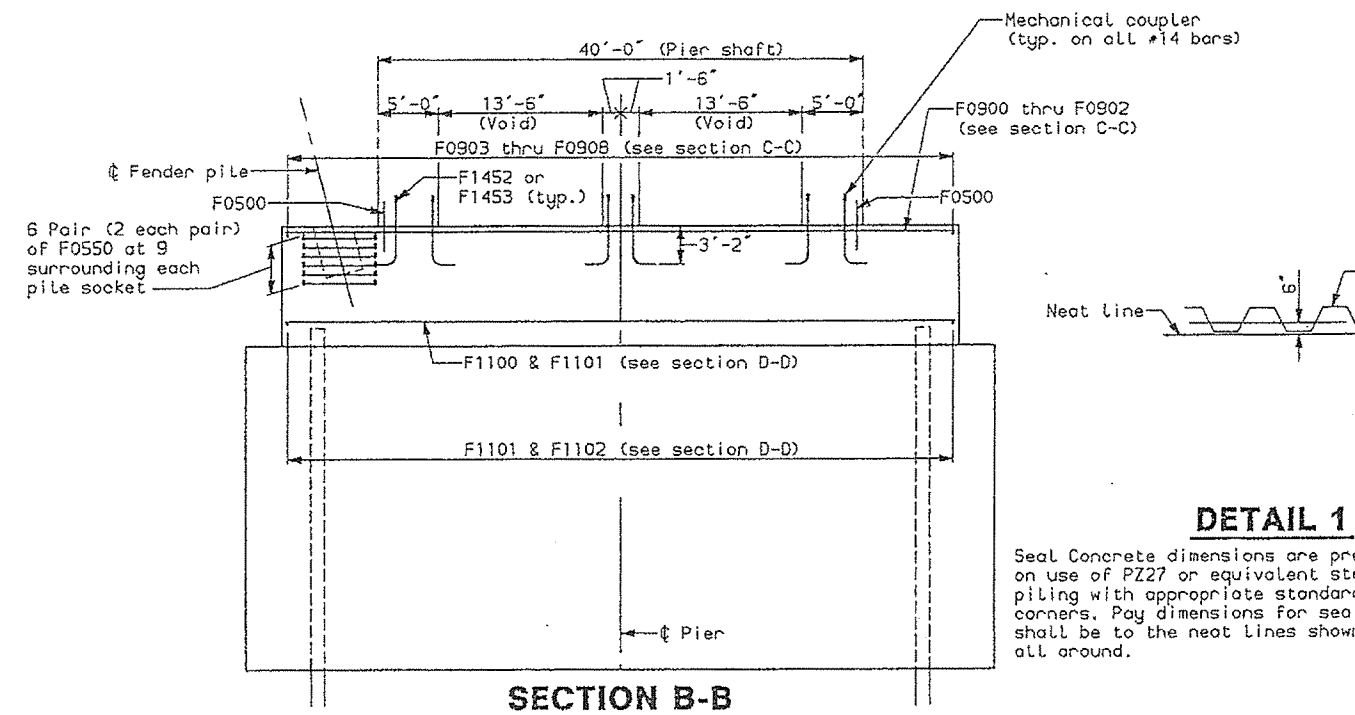
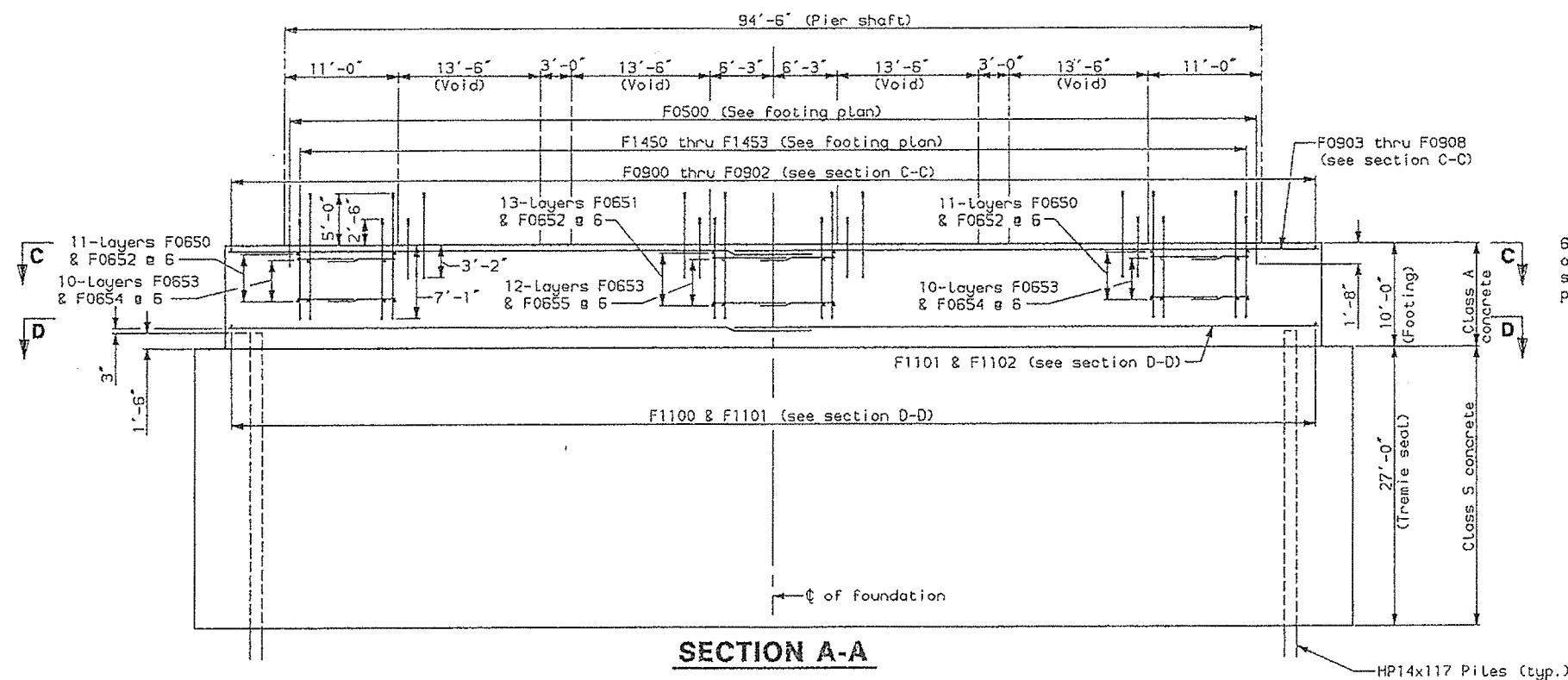
For general notes, see sheet 6.
For detail of fender system, see sheet 10.
For H-Pile spacing, see sheet 28.
For Drilled Shaft spacing, see sheet 29.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY

SOUTH BASCULE
GENERAL ELEVATION



NOTES:

For general notes, see sheet 5.
For sections C-C & D-D, see sheet 16.
Reinforcing steel shall have 3 inch
minimum cover unless otherwise noted.
The contractor is required to place
bottom of tremie seal at elevation -60
as shown on these plans.

Maximum water level is assumed to be +7.0. Contractor shall provide coffer to allow for splash-over from ship way.

H-piles shall be installed by predri 24-inch diameter encased hole to the m pile tip elevation as shown, by a meth minimizes disturbance of the soil outs casing. With the casing pipe in place, individual H-pile is to be placed in t pre-drilled hole and driven to the req capacity. Adequate bracing shall be p to temporarily support the pile agains casing during driving to prevent the p buckling, as approved. The space arou shall then be filled with tremie concr casing is withdrawn.

All excavated materials shall be properly disposed of at a disposal site to be determined by the Department.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND

OVER FORE RIVER!

CUMBERLAND COU

NORTH BASCULE

FOUNDATION DATA

SHEET 15 OF 54 AUGUSTA, MAINE

H-PILE ALTERNATIVE

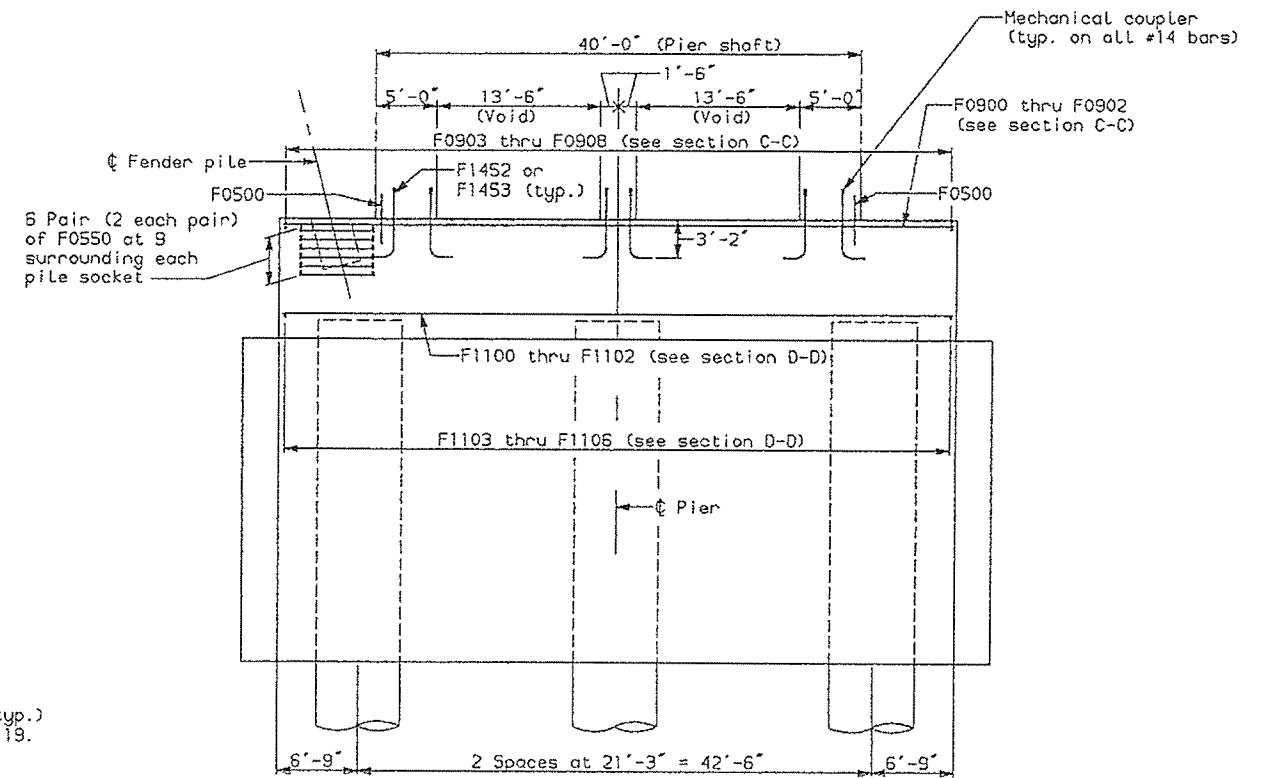
PILE DETAIL

- ① 10 Layers at 6" vertical spacing with 8 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.
- ② 10 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

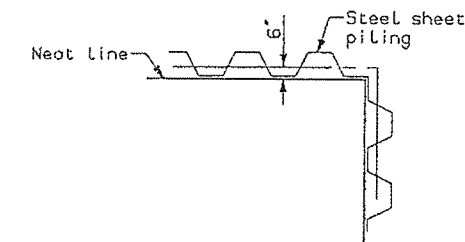
- ③ 12 Layers at 6" vertical spacing with 10 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.
- ④ 12 Layers at 6" vertical spacing with 35 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

FOOTING PLAN

m. Fnd.hpi



SECTION B-B



Seal Concrete dimensions are predicated on use of P227 or equivalent steel sheet piling with appropriate standard bent corners. Pay dimensions for seal concrete shall be to the neat lines shown plus 6" all around.

- ③ 12 Layers at 6" vertical spacing with 10 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.
- ④ 12 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

- ① 10 Layers at 6" vertical spacing with 8 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.
- ② 10 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

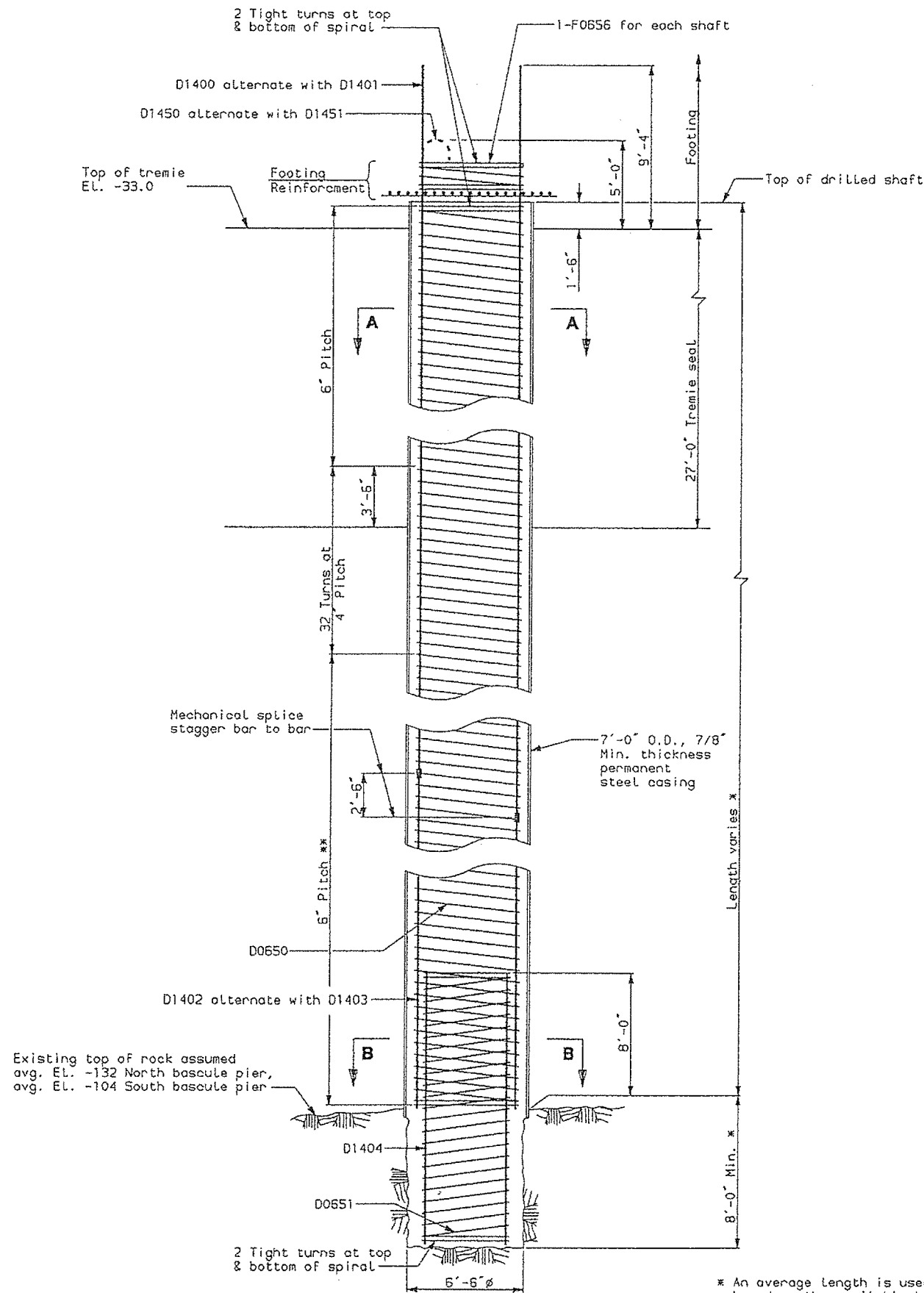
For general notes, see sheet 6.
For sections C-C & D-D, see sheet 6.
Reinforcing steel shall have 3" minimum cover unless otherwise noted.
The contractor is required to provide a bottom of tremie seal at elevation as shown on these plans.
Maximum water level is assumed at elevation +7.0. Contractor shall provide cofferdam height to allow for splash from ship wave action.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUN'

**NORTH BASCULE |
FOUNDATION DETAIL**

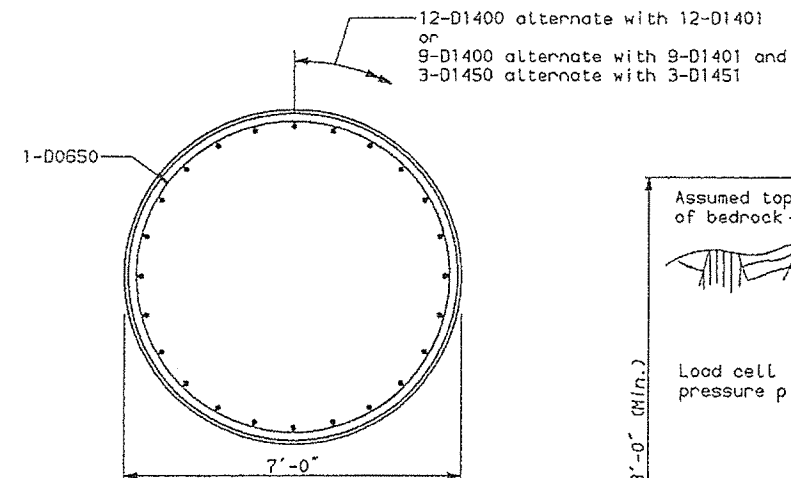
DRILLED SHAFT ALTERNATIVE



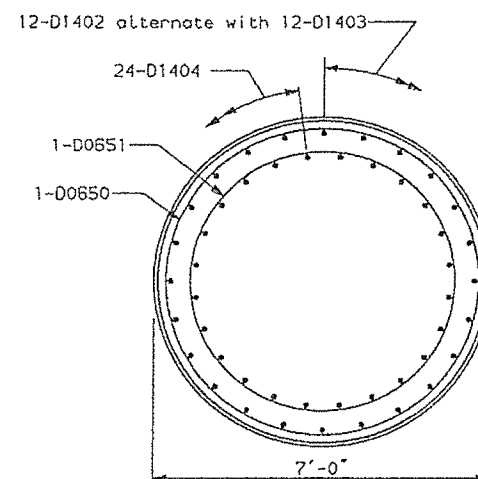
**DETAILS FOR
7' Ø DRILLED SHAFTS**

* An average length is used to estimate the reinforcement based on the available boring information. Actual length shall be determined in the field and detailed bar schedule for each shaft prepared accordingly.

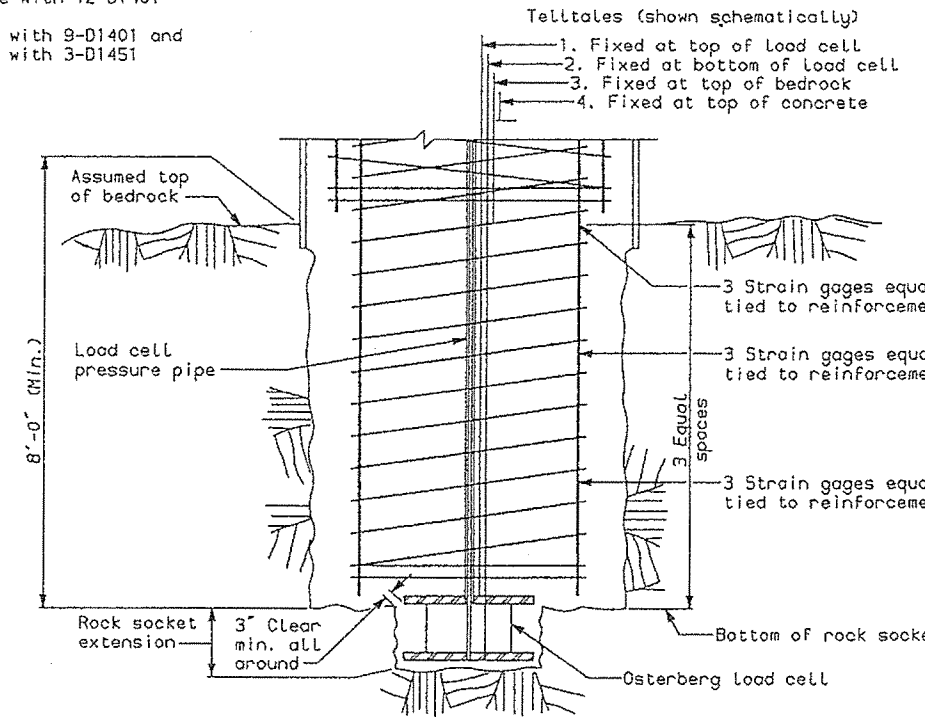
** An optional splice in the spiral reinforcing is permitted in this region. The spiral reinforcement lengths have been increased by 3'-0" to accommodate a 3'-0" lap splice.



SECTION A-A



SECTION B-B



NOTES:

1. For test shaft steel reinforcement must be extended to the bottom of the rock socket.
2. Strain gages and wires must be securely attached to the reinforcement so as to withstand concreting operations.
3. A separate structural member may be added to support instrumentation in lieu of tying instrumentation to reinforcement.

DRILLED SHAFT LOAD TEST DETAIL

(Not to Scale)

The allowable bearing capacity of the rock socket is assumed to be 65 TSF. The maximum test load shall not exceed 150 percent of the allowable end bearing capacity.

NOTES:

For general notes, see sheet 6.

BASCULE SUBSTRUCT

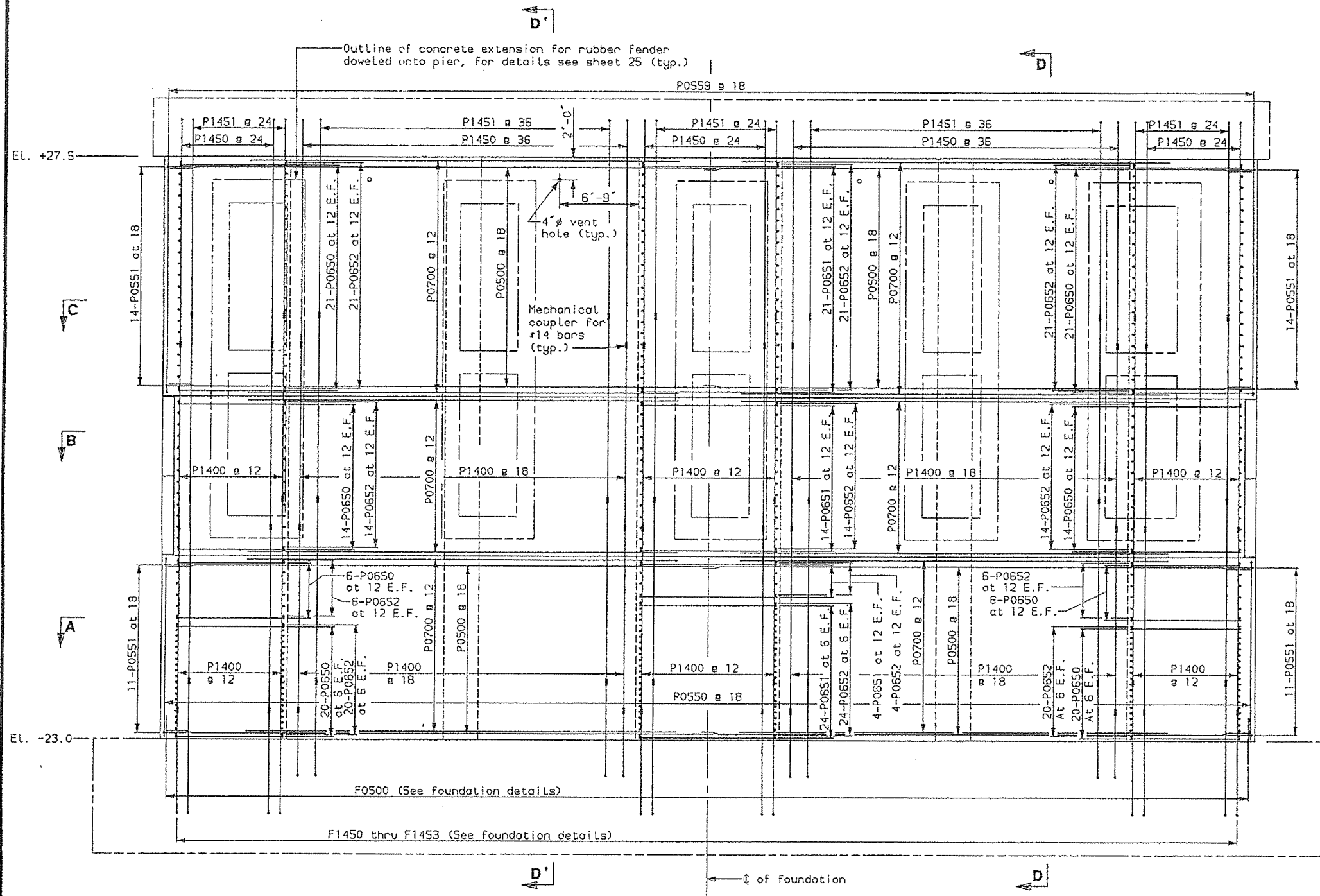
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

**PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUN**

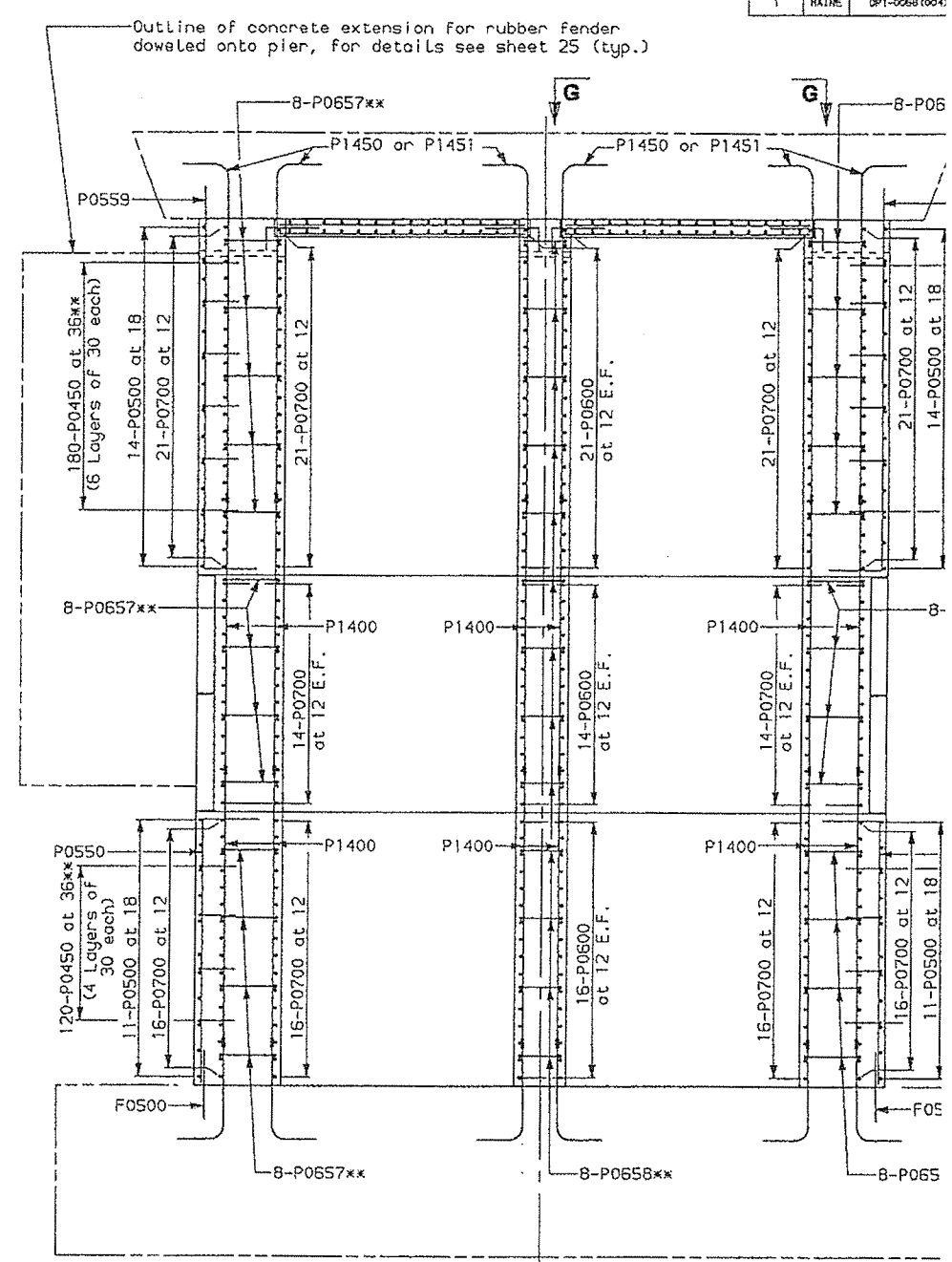
**FOUNDATION DET
7' DIAM. DRILLED S**

DRILLED SHAFT ALTERNATIVE

SHEET 19 OF 54 AUGUSTA, MAINE



ELEVATION
Looking ahead station



SECTION D-D
SECTION D'-D'

NOTES:

For general notes, see sheet 6.
For sections A-A and B-B, see sheet 23.
For section C-C, see sheet 24.
Mechanical splice shall be used for all no. 14 reinforcing bars and shall be epoxy coated.
For section G-G, see sheet 22.

BASCULE SUBSTRUCTURE

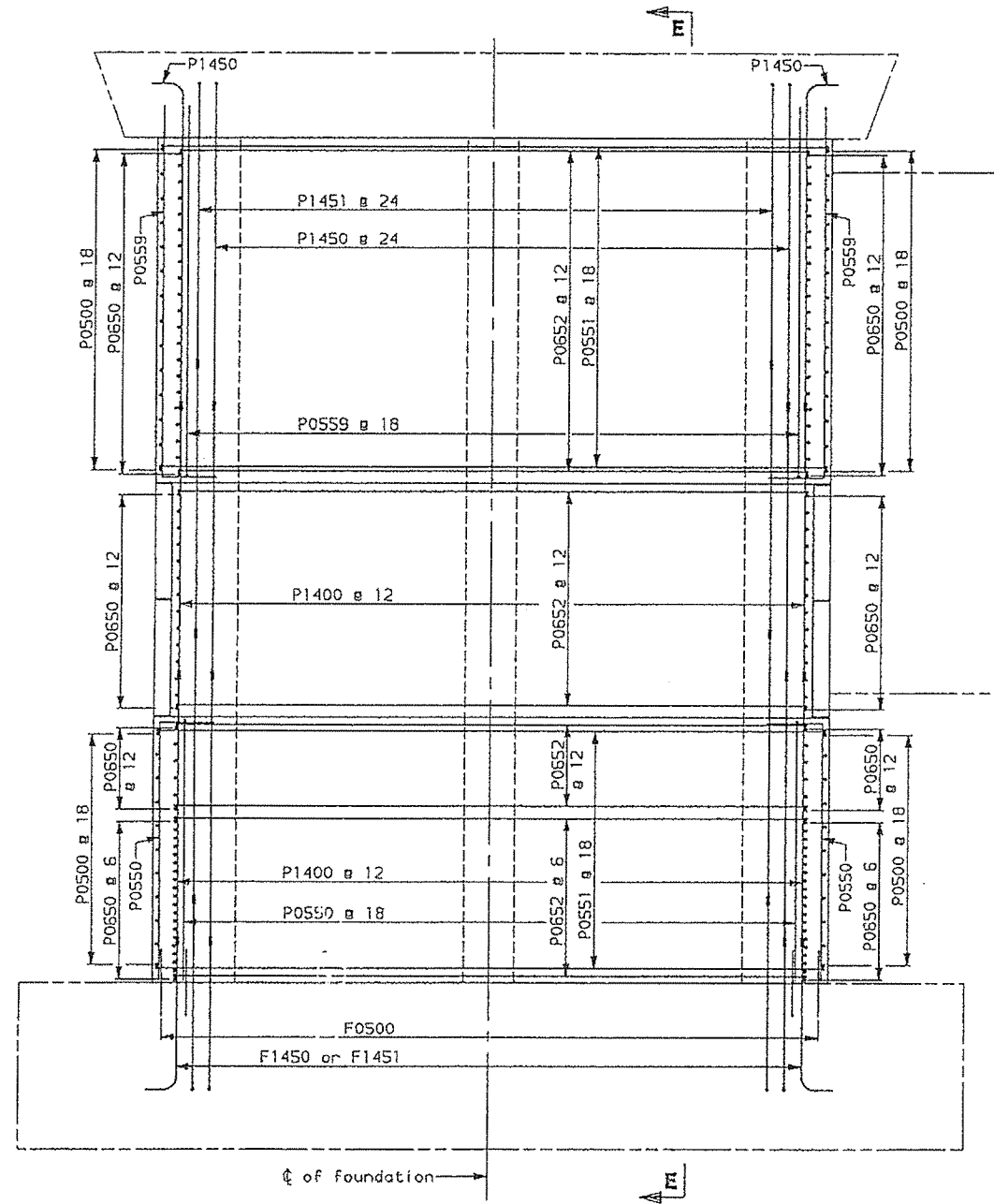
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

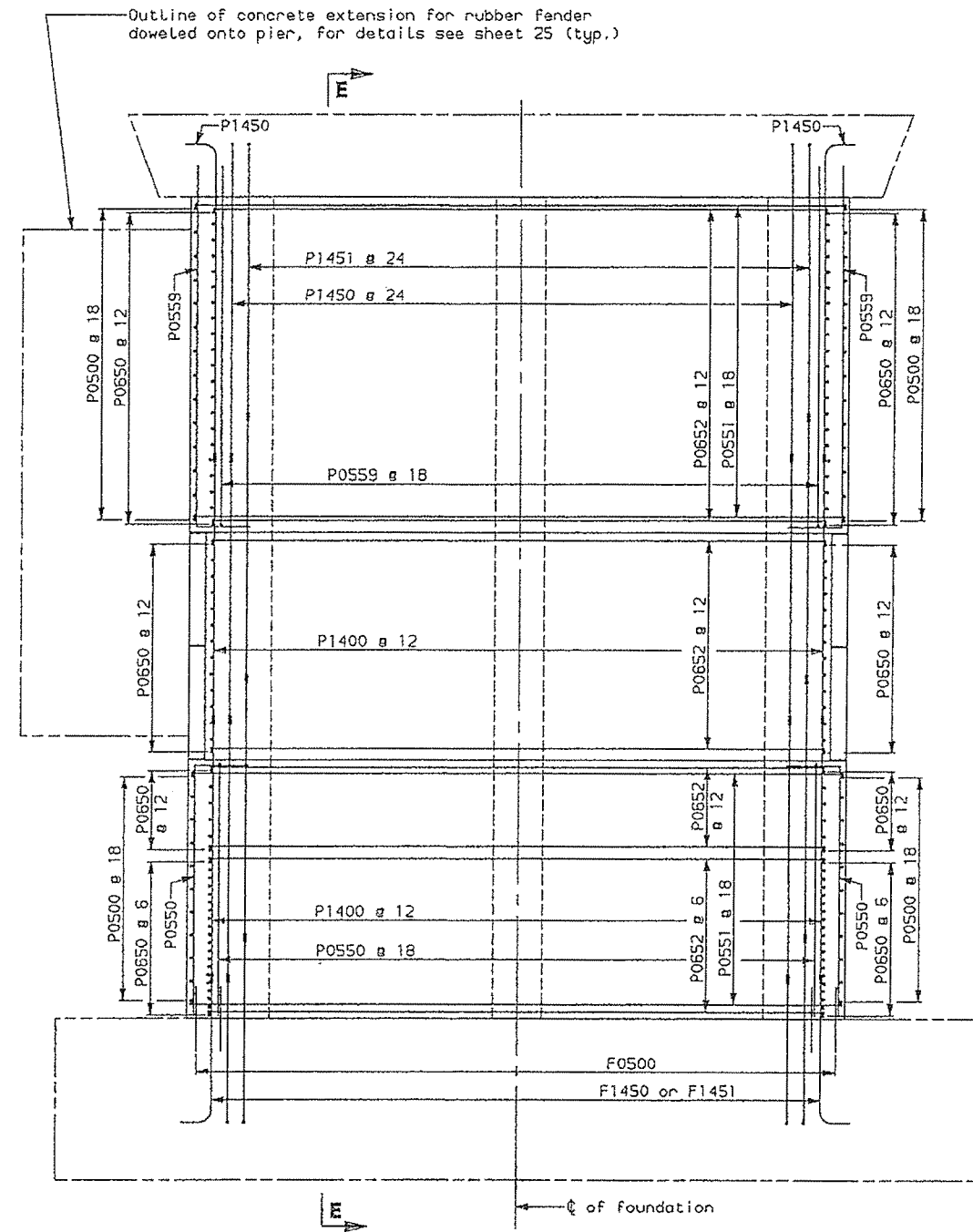
NORTH BASCULE
SHAFT REINFORCEMENT

PLANS
CHECKED
REVISION
FIELD CHANGES
DATE
DHP
7/93

0. shaft 1



**WEST
END VIEW**



**EAST
END VIEW**

NOTES:

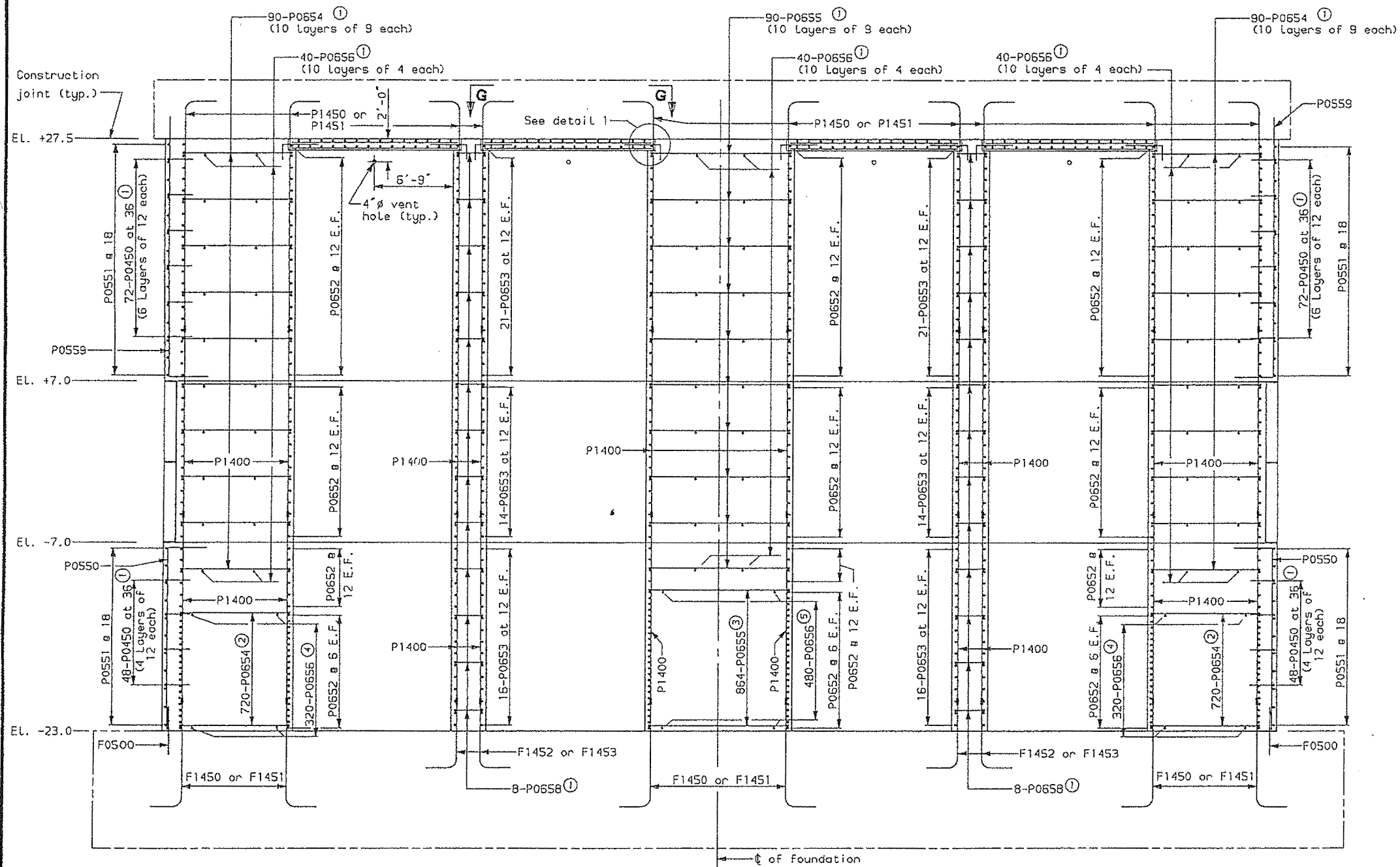
For general notes, see sheet 5.
For section E-E, see sheet 22.

BASCULE SUBSTRUCT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

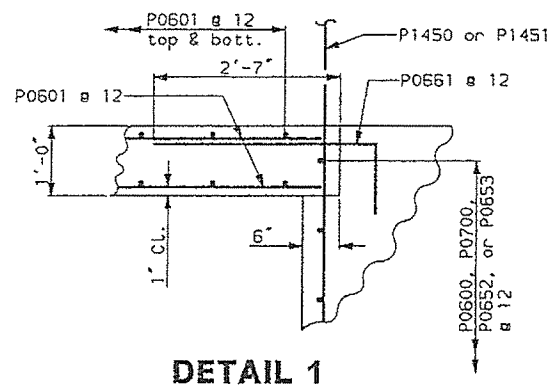
**PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY**

**NORTH BASCULE
SHAFT REINF. DETAIL**

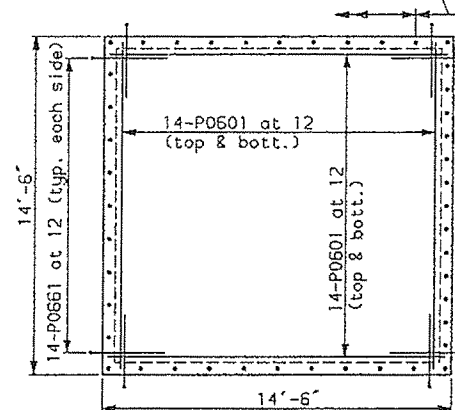


- ① Spaced as shown vertically. For horizontal spacing see sections A thru C on sheets 23 & 24.
- ② 20 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing.
- ③ 24 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing.
- ④ 20 Layers at 6" vertical spacing with 16 bars per layer at 12" horizontal spacing.
- ⑤ 24 Layers at 6" vertical spacing with 20 bars per layer at 12" horizontal spacing.

SECTION E-E



P1450 or P1451 @ 12 or 18
(vertical bars from shaft)



SECTION G-G

(Plan of void cover slab)

NOTES:

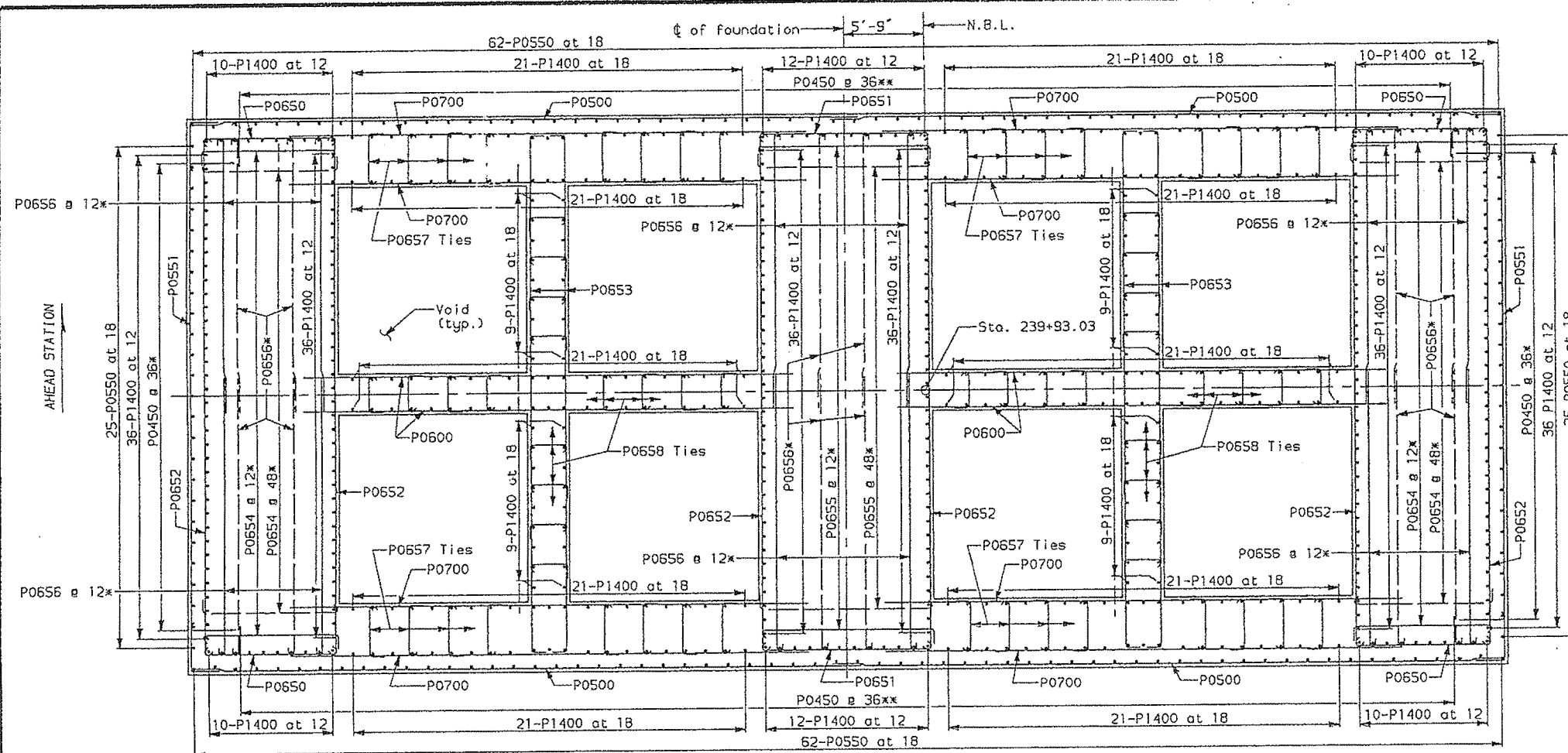
For general notes, see sheet 6.
For location of section E-E, see sheet 21.
Voids shall be left dry prior to placing
void cover slab.

BASCULE SUBSTRUCT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUN

**NORTH BASCULE
SHAFT REINF. DET**



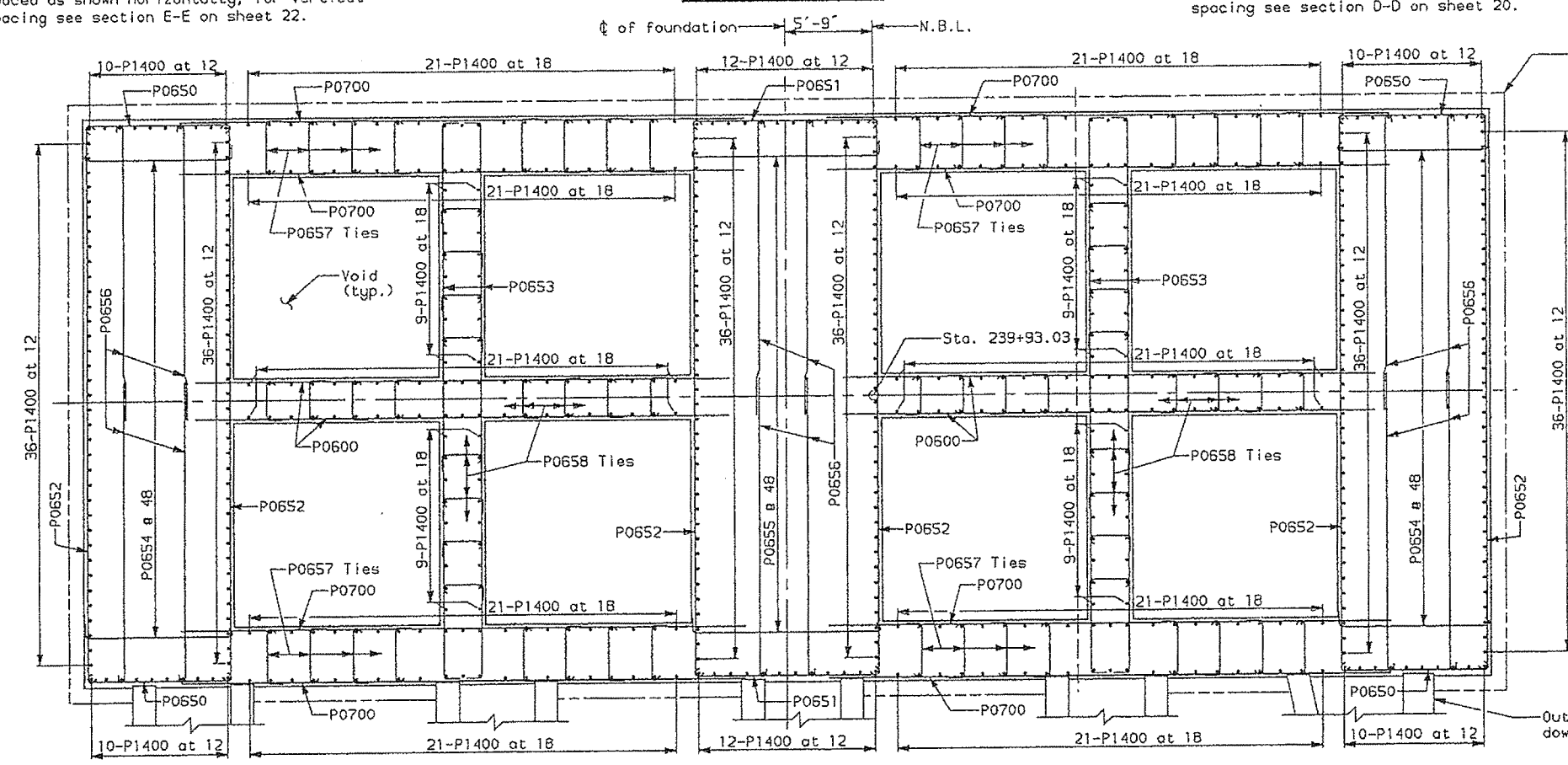
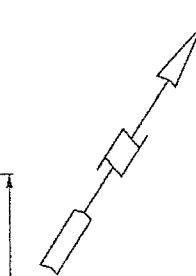
SECTION A-A EL. -23.0 to -7.0

* Spaced as shown horizontally, for vertical spacing see section E-E on sheet 22.

** Spaced as shown horizontally, for vertical spacing see section D-D on sheet 20.

NOTE:

Alternate orientation of 135° and 90° hooked ends, horizontally and vertically of P0654, P0655, P0657 and P0658.



SECTION B-B EL. -7.0 to +7.0

Outline of concrete extension for rubber fender doveled onto pier, for details see sheet 25 (typ.)

NOTES:

For general notes, see sheet 6.
For location of sections A-A & B-B see sheet 20.

BASCULE SUBSTRUCTURE

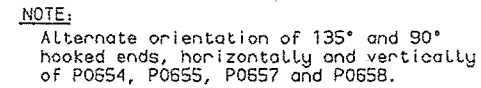
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

**PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY**

**NORTH BASCULE
SHAFT REINFORCEMENT**

PLANS
CHECKED
REVISION
FIELD CHANGES
DATE
BY
7/93
DMP

N. Shaft 4



—Outline of concrete extension for rubber fender
doweled onto pier, for details see sheet 25 (typ.)

SHEET 24 OF 54 : AUGUSTA, MAINE

Self tapping fastener (galvanized)

Saddle clip (galvanized)

1"x3/16" Bearing bar (galvanized)

Channel (galvanized)

1/2" 1/2" Typ.

Cope Fl channel

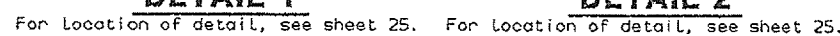
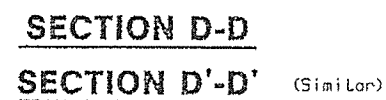
C10x20 (galv.)

Typ.

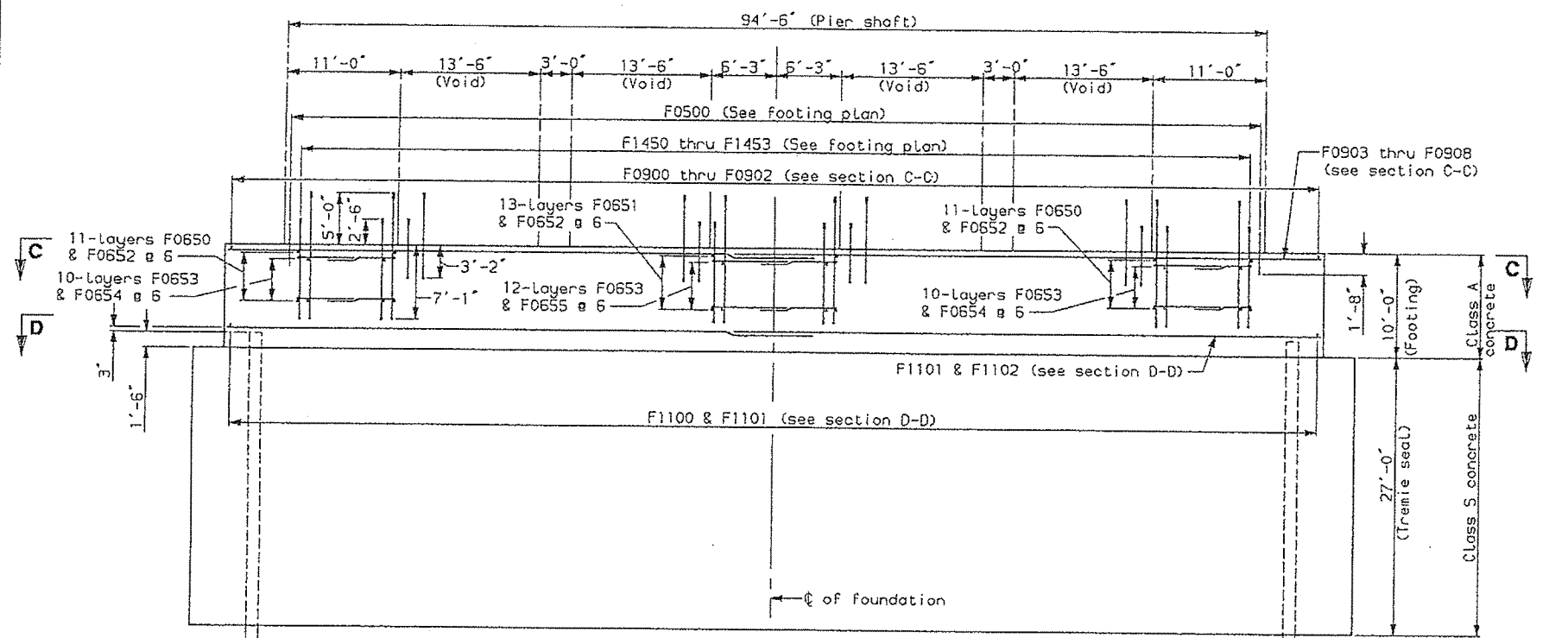
F.H.W.A. REG. NO.	STATE	PROJECT
1	MAINE	DPT-00



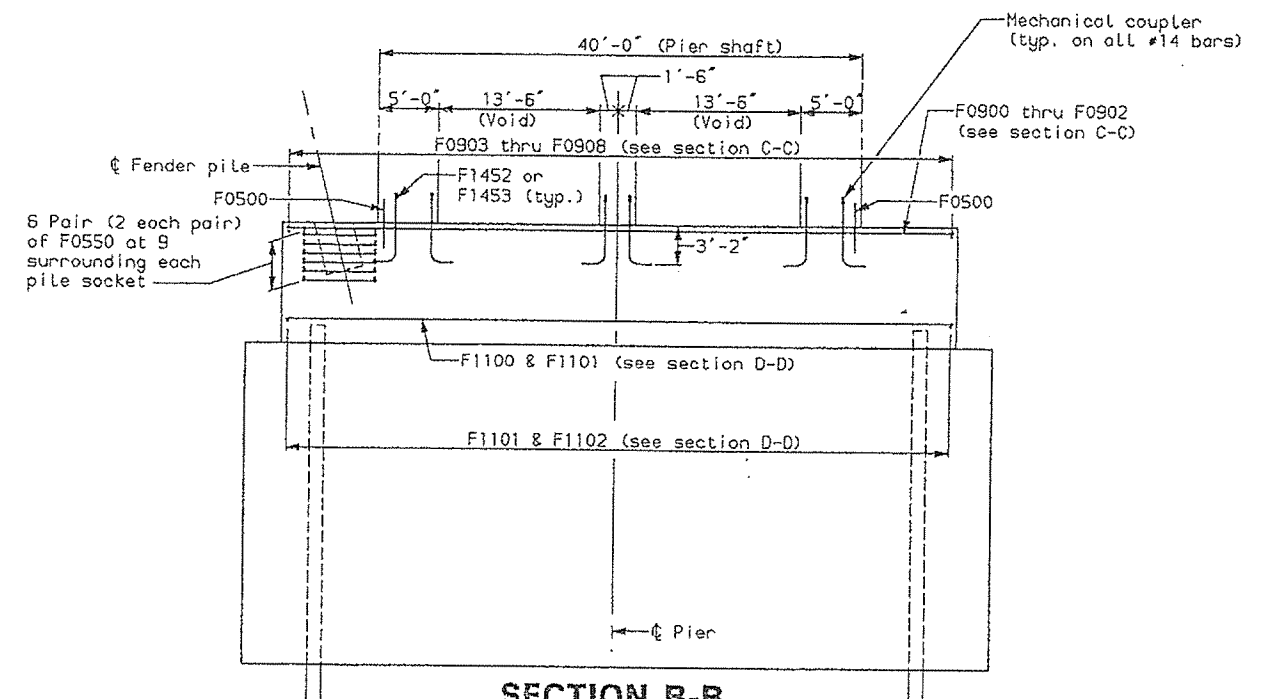
For general notes, see sheet 6.
For detail of fender system, see sheet 1
All steel walkway components to be galva
after fabrication.

m/sc.dat

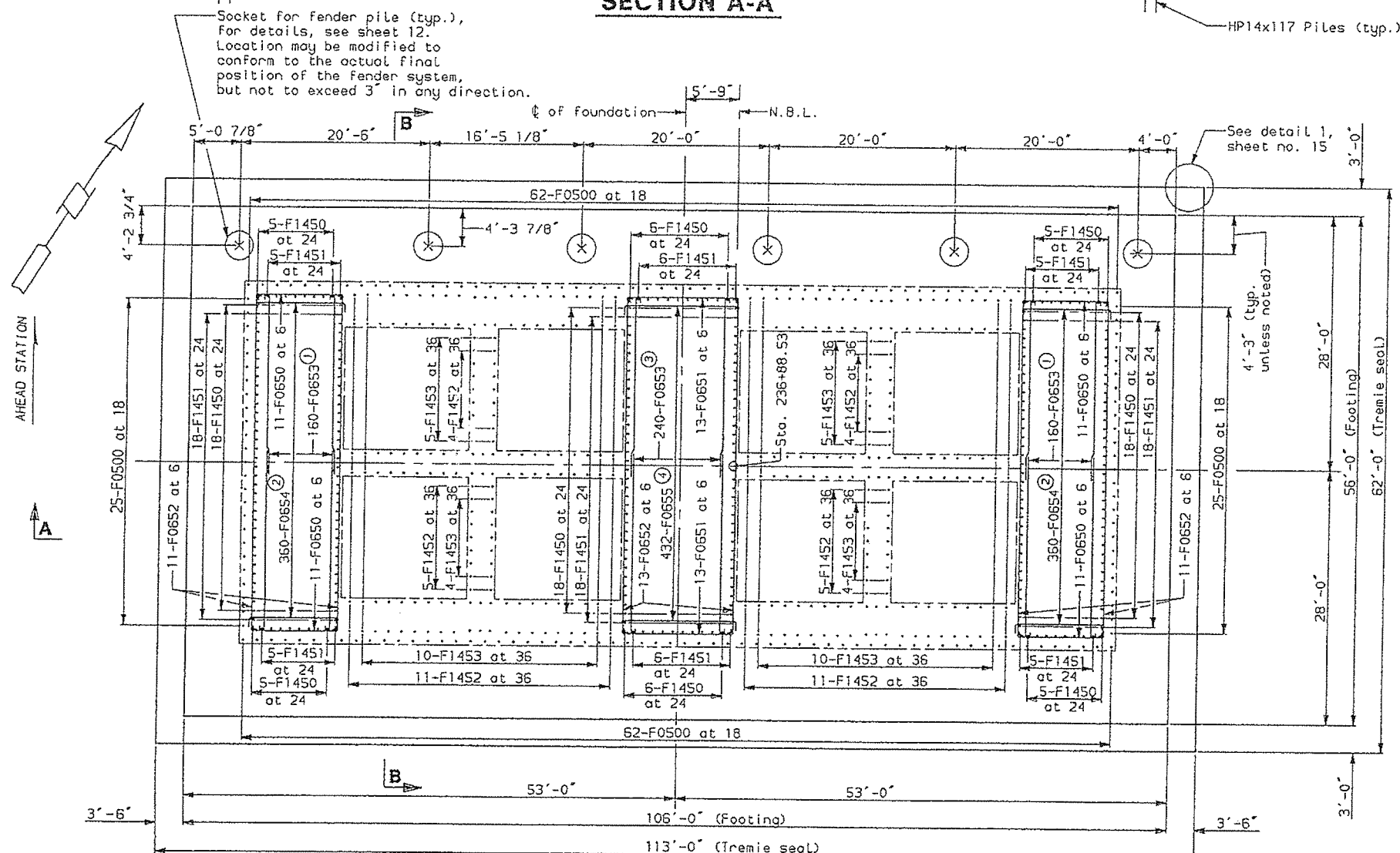
BASCULE SUBSTRU
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY
MISCELLANEOUS
SHEET 26 OF 54 AUGUSTA, MAINE



SECTION A-A



SECTION B-B



FOOTING PLAN

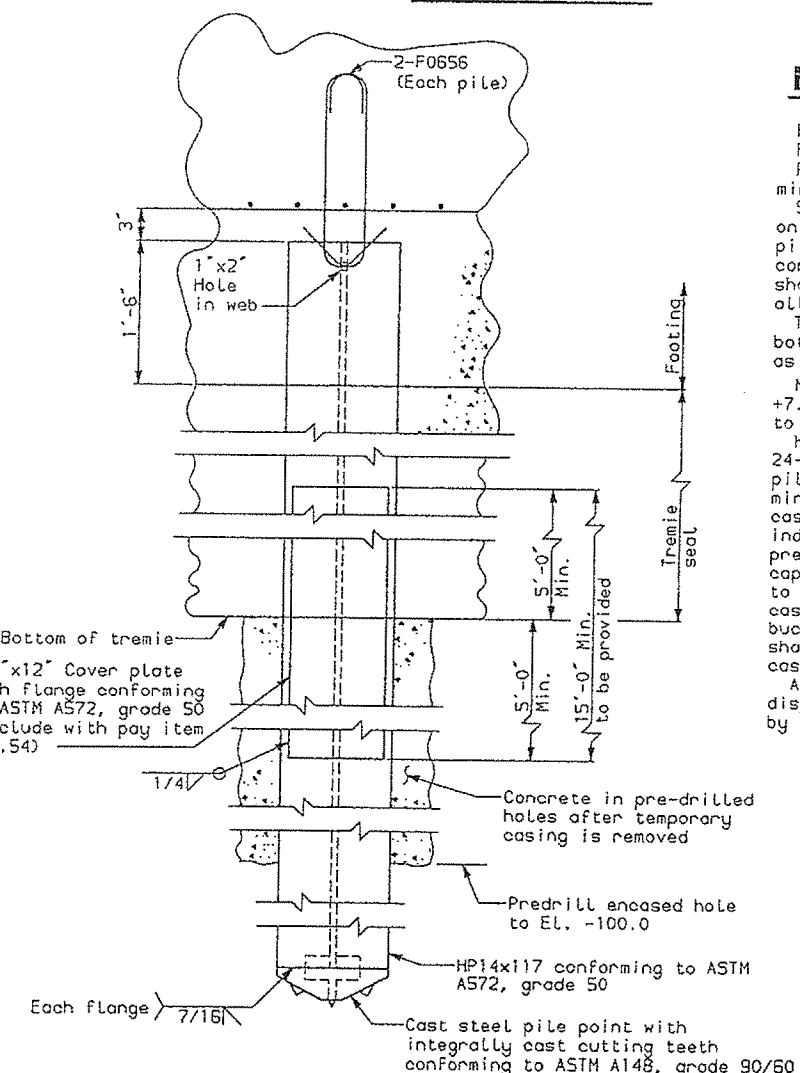
- ① 10 Layers at 6" vertical spacing with 8 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.

② 10 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

FOOTING PLAN

③ 12 Layers at 6" vertical spacing with 10 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.

④ 12 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)



PILE DETAIL

H-PILE ALTERNATIVE

NOTES:

For general notes, see sheet 6.
For sections C-C & D-D, see sheet 28.
Reinforcing steel shall have 3 inch minimum cover unless otherwise noted.
Seal Concrete dimensions are predicated on use of PZ27 or equivalent steel shoring with appropriate standard bent corners. Pay dimensions for seal concrete shall be to the neat lines shown plus all around. See detail 1, sheet no. 11.
The contractor is required to place bottom of tremie seal at elevation -60 as shown on these plans.

Maximum water level is assumed to be +7.0. Contractor shall provide coffer to allow for splash-over from ship water. H-piles shall be installed by predrilling 24-inch diameter encased hole to the pile tip elevation as shown, by a method that minimizes disturbance of the soil outside the casing. With the casing pipe in place, individual H-pile is to be placed in the pre-drilled hole and driven to the required capacity. Adequate bracing shall be provided to temporarily support the pile against casing during driving to prevent pile buckling, as approved. The space around the pile shall then be filled with tremie concrete. Casing is withdrawn.

All excavated materials shall be properly disposed of at a disposal site to be approved by the Department.

BASCULE SUBSTRUC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND

OVER FORE RIVE

CUMBERLAND COL

SOUTH BASCULE

FOUNDATION DET.

TEST PILE PROGRAM

Prior to installation of production piles, a test program shall be performed to check pile length requirements. Test piles are denoted by \textcircled{I} . A special test pile, denoted by \textcircled{I} , shall be subjected to a static load test and a dynamic load test.

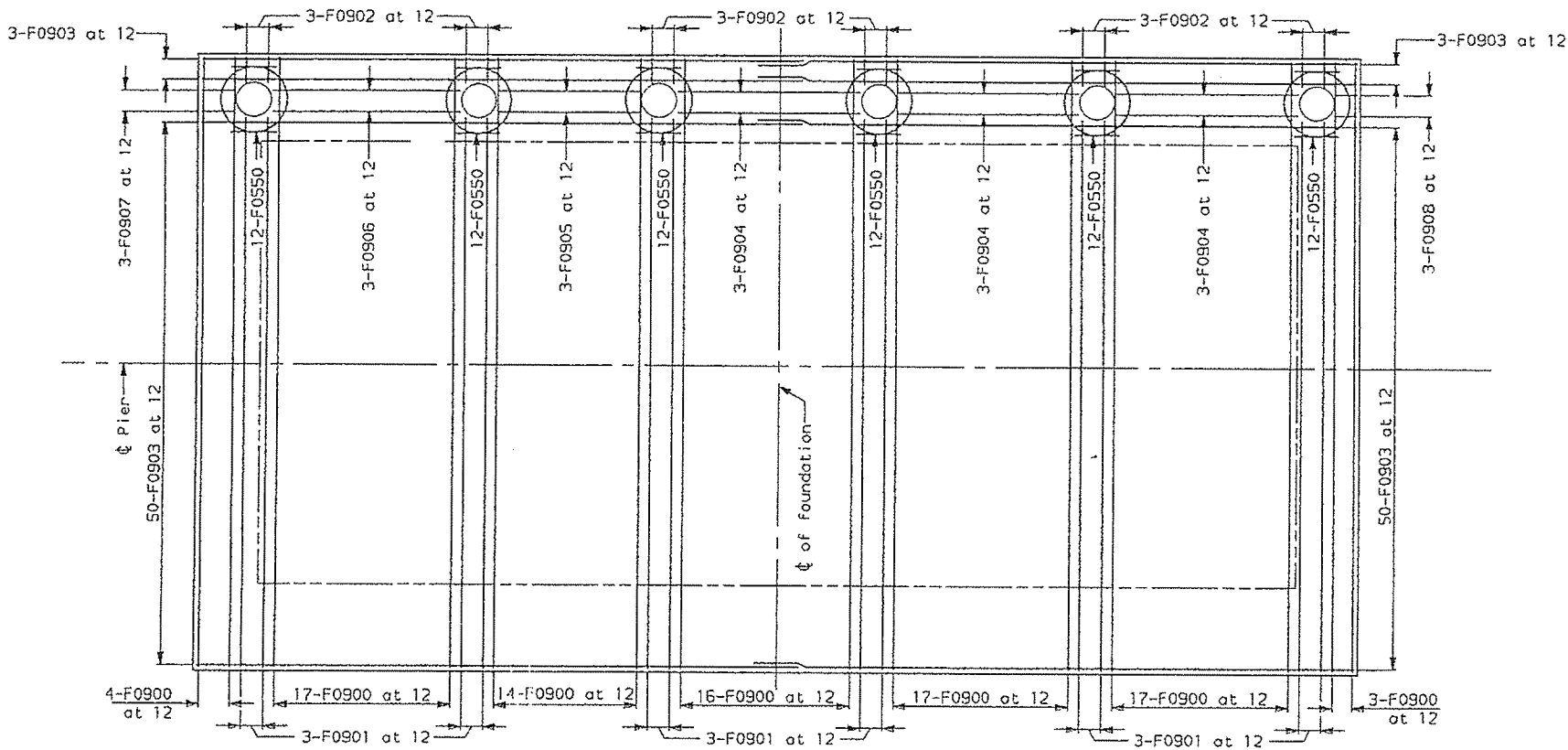
During installation of production piles, six additional piles shall be set for dynamic load testing. The locations of these piles shall be directed by the Engineer.

Test piles shall be measured and paid for at the contract unit prices for piles delivered and in place, except for the special test pile which shall be included under lump sum payment for static loading test. Dynamic loading and the static loading test shall be paid for as specified in the specifications. Upon completion of the static loading test, all construction provisions necessary to perform the test shall be removed to a minimum of 5 feet below mud line and abandoned.

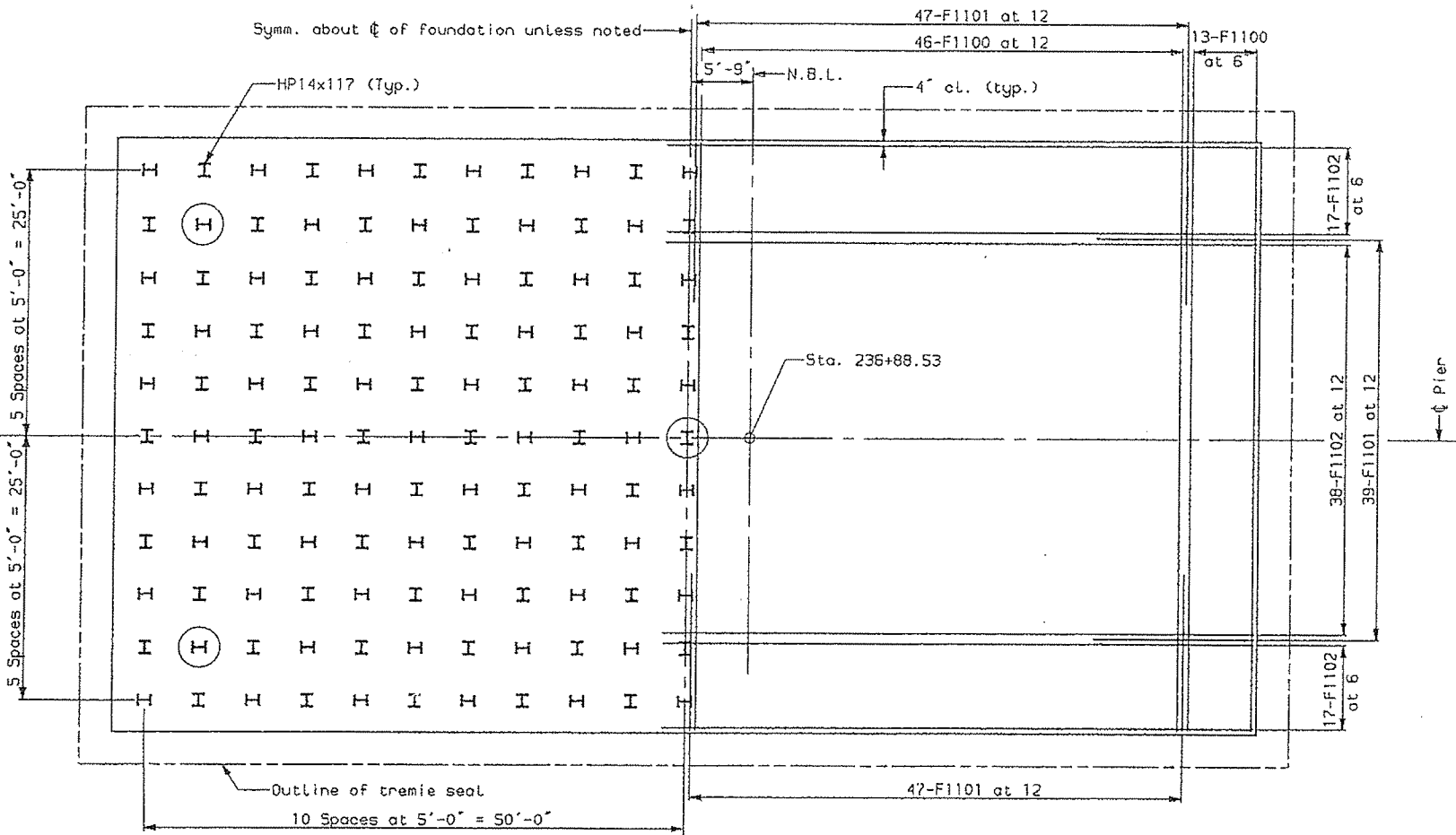
DATE	BY	SLH	DHP
4/93			
7/93			
DESIGN-DETAILED	LKH		
CHECKED			
REVISION			
FIELD CHANGES			

PLANS

B:\frd.hp2



TOP HORIZONTAL REINFORCING
SECTION C-C



H-PILE LAYOUT

SECTION D-D

BOTTOM REINF. ABOVE PILES

Special test pile for dynamic load test and static load test. Located at Sta. 236+81.75, offset 118' right.

NOTES:

For general notes, see sheet 6.
For location of sections C-C & D-D, see sheet 27.

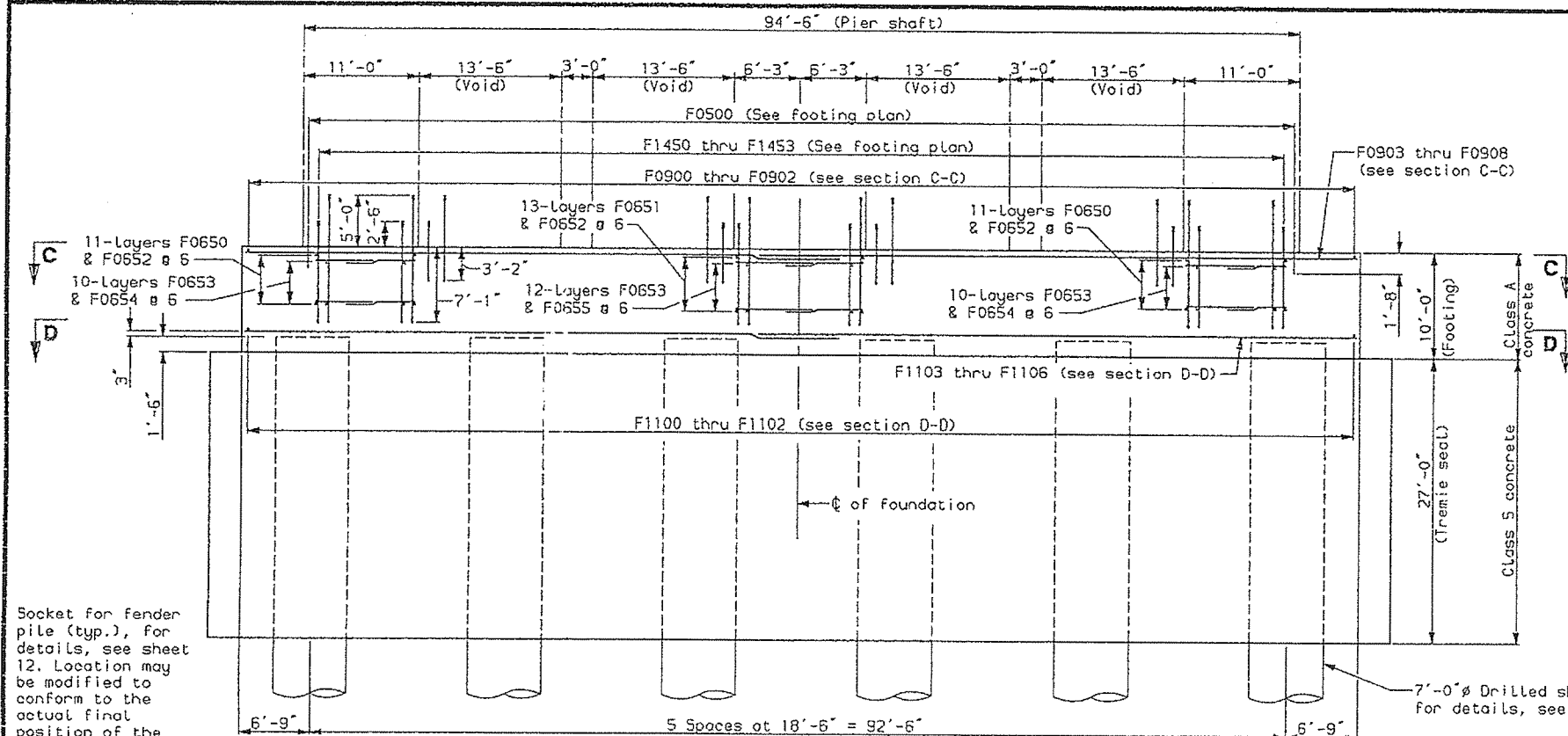
BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

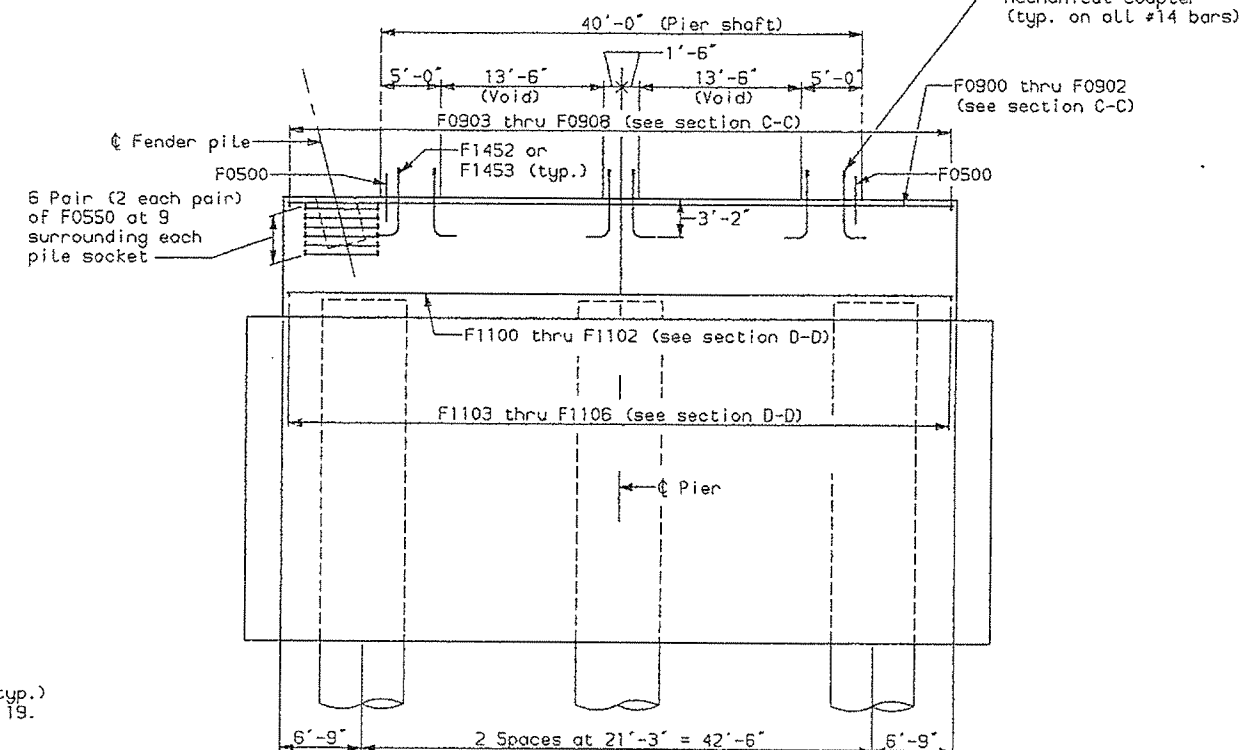
PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

SOUTH BASCULE
FOUNDATION DETAIL

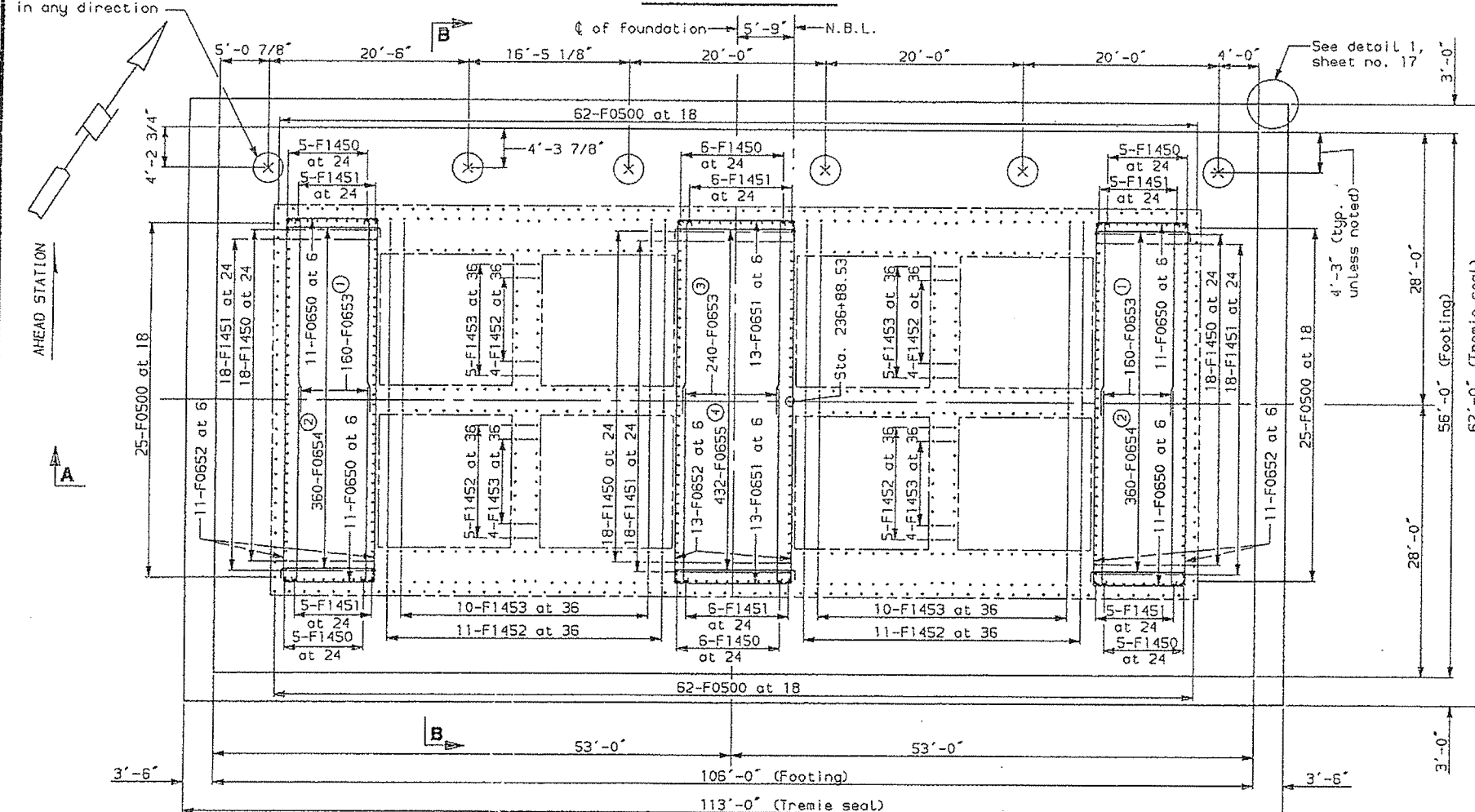
H-PILE ALTERNATIVE



SECTION A-A



SECTION B-B



FOOTING PLAN

- ① 10 Layers at 6" vertical spacing with 8 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.
- ② 10 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

- ③ 12 Layers at 6" vertical spacing with 10 pair (2 bars each pair) of bars per layer at 12" horizontal spacing.
- ④ 12 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing. (Alternate orientation of 135° and 90° hooked ends, horizontally and vertically)

NOTES:

For general notes, see sheet 19. For sections C-C & D-D, see sheet 19. Reinforcing steel shall have minimum cover unless otherwise noted. Seal Concrete dimensions are on use of PZ27 or equivalent splicing with appropriate standard corners. Pay dimensions for seal shall be to the neat lines shown all around. See detail 1, sheet 19. The contractor is required to bottom of tremie seal at elevation as shown on these plans. Maximum water level is assumed elevation +7.0. Contractor shall cofferdam height to allow for 1' from ship wave action.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

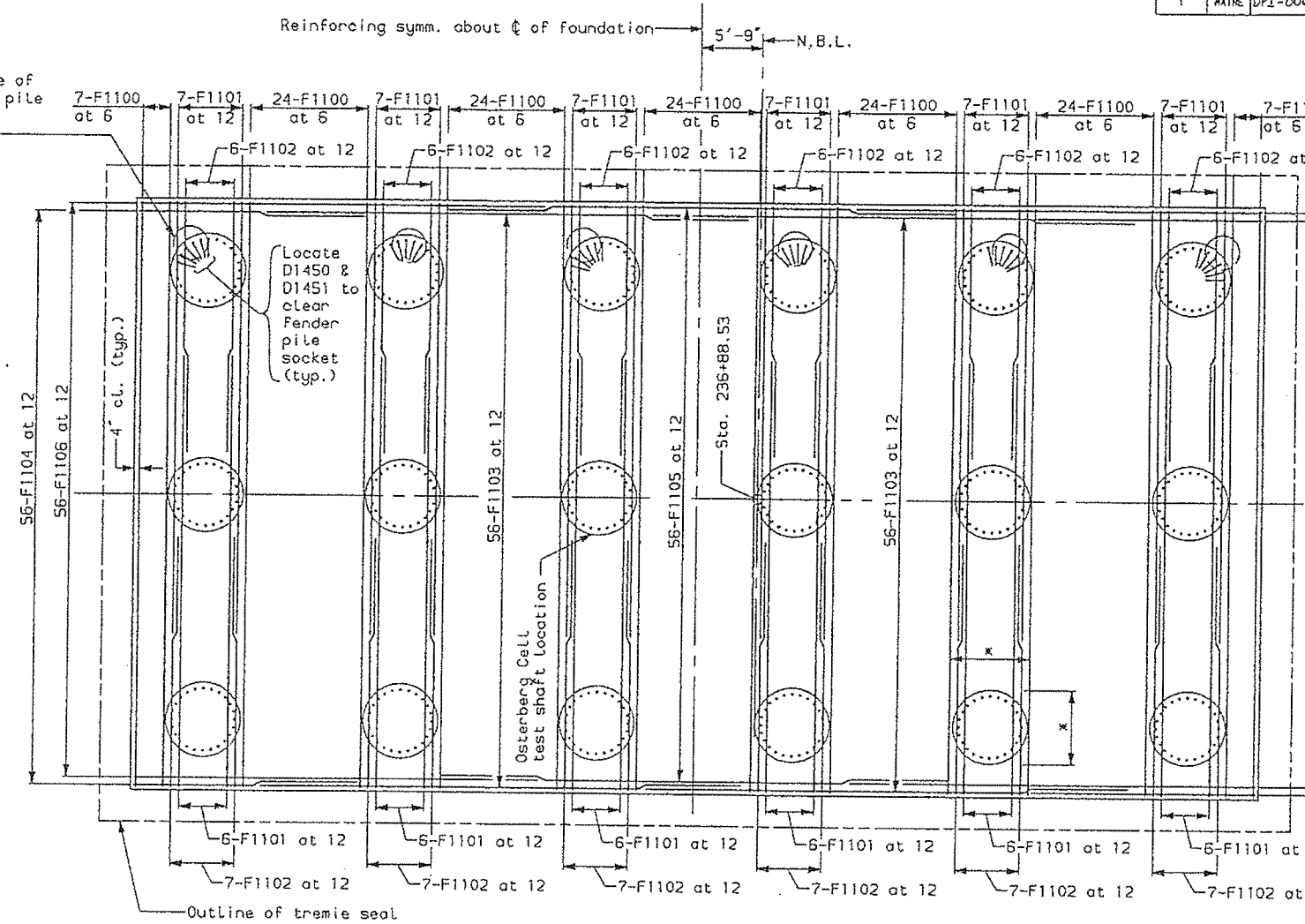
PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COLLEGE

**SOUTH BASCULE
FOUNDATION DETAIL**

DRILLED SHAFT ALTERNATIVE

PROJECT	DESIGN ENGINEER		BY	DATE
	DESIGN-DETAILED	LKH	SLH	4/93
	CHECKED		DMP	7/93
	REVISION			
PLANS	FIELD CHANGES			

5. find.ds2

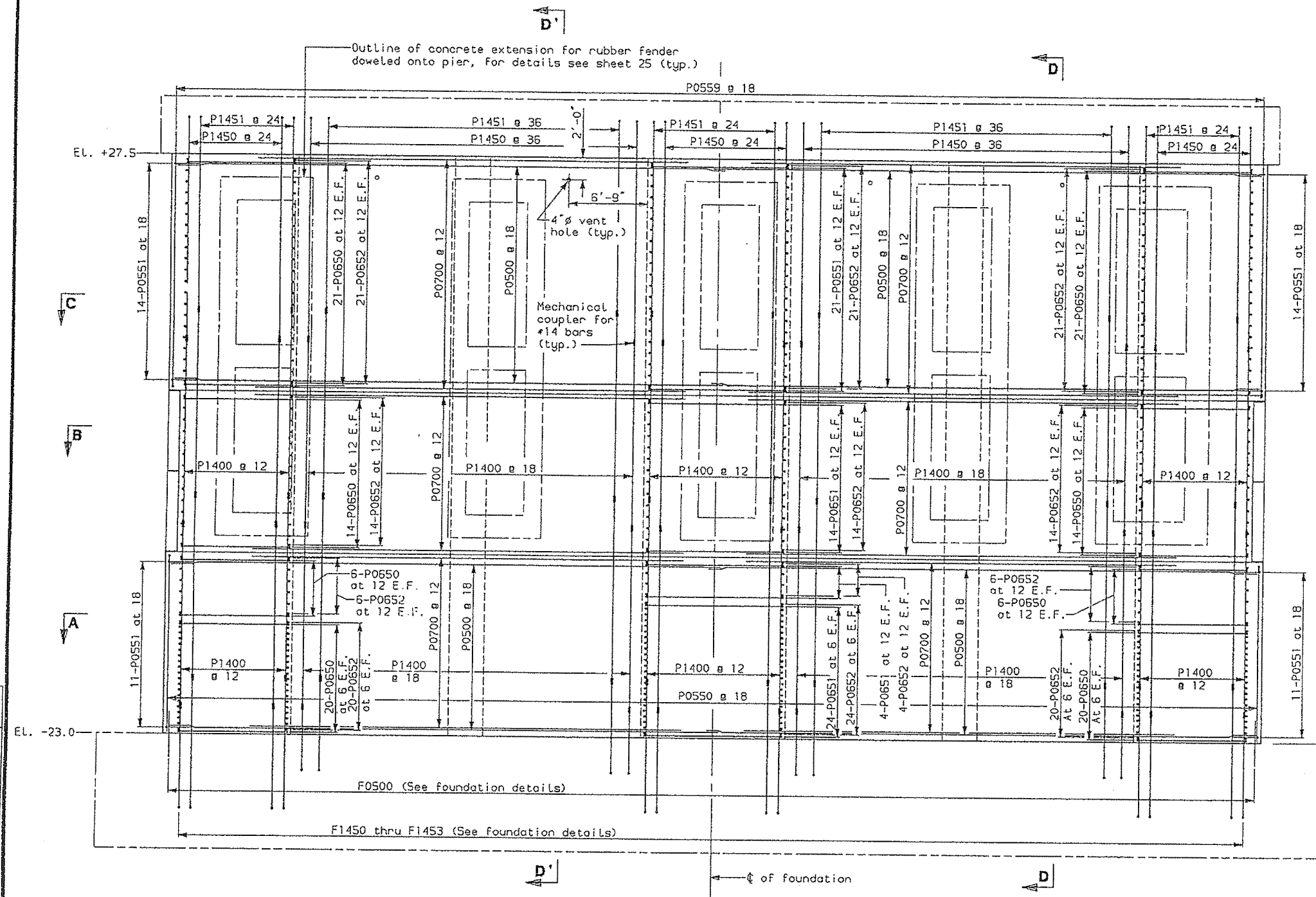


* Spacing may be adjusted to clear shaft reinforcement but shall not be less than 3 1/2" center to center (typical at every drilled shaft)

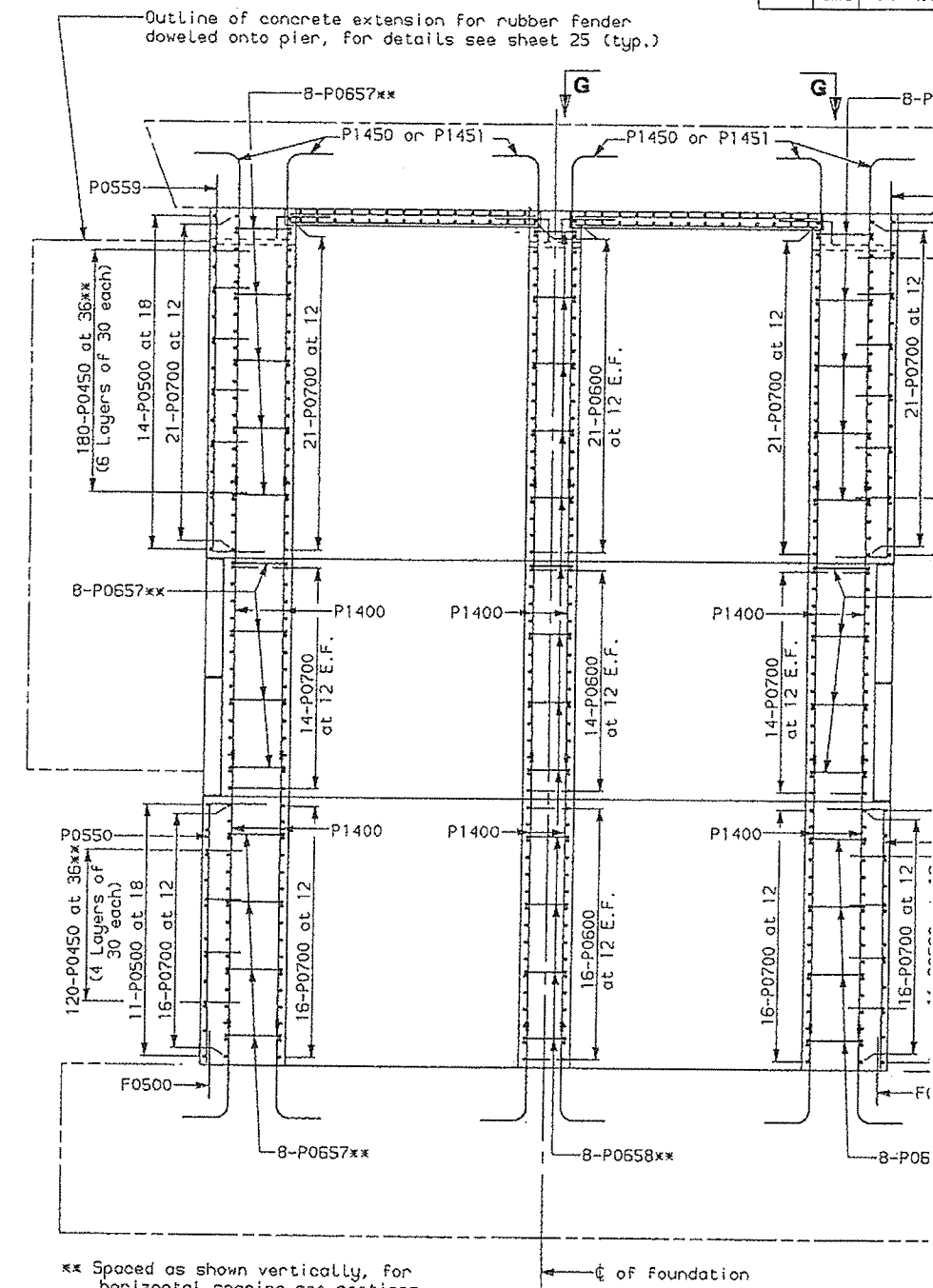
For general notes, see sheet 6.
For location of sections C-C & D-D,
see sheet 29.
For drilled shaft details and
reinforcing, see sheet 19.

**SOUTH BASCULI
FOUNDATION DET.**

SHEET 30 OF 54, AUGUSTA, MAINE



ELEVATION
Looking back station



SECTION D-D
SECTION D'-D'

NOTES:

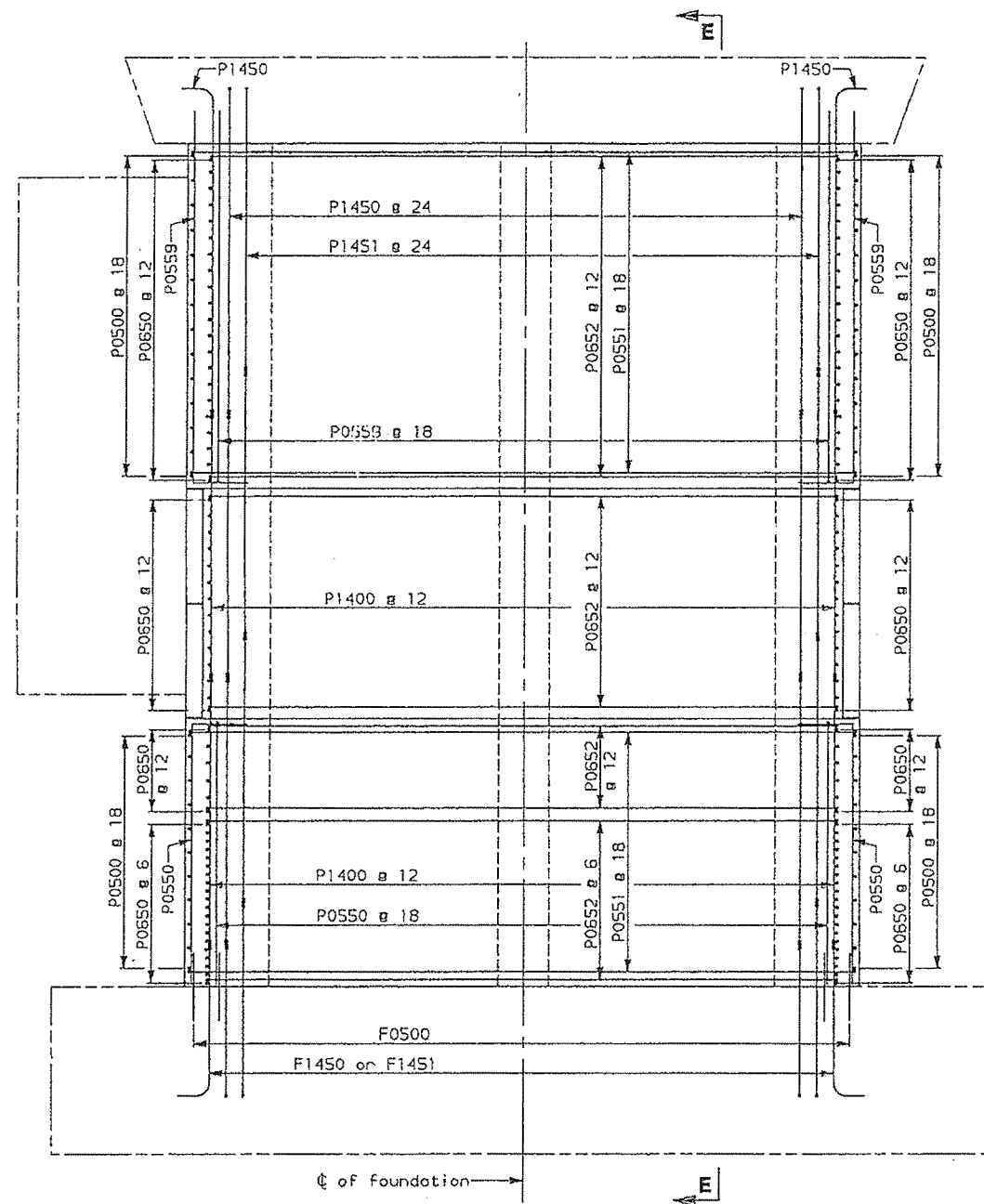
For general notes, see sheet 5.
For sections A-A and B-B, see sheet 34.
For section C-C, see sheet 35.
Mechanical splice shall be used for all no. 14 reinforcing bars and shall be epoxy coated.
For section G-G, see sheet 33.

BASCULE SUBSTRUCTURE	
STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
PORTLAND - S. PORTLAND OVER FORD RIVER CUMBERLAND COUNTY	
SOUTH BASCULE SHAFT REINFORCEMENT	
SHEET 31 OF 54 AUGUSTA, MAINE	

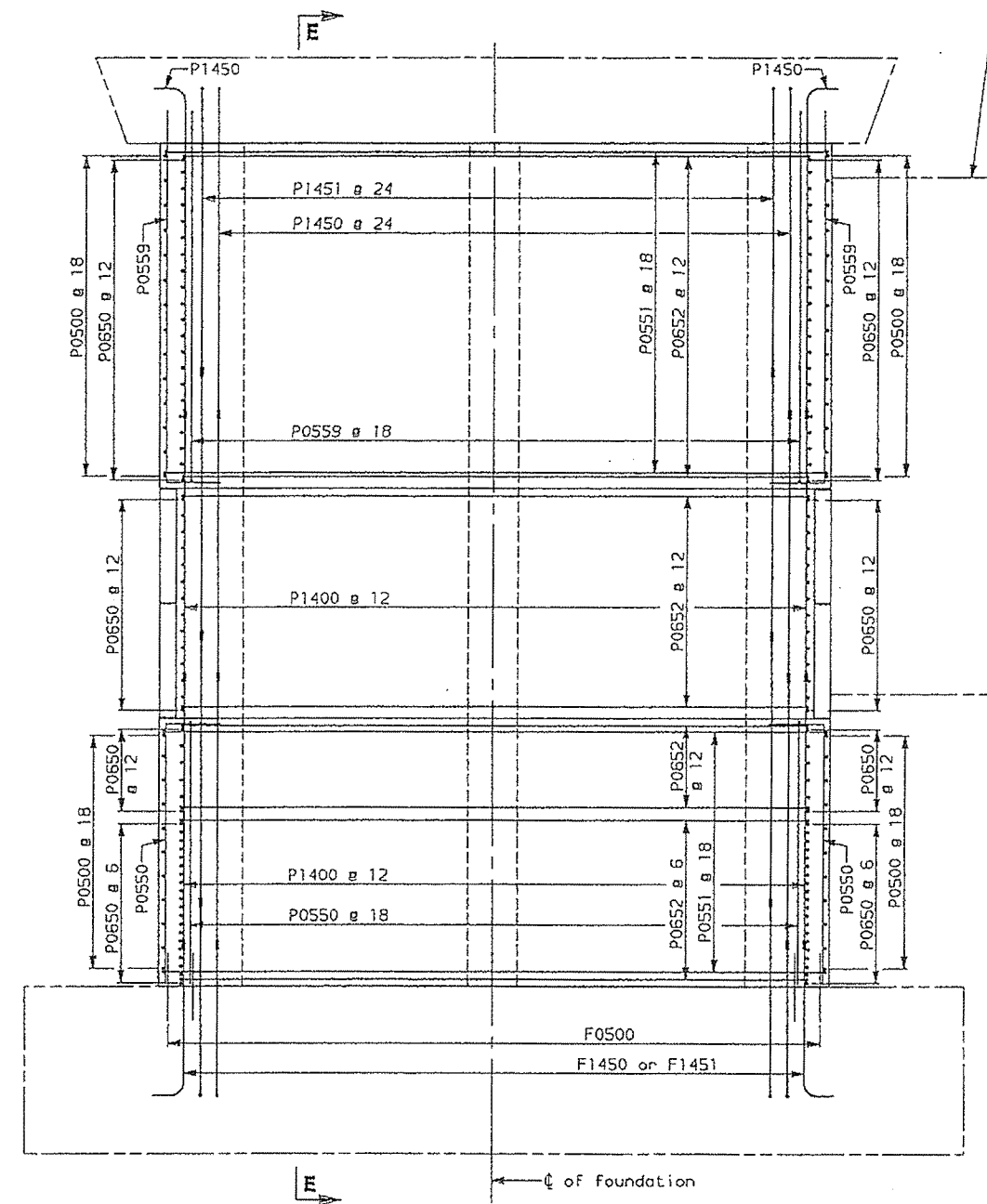
DESIGN-DETAILED	LKH	SLH
CHECKED	DWP	
REVISION		
FIELD CHANGES		
PLANS		

s. shaft 1

Outline of concrete extension for rubber fender
doweled onto pier, for details see sheet 25 (typ.)



**WEST
END VIEW**



**EAST
END VIEW**

NOTES:

For general notes, see sheet 6.
For Section E-E, see sheet 33.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

**PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY**

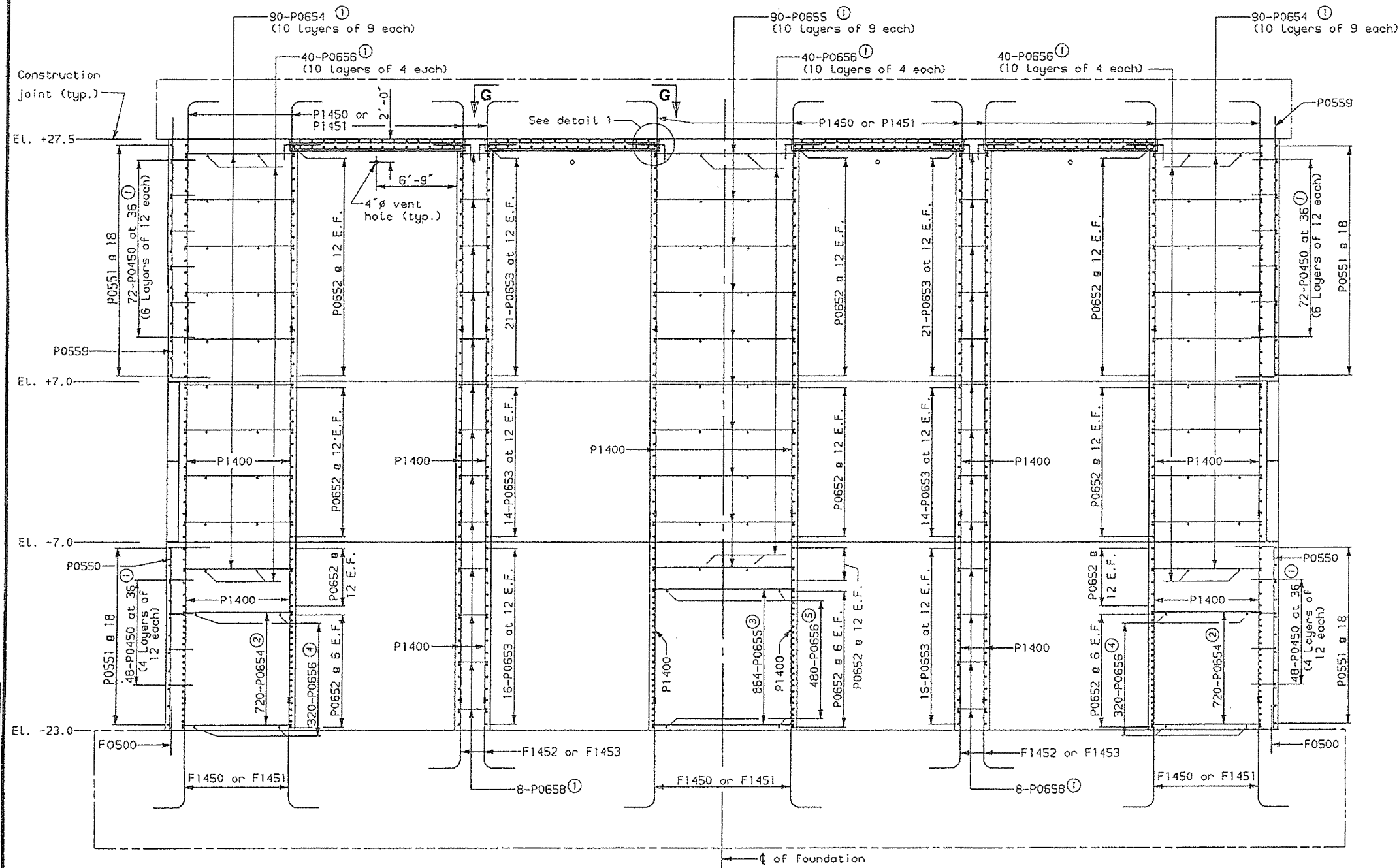
**SOUTH BASCULE
SHAFT REINFORCEMENT**

SHEET 32 OF 34 AUGUSTA, MAINE

DESIGN-DETAILED	LKH	SLH	4/89
CHECKED	DMP		7/93
REVISION			
FIELD CHANGES			

PLANS

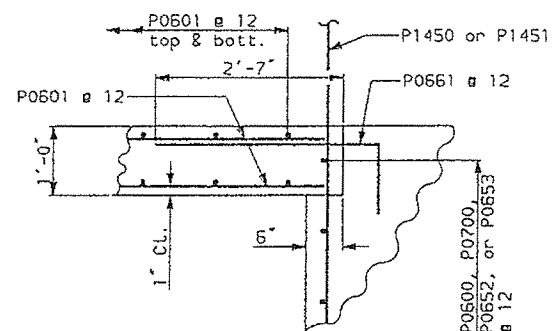
s. shaft 2



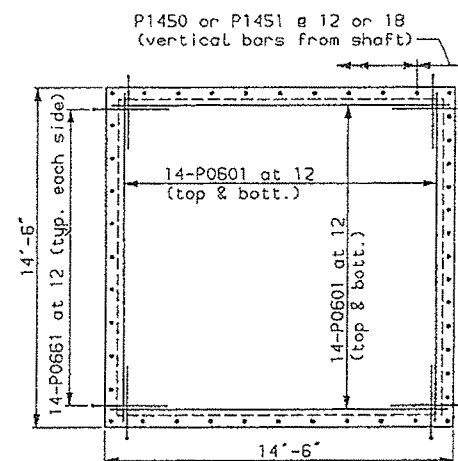
- ① Spaced as shown vertically, for horizontal spacing see sections A thru C on sheets 34 & 35.
- ② 20 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing.
- ③ 24 Layers at 6" vertical spacing with 36 bars per layer at 12" horizontal spacing.
- ④ 20 Layers at 6" vertical spacing with 15 bars per layer at 12" horizontal spacing.
- ⑤ 24 Layers at 6" vertical spacing with 20 bars per layer at 12" horizontal spacing.

SECTION E-E

(Looking ahead station)



DETAIL 1



SECTION G-G

(Plan of void cover slab)

NOTES:

For general notes, see sheet 6.
For location of section E-E, see sheet 32.
Voids shall be left dry prior to placing
void cover slab.

BASCULE SUBSTRUC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

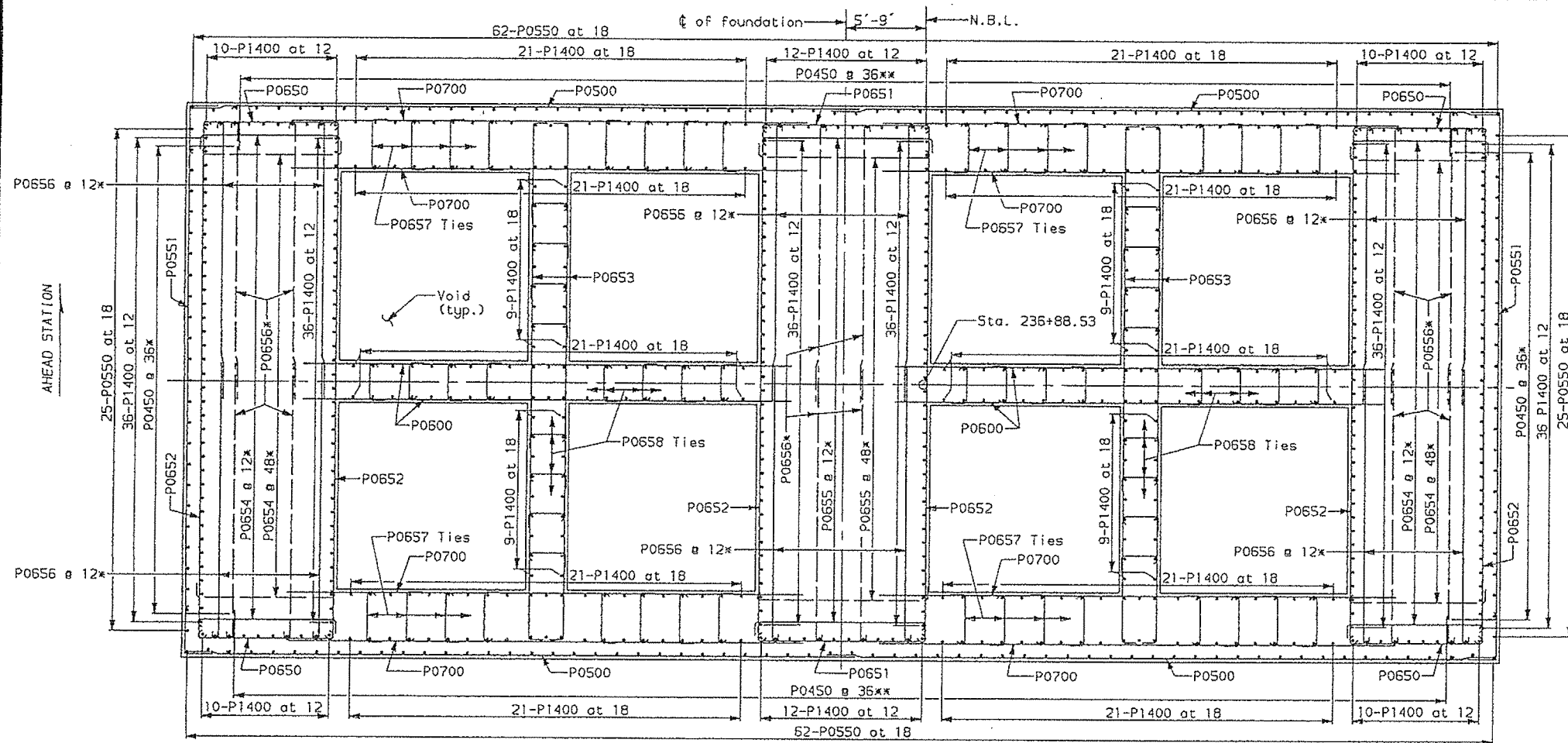
PORTLAND - S. PORTLAND

OVER FORE RIV

CUMBERLAND COI

SOUTH BASCULI
SHAFT REINF. DI

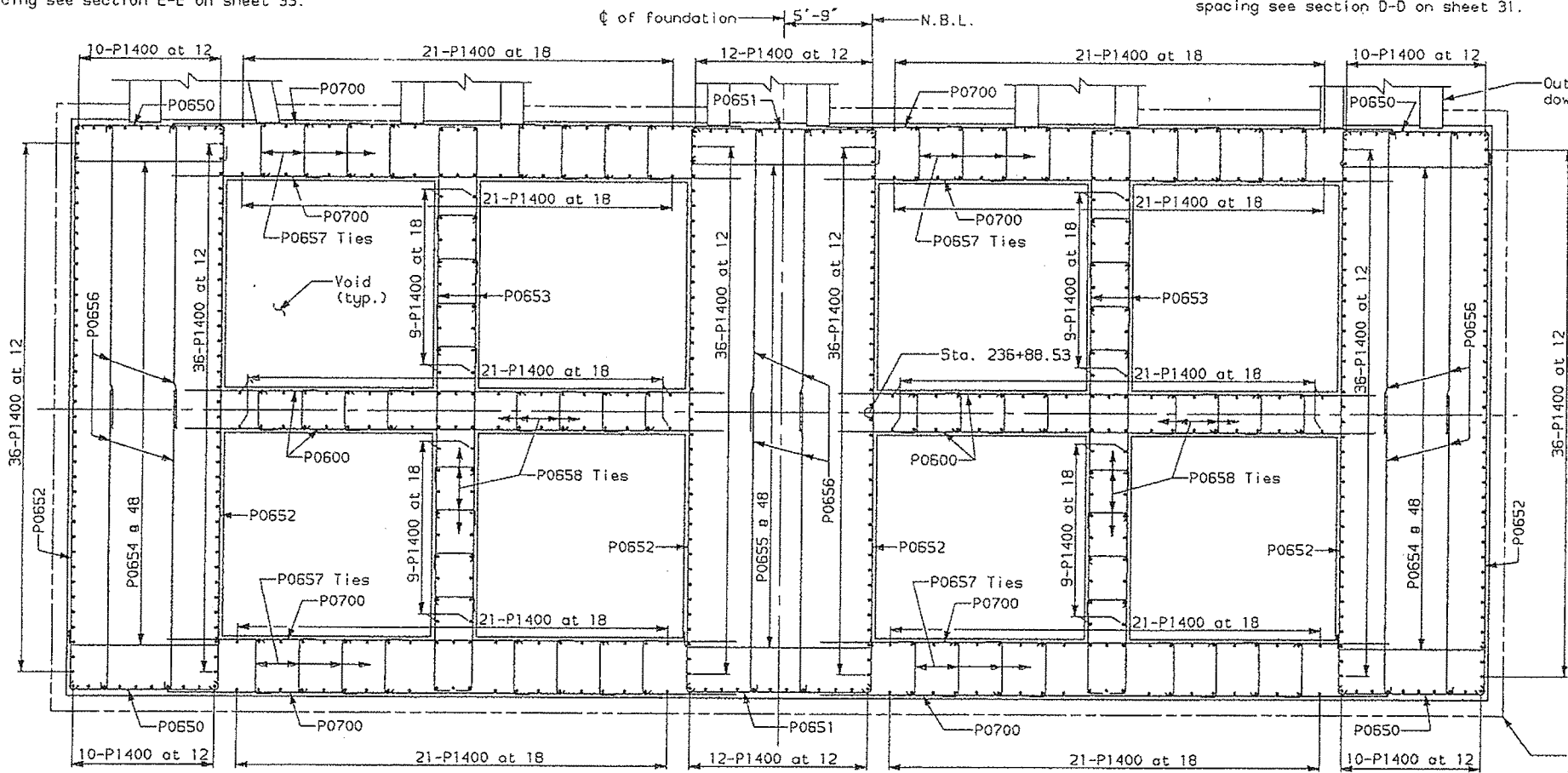
NOTE:
Alternate orientation of 135° and 90°
hooked ends, horizontally and vertically
of P0654, P0655, P0657 and P0658.



SECTION A-A EL. -23.0 to -7.0

* Spaced as shown horizontally, for vertical
spacing see section E-E on sheet 33.

** Spaced as shown horizontally, for vertical
spacing see section D-D on sheet 31.



SECTION B-B EL. -7.0 to +7.0

Outline of concrete extension for rubber fender
doweled onto pier, for details see sheet 25 (typ.)

Outline of
granite facing

NOTES:

For general notes, see sheet 6
For location of sections A-A &
see sheet 31.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

**PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY**

**SOUTH BASCULE
SHAFT REINFORCEMENT**

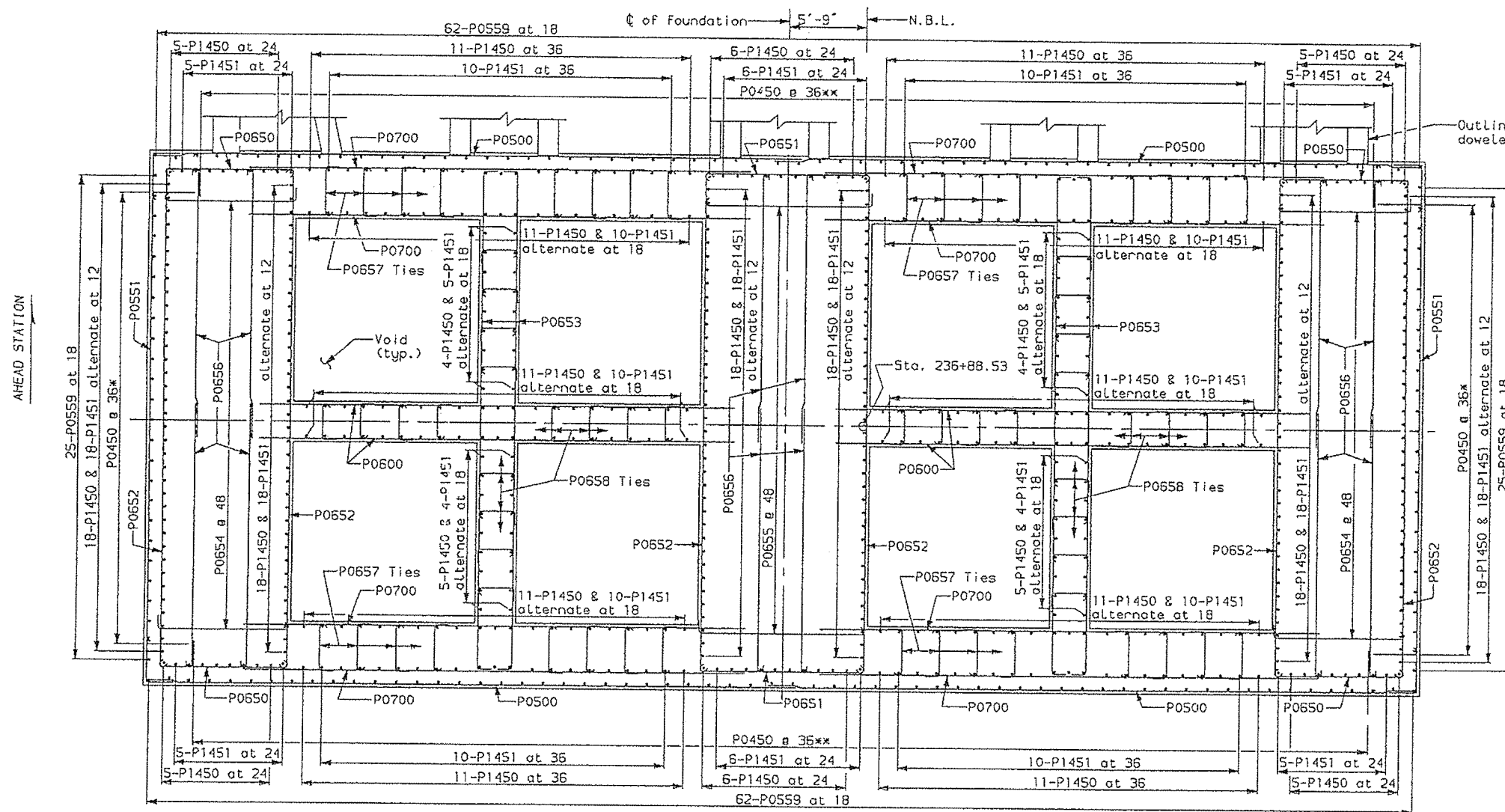
PROJECT	DESIGN ENGINEER	DATE
PLANS	DESIGN-DETAILED	4/93
	CHECKED	5/93
	REVISION	7/93
	FIELD CHANGES	

8-shaft 4

NOTE:

Alternate orientation of 135° and 90° hooked ends, horizontally and vertically of P0654, P0655, P0657 and P0658.

Outline of concrete extension for rubber fender doveled onto pier, for details see sheet 25 (typ.)



* Spaced as shown horizontally, for vertical spacing see section E-E on sheet 33.

SECTION C-C EL. +7.0 to +27.5

** Spaced as shown horizontally, for vertical spacing see section D-D on sheet 31.

NOTES:

For general notes, see sheet 31.
For location of section C-C, see sheet 31.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORT

PORTLAND - S. PORTLAND

OVER FORE RIVER

CUMBERLAND COUNTY

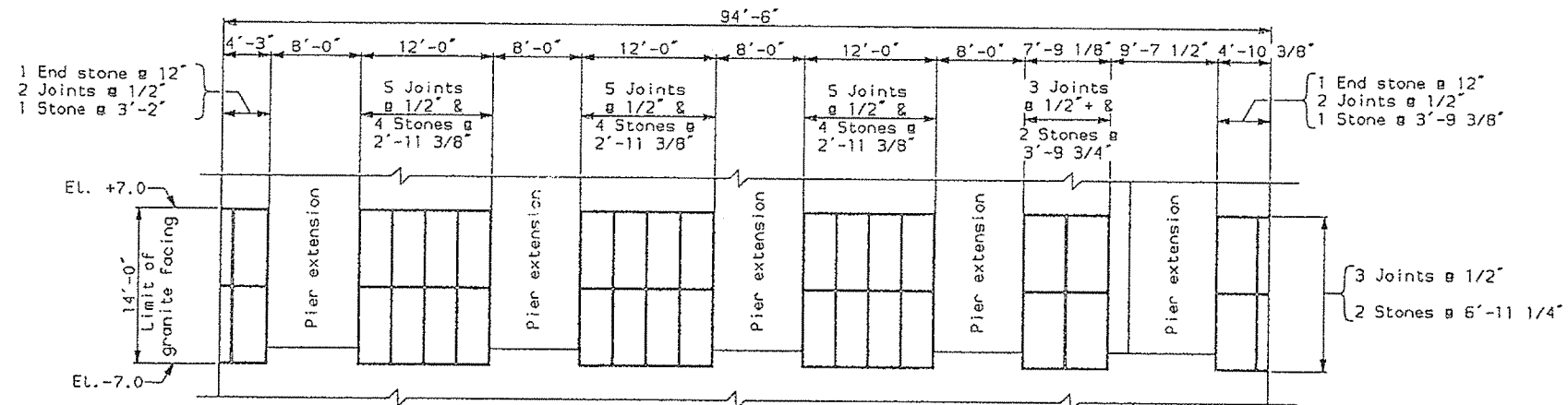
**SOUTH BASCULE
SHAFT REINFORCEMENT**

SHEET 35 OF 54 AUGUSTA, MAINE

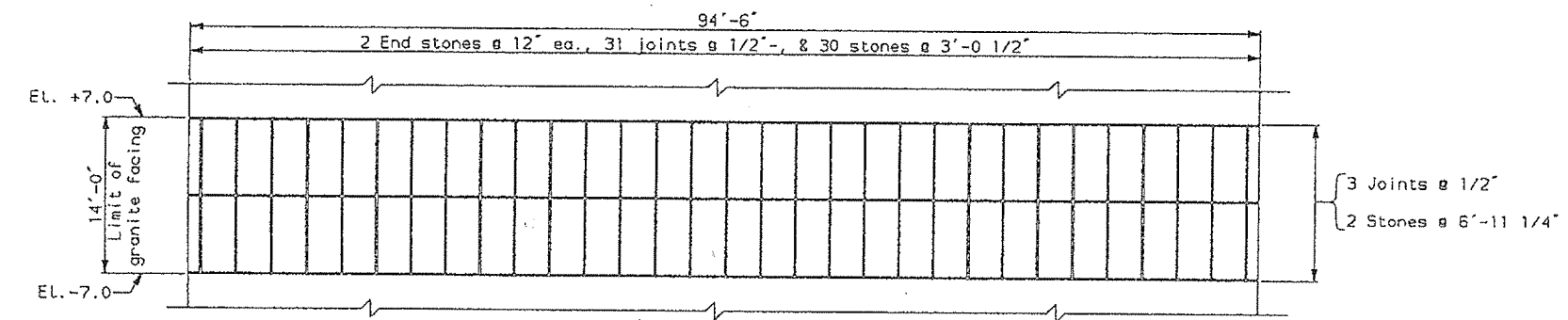
DESIGN-DETAILED	4/93	DLH
CHECKED	7/93	DWP
REVISION		
FIELD CHANGES		

PLANS

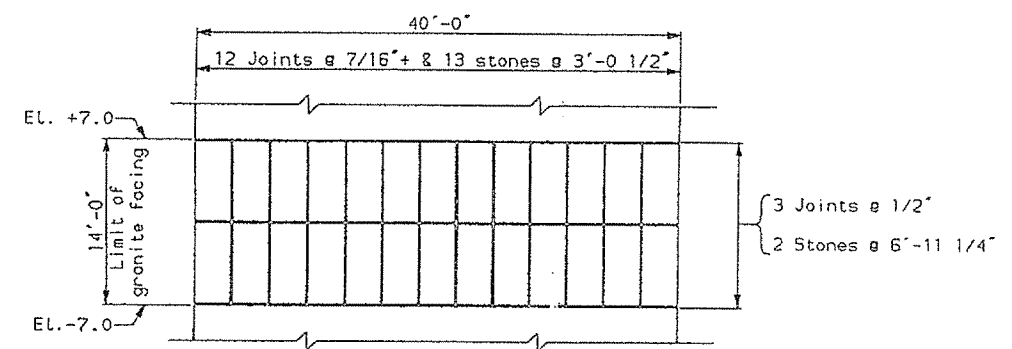
S. SHAFTS



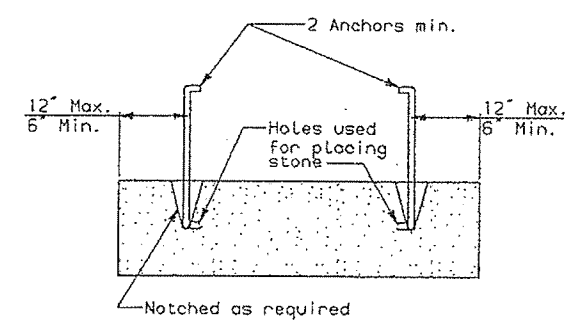
ELEVATION CHANNEL FACES



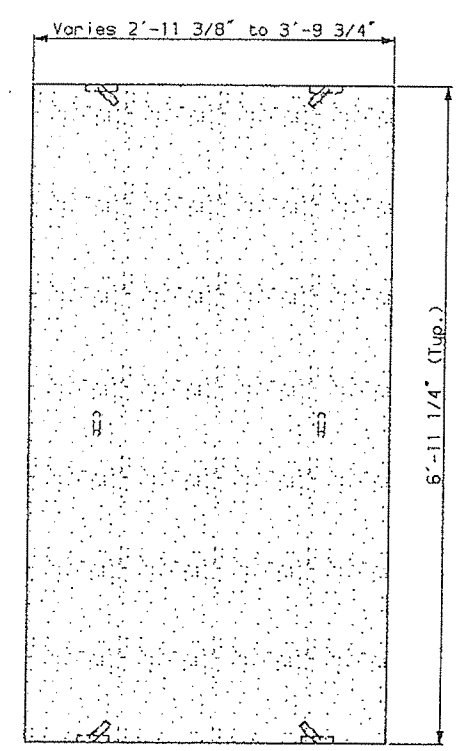
ELEVATION APPROACH FACES



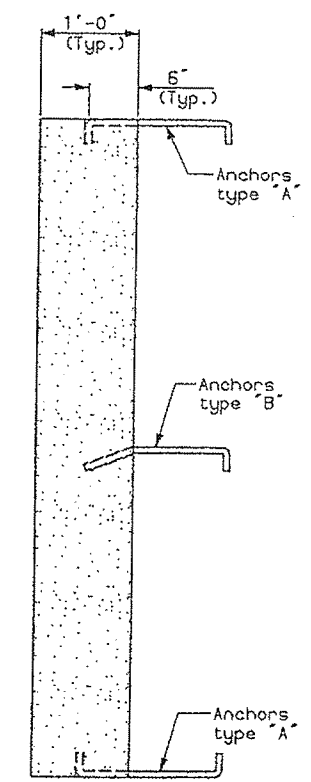
ELEVATION UPSTREAM AND DOWNSTREAM FACES



TOP VIEW

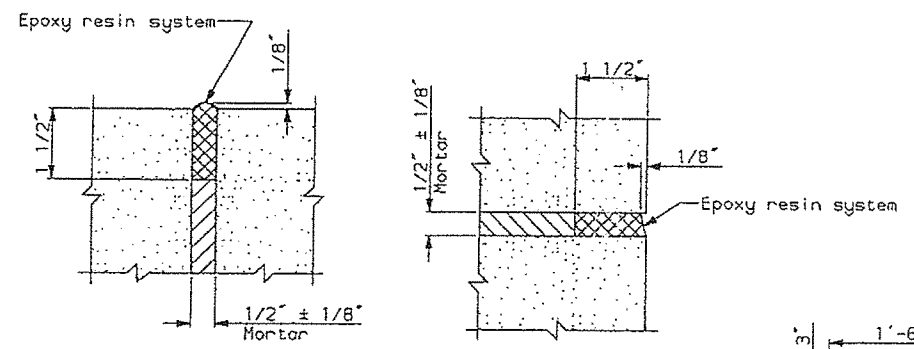


FRONT VIEW



SIDE VIEW

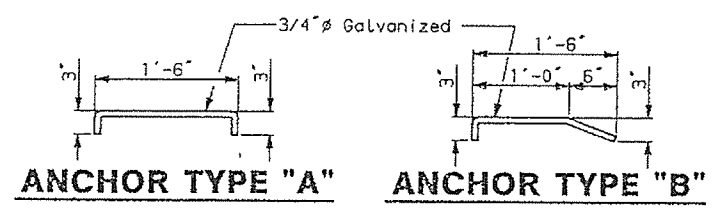
GRANITE FACING DETAIL



VERTICAL

HORIZONTAL

LEAD JOINT DETAIL



ANCHOR TYPE "A"

ANCHOR TYPE "B"

NOTES:
For general notes, see sheet...

H.W.A. REG. NO.	STATE	PROJECT NAME
1	MAINE	DPI-00680

TYPE-BENDING DIAGRAMS

A

B

C

D

E

F

G

H

I

J

K

L

A = No. of turns
H = Pitch
R = Radius

ALL dimensions are out to out of
Bending details and hooks shall o
the recommendations of the curren
of ACI Standard 318.

Reinforcing steel: AASHTO M31 (AS
grade 60.

ALL reinforcing is epoxy coated e
reinforcing for drilled shafts.

1. First digit(s) following the L mark indicates size of reinf.

Mark (A0502)	bar size - #5
Mark (P1001)	bar size - #1
Mark (S0603)	bar size - #6

BASCULE SUBSTRUCTURE
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

**NORTH BASCULI
BAR SCHEDULE**

SHEET 37 OF 64 AUGUSTA, MA 11

* An average depth is used to estimate the length of reinforcement based on available boring information. Actual length of each individual shaft may vary. Contractor shall determine the required length in the field and prepare detailed bar schedule for each shaft accordingly. Payment for reinforcement shall be considered incidental to placement of drilled shafts.

REINFORCING STEEL SCHEDULE

F.H.W.A. STATE PROJECT NO.
1 MAINE DPI-006B1

BENT BARS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	REMARKS
PIER EXTENSION														
E0550	44	9'-4"	E	1'-0"	7'-4"					1'-0"				T & B diaph (t)
E0551	81	5'-6"	E	2'-0"	1'-6"					2'-0"				Ctr & B diaph
E0552	2	9'-8"	E	1'-0"	7'-8"					1'-0"				T & B diaph (s)
E0553	2	10'-3"	E	1'-0"	8'-3"					1'-0"				Top diaph (s)
		to			to									Length varies
		10'-6"		1'-0"	8'-6"					1'-0"				(1 set)
		by			by									
		0'-3"			0'-3"									
E0554	2	10'-9"	E	1'-0"	8'-9"					1'-0"				T & B diaph (s)
E0555	9	7'-6"	E	3'-0"	1'-6"					3'-0"				Ctr & B diaph(s)
E0750	244	21'-6"	K	0'-9"	7'-6"	2'-6"	7'-6"	2'-6"		0'-9"				Front wall (t)
E0751	248	20'-8"	E	9'-10"	1'-0"					9'-10"				Side wall (t)
E0752	24	11'-3"	C	1'-6"	9'-9"									T & B diaph (t)
E0753	16	8'-2"	E	3'-4"	1'-6"					3'-4"				Ctr & B diaph(t)
E0754	30	6'-0"	E	2'-3"	1'-6"					2'-3"				Ctr & B diaph
E0755	61	22'-3"	L	0'-9"	7'-6"	2'-8"	8'-1"	2'-6"		0'-9"	0'-7"			Front wall (s)
E0756	31	16'-8"	E	7'-10"	1'-0"					7'-10"				Side wall (s)
E0757	31	14'-2"	H	6'-2"	1'-6"	6'-6"					1'-6"	0'-4"		Side wall (s)
E0758	2	9'-0"	C	1'-6"	7'-5"									T & B diaph (s)
E0759	2	8'-9"	C	1'-6"	7'-3"									Top diaph (s)
		to			to									Length varies
		8'-6"		1'-6"	7'-0"									(1 set)
		by			by									
		0'-3"			0'-3"									
E0760	4	8'-2"	C	1'-6"	6'-8"									T & B diaph (s)
		to			to									Length varies
		7'-11"		1'-6"	6'-5"									(2 sets)
		by			by									
		0'-3"			0'-3"									

PIER FOOTING - H-PILE ALTERNATIVE

F0550	72	13'-5"	G	2'-0"	9'-5"	2'-0"							3'-0"	Socket
F0650	44	11'-4"	D	0'-11"	9'-6"					0'-11"				Transverse ties
F0651	26	13'-10"	D	0'-11"	12'-0"					0'-11"				Transverse ties
F0652	70	39'-4"	D	0'-11"	37'-6"					0'-11"				Transverse ties
F0653	560	20'-8"	F	0'-8"	20'-0"									Cross ties
F0654	720	11'-5"	J	0'-11"	9'-6"					1'-0"				Cross ties
F0655	432	13'-11"	J	0'-11"	12'-0"					1'-0"				Cross ties
F0656	462	3'-7"	O	0'-8"	2'-0"					0'-11"				Pile hook
F1450	140	12'-2"	C	2'-7"	9'-7"									Shaft dowel
F1451	140	14'-8"	C	2'-7"	12'-1"									Shaft dowel
F1452	168	8'-3"	C	2'-7"	5'-8"									Shaft dowel
F1453	156	10'-9"	C	2'-7"	8'-2"									Shaft dowel

BENT BARS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	REMARKS
PIER FOOTING - DRILLED SHAFT ALTERNATIVE														
F0550	72	13'-5"	G	2'-0"	9'-5"	2'-0"							3'-0"	Socket
F0650	44	11'-4"	D	0'-11"	9'-6"					0'-11"				Transverse ties
F0651	26	13'-10"	D	0'-11"	12'-0"					0'-11"				Transverse ties
F0652	70	39'-4"	D	0'-11"	37'-6"					0'-11"				Transverse ties
F0653	560	20'-8"	F	0'-8"	20'-0"									Cross ties
F0654	720	11'-5"	J	0'-11"	9'-6"					1'-0"				Cross ties
F0655	432	13'-11"	J	0'-11"	12'-0"					1'-0"				Cross ties
F0656	18	199'-0"	P	6							6'	6'-4"	3'-2"	Drilled shaft
F1450	140	12'-2"	C	2'-7"	9'-7"									Shaft dowel
F1451	140	14'-8"	C	2'-7"	12'-1"									Shaft dowel
F1452	168	8'-3"	C	2'-7"	5'-8"									Shaft dowel
F1453	156	10'-9"	C	2'-7"	8'-2"									Shaft dowel
DRILLED SHAFT (NORTH BASCULE PIER - 100FT AVE LENGTH)														
x0650	18	4242'	P	208							Varies**	6'-4"	3'-2"	
x0651	18	570'	P	30							6'	5'-4"	2'-8"	
x01450	18	57'-11"	F	2'-3"	55'-8"									
x01451	18	55'-5"	F	2'-3"	53'-2"									

All dimensions are out to out of reinf. bar.
Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 318.
Reinforcing steel: AASHTO M31 (ASTM A615), grade 60.
All reinforcing is epoxy coated except reinforcing for drilled shafts.

* An average depth is used to estimate the length of reinforcement based on available boring information. Actual length of each individual shaft may vary. Contractor shall determine the required length in the field and prepare detailed bar schedule for each shaft accordingly. Payment for reinforcement shall be considered incidental to placement of drilled shafts.

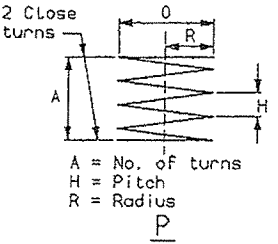
** See sheet 19 for details.

GENERAL NOTES

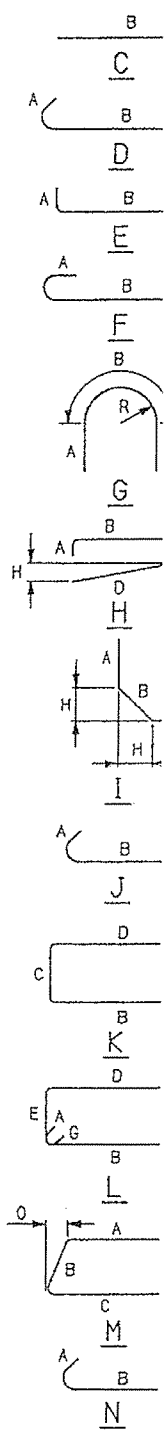
1. First digit(s) following the letter of the mark indicates size of reinf. bar.

Mark (A0502) bar size - #5
Mark (P1001) bar size - #10
Mark (S0603) bar size - #6

(t) = Typical
(s) = Skewed



TYPE-BENDING



BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

NORTH BASCULE
BAR SCHEDULE

F.H.W.A. REG. NO.	STATE	PROJECT
1	MAINE	DPI-DO

Figure 1 consists of 12 diagrams labeled A through L, illustrating various bending configurations for a wire. The diagrams are arranged in two columns. The left column contains diagrams A through J, and the right column contains diagrams K through L. Each diagram shows a wire being bent into a specific shape, with labels indicating the starting point (A), the bend (B), the ending point (C), and the radius of the bend (R). Some diagrams also include a height (H) or a distance (D). Diagrams K and L show a wire bent into a loop with a radius R and a height H, with a note '2 Close turns' indicating the number of turns.

ALL dimensions are out to out of
Bending details and hooks shall
be the recommendations of the current
of ACI Standard 318.

Reinforcing steel: AASHTO M31 (A
grade 60.

ALL reinforcing is epoxy coated
reinforcing for drilled shafts.

1. First digit(s) following the . mark indicates size of reinf.

Mark	(A0502)	bar size	- #
Mark	(P1001)	bar size	- #
Mark	(S0603)	bar size	- #

(t) = Typical
(s) = Skewed

STATE OF MAINE
DEPARTMENT OF TRANSPORT

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND CO.

SOUTH BASCULE BAR SCHEDULE

* An average depth is used to estimate the length of reinforcement based on available boring information. Actual length of each individual shaft may vary. Contractor shall determine the required length in the field and prepare detailed bar schedule for each shaft accordingly. Payment for reinforcement shall be considered incidental to placement of drilled shafts.

REINFORCING STEEL SCHEDULE

F.H.V.A. STATE PROJECT MA
REG. NO. 1 MAINE DPT-0068

BENT BARS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	REMARKS
PIER EXTENSION														
E0550	44	9'-4"	E	1'-0"	7'-4"					1'-0"				T & B diaph (t)
E0551	81	5'-6"	E	2'-0"	1'-6"					2'-0"				Ctr & B diaph
E0552	2	9'-8"	E	1'-0"	7'-8"					1'-0"				T & B diaph (s)
E0553	2	10'-3"	E	1'-0"	8'-3"					1'-0"				Top diaph (s)
		to			to									Length varies
		10'-6"		1'-0"	8'-6"					1'-0"				(1 set)
		by			by									
		0'-3"			0'-3"									
E0554	2	10'-8"	E	1'-0"	8'-9"					1'-0"				T & B diaph (s)
E0555	9	7'-6"	E	3'-0"	1'-6"					3'-0"				Ctr & B diaph(s)
E0750	244	21'-6"	K	0'-9"	7'-6"	2'-6"	7'-6"	2'-6"		0'-9"				Front wall (t)
E0751	248	20'-8"	E	9'-10"	1'-0"					9'-10"				Side wall (t)
E0752	24	11'-3"	C	1'-6"	9'-9"									T & B diaph (t)
E0753	15	8'-2"	E	3'-4"	1'-6"					3'-4"				Ctr & B diaph(t)
E0754	30	6'-0"	E	2'-3"	1'-6"					2'-3"				Ctr & B diaph
E0755	51	22'-3"	L	0'-9"	7'-6"	2'-8"	8'-1"	2'-6"		0'-9"	0'-7"			Front wall (s)
E0756	31	16'-8"	E	7'-10"	1'-0"					7'-10"				Side wall (s)
E0757	31	14'-2"	H	6'-2"	1'-6"	6'-6"					1'-6"	0'-4"		Side wall (s)
E0758	2	9'-0"	C	1'-6"	7'-6"									T & B diaph (s)
E0759	2	8'-9"	C	1'-6"	7'-3"									Top diaph (s)
		to			to									Length varies
		8'-6"		1'-6"	7'-0"									(1 set)
		by			by									
		0'-3"			0'-3"									
E0760	4	8'-2"	C	1'-6"	6'-8"									T & B diaph (s)
		to			to									Length varies
		7'-11"		1'-6"	6'-5"									(2 sets)
		by			by									
		0'-3"			0'-3"									

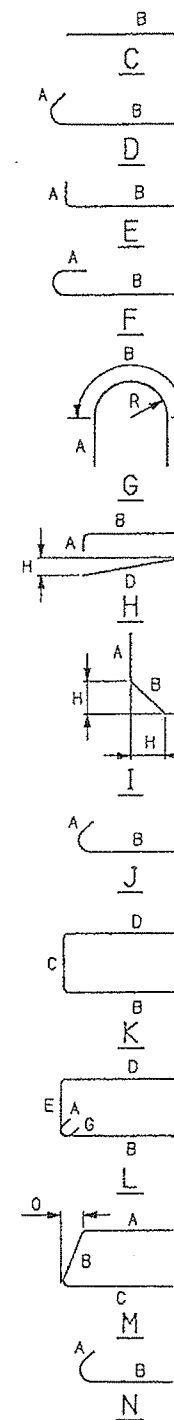
PIER FOOTING - H-PILE ALTERNATIVE

F0550	72	13'-5"	G	2'-0"	9'-5"	2'-0"							3'-0"	Socket
F0650	44	11'-4"	D	0'-11"	9'-6"					0'-11"				Transverse ties
F0651	26	13'-10"	D	0'-11"	12'-0"					0'-11"				Transverse ties
F0652	70	39'-4"	D	0'-11"	37'-6"					0'-11"				Transverse ties
F0653	560	20'-8"	F	0'-8"	20'-0"									Cross ties
F0654	720	11'-5"	J	0'-11"	9'-6"					1'-0"				Cross ties
F0655	432	13'-11"	J	0'-11"	12'-0"					1'-0"				Cross ties
F0656	462	3'-7"	O	0'-8"	2'-0"					0'-11"				Pile hook
F1450	140	12'-2"	C	2'-7"	9'-7"									Shaft dowel
F1451	140	14'-8"	C	2'-7"	12'-1"									Shaft dowel
F1452	168	8'-3"	C	2'-7"	5'-8"									Shaft dowel
F1453	156	10'-9"	C	2'-7"	8'-2"									Shaft dowel

BENT BARS

PIER FOOTING - DRILLED SHAFT ALTERNATIVE														
F0550	72	13'-5"	G	2'-0"	9'-5"	2'-0"							3'-0"	Socket
F0650	44	11'-4"	D	0'-11"	9'-6"					0'-11"				Transverse ties
F0651	26	13'-10"	D	0'-11"	12'-0"					0'-11"				Transverse ties
F0652	70	39'-4"	D	0'-11"	37'-6"					0'-11"				Transverse ties
F0653	560	20'-8"	F	0'-8"	20'-0"									Cross ties
F0654	720	11'-5"	J	0'-11"	9'-6"					1'-0"				Cross ties
F0655	432	13'-11"	J	0'-11"	12'-0"					1'-0"				Cross ties
F0656	18	199'-0"	P	6							6'	6'-4"	3'-2"	Drilled shaft
F1450	140	12'-2"	C	2'-7"	9'-7"									Shaft dowel
F1451	140	14'-8"	C	2'-7"	12'-1"									Shaft dowel
F1452	168	8'-3"	C	2'-7"	5'-8"									Shaft dowel
F1453	156	10'-9"	C	2'-7"	8'-2"									Shaft dowel
DRILLED SHAFT (SOUTH BASCULE PIER - 72 FT AVE LENGTH)														
*D0650	18	3128'	P	153							Varies**	6'-4"	3'-2"	
*D0651	18	570'	P	30							6'	5'-4"	2'-8"	
*D1450	18	57'-11"	F	2'-3"	55'-8"									
*D1451	18	55'-5"	F	2'-3"	53'-2"									

TYPE-BENDING



ALL dimensions are out to out of reinf. bar.
Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 318.
Reinforcing steel: AASHTO M31 (ASTM A615), grade 60.
All reinforcing is epoxy coated except reinforcing for drilled shafts.

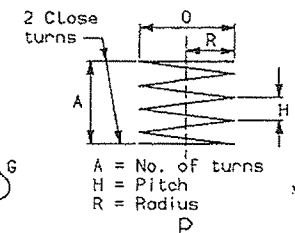
* An average depth is used to estimate the length of reinforcement based on available boring information. Actual length of each individual shaft may vary. Contractor shall determine the required length in the field and prepare detailed bar schedule for each shaft accordingly. Payment for reinforcement shall be considered incidental to placement of drilled shafts.
** See sheet 19 for details.

GENERAL NOTES

1. First digit(s) following the letter of the mark indicates size of reinf. bar.

Mark (A0502) bar size - #5
Mark (P1001) bar size - #10
Mark (S0603) bar size - #6

(t) = Typical
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BASCULE SUBSTRU

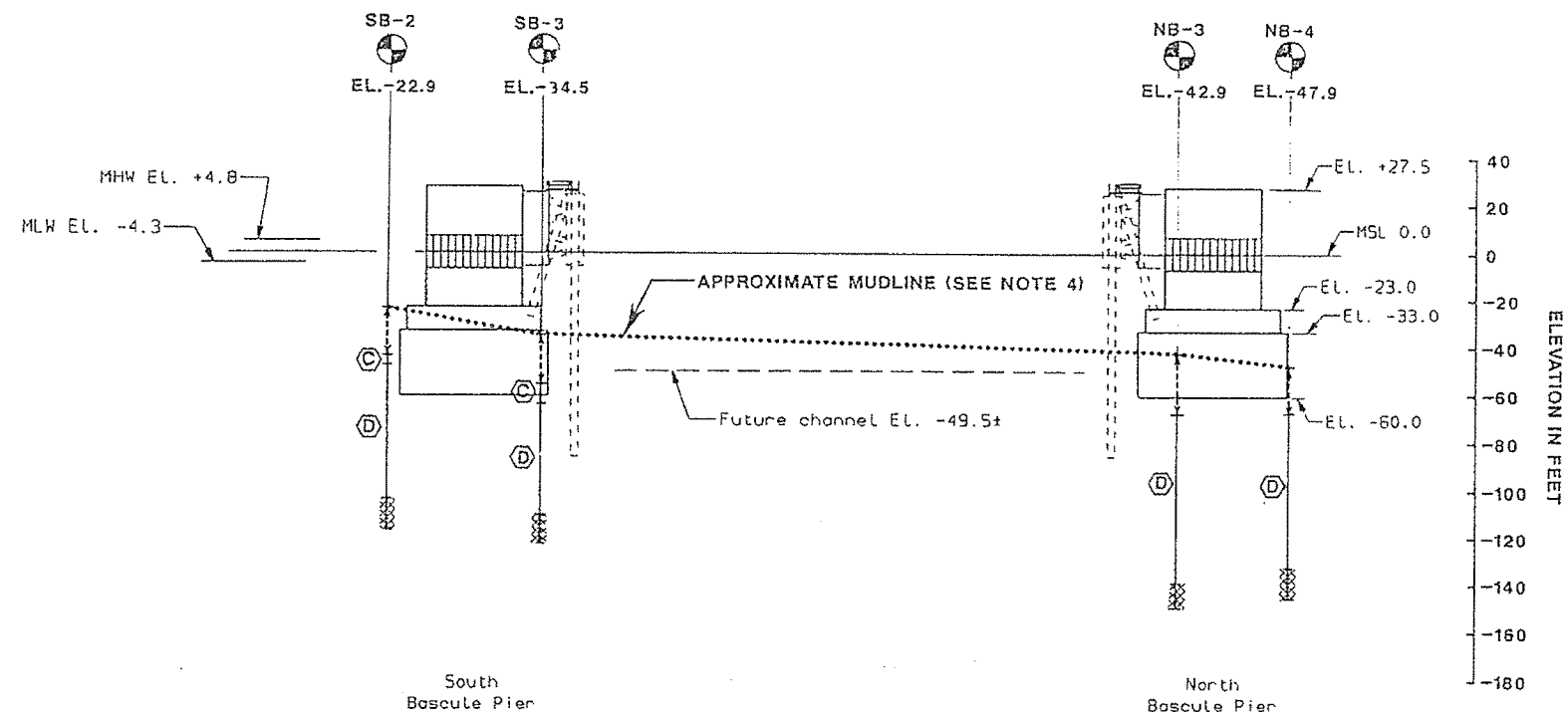
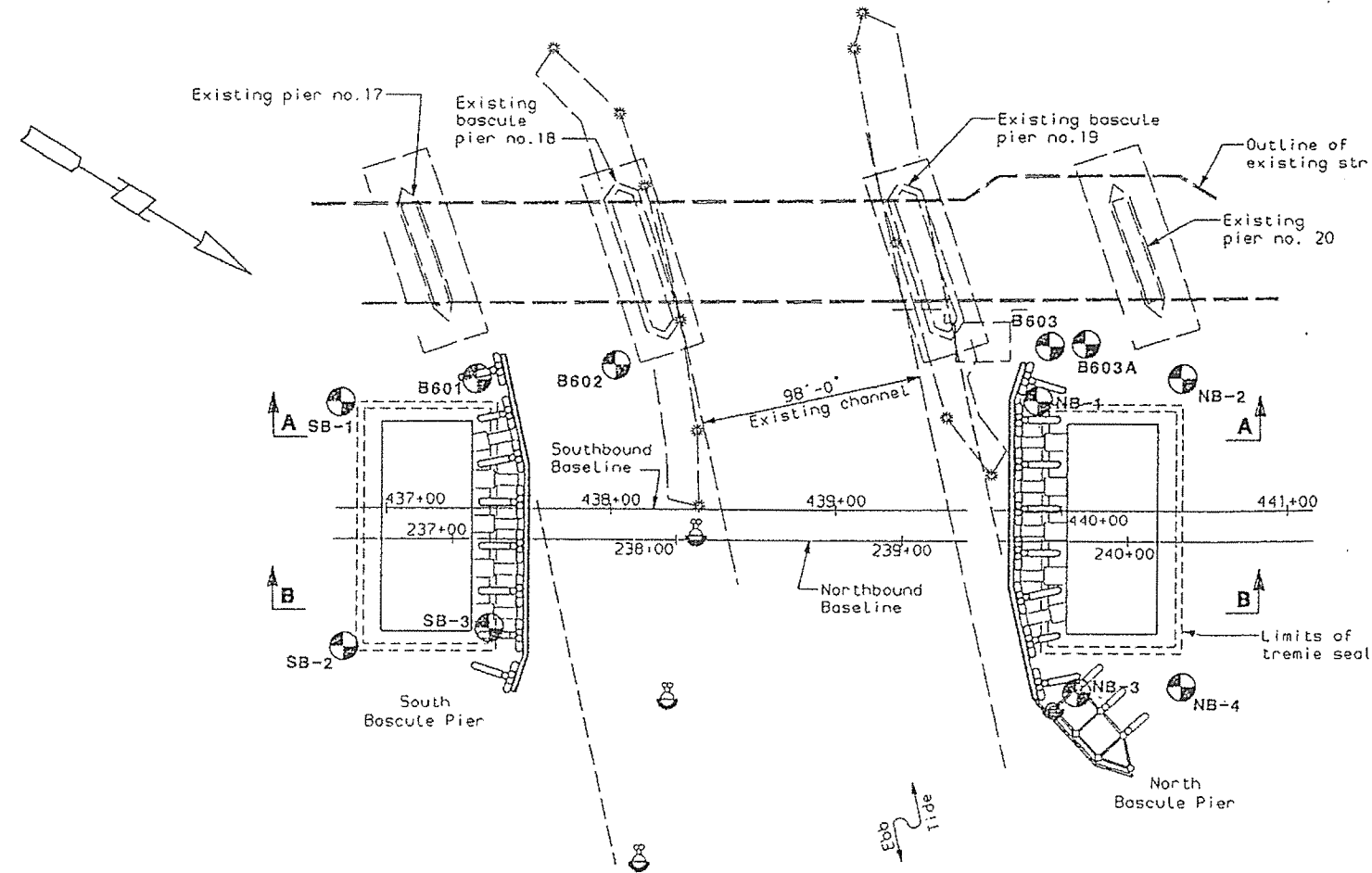
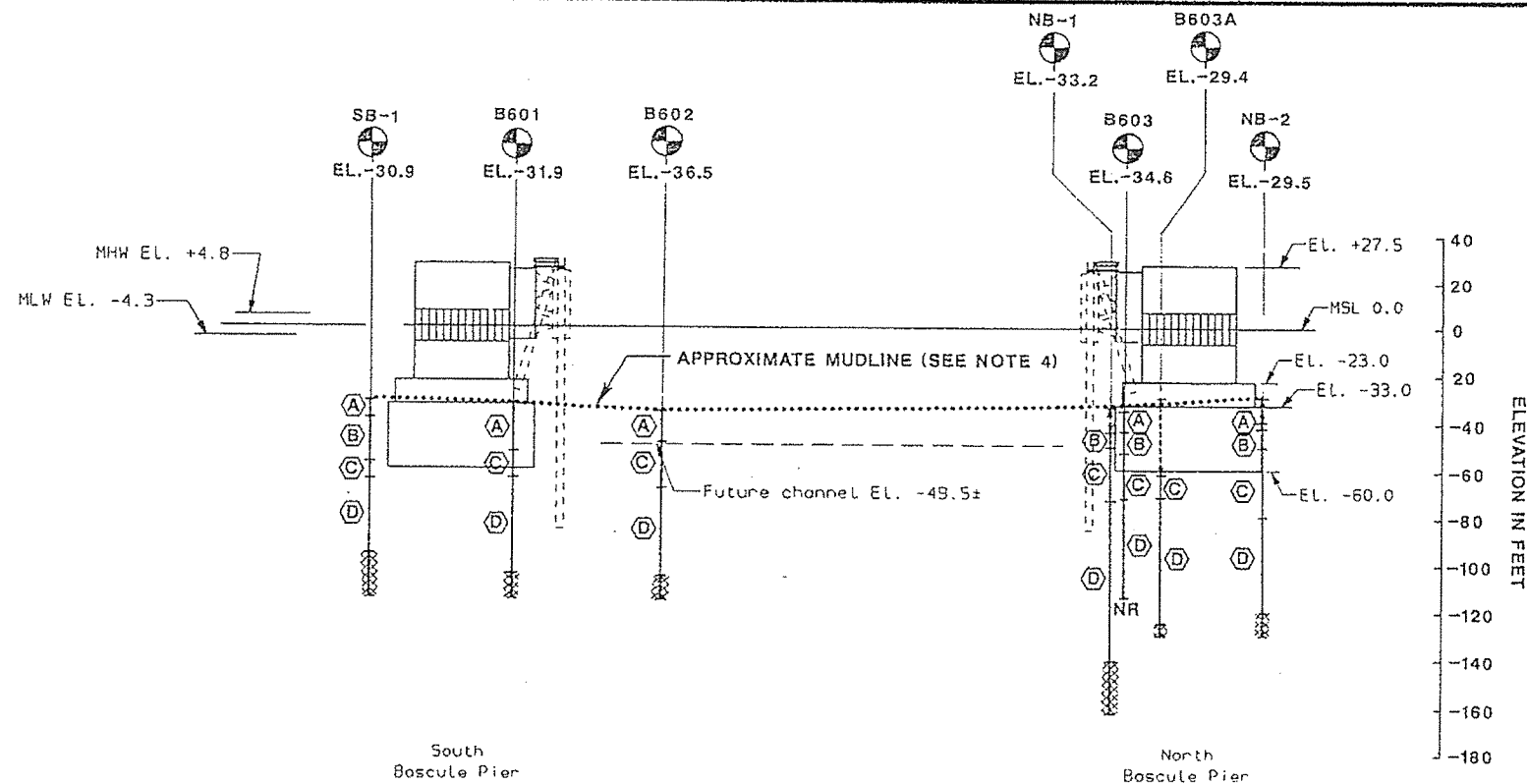
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY

SOUTH BASCULE BAR SCHEDULE

SHEET 40 OF 57 - AUGUSTA, MA

e. bar 2



TEST BORING LEGEND:

- B603 Designation and location of test boring drilled by Maine Test Borings, Inc. of Brewer, Maine
- EL. -34.6 Approximate mudline elevation at test boring location
- Indicates depth range in test boring without sample recovery
- Location of strata change encountered in test boring
- NR Indicates test boring was terminated without reaching refusal

GEOLOGIC LEGEND:

- | | | |
|-----------------------|-----|--|
| HARBOR BOTTOM DEPOSIT | (A) | Variable deposit ranging from very soft dark gray silty CLAY to medium dense black gravelly coarse to medium SAND (occasionally with shells and wood fragments) or soft to medium stiff olive-gray to gray organic silty CLAY with shell fragments (denoted ORGANIC CLAY on boring logs) |
| MARINE CLAY | (B) | Medium stiff to stiff gray silty CLAY with occasional shell fragments and fine sand seams |
| MARINE SAND | (C) | Loose to medium dense gray medium to fine or silty fine SAND |
| GLACIAL TILL | (D) | Variable deposit ranging from very stiff gray clayey SILT, some coarse to fine sand to dense to very dense silty medium to fine SAND to very dense gray sandy GRAVEL with frequent COBBLES and BOULDERS |
| BEDROCK | | Moderately hard to hard, fresh to highly weathered, slightly to severely fractured aphanitic SCHIST, to CHLORITE SCHIST, to aphanitic PHYLLITE to aphanitic METASEDIMENT. |

NOTES:

- A subsurface investigation was performed for the bascule pier four & Aldrich, Inc. of Portland, Maine. Results are presented in the 3 Haley & Aldrich report.
- Test boring locations were surveyed by ASEC Corporation of Boston except borings SD2 and SD3 which were located approximately by personnel by tapping from the existing bridge.
- Mudline elevations at boring locations were determined approximately Haley & Aldrich using tide gages installed by ASEC Corporation. Elevations are in feet and refer to National Geodetic Vertical Datum.
- The approximate mudline shown on the subsurface profile is based on interpolation between test boring locations and may not agree with conditions.
- Detailed soil descriptions are included in the test boring logs shown through 51.

BASCULE SUBSTRUCTURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

BASCULE PIERS BORING
PLAN AND SUBSURFACE PROFILES

SHEET 41 OF 54 AUGUSTA, MAINE

DESIGN-DETAILED
CHECKED
REVISION
FIELD CHANGES

PLANS

bas. sub 1

HALEY & ALDRICH, INC., PORTLAND, MAINE Consulting Geotechnical Engineers, Geologists and Hydrogeologists			TEST BORING REPORT			BORING NO. B601-08		
PROJECT: PROPOSED FORE RIVER BRIDGE REPLACEMENT, PORTLAND/SOUTH PORTLAND, MAINE CLIENT: T.T. LIN INTERNATIONAL, FALMOUTH, MAINE CONTRACTOR: MAINE TEST BORINGS, INC., BREWER, MAINE						FILE NO. 08946-00 SHEET NO. 1 OF 4 LOCATION:		
ITEM		CASING	DRIVE SAMPLER	CORE BARREL	DRILLING EQUIPMENT & PROCEDURES		ELEVATION: -31.93 DATE: 10 OCT. 1988 START: 10 OCT. 1988 FINISH: 13 OCT. 1988 DRILLER: G. LUDSTONE SEA REP: S. DEKOR	
TYPE		NW	SS	8X	RIG TYPE: ONE 45 SCID ON BARGE BIT TYPE: ROLLER BIT DRILL MUD: - OTHER: WASH AHEAD OF CASING BELOW 68 FT.			
INSIDE DIAMETER (IN)		3	1 3/8	1 1/2				
HAMMER WEIGHT (LBS)		300	140	-				
HAMMER FALL (IN)		16	30	-				
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS		
1	WOC/ 4.1	5	S1	0.0		NO RECOVERY		
2	5.1	7	HR	1.3		Black silty CLAY, little medium to fine sand, shell fragments up in wash to 3.6 ft.		
3	5	1				-HARBOR BOTTOM DEPOSIT- (ORGANIC CLAY)		
4	1							
5	1				3.6	Very soft, gray-brown silty CLAY, little medium to fine sand, some organics		
6	WOC	WOC	S2	5.0		-HARBOR BOTTOM DEPOSIT- (ORGANIC CLAY)		
7	WOC	WOC	1*	6.5				
8	WOC							
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HALEY & ALDRICH, INC., PORTLAND, MAINE Consulting Geotechnical Engineers, Geologists and Hydrogeologists				TEST BORING REPORT		BORING NO. B601-08 FILE NO. 08946-00 SHEET NO. 3 OF 4	
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS	
65		50/0	\$16 NR	60.0	72.2	Probable cobble near 60.0 ft. NOTE: Will wash ahead and not drive casing from 60.0 ft.	
						Very stiff, dark gray medium to fine sandy SILT, little coarse sand and clay, trace fine gravel -GLACIAL TILL- Probable pieces of bedrock up in wash beginning at 72.2 ft., roller cone to 72.5 ft. Probable weathered bedrock surface at 72.2 ft. Hammer cone to 72.5 ft. Begin 8X Rock Core at 72.5 ft. (See Core Boring Report)	
70		765	\$19 6"	65.0 65.5			
75							
80							

HALEY & ALDRICH, INC., PORTLAND, MAINE Consulting Geotechnical Engineers, Geologists and Hydrogeologists				TEST BORING REPORT		BORING NO. B601-08 FILE NO. 08946-00 SHEET NO. 2 OF 4	
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS	
13		1	S6	25.0	36.2	Very loose grading to loose, gray medium to fine SAND, trace silt, grading to gray silty fine SAND, layer gray silty CLAY	
6		2	10"	26.5			
7		5					
7							
10							
15		4	S7	30.0		Loose, gray medium to fine SAND, trace coarse sand and silt -MARINE SAND-	
13		3	6"	31.5			
24		4					
18							
59							
35						NO RECOVERY, probable cobble near 35.0 ft., probable granular material	
116		84	S8	35.0			
127	65.2		HR	35.7			
153							
112							
40					Very stiff, gray fine sandy SILT, little coarse to medium sand and clay, trace fine gravel NOTE: Material is bonded in situ		
85							
60		11	S9	40.0			
132		23	10"	41.5			
96		67					
96					-GLACIAL TILL-		
76							
60							
45							
91		5	S10	45.0			
84		5	HR	46.5	NO RECOVERY		
109		8					
100		13	S11	46.5			
100		15	10"	48.0			
61		18					
50					Very stiff, dark gray clayey SILT, trace fine sand, interlayered with very stiff, gray fine sandy SILT, little medium sand and clay, trace fine gravel and coarse sand		
85		7	S12	50.0			
53		18	10"	51.5			
39		31					
38							
44					Probable piece of coarse gravel or cobble at 52.9 ft.		
55							
60					Very stiff, dark gray clayey SILT, interlayered with dark gray medium to fine sandy SILT, little clay, trace fine gravel and coarse sand, seams light gray SILT		

HALEY & ALDRICH, INC., PORTLAND, MAINE Consulting Geotechnical Engineers, Geologists and Hydrogeologists					CORE BORING REPORT		BORING NO. B601-08 FILE NO. 08946-00 SHEET NO. 4 OF 4	
DEPTH (FT)	DRILLING RATE MIN./FT.	CORE NO. DEPTH (FT)	RECOVERY IN. X	WEATH- ERING	STRATA CHANGE (FT)	VISUAL CLASSIFICATION AND REMARKS		
						72.2 ft. of Overburden (See Test Boring Report) Hammer cone to 72.5 ft. Begin 8X Rock Core at 72.5 ft.		
70						Probable Weathered Bedrock surface at 72.2 ft.		
7					72.2	(C1) Hard, slightly weathered, green, aphanitic, chloritic PHYLLITE; close, open, planar, rough, moderately dipping ("39") joints parallel to foliation/cleavage; very close, tight, planar, smooth, steeply dipping ("73") joint pair at 73.8 ft., joints have slickensides indicating normal movement; extremely closely jointed zone from 74.1-75.4 ft., possible shear zone associated with joints at 73.8 ft.		
6		72.5						
17		C1	23	66				
75		75.4			SL			
10		75.4						
8		C2	31	100				
3		76.0				(C2) Hard, slightly weathered, dark green grading to black, aphanitic chloritic PHYLLITE; close, open, planar, rough, moderately dipping ("39") joints parallel to foliation/cleavage; joints have slickensides indicating normal movement; extremely closely jointed zone extending to 73.8 ft.		
80		76.0						
5		C3	36	100				
12		81.0						
5		81.0						
5		C4	31	100		(C3) Hard, slightly weathered, green, aphanitic, chloritic PHYLLITE; close, open, planar, rough, moderately dipping ("39") joints parallel to foliation/cleavage; very close, tight, planar, smooth, steeply dipping ("73") joint pair at 73.8 ft., joints have slickensides indicating normal movement; extremely closely jointed zone associated with joints at 73.8 ft.		
8		83.6			85.6			
85						(C4) Moderately hard, joints close to moderately close, slightly weathered, green, aphanitic, chloritic PHYLLITE; close, open, planar, rough, moderately dipping ("39") joints parallel to foliation/cleavage; very close, tight, planar, smooth, steeply dipping ("73") joint pair at 82.8 ft., joints have slickensides indicating normal movement; extremely closely jointed shear zone associated with joints at 82.8 ft.		
						Bottom of Exploration at 83.6 ft.		

BASCULE SUBSTRI

STATE OF MAINE
DEPARTMENT OF TRANSPORTATIONPORTLAND - S. PORTLAND
OVER FORE RIVER
CUMBERLAND COUNTY

BORINGS -

PROJECT DESIGN ENGINEER
DESIGN-DETAILED
CHECKED
REVISION
FIELD CHANGES
PLANS
DATE
BY

b blank

HALEY & ALDRICH, INC., PORTLAND, MAINE Consulting Geotechnical Engineers, Geologists and Hydrogeologists				TEST BORING REPORT				BORING NO. 8602-85 FILE NO. 05946-00 SHEET NO. 1 OF 4 LOCATION:			
PROJECT: PROPOSED FORE RIVER BRIDGE REPLACEMENT, PORTLAND/SOUTH PORTLAND, MAINE CLIENT: T.T. LIM INTERNATIONAL, FALMOUTH, MAINE CONTRACTOR: MAINE TEST BORINGS, INC., BREWER, MAINE								DRILLING EQUIPMENT & PROCEDURES RIG TYPE: ONE 45 SCID ON BARGE BIT TYPE: POLLER BIT DRILL MOD: - OTHER: - ELEVATION: -36.54 DATE: NOV START: 13 OCT. 1988 FINISH: 20 OCT. 1988 DRILLER: G. LUDSTOWE MMA REP: S.DIXON			
ITEM		CASING		DRIVE SAMPLER		CORE BARREL		VISUAL CLASSIFICATION AND REMARKS			
TYPE		WV		SS		BY		Very soft, black medium to fine sandy silty CLAY, trace fine gravel and coarse sand, some organics -HARBOR BOTTOM DEPOSIT-			
INSIDE DIAMETER (IN)		3		1 3/8		1 1/2		Soft to medium stiff, gray-brown clayey SILT, trace fine sand, layer silty fine SAND, trace clay -HARBOR BOTTOM DEPOSIT-			
HAMMER WEIGHT (LB)		300		120		-		Medium dense, black medium to fine SAND, little fine gravel, coarse sand and silt, piece of concrete and wood Piece of wood from 11.2 - 11.7 ft. NOTE: Sand and wood have pungent, oily odor -HARBOR BOTTOM DEPOSIT-			
HAMMER FALL (IN)		16		30		-		Loose, gray medium to fine SAND NOTE: Running sand beginning at 15.0 ft.			
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	STRATA CHANGE (FT)						
5	100	1	51	9.0	2.6						
6	100	1	52	5.0							
10	110	1	53	10.0	10.6						
11	110	1	54	11.5							
15	120	4	55	15.0	13.3						
16	120	5	56	16.5							
20	130	1	57	20.0	13.3						
21	130	1	58	21.0							
25	140	1	59	25.0	13.3						
26	140	1	60	26.0							
30	150	1	61	30.0	13.3						
31	150	1	62	31.0							
35	160	1	63	35.0	13.3						
36	160	1	64	36.0							
40	170	1	65	40.0	13.3						
41	170	1	66	41.0							
45	180	1	67	45.0	13.3						
46	180	1	68	46.0							
50	190	1	69	50.0	13.3						
51	190	1	70	51.0							
55	200	1	71	55.0	13.3						
56	200	1	72	56.0							
60	210	1	73	60.0	13.3						
61	210	1	74	61.0							
65	220	1	75	65.0	13.3						
66	220	1	76	66.0							
70	230	1	77	70.0	13.3						
71	230	1	78	71.0							
75	240	1	79	75.0	13.3						
76	240	1	80	76.0							
80	250	1	81	80.0	13.3						
81	250	1	82	81.0							
85	260	1	83	85.0	13.3						
86	260	1	84	86.0							
90	270	1	85	90.0	13.3						
91	270	1	86	91.0							
95	280	1	87	95.0	13.3						
96	280	1	88	96.0							
100	290	1	89	100.0	13.3						
101	290	1	90	101.0							
105	300	1	91	105.0	13.3						
106	300	1	92	106.0							
110	310	1	93	110.0	13.3						
111	310	1	94	111.0							
115	320	1	95	115.0	13.3						
116	320	1	96	116.0							
120	330	1	97	120.0	13.3						
121	330	1	98	121.0							
125	340	1	99	125.0	13.3						
126	340	1	100	126.0							
130	350	1	101	130.0	13.3						
131	350	1	102	131.0							
135	360	1	103	135.0	13.3						
136	360	1	104	136.0							
140	370	1	105	140.0	13.3						
141	370	1	106	141.0							
145	380	1	107	145.0	13.3						
146	380	1	108	146.0							
150	390	1	109	150.0	13.3						
151	390	1	110	151.0							
155	400	1	111	155.0	13.3						
156	400	1	112	156.0							
160	410	1	113	160.0	13.3						
161	410	1	114	161.0							
165	420	1	115	165.0	13.3						
166	420	1	116	166.0							
170	430	1	117	170.0	13.3						
171	430	1	118	171.0							
175	440	1	119	175.0	13.3						
176	440	1	120	176.0							
180	450	1	121	180.0	13.3						
181	450	1	122	181.0							
185	460	1	123	185.0	13.3						
186	460	1	124	186.0							
190	470	1	125	190.0	13.3						
191	470	1	126	191.0							
195	480	1	127	195.0	13.3						
196	480	1	128	196.0							
200	490	1	129	200.0	13.3						
201	490	1	130	201.0							
205	500	1	131	205.0	13.3						
206	500	1	132	206.0							
210	510	1	133	210.0	13.3						
211	510	1	134	211.0							
215	520	1	135	215.0	13.3						
216	520	1	136	216.0							
220	530	1	137	220.0	13.3						
221	530	1	138	221.0							
225	540	1	139	225.0	13.3						
226	540	1	140	226.0							
230	550	1	141	230.0	13.3						
231	550	1	142	231.0							
235	560	1	143	235.0	13.3						
236	560	1	144	236.0							
240	570	1	145	240.0	13.3						
241	570	1	146	241.0							
245	580	1	147	245.0	13.3						
246	580	1	148	246.0							
250	590	1	149	250.0	13.3						
251	590	1	150	251.0							
255	600	1	151	255.0	13.3						

TEST BORING REPORT

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE

BORING NO. NB-2

PROJECT: PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE

CLIENT: T.J. LEE INTERNATIONAL, FALMOUTH, MAINE

CONTRACTOR: MAINE TEST BORINGS, INC.

FILE NO. 0804-06

SHEET NO. 1 OF 4

LOCATION: SEE PLAN

ELEVATION: -29.5

DATE: 26 May 1992

FINISH: 6 June 1992

DRILLER: G. LIOSTONE

H & A REP: R. JENSEN

ITEM	CASING	DRIVE	CORE	DRILLING EQUIPMENT & PROCEDURES
TYPE	4.0	55	30	HQ TYPE ONE TSD ON BARGE
INSIDE DIAMETER (IN)	4.0	1 3/8	2.0	BIT TYPE: ROLLER BIT
HAMMER WEIGHT (LB)	300	140	-	DRILL MTD NONE
HAMMER FALL (IN)	16	30	-	OTHER: PV = 3 1/2 IN. X 7
				IN. FIELD VANE SHEAR, SU =
				UNDRAINED SHEAR STRENGTH

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER FT	SAMPLE NUMBER & DEPTH (FT)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS
0					NOTE: 0 to 10.0 ft. advanced & 10. PVC with water jet. No samples taken.
5					
10					
15					
20					
25					

DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT.) TO: SWITCH OF CASING OF HOLE	WATER	SUMMARY

BORING NO. NB-2

TEST BORING REPORT

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE

BORING NO. NB-2

FILE NO. 0804-06

SHEET NO. 3 OF 4

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER FT	SAMPLE NUMBER & DEPTH (FT)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS
0					
5					
10					
15					
20					
25					

BORING NO. NB-2

TEST BORING REPORT

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE

BORING NO. NB-2

FILE NO. 0804-06

SHEET NO. 2 OF 4

DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER FT	SAMPLE NUMBER & DEPTH (FT)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS
0					
5					
10					
15					
20					
25					

BORING NO. NB-2

CORE BORING REPORT

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE

BORING NO. NB-2

FILE NO. 0804-06

SHEET NO. 4 OF 4

DEPTH (FT)	DRILLING RATE (IN/FT)	RUN DEPTH (FT)	RECOVERY/ROD (IN)	WEAR-ER (IN)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS
0						
5						
10						
15						
20						
25						

TEST BORING REPORT

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE

BORING NO. NB-3

FILE NO. 08946-06

SHEET NO. 1 OF 5

LOCATION SEE PLAN

PROJECT PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE

CLIENT T. F. LIN INTERNATIONAL, FALMOUTH, MAINE

CONTRACTOR MAINE TEST BORINGS, INC.

ITEM CASING DRIVE CORE DRILLING EQUIPMENT & PROCEDURES

TYPE INSIDE DIAMETER (IN) 4.0 1 5/8 3/4

HAMMER WEIGHT (LB) 300 140 140

HAMMER FALL (IN) 16 30

ELEVATION -62.9

DATE 21 April 1992

FINISH 4 May 1992

DRILLER C. LIDSTONE

H & A REP S. JENSEN

DEPTH CASING BLOWS SAMPLER SAMPLE ELEV./ VISUAL DESCRIPTION AND REMARKS

(FT) (PER FT) (PER 6 IN) (FT) (FT)

0 0 0 0 0 0

5 0 0 0 0 0

10 0 0 0 0 0

15 0 0 0 0 0

20 0 0 0 0 0

25 0 0 0 0 0

WATER LEVEL DATA

DATE TIME ELAPSED DEPTH (FT) TO: WATER

0 0 0 0 0

1 0 0 0 0

2 0 0 0 0

3 0 0 0 0

4 0 0 0 0

5 0 0 0 0

SAMPLE IDENTIFICATION

0 OPEN END ROD

1 THIN WALL TUBE

2 UNDISTURBED SAMPLE

3 SPLIT SPOON

SUMMARY

OVERBURDEN (LIM FT) 95.7

ROCK CORED (LIM FT) 10.0

SAMPLES 135,3C

BORING NO. NB-3

TEST BORING REPORT

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE

BORING NO. NB-3

FILE NO. 08946-06

SHEET NO. 3 OF 5

DEPTH CASING BLOWS SAMPLER SAMPLE ELEV./ VISUAL DESCRIPTION AND REMARKS

(FT) (PER FT) (PER 6 IN) (FT) (FT)

0 0 0 0 0 0

5 0 0 0 0 0

10 0 0 0 0 0

15 0 0 0 0 0

20 0 0 0 0 0

25 0 0 0 0 0

30 0 0 0 0 0

35 0 0 0 0 0

40 0 0 0 0 0

45 0 0 0 0 0

50 0 0 0 0 0

55 0 0 0 0 0

60 0 0 0 0 0

65 0 0 0 0 0

70 0 0 0 0 0

75 0 0 0 0 0

80 0 0 0 0 0

85 0 0 0 0 0

90 0 0 0 0 0

95 0 0 0 0 0

100 0 0 0 0 0

105 0 0 0 0 0

110 0 0 0 0 0

115 0 0 0 0 0

120 0 0 0 0 0

125 0 0 0 0 0

130 0 0 0 0 0

135 0 0 0 0 0

140 0 0 0 0 0

145 0 0 0 0 0

150 0 0 0 0 0

155 0 0 0 0 0

160 0 0 0 0 0

165 0 0 0 0 0

170 0 0 0 0 0

175 0 0 0 0 0

180 0 0 0 0 0

185 0 0 0 0 0

190 0 0 0 0 0

195 0 0 0 0 0

200 0 0 0 0 0

205 0 0 0 0 0

210 0 0 0 0 0

215 0 0 0 0 0

220 0 0 0 0 0

225 0 0 0 0 0

230 0 0 0 0 0

235 0 0 0 0 0

240 0 0 0 0 0

245 0 0 0 0 0

250 0 0 0 0 0

255 0 0 0 0 0

260 0 0 0 0 0

265 0 0 0 0 0

270 0 0 0 0 0

275 0 0 0 0 0

280 0 0 0 0 0

285 0 0 0 0 0

290 0 0 0 0 0

295 0 0 0 0 0

300 0 0 0 0 0

305 0 0 0 0 0

310 0 0 0 0 0

315 0 0 0 0 0

320 0 0 0 0 0

325 0 0 0 0 0

330 0 0 0 0 0

335 0 0 0 0 0

340 0 0 0 0 0

345 0 0 0 0 0

350 0 0 0 0 0

355 0 0 0 0 0

360 0 0 0 0 0

365 0 0 0 0 0

370 0 0 0 0 0

375 0 0 0 0 0

380 0 0 0 0 0

385 0 0 0 0 0

390 0 0 0 0 0

395 0 0 0 0 0

400 0 0 0 0 0

405 0 0 0 0 0

410 0 0 0 0 0

415 0 0 0 0 0

420 0 0 0 0 0

425 0 0 0 0 0

430 0 0 0 0 0

435 0 0 0 0 0

440 0 0 0 0 0

445 0 0 0 0 0

450 0 0 0 0 0

455 0 0 0 0 0

460 0 0 0 0 0

465 0 0 0 0 0

470 0 0 0 0 0

475 0 0 0 0 0

480 0 0 0 0 0

485 0 0 0 0 0

490 0 0 0 0 0

495 0 0 0 0 0

500 0 0 0 0 0

505 0 0 0 0 0

510 0 0 0 0 0

515 0 0 0 0 0

520 0 0 0 0 0

525 0 0 0 0 0

530 0 0 0 0 0

535 0 0 0 0 0

540 0 0 0 0 0

545 0 0 0 0 0

550 0 0 0 0 0

555 0 0 0 0 0

560 0 0 0 0 0

565 0 0 0 0 0

570 0 0 0 0 0

575 0 0 0 0 0

580 0 0 0 0 0

585 0 0 0 0 0

590 0 0 0 0 0

595 0 0 0 0 0

600 0 0 0 0 0

605 0 0 0 0 0

610 0 0 0 0 0

615 0 0 0 0 0

620 0 0 0 0 0

625 0 0 0 0 0

630 0 0 0 0 0

635 0 0 0 0 0

640 0 0 0 0 0

645 0 0 0 0 0

650 0 0 0 0 0

655 0 0 0 0 0

660 0 0 0 0 0

665 0 0 0 0 0

670 0 0 0 0 0

675 0 0 0 0 0

680 0 0 0 0 0

685 0 0 0 0 0

690 0 0 0 0 0

695 0 0 0 0 0

700 0 0 0 0 0

705 0 0 0 0 0

710 0 0 0 0 0

715 0 0 0 0 0

720 0 0 0 0 0

725 0 0 0 0 0

730 0 0 0 0 0

735 0 0 0 0 0

740 0 0 0 0 0

745 0 0 0 0 0

750 0 0 0 0 0

755 0 0 0 0 0

760 0 0 0 0 0

765 0 0 0 0 0

770 0 0 0 0 0

775 0 0 0 0 0

780 0 0 0 0 0

785 0 0 0 0 0

790 0 0 0 0 0

795 0 0 0 0 0

800 0 0 0 0 0

805 0 0 0 0 0

810 0 0 0 0 0

815 0 0 0 0 0

820 0 0 0 0 0

825 0 0 0 0 0

830 0 0 0 0 0

835 0 0 0 0 0

840 0 0 0 0 0

845 0 0 0 0 0

850 0 0 0 0 0

855 0 0 0 0 0

860 0 0 0 0 0

865 0 0 0 0 0

870 0 0 0 0 0

875 0 0 0 0 0

880 0 0 0 0 0

885 0 0 0 0 0

890 0 0 0 0 0

895 0 0 0 0 0

900 0 0 0 0 0

905 0 0 0 0 0

910 0 0 0 0 0

915 0 0 0 0 0

920 0 0 0 0 0

925 0 0 0 0 0

930 0 0 0 0 0

935 0 0 0 0 0

940 0 0 0 0 0

945 0 0 0 0 0

950 0 0 0 0 0

955 0 0 0 0 0

960 0 0 0 0 0

965 0 0 0 0 0

970 0 0 0 0 0

975 0 0 0 0 0

980 0 0 0 0 0

985 0 0 0 0 0

990 0 0 0 0 0

995 0 0 0 0 0

1000 0 0 0 0 0

1005 0 0 0 0 0

1010 0 0 0 0 0

1015 0 0 0 0 0

1020 0 0 0 0 0

1025 0 0 0 0 0

1030 0 0 0 0 0

1035 0 0 0 0 0

1040 0 0 0 0 0

1045 0 0 0 0 0

1050 0 0 0 0 0

1055 0 0 0 0 0

1060 0 0 0 0 0

1065 0 0 0 0 0

1070 0 0 0 0 0

1075 0 0 0 0 0

1080 0 0 0 0 0

1085 0 0 0 0 0

1090 0 0 0 0 0

1095 0 0 0 0 0

1100 0 0 0 0 0

1105 0 0 0 0 0

1110 0 0 0 0 0

1115 0 0 0 0 0

1120 0 0 0 0 0

1125 0 0 0 0 0

1130 0 0 0 0 0

1135 0 0 0 0 0

1140 0 0 0 0 0

1145 0 0 0 0 0

1150 0 0 0 0 0

1155 0 0 0 0 0

1160 0 0 0 0 0

1165 0 0 0 0 0

1170 0 0 0 0 0

1175 0 0 0 0 0

1180 0 0 0 0 0

1185 0 0 0 0 0

1190 0 0 0 0 0

1195 0 0 0 0 0

1200 0 0 0 0 0

1205 0 0 0 0 0

1210 0 0 0 0 0

1215 0 0 0 0 0

1220 0 0 0 0 0

1225 0 0 0 0 0

1230 0 0 0 0 0

1235 0 0 0 0 0

1240 0 0 0 0 0

1245 0 0 0 0 0

1250 0 0 0 0 0

1255 0 0 0 0 0

1260 0 0 0 0 0

1265 0 0 0 0 0

1270 0 0 0 0 0

1275 0 0 0 0 0

1280 0 0 0 0 0

1285 0 0 0 0 0

1290 0 0 0 0 0

1295 0 0 0 0 0

1300 0 0 0 0 0

1305 0 0 0 0 0

1310 0 0 0 0 0

1315 0 0 0 0 0

1320 0 0 0 0 0

1325 0 0 0 0 0

1330 0 0 0 0 0

1335 0 0 0 0 0

1340 0 0 0 0 0

1345 0 0 0 0 0

1350 0 0 0 0 0

1355 0 0 0 0 0

1360 0 0 0 0 0

1365 0 0 0 0 0

1370 0 0 0 0 0

1375 0 0 0 0 0

1380 0 0 0 0 0

1385 0 0 0 0 0

1390 0 0 0 0 0

1395 0 0 0 0 0

1400 0 0 0 0 0

1405 0 0 0 0 0

1410 0 0 0 0 0

1415 0 0 0 0 0

1420 0 0 0 0 0

1425 0 0 0 0 0

1430 0 0 0 0 0

1435 0 0 0 0 0

1440 0 0 0 0 0

1445 0 0 0 0 0

1450 0 0 0 0 0

1455 0 0 0 0 0

1460 0 0 0 0 0

1465 0 0 0 0 0

1470 0 0 0 0 0

1475 0 0 0 0 0

1480 0 0 0 0 0

1485 0 0 0 0 0

1490 0 0 0 0 0

1495 0 0 0 0 0

1500 0 0 0 0 0

1505 0 0 0 0 0

1510 0 0 0 0 0

1515 0 0 0 0 0

1520 0 0 0 0 0

1525 0 0 0 0 0

1530 0 0 0 0 0

1535 0 0 0 0 0

1540 0 0 0 0 0

1545 0 0 0 0 0

1550 0 0 0 0 0

1555 0 0 0 0 0

1560 0 0 0 0 0

1565 0 0 0 0 0

1570 0 0 0 0 0

1575 0 0 0 0 0

1580 0 0 0 0 0

1585 0 0 0 0 0

1590 0 0 0 0 0

1595 0 0 0 0 0

1600 0 0 0 0 0

1605 0 0 0 0 0

1610 0 0 0 0 0

1615 0 0 0 0 0

1620 0 0 0 0 0

1625 0 0 0 0 0

1630 0 0 0 0 0

1635 0 0 0 0 0

1640 0 0 0 0 0

1645 0 0 0 0 0

1650 0 0 0 0 0

1655 0 0 0 0 0

1660 0 0 0 0 0

1665 0 0 0 0 0

1670 0 0 0 0 0

1675 0 0 0 0 0

1680 0 0 0 0 0

1685 0 0 0 0 0

1690 0 0 0 0 0

1695 0 0 0 0 0

1700 0 0 0 0 0

1705 0 0 0 0 0

1710 0 0 0 0 0

1715 0 0 0 0 0

1720 0 0 0 0 0

1725 0 0 0 0 0

1730 0 0 0 0 0

1735 0 0 0 0 0

1740 0 0 0 0 0

1745 0 0 0 0 0

1750 0 0 0 0 0

1755 0 0 0 0 0

1760 0 0 0 0 0

1765 0 0 0 0 0

1770 0 0 0 0 0

1775 0 0 0 0 0

1780 0 0 0 0 0

1785 0 0 0 0 0

1790 0 0 0 0 0

1795 0 0 0 0 0

1800 0 0 0 0 0

1805 0 0 0 0 0

1810 0 0 0 0 0

1815 0 0 0 0 0

1820 0 0 0 0 0

1825 0 0 0 0 0

1830 0 0 0 0 0

1835 0 0 0 0 0

1840 0 0 0 0 0

1845 0 0 0 0 0

1850 0 0 0 0 0

1855 0 0 0 0 0

1860 0 0 0 0 0

1865 0 0 0 0 0

1870 0 0 0 0 0

1875 0 0 0 0 0

1880 0 0 0 0 0

1885 0 0 0 0 0

1890 0 0 0 0 0

1895 0 0 0 0 0

1900 0 0 0 0 0

1905 0 0 0 0 0

1910 0 0 0 0 0

1915 0 0 0 0 0

1920 0 0 0 0 0

1925 0 0 0 0 0

1930 0 0 0 0 0

1935 0 0 0 0 0

1940 0 0 0 0 0

1945 0 0 0 0 0

1950 0 0 0 0 0

1955 0 0 0 0 0

1960 0 0 0 0 0

1965 0 0 0 0 0

1970 0 0 0 0 0

1975 0 0 0 0 0

1980 0 0 0 0 0

1985 0 0 0 0 0

1990 0 0 0 0 0

1995 0 0 0 0 0

2000 0 0 0 0 0

2005 0 0 0 0 0

2010 0 0 0 0 0

2015 0 0 0 0 0

2020 0 0 0 0 0

2025 0 0 0 0 0

2030 0 0 0 0 0

2035 0 0 0 0 0

2040 0 0 0 0 0

2045 0 0 0 0 0

2050 0 0 0 0 0

2055 0 0 0 0 0

2060 0 0 0 0 0

2065 0 0 0 0 0

2070 0 0 0 0 0

2075 0 0 0 0 0

2080 0 0 0 0 0

2085 0 0 0 0 0

2090 0 0 0 0 0

2095 0 0 0 0 0

2100 0 0 0 0 0

2105 0 0 0 0 0

2110 0 0 0 0 0

2115 0 0 0 0 0

2120 0 0 0 0 0

2125 0 0 0 0 0

2130 0 0 0 0 0

2135 0 0 0 0 0

2140 0 0 0 0 0

2145 0 0 0 0 0

2150 0 0 0 0 0

2155 0 0 0 0 0

2160 0 0 0 0 0

2165 0 0 0 0 0

2170 0 0 0 0 0

2175 0 0 0 0 0

2180 0 0 0 0 0

2185 0 0 0 0 0

2190 0 0 0 0 0

2195 0 0 0 0 0

2200 0 0 0 0 0

2205 0 0 0 0 0

2210 0 0 0 0 0

2215 0 0 0 0 0

2220 0 0 0 0 0

2225 0 0 0 0 0

2230 0 0 0 0 0

2235 0 0 0 0 0

2240 0 0 0 0 0

2245 0 0 0 0 0

2250 0 0 0 0 0

2255 0 0 0 0 0

2260 0 0 0 0 0

2265 0 0 0 0 0

2270 0 0 0 0 0

2275 0 0 0 0 0

2280 0 0 0 0 0

2285 0 0 0 0 0

2290 0 0 0 0 0

2295 0 0 0 0 0

2300 0 0 0 0 0

2305 0 0 0 0 0

2310 0 0 0 0 0

2315 0 0 0 0 0

2320 0 0 0 0 0

2325 0 0 0 0 0

2330 0 0 0 0 0

2335 0 0 0 0 0

2340 0 0 0 0 0

2345 0 0 0 0 0

2350 0 0 0 0 0

2355 0 0 0 0 0

2360 0 0 0 0 0

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DESIGN-DETAILED
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HALEY & ALDRICH, INC. SCARBOROUGH, MAINE		TEST BORING REPORT		BORING NO. NIB-4	
PROJECT PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SD. PORTLAND, MAINE				FILE NO. 05966-06	
CLIENT T.T. LIN INTERNATIONAL, FALMOUTH, MAINE				SHEET NO. 1 OF 4	
CONTRACTOR MAINE TEST BORINGS, INC.				LOCATION SEE PLAN	
ITEM		CASING	DRIVE	CORE	DRILLING EQUIPMENT & PROCEDURES
TYPE		HW	SS	KX	RIG TYPE ONE SKID ON BARGE
INSIDE DIAMETER (IN)		4.0	1 3/8	2.0	BIT TYPE ROLLER BIT
HAMMER WEIGHT (LB)		300	140	-	DRILL MUD QUICK GEL BENTONITE
HAMMER FALL (IN)		16	30	-	OTHER
ELEVATION		-47.9			
DATE		11 MAY 1992			
FINISH		20 MAY 1992			
DRILLER		G. LIDSTONE			
H & A REP		R. JENSEN			
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV./DEPTH (FT)
VISUAL DESCRIPTION AND REMARKS					
0 TO 19.1 FT. ADVANCED 3 IN. PVC CASING. No samples taken.					
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 HALEY & ALDRICH, INC. SCARBOROUGH, MAINE		TEST BORING REPORT				BORING NO. SB-1	
PROJECT: PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/DO. PORTLAND, MAINE CLIENT: I.T. LEV INTERNATIONAL, FALMOUTH, MAINE CONTRACTOR: MAINE TEST BORINGS, INC.						FILE NO. 0876-06 SHEET NO. 1 OF 4 LOCATION SEE PLAN	
ITEM		CASING	DRIVE SAMPLER	CORE BARREL	DRILLING EQUIPMENT & PROCEDURES		
TYPE		4.0	55	NK	RIG TYPE ONE SHOT CW BARGE BIT TYPE ROLLER BIT DRILL HEAD NONE OTHER - 3 1/2 IN. X 7 IN. FIELD VANE SHEAR, SU & UNDRAINED SHEAR STRENGTH.		
INSIDE DIAMETER (IN)		4.0	1 3/8	2.0	ELEVATION -30.9 DATUM MGD		
HAMMER WEIGHT (LB)		300	140	-	START 22 JULY 1992 FINISH 28 JULY 1992		
HAMMER FALL (IN)		16	30	-	DRILLER G. LIDSTONE H & A REP R. JENSEN		
DEPTH (FT)		CASING DEPTH PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS
0			U0R	S1	0.0		Very soft black organic SILT, with shells -HARBOR BOTTOM DEPOSIT- Very soft dark gray silty CLAY with organics, shells -HARBOR BOTTOM DEPOSIT- (ORGANIC CLAY) NOTE: Sand in wash at 4.0 ft.
1			U0R	S2	2.0		
1			U0R				
1			U0R				
5			U0R	S2	5.0		Very soft dark gray silty CLAY with organics, many shell fragments -MARINE CLAY-
5			U0R	S2	7.0		
5			U0R				
5			U0R				
10			U0R	S2	10.0		Hydraulically advanced undisturbed tube sample from 10.0 to 12.0 ft. Stiff gray silty CLAY with shells and occasional seams of medium to fine sand Attempted field vane from 12.0 to 12.7 ft. Could not advance vane from 12.0 to 12.7 ft. Very stiff mottled gray silty CLAY, with occasional shell fragments, trace fine gravel to 12.4 ft.
10			U0R	S2	12.0		
10			U0R				
10			U0R				
15			U0R	S2	15.0		Pushed tube from 15.0 to 17.0 ft. Gray silty CLAY f/val, 17.0-17.7 ft. Su = 1.76 ksf Stiff gray silty CLAY with brown fine sand seams -MARINE CLAY-
15			U0R	S2	17.0		
15			U0R				
15			U0R				
20			U0R	S2	20.0		Hydraulically advanced undisturbed tube from 20.0 to 22.0 ft. Medium stiff gray silty CLAY with shells and frequent seams of gravelly coarse sand f/val, 22.0-22.7 ft. Su = 0.76/0.16 ksf f/val, 22.7-23.4 ft. Su = 0.91/0.18 ksf Medium stiff gray silty CLAY with gray fine sand seams
20			U0R	S2	22.0		
20			U0R				
20			U0R				
25			U0R	S2	25.0		
25			U0R	S2	25.0		
WATER LEVEL DATA							
DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO: TOP OF CASING OF HOLE	WATER	SAMPLE IDENTIFICATION		
					O OPEN END ROD		
					T THIN WALL TUBE		
					U UNDISTURBED SAMPLE		
					S SPLIT SPOON		
					OVERBURDEN (LIN FT) 64.4 ROCK CORED (LIN FT) 18.8 SAMPLES 135, 30, SC BORING NO. SB-1		

 HALEY & ALDRICH, INC. SCARBOROUGH, MAINE					TEST BORING REPORT					BORING NO. SB-1 FILE NO. 0094-06 SHEET NO. 3 OF 4	
DEPTH (FT)	CASING SLOCS PER FT	SAMPLER SLOCS PER & TR	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS					
0						Very stiff gray S(L), with occasional medium to fine sand seams, trace fine gravel (well bonded) -GLACIAL TILL-					
15.9	12	SIS	60.0	-19.3 64.4							
	21	58"	62.0								
109	30										
	43										
116						Drove AW casing to 64.4 ft. Top of bedrock at 64.4 ft. Advanced roller bit to 64.8 ft. Begin 4X rock core at 64.8 ft. (See Core Boring Report)					
70											

BORING NO.		SB-1
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HALEY & ALDRICH, INC.
SCARBOROUGH, MAINE

TEST BORING REPORT

BORING NO. SB-1
FILE NO. 0094-06
SHEET NO. 2 OF 4

DEPTH (FT)	CASING ELONG PER FT	SAMPLER BEANS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS
25						
31	458	16	25.0			
	DOE	22"	27.0			
19	1				-56.6	7095, 25.0-25.7 ft. SU = 1.15, 2.18 test refusal on second vane at 25.7 ft.
27	2				25.7	Very loose gray silty fine SA, little clay -MARINE SAND-
40						
26						
30						
13	1	37	30.0			Loose gray medium to fine SAND, little silty clay in distinct seams
	8	18"	32.0			-MARINE SAND-
17	10					
22						
28					-63.9	
54					33.0	Cobbles encountered at 33.0 ft.
35						
49	16	58	35.0			Medium dense gray silty medium to fine SAND, some fine gravel, trace coarse sand
	8	12"	37.0			-GLACIAL TILL-
70	14					
78						
67						
70						
40						
63	15	59	40.0			Gray fine gravel to coarse sand (wash sample)
	12	3"	42.0			
62	3					
115	3					
135						
225						
65						
110	11	510	65.0			Washed ahead to 45.6 ft. through probable cobble.
	16	18"	47.6			Dense gray silty medium to fine SAND, with occasional silt seams
72	22					
69	24					
67						
75						
50						
63	29	511	50.0			Pushed cobble ahead of spoon.
	82	2"	51.2			Fine gravel to coarse sand (wash sample)
42	497.2					Washed ahead of casing from 50.0 to 64.4 ft.
46						
67						
42						
55						
96	9	512	55.0			Dense gray silty medium to fine SAND, little fine gravel, with occasional silt seams (well bonded)
	17	16"	57.0			
166	21					
	20					
130						
122						
169						
60						

BORING NO.

SB-1

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE					CORE BORING REPORT					BORING NO. SB-1 FILE NO. 0094-06 SHEET NO. 4 OF 4	
DEPTH (FT)	DRILLING RATE MIN./FT.	RUN NO.	DEPTH (FT)	RECOVERY/ROD IN. X		WEATH- ERING	ELEV. / DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS			
60								Drove to casing to 64.4 ft. Top of bedrock at 64.4 ft. (See Test Boring Report) Advanced roller bit to 64.8 ft. Begin NX rock core at 64.8 ft.			
65	5		C1 64.8 70.1	5 1/12	80/19	SL. 10 MOD.	-95.7 64.0 -97.2 64.3	C1: Black soft to medium hard, slightly weathered aphanitic SCHIST. Joints are close, open, slightly weathered, planar and smooth, and steeply dipping at 60.5 to 70 degrees to a soft greenish gray aphanitic -CHLORITE SCHIST. Joints are close, open, moderately weathered, planar and smooth to stepped and rough, and steeply dipping. Bedding is very thin, and near vertical. Some siltation noted on joint faces.			
	5										
	4										
	5										
	5										
70	4		C2 70.1 72.6	30/6	100/9	M.D. 10 TO SEV.		C2: Same lithology as C1. -CHLORITE SCHIST- Rock core is moderately to severely weathered, and severely fractured.			
	5										
	11		C3 72.6 75.2	3 1/7	100/23	SL.		C3: Same as C2, except slightly weathered.			
	9										
	9										
75	7		C4 75.2 79.3	4 9/9	100/18	SL.		C4: Same as C3.			
	9										
	9										
	10										
	10										
80	7		C5 77.3 83.6	32/35	100/73	SL.		C5: Soft to moderately hard, slightly weathered, greenish gray aphanitic -CHLORITE SCHIST- Primary joint set is steeply dipping parallel to foliation, slightly open, close, slightly weathered, planar and smooth to stepped and smooth. Secondary joints are dipping at low to moderate angles. Tight to moderately spaced and fresh. (Possible drill breaks)			
	12										
	10										
	9										
	9										
77.8							-95.5 82.6	Bottom of Exploration at 83.6 ft.			

BASCULE SUBSTRI

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PORTLAND - S. PORTLAND
OVER FORD RIVER
CUMBERLAND COUNTY

BORINGS -

MALEY & ALDRICH, INC. SCARBOROUGH, MAINE										TEST BORING REPORT										BORING NO. SB-2																																							
PROJECT PROPOSED FORE RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE										FILE NO. 0896-05										SHEET NO. 1 OF 4																																							
CLIENT T.T. LIM INTERNATIONAL, FALMOUTH, MAINE										LOCATION SEE PLAN																																																	
CONTRACTOR MAINE TEST BORINGS, INC.																																																											
ITEM										CASING										DRIVE										CORE										DRILLING EQUIPMENT & PROCEDURES																			
TYPE										HW										SS										NK										RIG TYPE ONE SKID ON BARGE										ELEVATION -22.9									
INSIDE DIAMETER (IN)										4.0										1 3/8										2.0										BIT TYPE ROLLER BIT										DATE 2 JULY 1992									
HAMMER WEIGHT (LB)										300										140																				DRILLER G. LIDSTONE										FIXTURE 8 JULY 1992									
HAMMER FALL (IN)										16										30																				H & A REP D.KELLER/SHOW																			
DEPTH (FT)										CASING DEPTH (FT)										SAMPLER DEPTH (FT)										SAMPLE DEPTH (FT)										ELEV. / DEPTH (FT)										VISUAL DESCRIPTION AND REMARKS									
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5																																																											
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HALEY & ALDRICH, INC. SCARBOROUGH, MAINE		TEST BORING REPORT		BORING NO. SB-3	
PROJECT PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE				FILE NO. 00946-06	
CLIENT T.T. LIM INTERNATIONAL, FALMOUTH, MAINE				SHEET NO. 1 OF 4	
CONTRACTOR MAINE TEST BORINGS, INC.				LOCATION SEE PLAN	
ITEM		CASING	DRIVE	CODE	DRILLING EQUIPMENT & PROCEDURES
TYPE		HW	SI	HK	RIG TYPE CMC 300 ON BARGE
INSIDE DIAMETER (IN)		4.0	1 5/8	2.0	BIT TYPE ROLLER BIT
HAMMER WEIGHT (LB)		300	160	-	DRILL MUD NONE
HAMMER FALL (IN)		16	30	-	OTHER H CODE BARREL -
					3-1/2" ADAPTER 2.5 CO
ELEVATION -34.5					
DATE 25 June 1992					
FINISH 1 July 1992					
DRILLER G. LIDSTONE					
H & A REP EAL,MLS,DBC					
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV./DEPTH (FT)
VISUAL DESCRIPTION AND REMARKS					
0					
NOTE: Advanced 5 in. PVC with water jet 0.0 to 19.2 ft. No samples taken from 0.0 to 20.0 ft.					
5					
10					
15					
20	77.0	8	21	20.0	-54.5
		14	24	22.0	20.0
		15			
		20			
25		11			
		10			
		12			
WATER LEVEL DATA					
DATE	TIME	ELAPSED TIME (HR)	DEPTH (FT) TO BOTTOM OF CASING	WATER	SUMMARY
					OVERBURDEN (LIN FT) 75.0
					HOOK CORED (LIN FT) 11.9
					SAMPLES 115,3C
					UNDISTURBED SAMPLE
					SPLIT SPOON
BORING NO. SB-3					

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE		TEST BORING REPORT		BORING NO. SB-3	
PROJECT PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE				FILE NO. 00946-06	
CLIENT T.T. LIM INTERNATIONAL, FALMOUTH, MAINE				SHEET NO. 3 OF 4	
CONTRACTOR MAINE TEST BORINGS, INC.				LOCATION SEE PLAN	
ITEM		CASING	DRIVE	CODE	DRILLING EQUIPMENT & PROCEDURES
TYPE		HW	SI	HK	RIG TYPE CMC 300 ON BARGE
INSIDE DIAMETER (IN)		4.0	1 5/8	2.0	BIT TYPE ROLLER BIT
HAMMER WEIGHT (LB)		300	160	-	DRILL MUD NONE
HAMMER FALL (IN)		16	30	-	OTHER H CODE BARREL -
					3-1/2" ADAPTER 2.5 CO
ELEVATION -34.5					
DATE 25 June 1992					
FINISH 1 July 1992					
DRILLER G. LIDSTONE					
H & A REP EAL,MLS,DBC					
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV./DEPTH (FT)
VISUAL DESCRIPTION AND REMARKS					
65					
Washed ahead of casing to 65.0 ft. Very stiff gray clayey silt, some fine sand, little to trace coarse sand. NOTE: Cobbles encountered at 62.0 ft.					
70					
Washed ahead of casing to 65.0 ft.					
75					
Installed and spun HV casing from 70.0 to 75.0 ft. Very dense gray gravelly coarse to fine sand, little silt. -GLACIAL TILL-					
80					
Top of bedrock at 74.1 ft. Advanced roller bit to 75.0 ft. Begin HX rock core at 75.0 ft. (See Core Boring Report)					
BORING NO. SB-3					

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE		TEST BORING REPORT		BORING NO. SB-3	
PROJECT PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE				FILE NO. 00946-06	
CLIENT T.T. LIM INTERNATIONAL, FALMOUTH, MAINE				SHEET NO. 2 OF 4	
CONTRACTOR MAINE TEST BORINGS, INC.				LOCATION SEE PLAN	
ITEM		CASING	DRIVE	CODE	DRILLING EQUIPMENT & PROCEDURES
TYPE		HW	SI	HK	RIG TYPE CMC 300 ON BARGE
INSIDE DIAMETER (IN)		4.0	1 5/8	2.0	BIT TYPE ROLLER BIT
HAMMER WEIGHT (LB)		300	160	-	DRILL MUD NONE
HAMMER FALL (IN)		16	30	-	OTHER H CODE BARREL -
					3-1/2" ADAPTER 2.5 CO
ELEVATION -34.5					
DATE 25 June 1992					
FINISH 1 July 1992					
DRILLER G. LIDSTONE					
H & A REP EAL,MLS,DBC					
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV./DEPTH (FT)
VISUAL DESCRIPTION AND REMARKS					
25					
Running smooth at 25.0 ft. Medium dense gray fine sand, little medium sand and silt, trace gravel. -MARINE SAND-					
30					
NOTE: Casing sank to approximately 26.0 ft.					
35					
Very dense gray silty medium to fine sand, trace gravel and coarse sand (well-sorted). -GLACIAL TILL-					
40					
Advanced roller bit through cobbles to 33.8 ft. Used single barrel H core through cobbles from 33.8 to 35.0 ft.					
45					
Very dense gray silty medium to fine sand, little gravel to clayey silt with fine sand. -GLACIAL TILL-					
50					
Washed ahead of casing to 40.0 ft. Very dense gray medium to fine sand, little coarse sand, trace gravel, trace silt.					
55					
Very dense gray fine sand, little silt, trace coarse to medium sand with clayey silt and silty fine sand layers (sample appears water-worked).					
60					
Very stiff gray clayey silt with fine sand, occasional medium to fine sand layers, clayey silt is blocky and desiccated from 51.5 to 51.9 ft.					
65					
Very stiff gray clayey silt, little fine sand, trace gravel with fine sand seams (56.0-56.8 ft.) to clayey silt (55.0-56.0 ft.). Clayey silt is blocky and desiccated throughout. -GLACIAL TILL-					
BORING NO. SB-3					

HALEY & ALDRICH, INC. SCARBOROUGH, MAINE		CORE BORING REPORT		BORING NO. SB-3	
PROJECT PROPOSED FORD RIVER BRIDGE REPLACEMENT, PORTLAND/SO. PORTLAND, MAINE				FILE NO. 00946-06	
CLIENT T.T. LIM INTERNATIONAL, FALMOUTH, MAINE				SHEET NO. 4 OF 4	
CONTRACTOR MAINE TEST BORINGS, INC.				LOCATION SEE PLAN	
ITEM		CASING	DRIVE	CODE	DRILLING EQUIPMENT & PROCEDURES
TYPE		HW	SI	HK	RIG TYPE CMC 300 ON BARGE
INSIDE DIAMETER (IN)		4.0	1 5/8	2.0	BIT TYPE ROLLER BIT
HAMMER WEIGHT (LB)		300	160	-	DRILL MUD NONE
HAMMER FALL (IN)		16	30	-	OTHER H CODE BARREL -
					3-1/2" ADAPTER 2.5 CO
ELEVATION -34.5					
DATE 25 June 1992					
FINISH 1 July 1992					
DRILLER G. LIDSTONE					
H & A REP EAL,MLS,DBC					
DEPTH (FT)	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE NUMBER & RECOVERY	SAMPLE DEPTH (FT)	ELEV./DEPTH (FT)
VISUAL DESCRIPTION AND REMARKS					
75					
Top of bedrock at 74.1 ft. (See SB-2 Boring Report). Advanced roller bit to 75.0 ft. Begin HX rock core at 75.0 ft.					
80					
C1: Moderately hard, slightly weathered, dark gray fine grained to aphanitic PHYLLITE; joints moderately dipping, close to very close, rough, undulating, open, with slight calcite infilling. Extremely fractured zone from 76.1 to 76.8 ft.					
85					
C2: Same as C1, except joints close. Extremely fractured zone from 83.5 to 83.9 ft.					
90					
C3: Same as C1, except joints dipping at high angles, close to very close. Extremely fractured zone from 86.8 ft. to 85.3 ft.					
95					
Section of Exploration at 86.9 ft.					
BORING NO. SB-3					

DESIGN-DETAILED
CHECKED
REVISION
FIELD CHANGES
PLANS

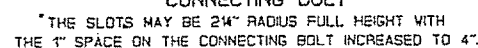
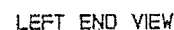
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7. BORDER DIMENSIONS AND LEGEND DESIGN SHALL CONFORM TO THE STAND SIGNS BOOKLET.



3. BARRIER DELINEATORS SHALL BE BI-DIRECTIONAL WITH A MINIMUM EFFECTIVE REFLECTIVE AREA OF 80 SQUARE INCHES AS APPROVED BY THE ENGINEER. THE REFLECTOR SHALL PREFERABLY BE OF METHYL METHACRYLATE, AND THE HOUSING OF ACRYLONITRILE BUTADIENE STYRENE. AS AN ALTERNATIVE REFLECTORS MAY BE MOUNTED ON THE TOP OF THE BARRIER.



TC006



SHEET 5.2 OF 5.4 AUGUSTA, MAINE



EXPRESSWAY LANE CLOSURE

TC011



TCQ12

SHEET 53 OF 54 AUGUSTA, MAINE H