

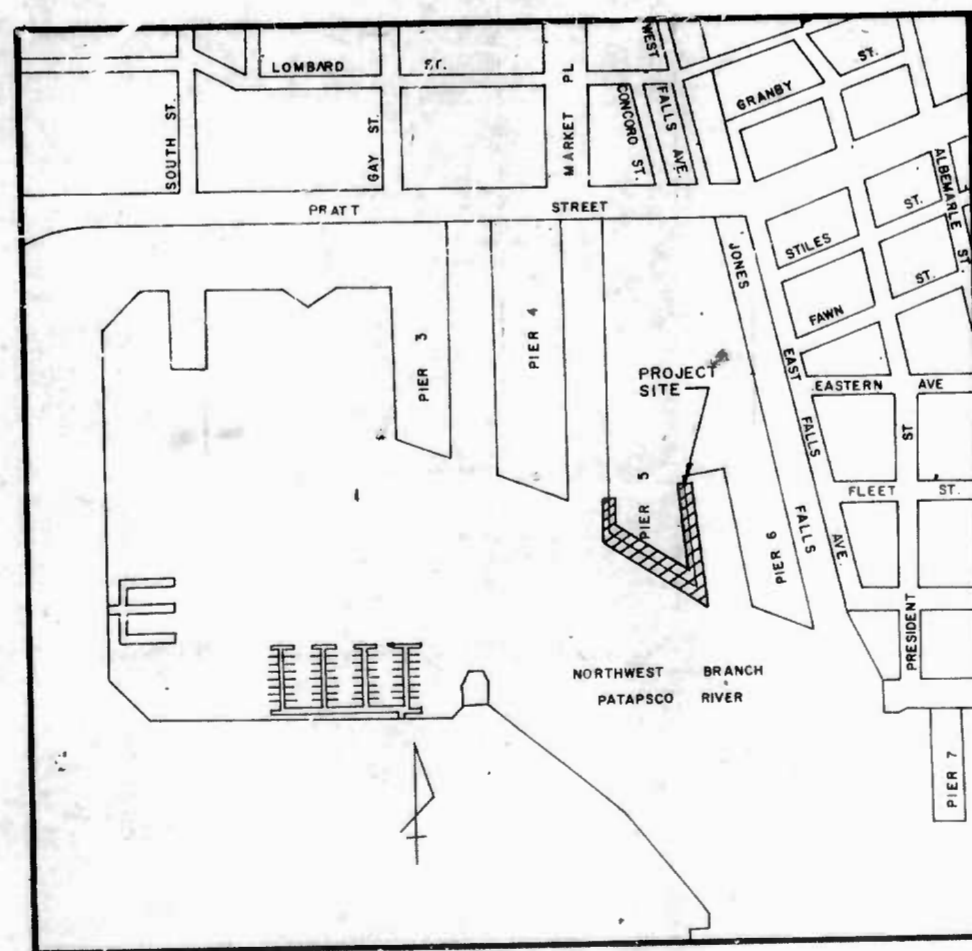
CITY OF BALTIMORE  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAY AND BRIDGE ENGINEERING  
 CONTRACT NO. 3213



PIER 5 BULKHEAD

INDEX OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
<b>GENERAL</b>		
1-20	G-1	TITLE SHEET
<b>DEMOLITION DRAWINGS</b>		
2-20	D-1	DEMOLITION PLAN
3-20	D-2	DEMOLITION PART, PLAN & SECTIONS
<b>CIVIL</b>		
4-20	C-1	GRADING AND UTILITY PLAN
5-20	C-2	UTILITY DETAILS
<b>SEDIMENT AND EROSION CONTROL</b>		
6-20	SE-1	SEDIMENT AND EROSION CONTROL PLAN
7-20	SE-2	SOIL EROSION/SEDIMENT CONTROL NOTES
8-20	SE-3	SOIL EROSION/SEDIMENT CONTROL DETAILS
9-20	SE-4	SOIL EROSION/SEDIMENT CONTROL DETAILS
<b>STRUCTURAL DRAWINGS</b>		
10-20	S-1	BULKHEAD PLANS - WEST AND SOUTH
11-20	S-2	BULKHEAD PLANS - SOUTH & EAST
12-20	S-3	SECTIONS AND BULKHEAD PLAN - EAST
13-20	S-4	SECTIONS AND NOTES
14-20	S-5	PART PLANS AND DETAILS
15-20	S-6	PART PLAN AND SECTIONS
16-20	S-7	SECTIONS AND DETAILS
17-20	S-8	PILES AND PRECAST SLABS
18-20	S-9	SHEET PILING DETAILS
19-20	S-10	FENDER SYSTEM DETAILS
20-20	S-11	UTILITY BENCH DETAILS



LOCATION PLAN  
 200 0 200 400 600 800



WHITMAN, REQUARDT AND ASSOCIATES  
 ENGINEERS  
 BALTIMORE MARYLAND

by DATTA CONSULTANTS, INC.

BALTIMORE CITY REVIEW	R/W RELEASE	GRADE ESTB	HIGHWAY DESIGN	STRUCTURAL	DRAINAGE	LIGHTING	CONDUIT	DOCUMENTATION AND EROSION CONTROL	TRAFFIC ENGINEERING	WASTE WATER ENGINEERING	WATER ENGINEERING	TRAFFIC AND UTILITY ENGINEERING APPROVAL RECOMMENDED
BY												ASSISTANT COMMISSIONER
DATE												DATE

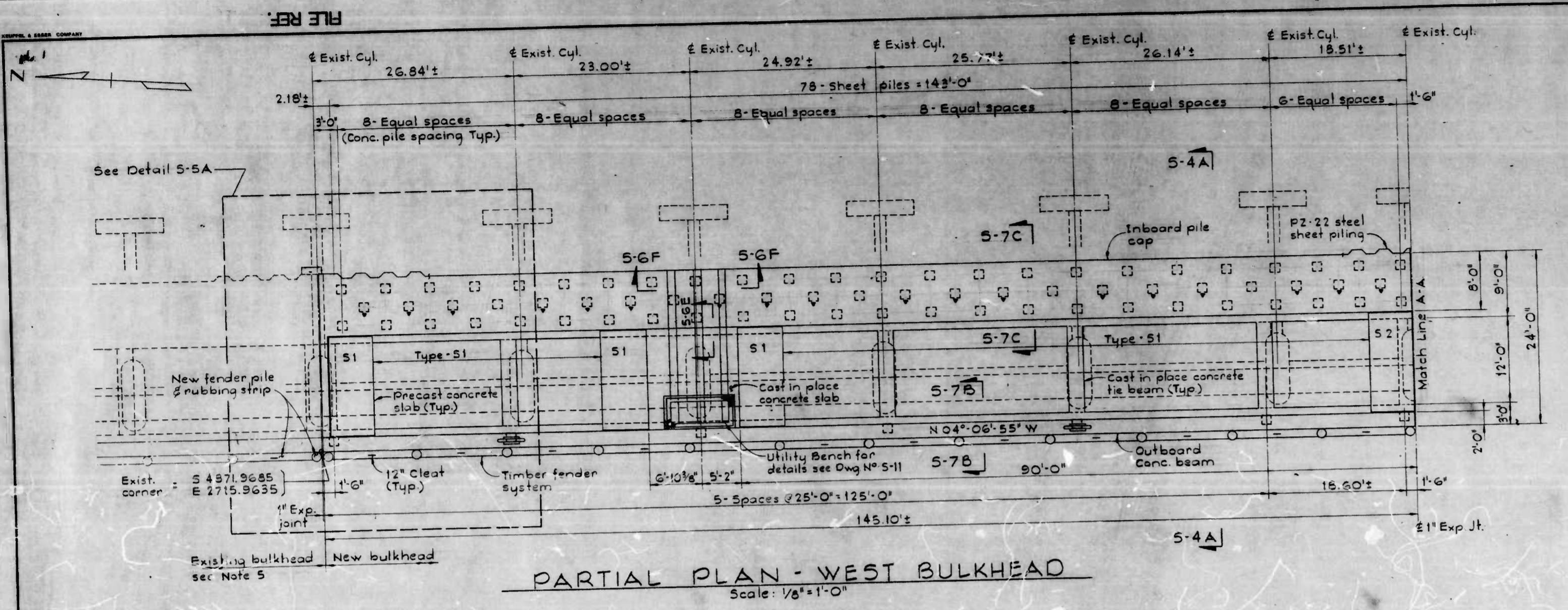
CITY OF BALTIMORE DEPARTMENT OF TRANSPORTATION  
 HIGHWAY AND BRIDGE ENGINEERING

APPROVAL RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_  
 ASSISTANT COMMISSIONER  
 APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
 COMMISSIONER

REVISIONS			
NO.	DESCRIPTION	DATE	BY

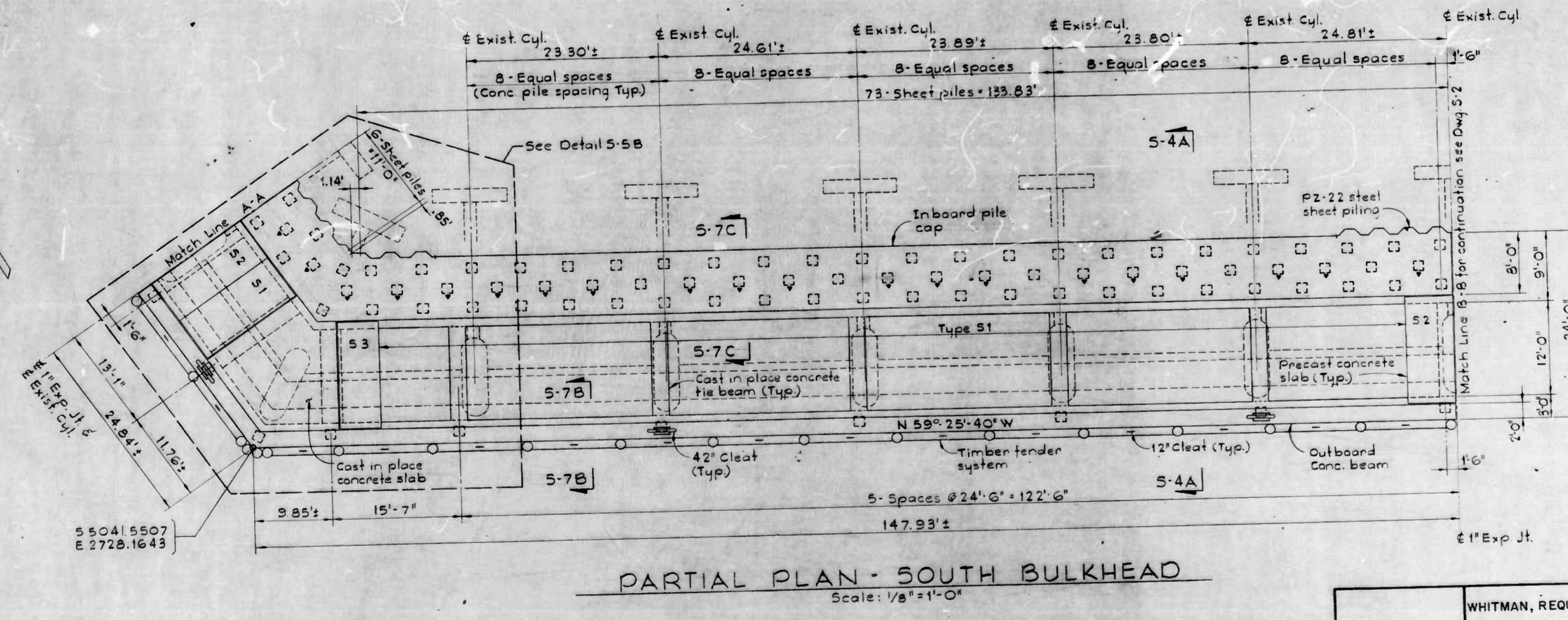
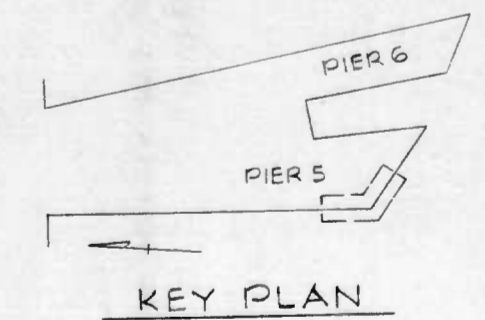
**NOTES:**

1. Dimensions of existing construction are field measured and approximate. The Contractor shall field verify all information.
2. Vertical piles under inboard pile cap shall be tension piles.
3. For timber tender system details see Dwg. No. S-10.
4. For precast concrete slab details see Dwg. No. S-8.
5. Bulkhead shown as "Existing bulkhead" at north end is the proposed bulkhead to be constructed by Harkins Associates, Inc.



**LEGEND**

	14" Sq. Precast Prestressed Conc. Piles (Vertical)
	14" Sq. Precast Prestressed Conc. Piles (Battered 4:12)
	PZ-22 Steel Sheet Piling



**Design Loads**  
Bulkhead Live Load 200 psf or  
AASHTO H-20 Truck

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING  
CONTRACT NO.  
PIER 5 BULKHEAD  
**BULKHEAD PLANS -  
WEST & SOUTH**  
SCALE AS SHOWN DATE  
DRAWING NO. S-1 SHEET 10 OF 20

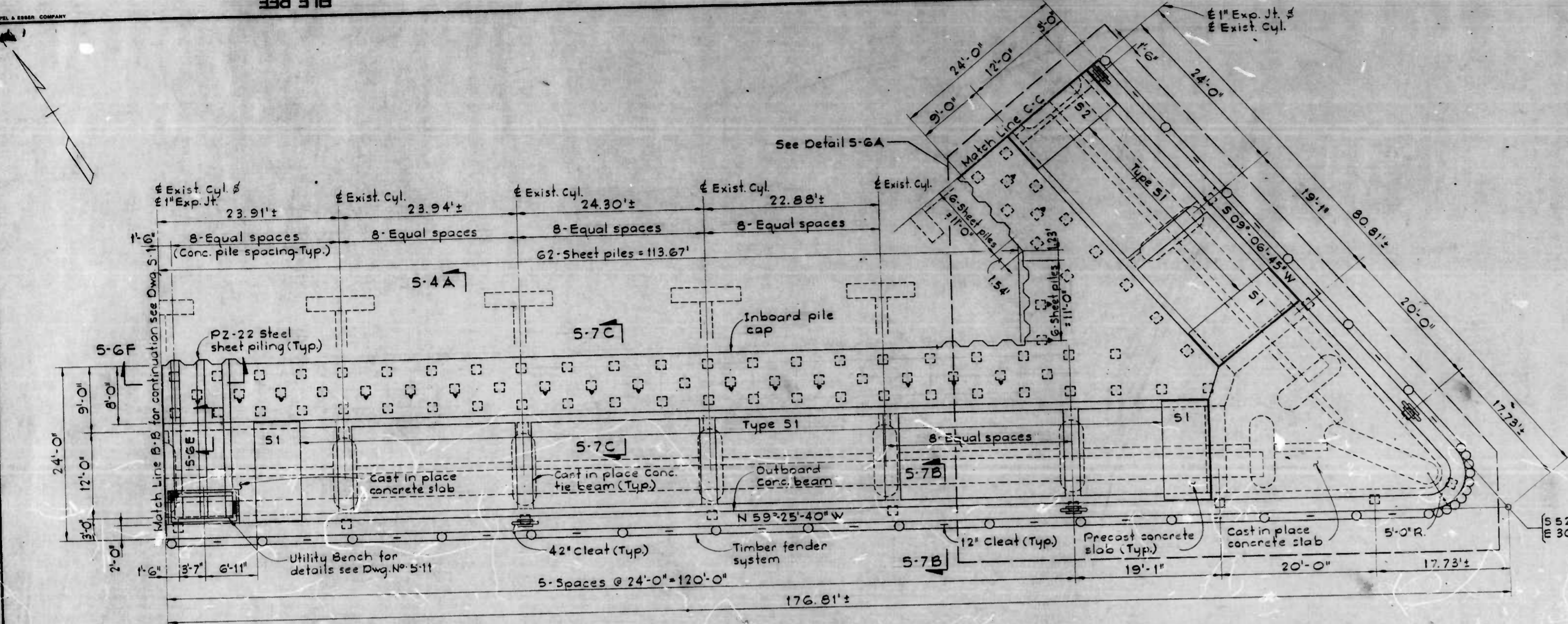
DRAWN BY  
EXAMINED BY

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

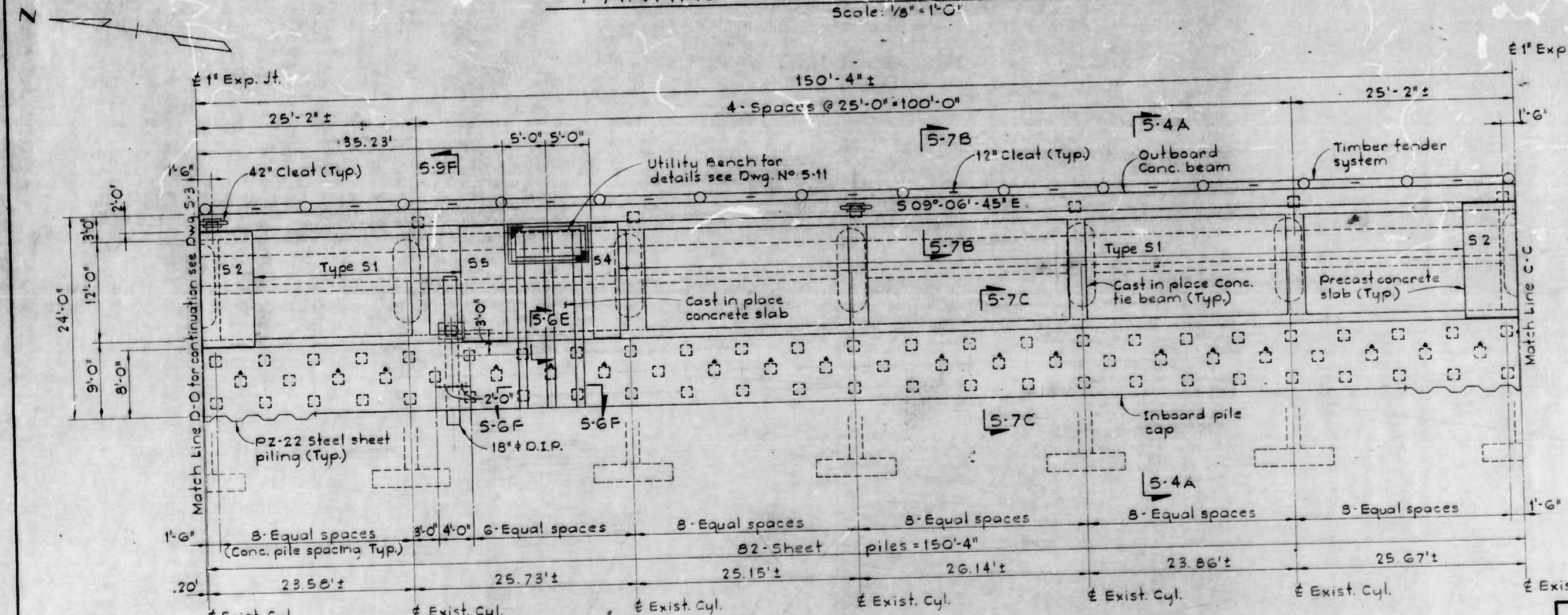
NOTES:

1. Dimensions of existing construction are field measured and approximate. The Contractor shall field verify all information.
2. Vertical piles under inboard pile cap shall be tension piles.
3. For timber fender system details see Dwg. No. S-10.
4. For precast concrete slab details see Dwg. No. S-8.



PARTIAL PLAN - SOUTH BULKHEAD

Scale: 1/8" = 1'-0"

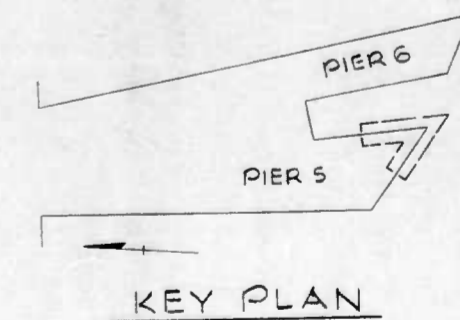


PARTIAL PLAN - EAST BULKHEAD

Scale: 1/8" = 1'-0"

LEGEND

- 14" Sq. Precast Prestressed Conc. Piles (Vertical)
- ◊ 14" Sq. Precast Prestressed Conc. Piles (Battered 4:12)
- ~ PZ-22 Steel Sheet Piling



KEY PLAN

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

CONTRACT NO.  
PIER 5 BULKHEAD

**BULKHEAD PLANS -  
SOUTH & EAST**

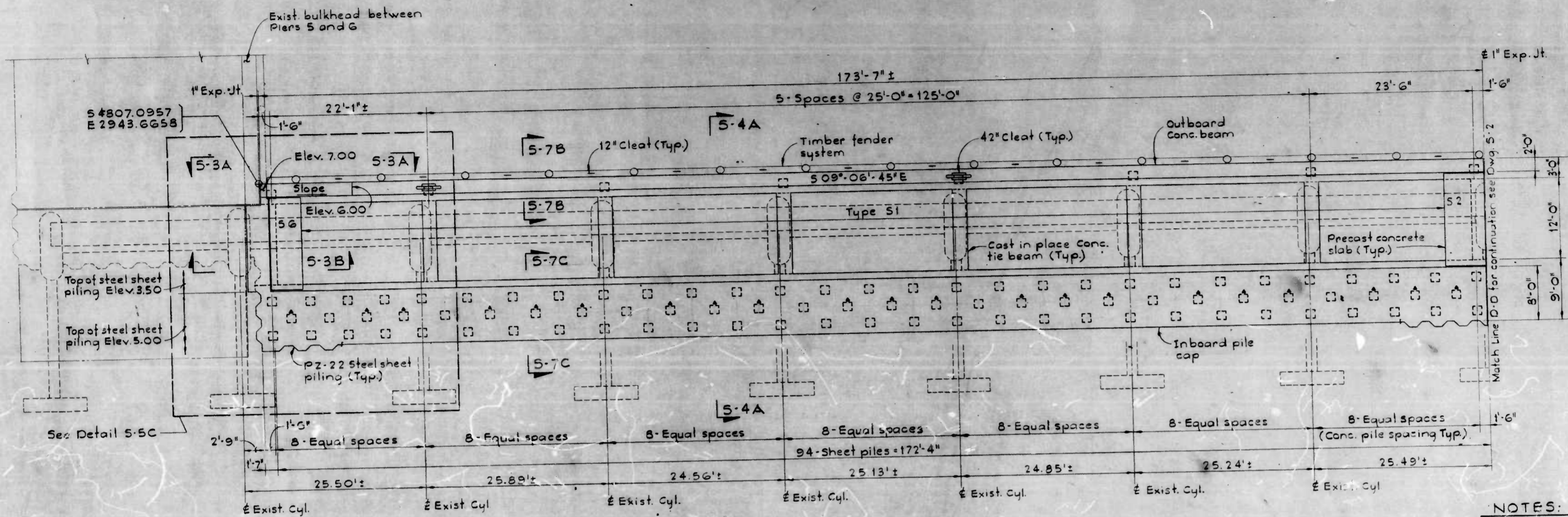
SCALE AS SHOWN DATE  
DRAWING NO. S-2 SHEET 11 OF 20

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

DRAWN BY  
EXAMINED BY

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

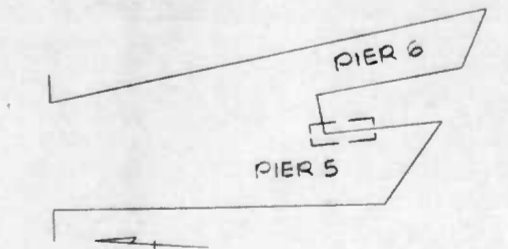


**PARTIAL PLAN - EAST BULKHEAD**  
Scale: 1/8" = 1'-0"

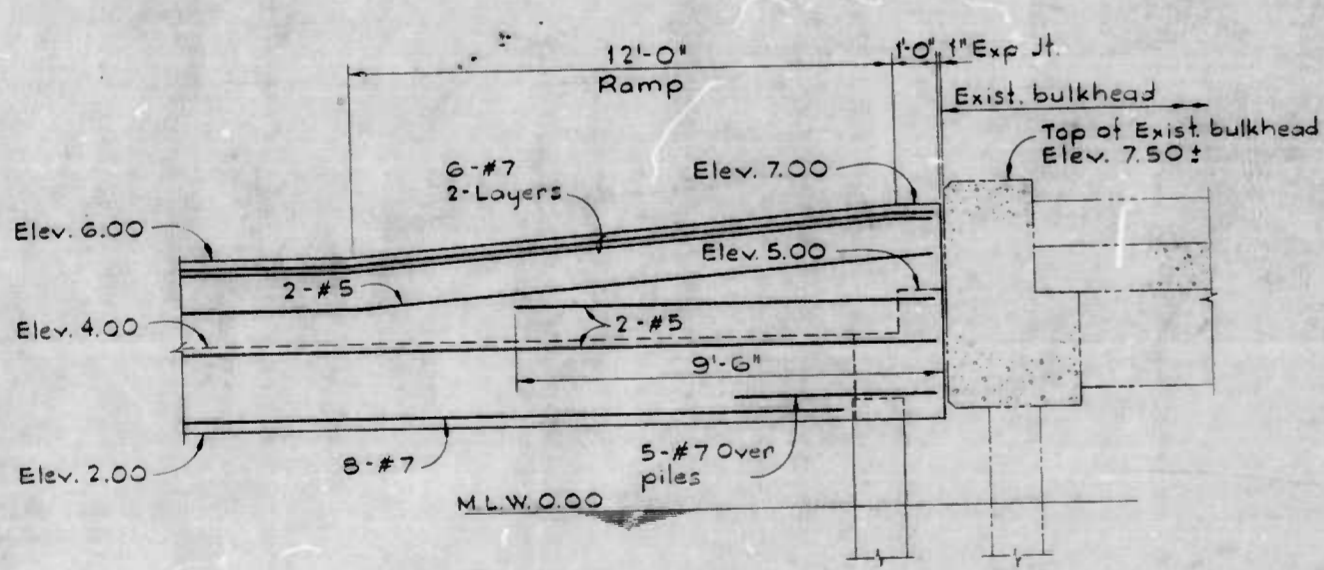
- NOTES:**
1. Dimensions of existing construction are field measured and approximate. The Contractor shall field verify all information.
  2. Vertical piles under inboard pile cap shall be tension piles.
  3. For timber fender system details see Dwg. No. 5-10.
  4. For precast concrete slab details see Dwg. No. 5-8.
  5. Details of existing construction at North End of East Bulkhead are in accordance with Baltimore City Contract No. 3007. Accuracy of information is not guaranteed. The Contractor shall field verify all information shown on existing construction.

**LEGEND**

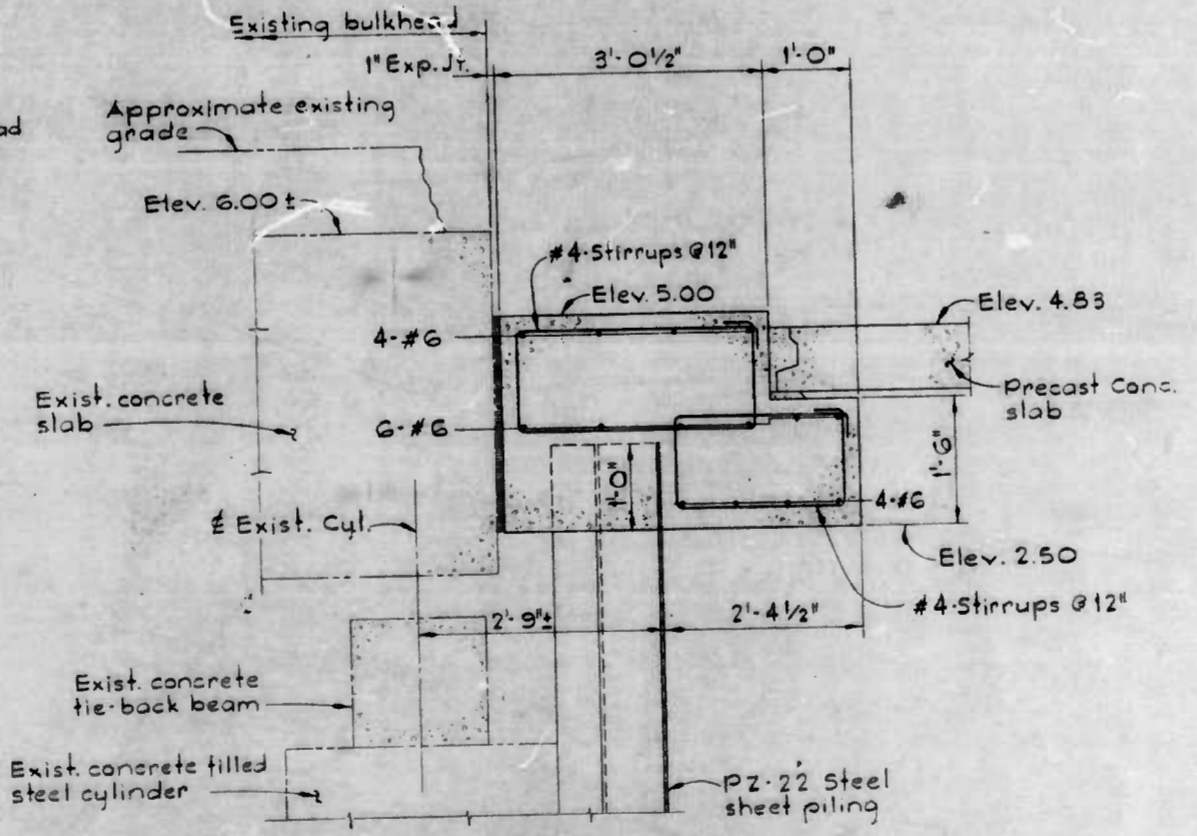
- 14" Sq. Precast Prestressed Conc. Piles (Vertical)
- 14" Sq. Precast Prestressed Conc. Piles (Battered 4:12)
- PZ-22 Steel Sheet Piling



**KEY PLAN**



**SECTION 5-3A/5-3**  
Scale: 3/8" = 1'-0"



**SECTION 5-3B/5-3,55**  
Scale: 3/4" = 1'-0"

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

CONTRACT NO.  
PIER 5 BULKHEAD

**SECTIONS AND BULKHEAD  
PLAN - EAST**

SCALE: AS SHOWN  
DRAWING NO. S-3

DATE: \_\_\_\_\_  
SHEET 12 OF 20

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

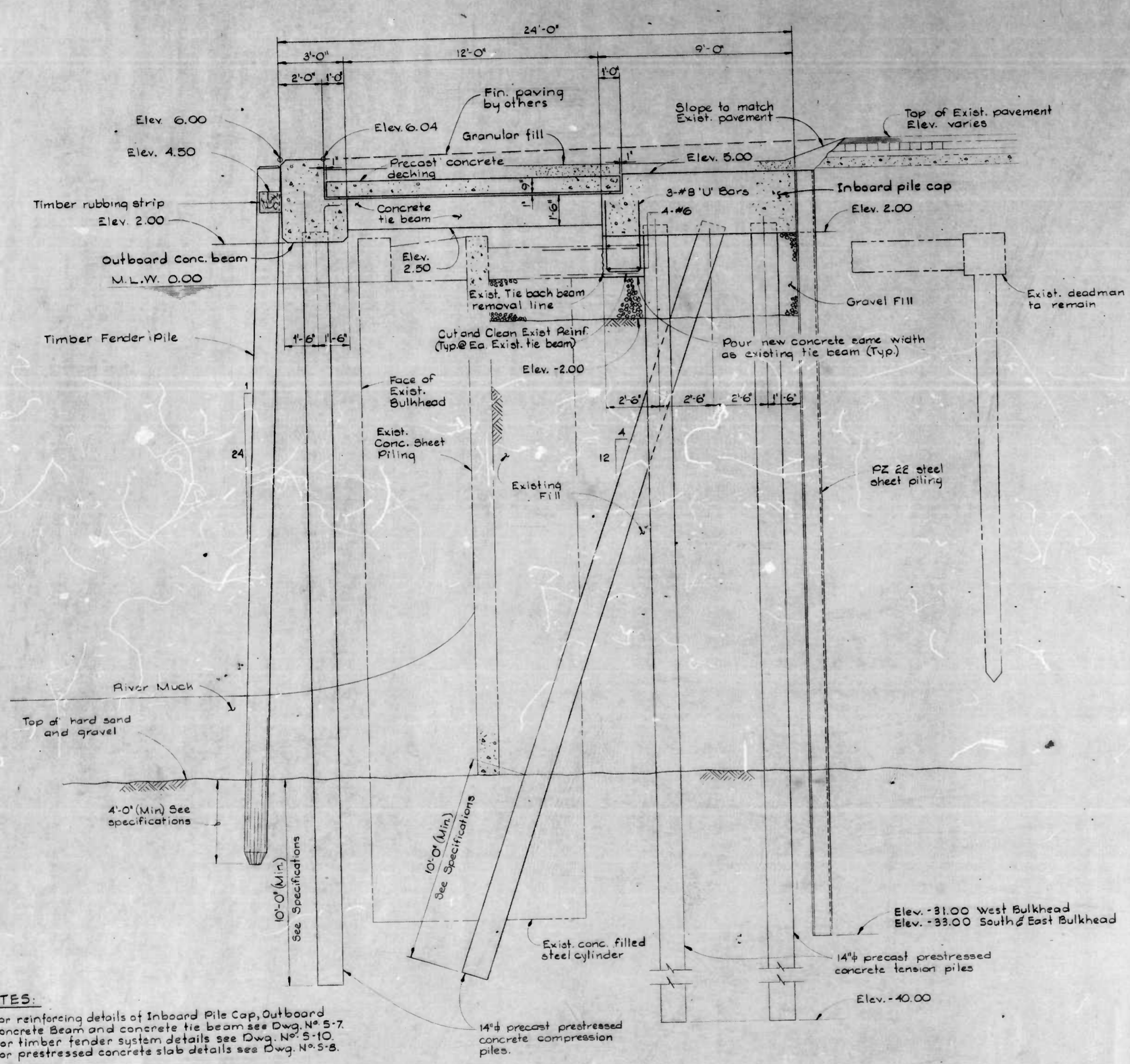
BY: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_  
EXAMINED BY: \_\_\_\_\_  
W.O. 807.6

FILE REF.

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



STRUCTURAL NOTES

CAST-IN-PLACE CONCRETE

1. ALL CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28-DAYS.
2. REINFORCED CONCRETE IS DESIGNED AND SHALL BE DETAILED AND CONSTRUCTED IN ACCORDANCE WITH CURRENT ACI SPECIFICATION 318-83.
3. ALL REINFORCING STEEL SHALL BE GRADE 60, AND SHALL CONFORM TO ASTM SPECIFICATION A615-B4 INCLUDING SUPPLEMENT S1.
4. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS:
  - a. ON THE BOTTOM AND SIDES OF BEAMS AND SLABS-3 INCHES.
  - b. ON THE TOP OF BEAMS AND SLABS-2 INCHES.
5. REINFORCING BAR SPLICES SHALL BE CLASS C. TOP BARS SHALL BE SPLICED AT MID-SPAN. BOTTOM BARS SHALL BE SPLICED OVER THE SUPPORT.
6. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" INCHES UNLESS NOTED OTHERWISE.
7. EXPANSION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS, WITH NO ADDITIONAL JOINTS USED NOR ANY OMITTED, EXCEPT BY WRITTEN AUTHORIZATION OF THE ENGINEER. PROVIDE CONSTRUCTION JOINTS AT MAXIMUM 40 FEET ON CENTERS AND APPROXIMATELY AT A QUARTER POINT OF SPAN.

PRESTRESSED DECKING

1. PRESTRESSED DECKING SECTIONS SHALL BE DESIGNED FOR THE SUPERIMPOSED DEAD LOADS SHOWN AND A LIVE LOAD OF 200 PSF OR AN HS20-44 TRUCK.
2. DECKING CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28-DAYS. FOR STRANDS AND OTHER REQUIREMENTS, SEE SPECIFICATIONS.
3. PROVIDE A GROUT BED UNDER EACH END TO INSURE FULL AND EVEN BEARING. AFTER THE DECKING IS IN PLACE, GROUT THE JOINT BETWEEN THE ENDS OF THE DECKING AND THE FACE OF THE SUPPORTS, AND BETWEEN DECKING JOINTS.
4. FOR DETAILS AT EXPANSION JOINTS, SEE DRAWING S-7.
5. CONCRETE COVER FOR REINFORCEMENT SHALL BE 2 INCHES.
6. PRECAST DECKING UNIT WIDTHS ALLOW FOR AN AVERAGE JOINT WIDTH BETWEEN THE SIDES OF ADJACENT UNITS OF 1/4" INCH. NUMBER OF DECKING UNITS REQUIRED IS SHOWN ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY THE NUMBER OF EACH TYPE REQUIRED, AND HE SHALL VERIFY THE PANEL WIDTH AND SPACING REQUIRED TO SATISFACTORILY COMPLETE THE JOB.

STEEL SHEET PILING

1. ALL STEEL SHEET PILING SHALL CONFORM TO ASTM A572-GRADE 50.
2. ALL FABRICATED CORNERS AND SPECIAL PIECES SHALL BE MADE USING HIGH STRENGTH BOLTS CONFORMING TO ASTM A-325.

NOTES:

1. For reinforcing details of Inboard Pile Cap, Outboard Concrete Beam and concrete tie beam see Dwg. No. S-7.
2. For timber fender system details see Dwg. No. S-10.
3. For prestressed concrete slab details see Dwg. No. S-8.

SECTION 5-4A/S-1.5.2.5-3  
Scale: 3/8" = 1'-0"

DRAWN BY  
EXAMINED BY

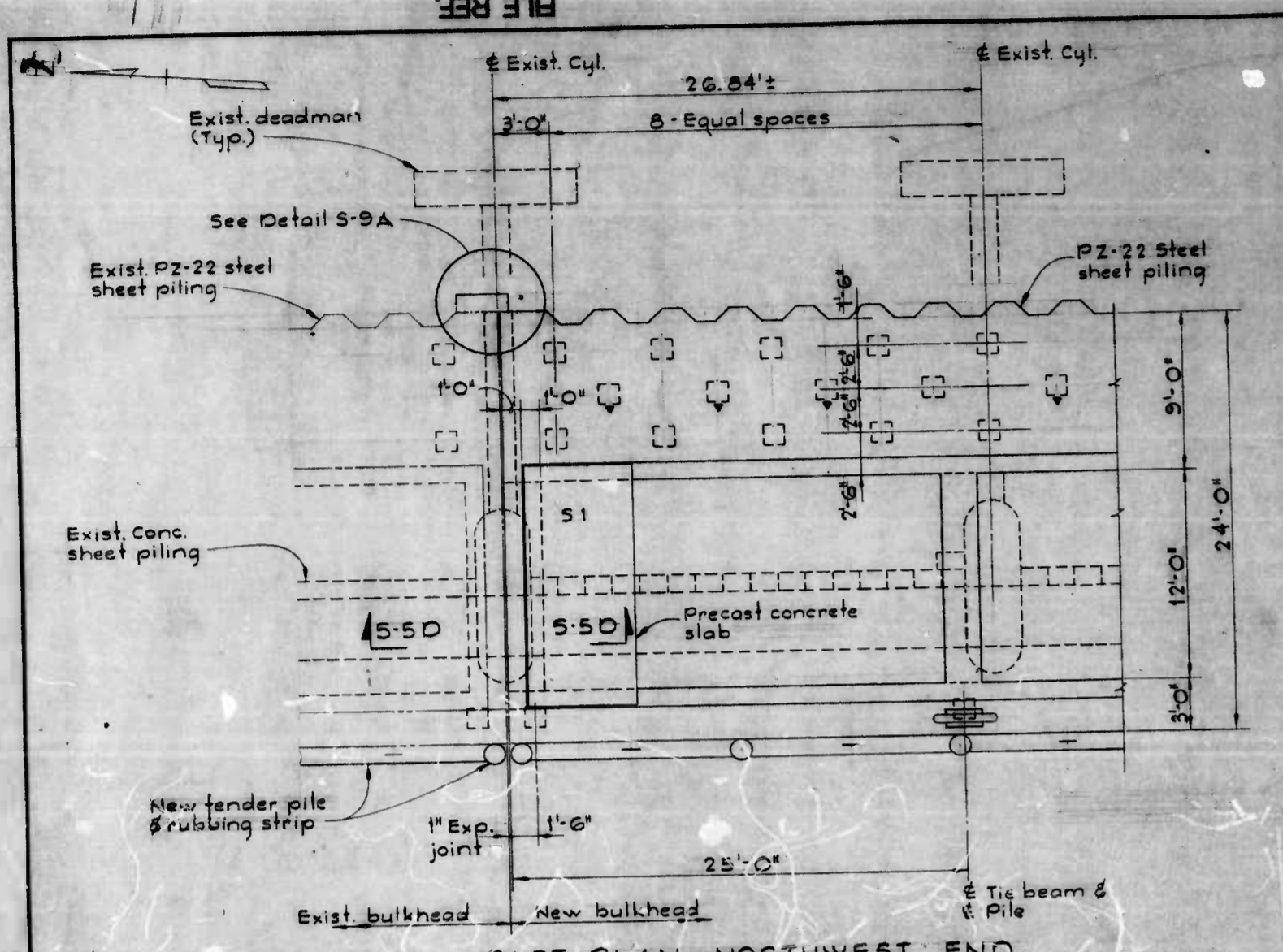
W.O. 80376

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND -  
BY \_\_\_\_\_

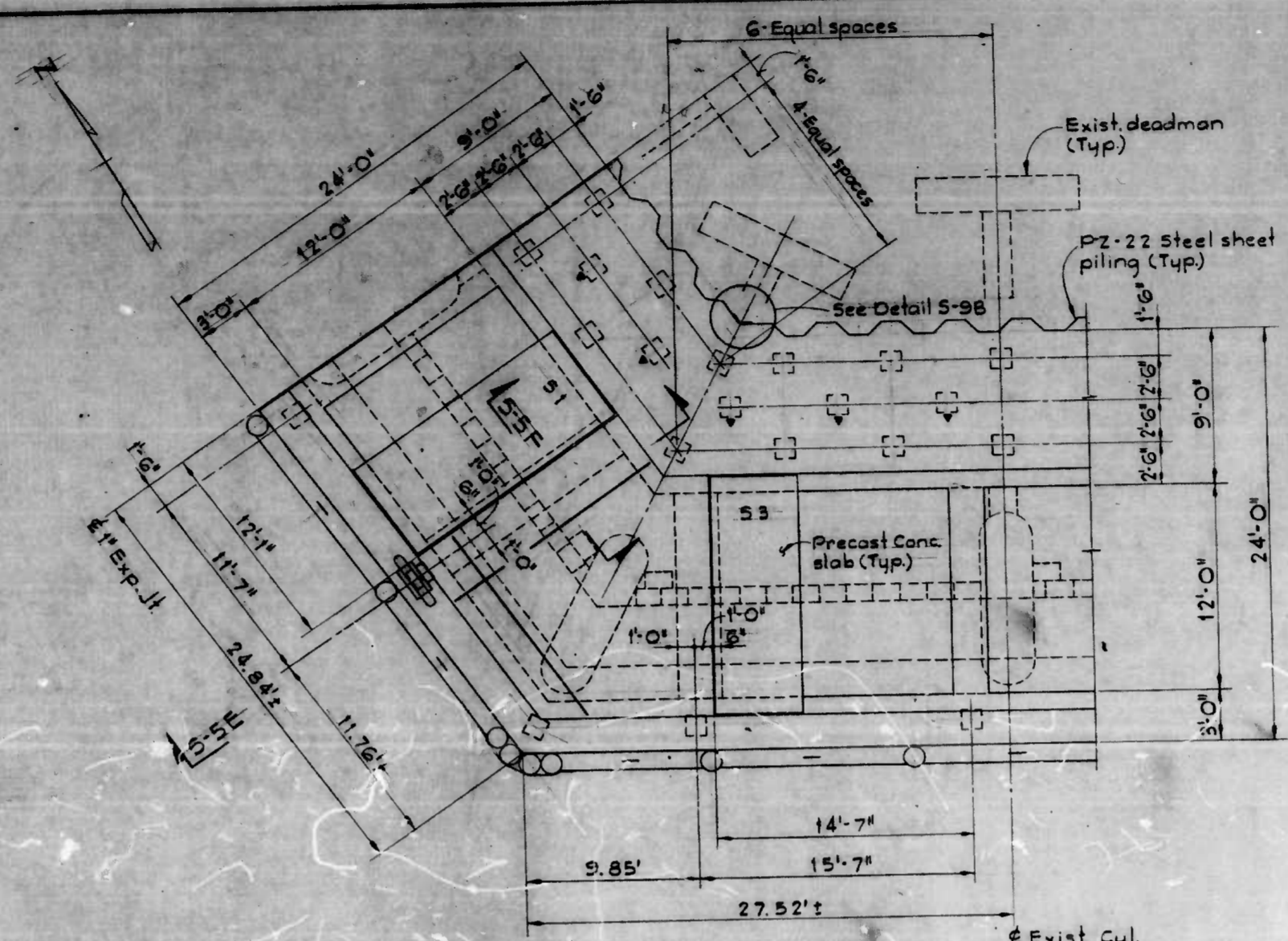
CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING  
CONTRACT NO.  
PIER 5 BULKHEAD  
SECTION AND NOTES  
SCALE AS SHOWN DATE  
DRAWING NO. S-4 SHEET 13 OF 20

FILE REF.

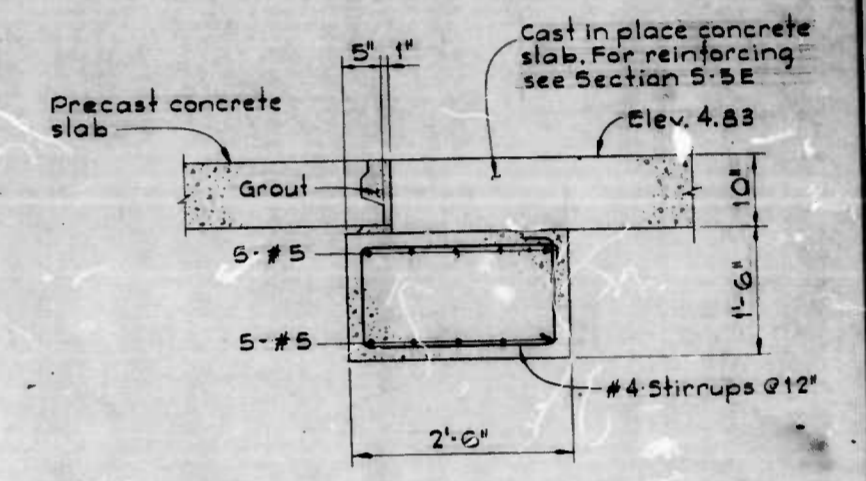
REVISIONS			
NO.	DESCRIPTION	DATE	BY



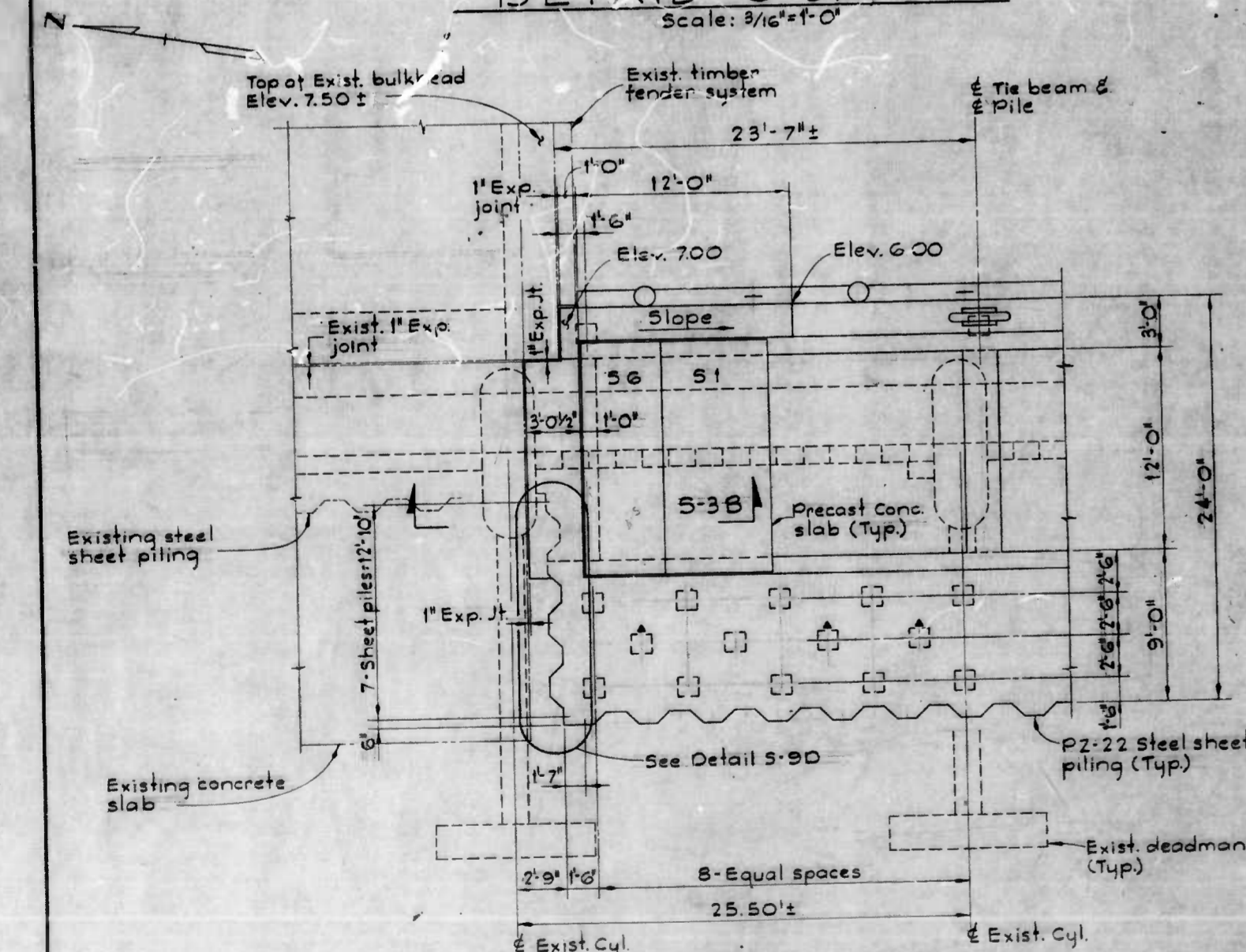
**PART PLAN - NORTHWEST END**  
**DETAIL 5-5A/5-1**  
 Scale: 3/16" = 1'-0"



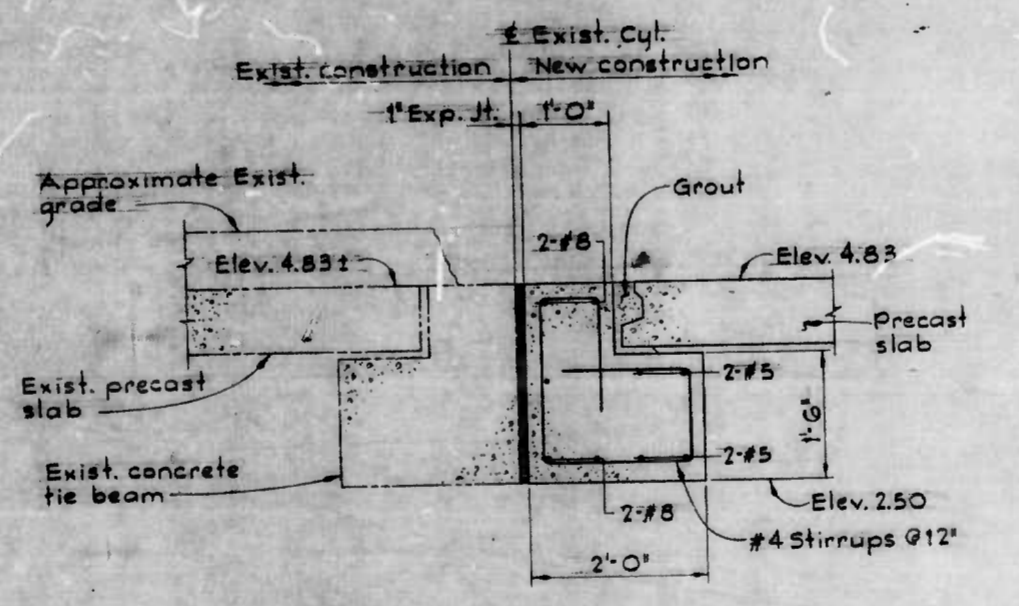
**PART PLAN - SOUTHWEST CORNER**  
**DETAIL 5-5B/5-1**  
 Scale: 3/16" = 1'-0"



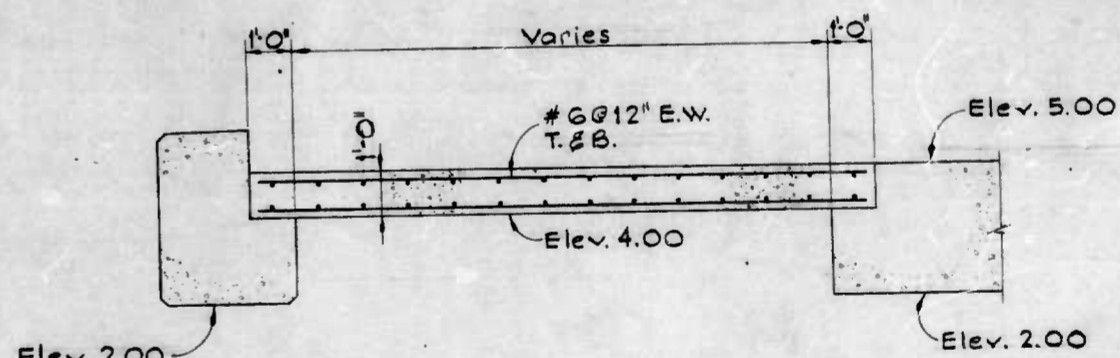
**SECTION 5-5F/5-5**  
 Scale: 3/4" = 1'-0"



**PART PLAN - NORTHEAST CORNER**  
**DETAIL 5-5C/5-3**  
 Scale: 3/16" = 1'-0"



**SECTION 5-5D/5-5**  
 Scale: 3/4" = 1'-0"



**SECTION 5-5E/5-5**  
 Scale: 3/8" = 1'-0"

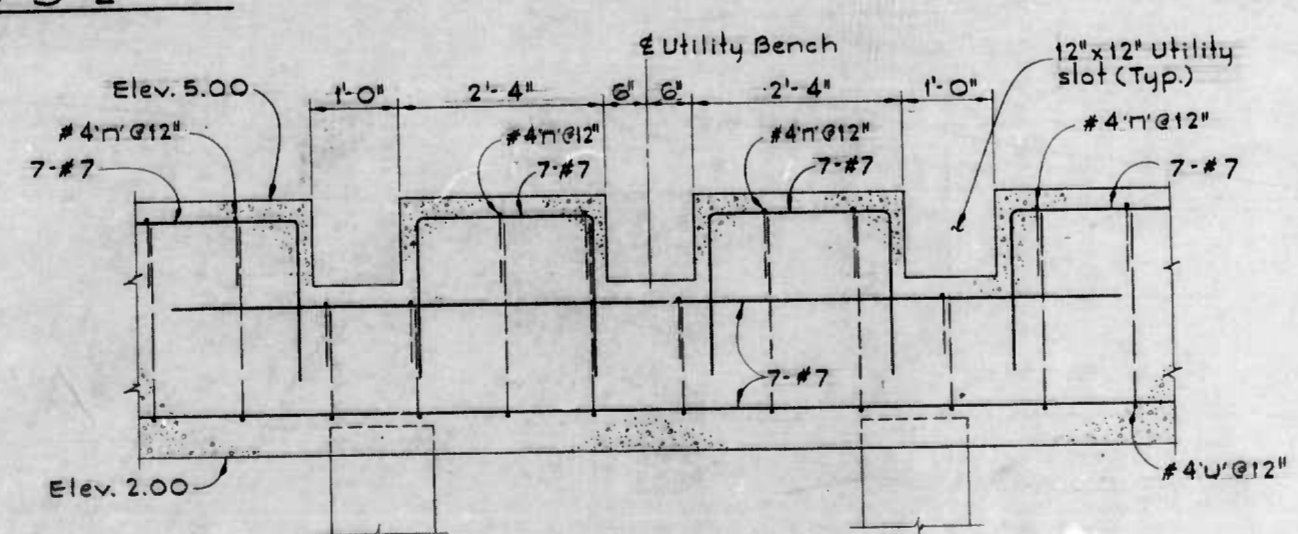
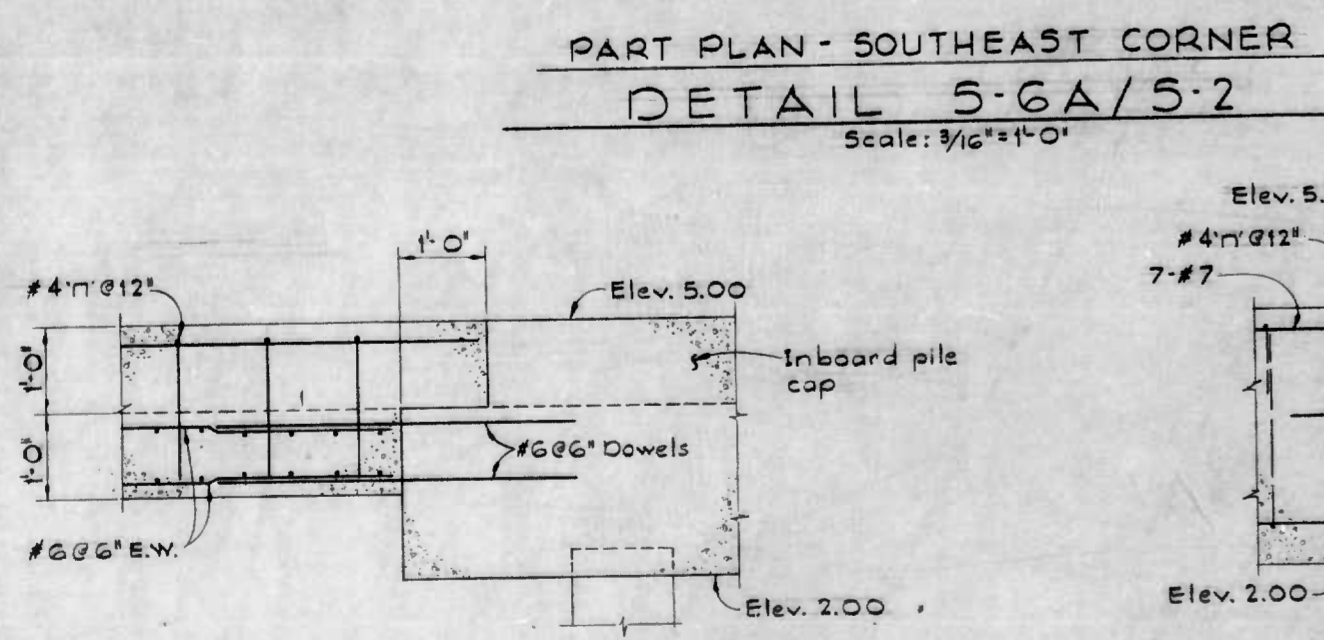
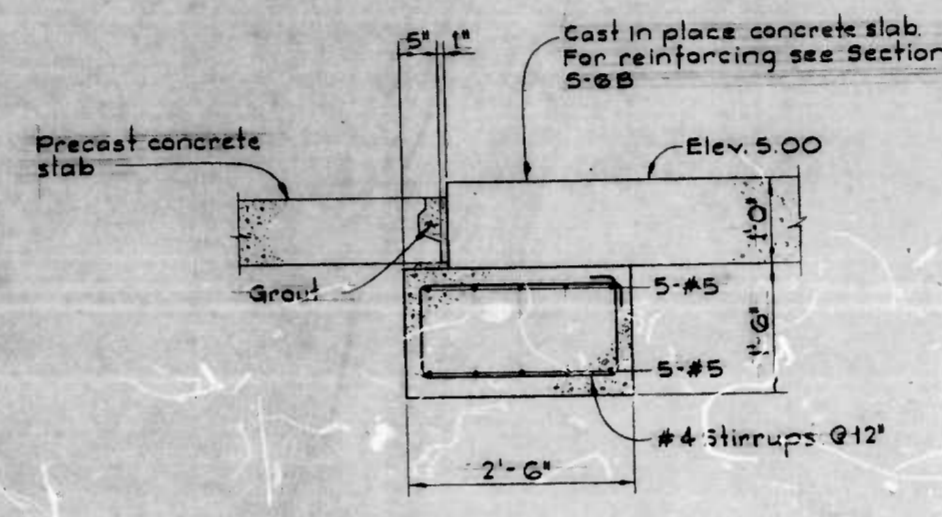
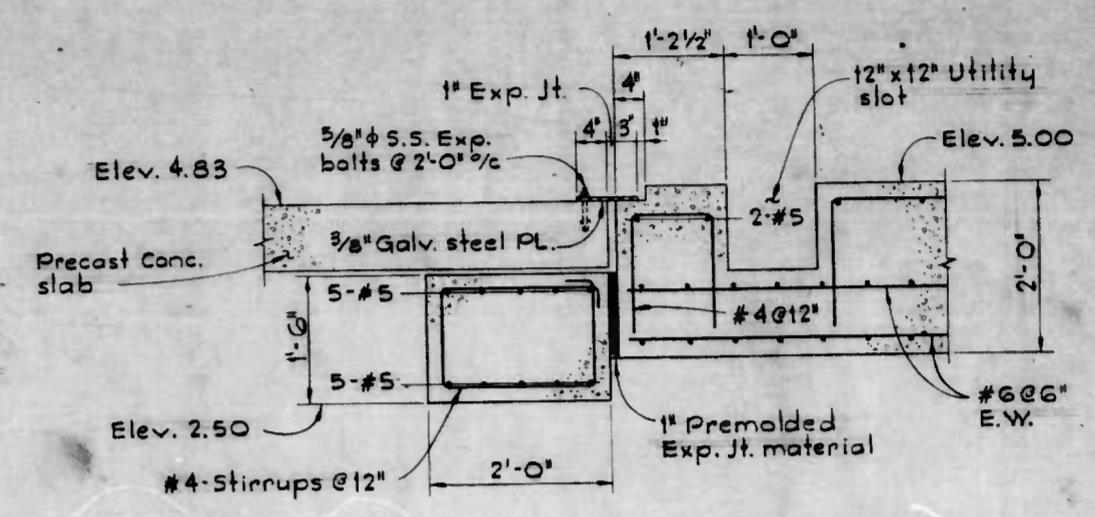
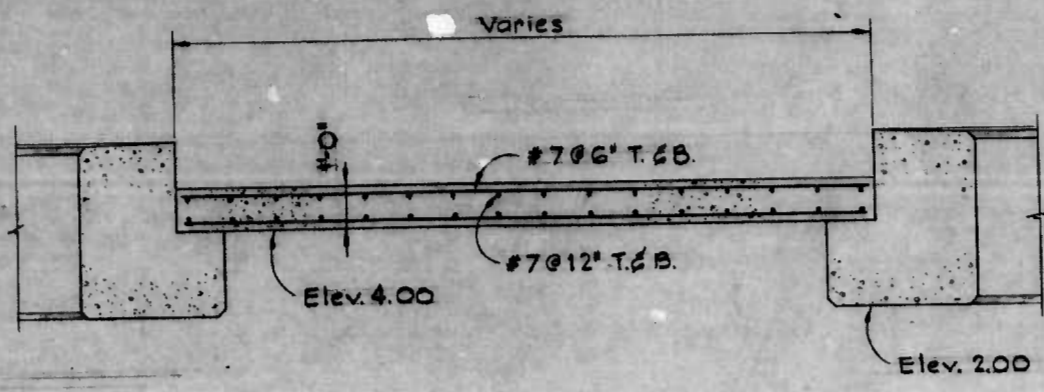
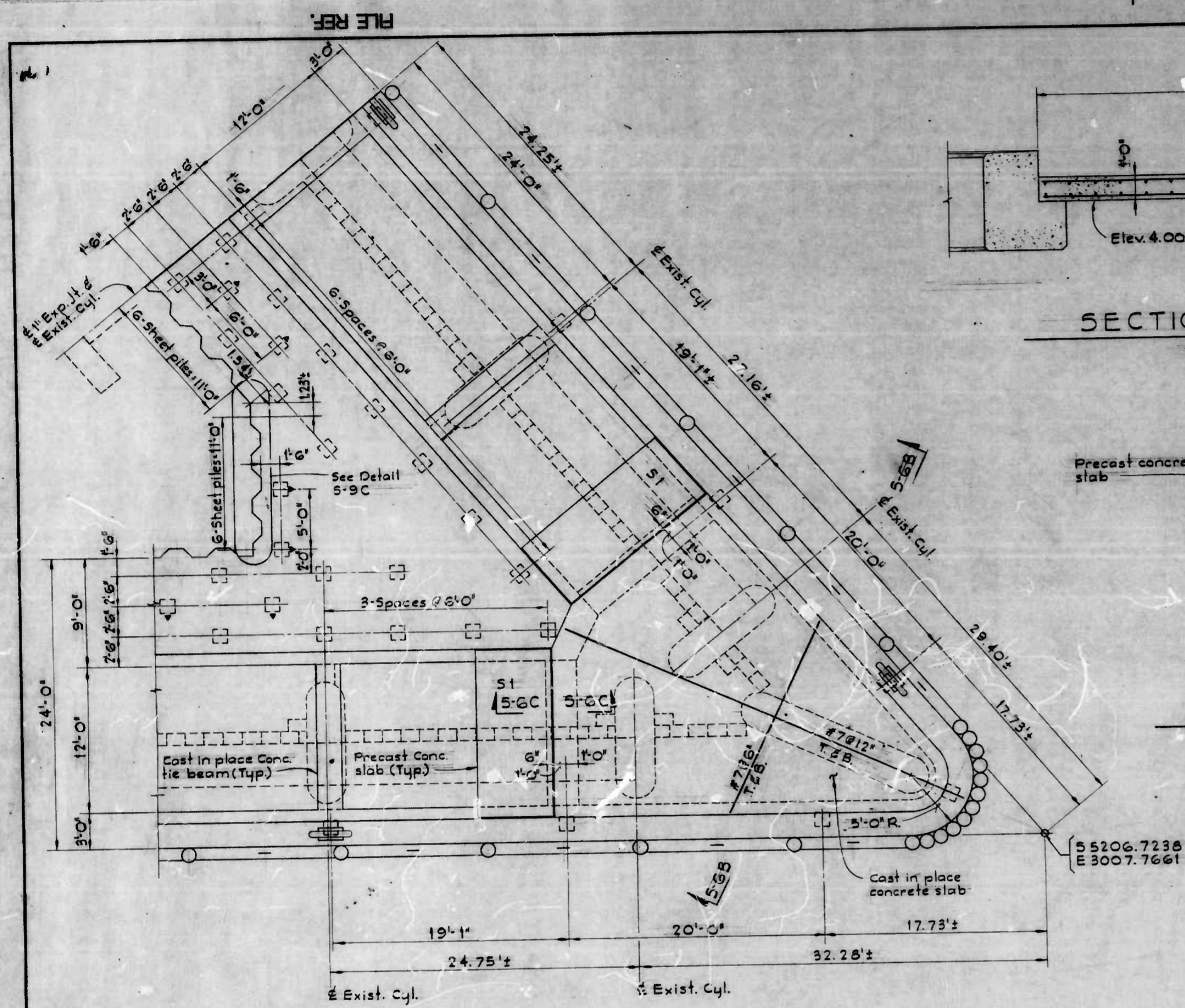
DRAWN BY  
 EXAMINED BY

WHITMAN, REQUARDT AND ASSOCIATES  
 ENGINEERS  
 BALTIMORE MARYLAND

CITY OF BALTIMORE  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAY AND BRIDGE ENGINEERING  
 CONTRACT NO.  
 PIER 5 BULKHEAD  
**PART PLANS AND DETAILS**  
 SCALE AS SHOWN  
 DRAWING NO. S-5  
 SHEET 14 OF 20

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

CONTRACT NO.  
PIER 5 BULKHEAD

**PART PLAN AND SECTIONS**

SCALE AS SHOWN  
DRAWING NO. S-6

DATE: \_\_\_\_\_  
SHEET 15 OF 20

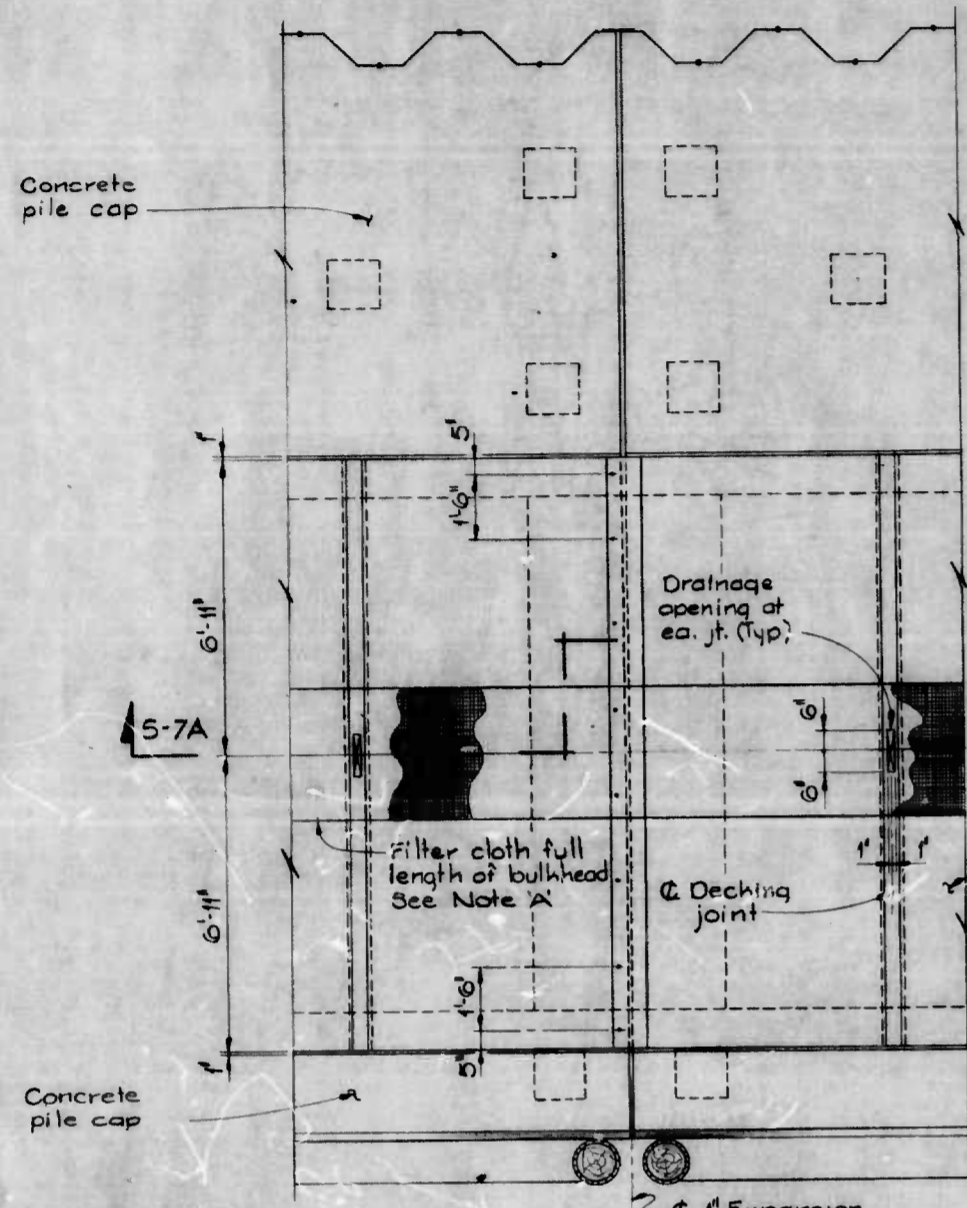
WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

BY: \_\_\_\_\_

DRAWN BY  
EXAMINED BY  
W.O. 80376

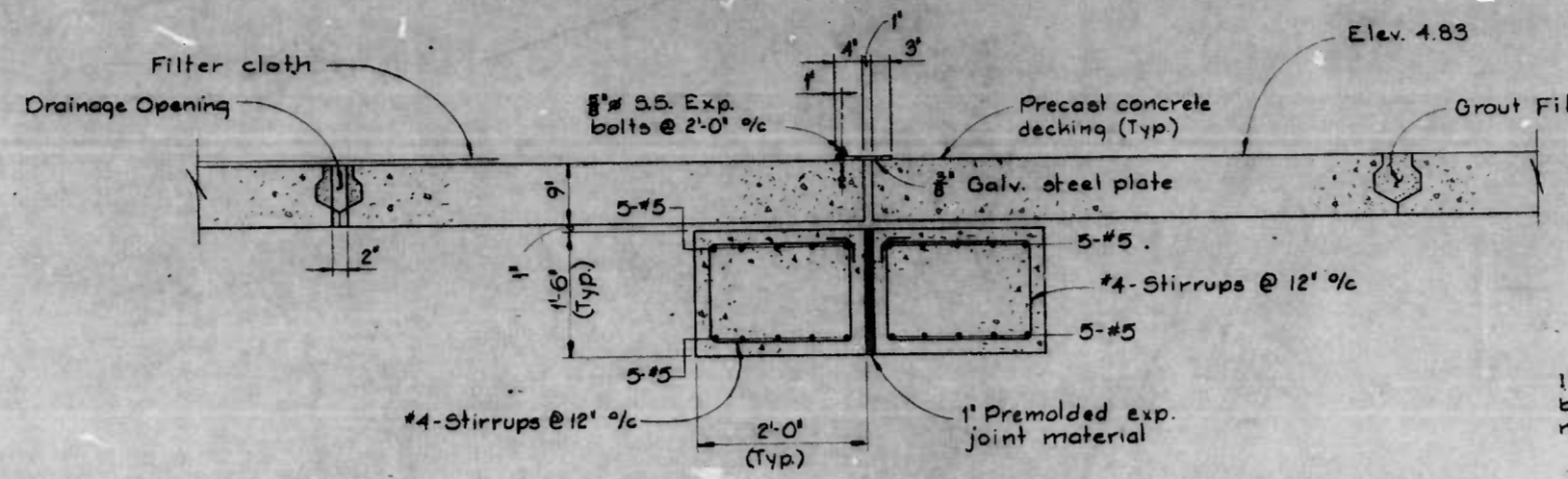
FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

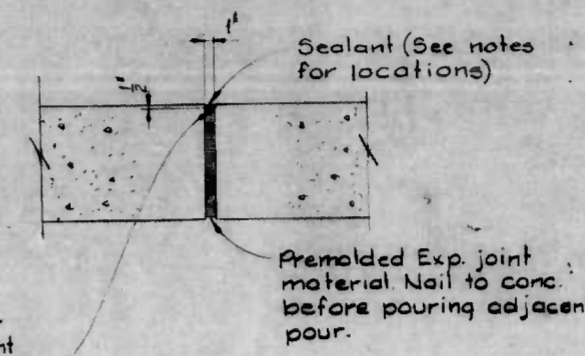


Note 'A':  
The filter cloth (Geotextile) shall be Trevira 1155, manufactured by Hoechst Fibers Industries, Spartanburg, South Carolina, or approved equal.

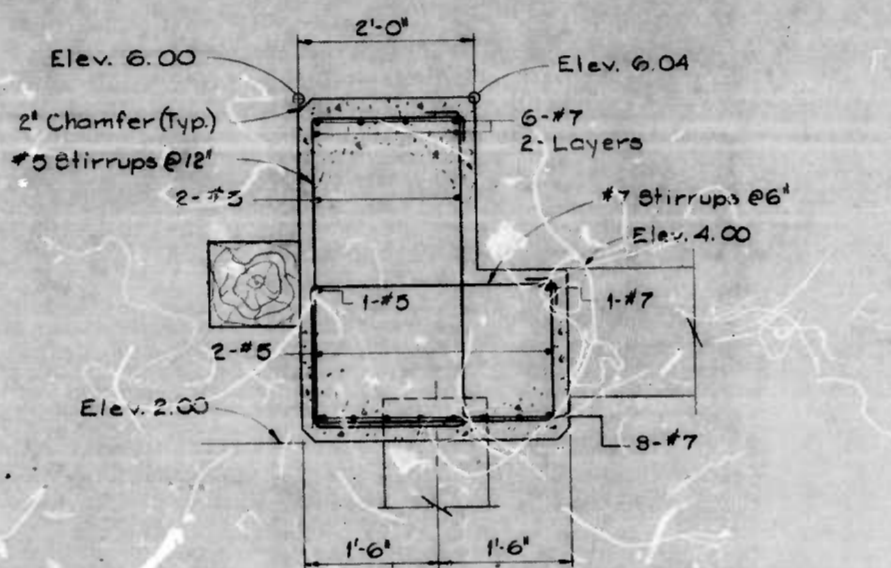
PLAN - EXPANSION JOINT  
Scale: 3/8" = 1'-0"



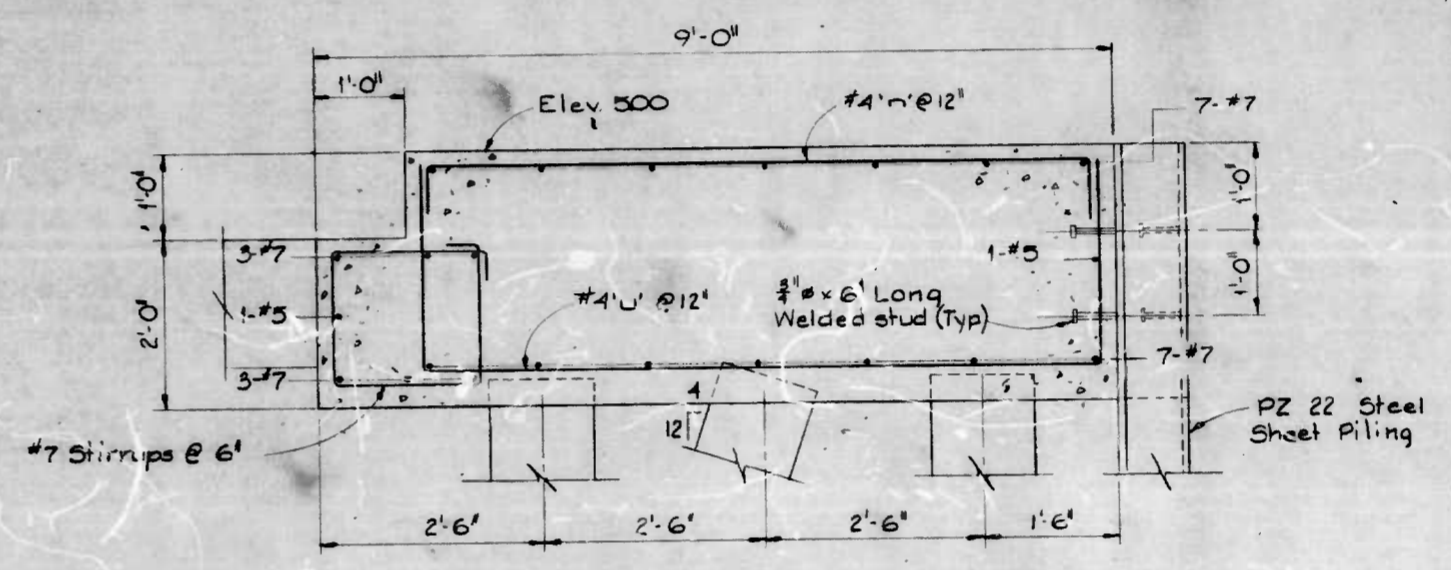
SECTION 5-7A/5-7  
Scale: 3/4" = 1'-0"



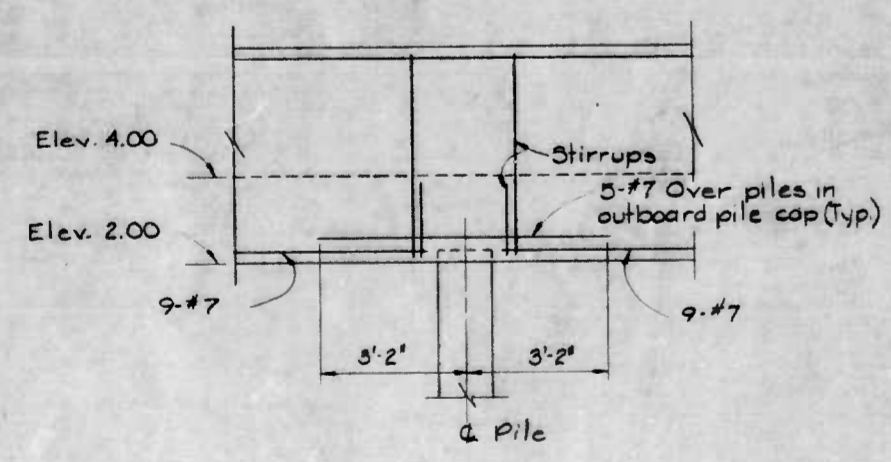
TYPICAL EXPANSION JOINT



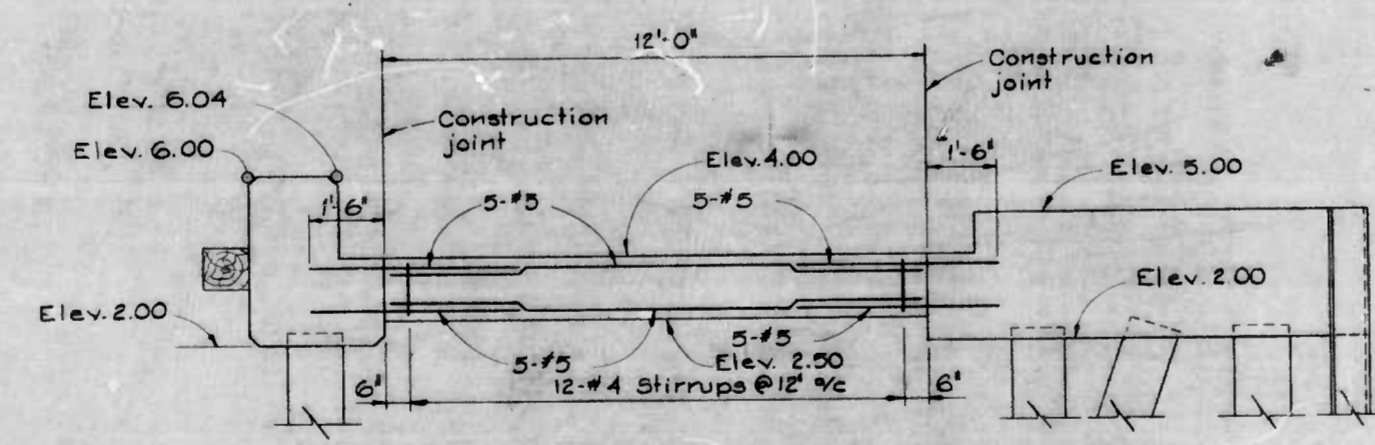
SECTION 5-7B/5-1,5,2,5-3  
Scale: 3/4" = 1'-0"



SECTION 5-7C/5-1,5,2,5-3  
Scale: 3/4" = 1'-0"



REINFORCEMENT AT PILE  
(Outboard Concrete Beam Only)  
Scale: 3/8" = 1'-0"



ELEVATION - TYPICAL TIE BEAM  
Scale: 3/8" = 1'-0"

DRAWN BY  
EXAMINED BY

W.O. 80376

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

CONTRACT NO.  
PIER 5 BULKHEAD

SECTIONS AND DETAILS

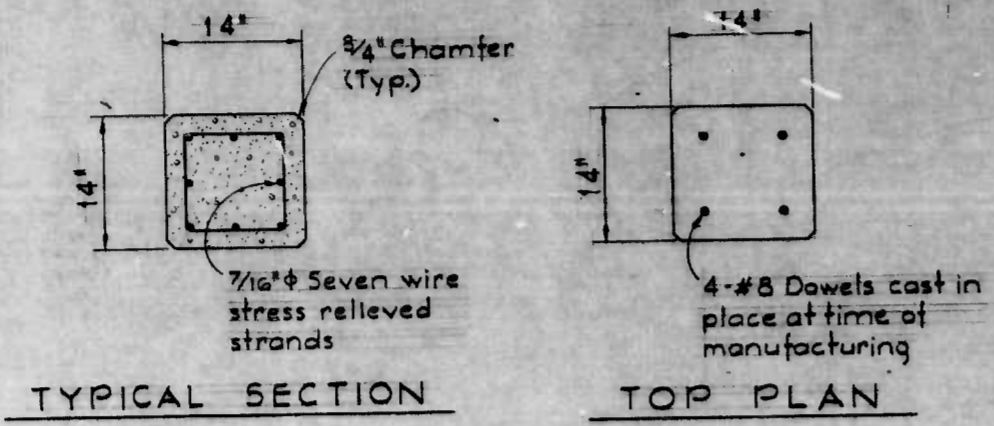
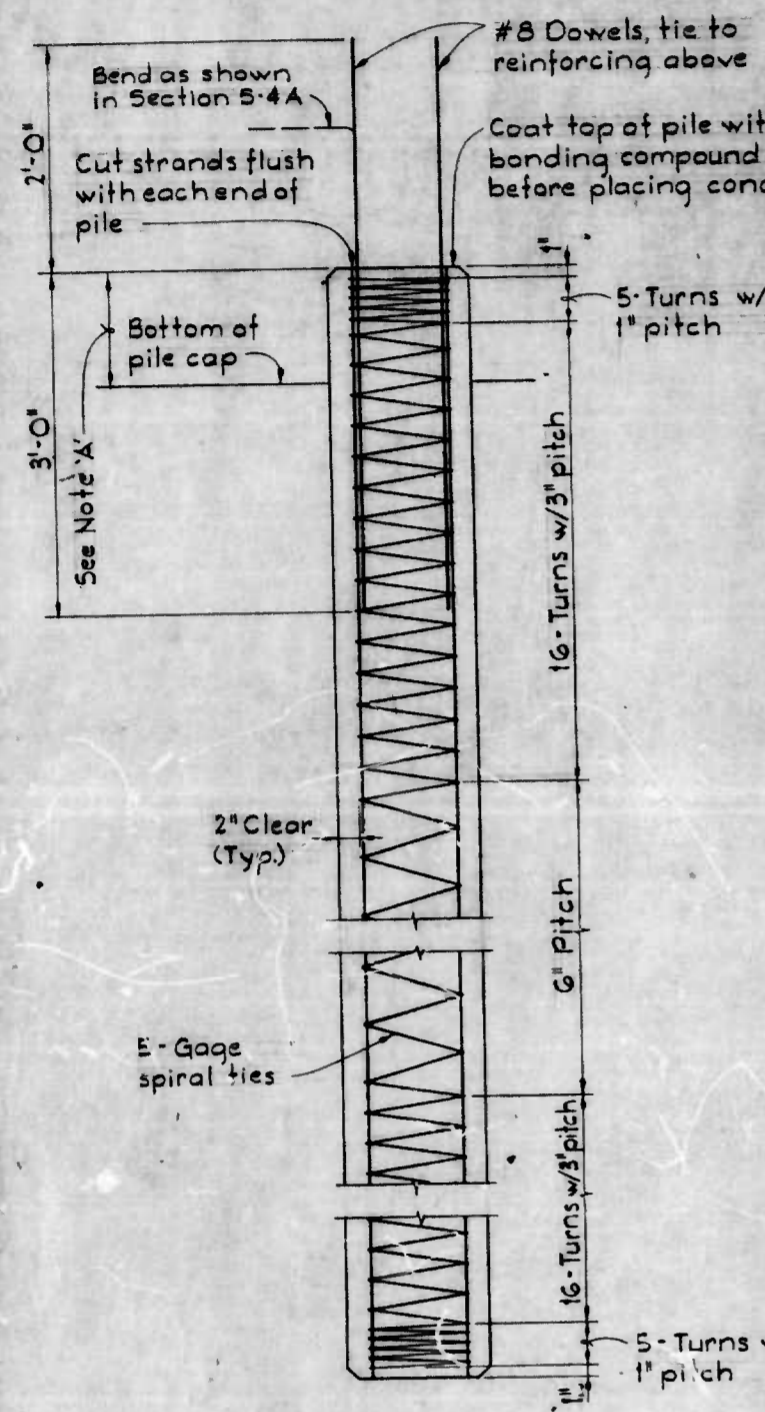
SCALE AS SHOWN DATE  
DRAWING NO. S-7 SHEET 16 OF 20

FILE REF.



FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



Max. L = 60 Ft.		Max. L = 85 Ft.	
0.30L	0.70L	0.21L	0.58L 0.21L

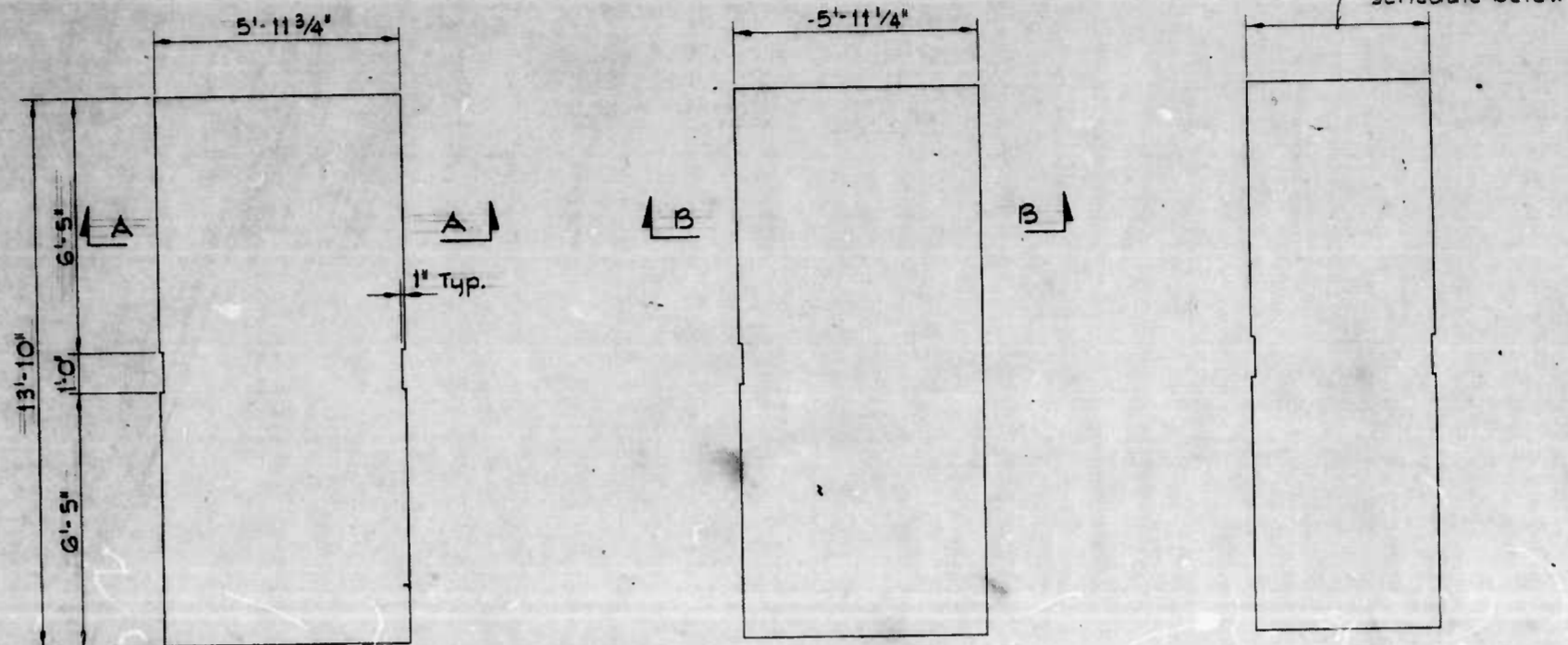
1- POINT PICK-UP      2- POINT PICK-UP  
PILE PICK-UP DATA

**PRESTRESSED PILE NOTES**

- Design Loads:
  - All piles shall have a capacity of 100 tons bearing plus a moment of 25 kip-feet, or stresses due to handling, whichever is greater.
  - In addition, piles noted as tension piles shall have a tension load capacity of 20 tons.
- Test load for piles shall be equal to twice the design load. See pile plans for locations and specifications for other requirements.
- Pile splices will not be permitted.
- Pile concrete shall have a minimum compressive strength of 5000 p.s.i. at 28 days. Dowels shall be Grade 60 conforming to ASTM A-615-72. For wire strands, spiral reinforcing and all other requirements see specifications.

ELEVATION

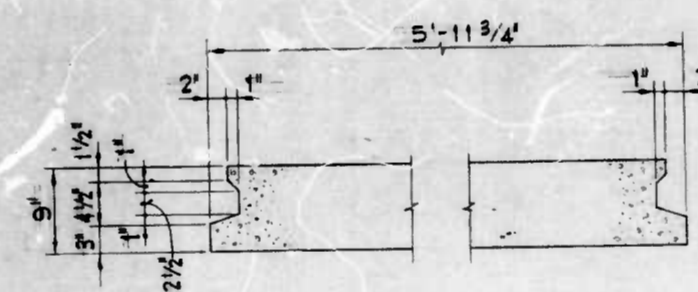
**PRESTRESSED CONCRETE PILE DETAILS**



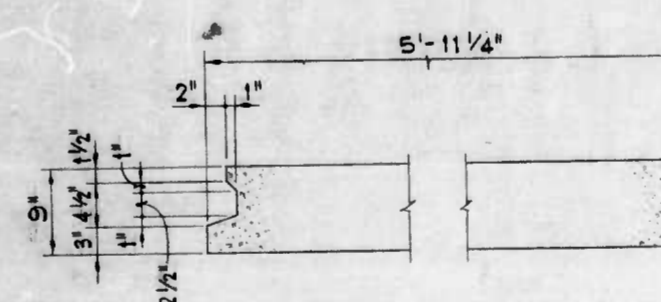
**TYPE S1**  
Scale: 3/8"=1'-0"  
(117 - Required)

**TYPE S2**  
Scale: 3/8"=1'-0"  
(7 - Required)

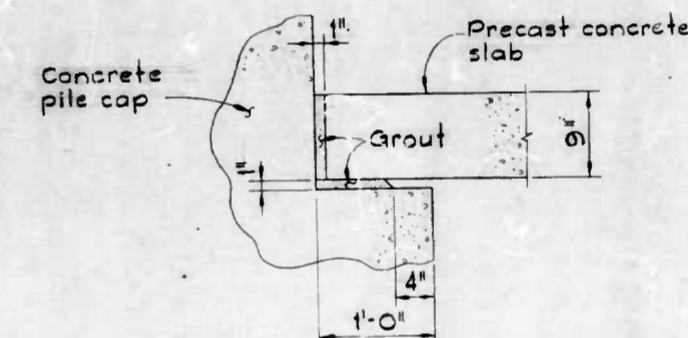
**TYPE S3-S6**  
Scale: 3/8"=1'-0"



**SECTION A-A**  
Scale: 1"=1'-0"



**SECTION B-B**  
Scale: 1"=1'-0"



**TYPICAL BEARING DETAIL**  
Scale: 1"=1'-0"

Type	Width	No. Required
S 3	5.00'	1
S 4	3.10'	1
S 5	5.23'	1
S 6	4.50'	1

Note:  
For design criteria for precast slabs see Structural Notes on Dwg. No. S-4 and specifications.

**PRECAST SLAB DETAILS**

DRAWN BY \_\_\_\_\_  
EXAMINED BY \_\_\_\_\_

W.O. 80376

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING  
CONTRACT NO.  
PIER 5 BULKHEAD

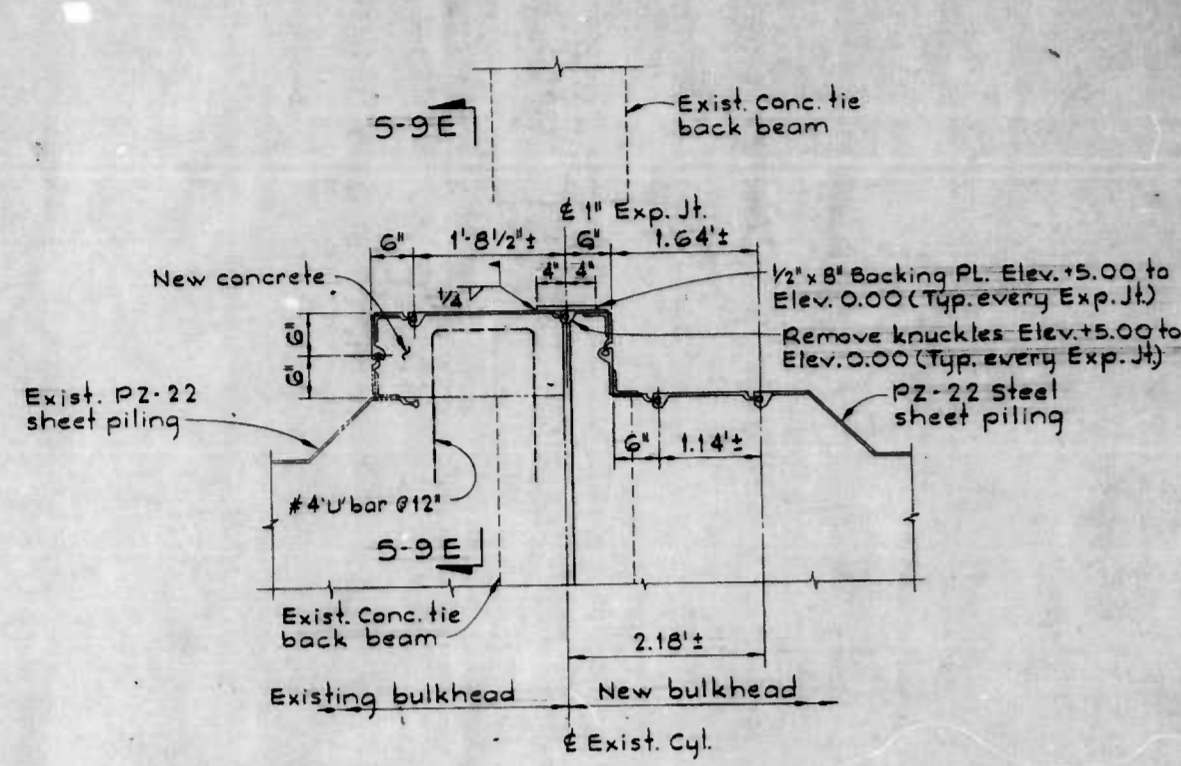
**PILES AND PRECAST SLABS**

SCALE: AS SHOWN      DATE: \_\_\_\_\_  
DRAWING NO. S-8      SHEET 17 OF 20

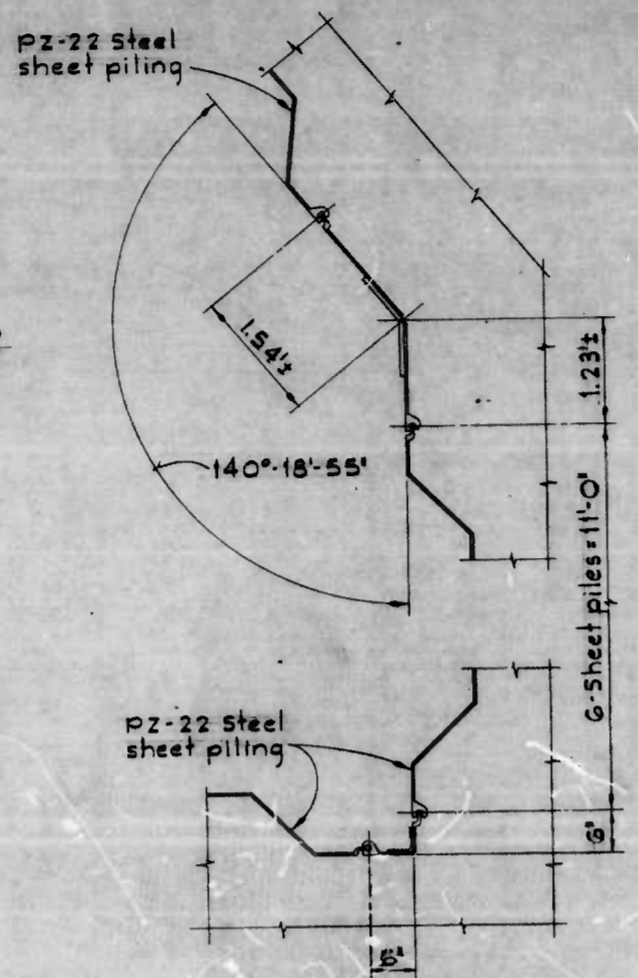
FILE REF.

FILE REF.

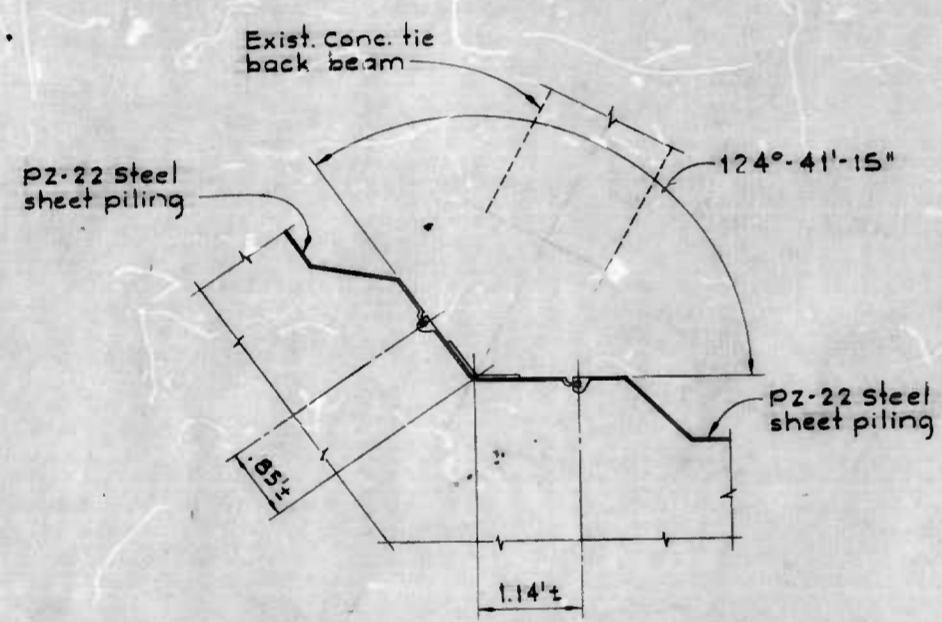
REVISIONS			
NO.	DESCRIPTION	DATE	BY



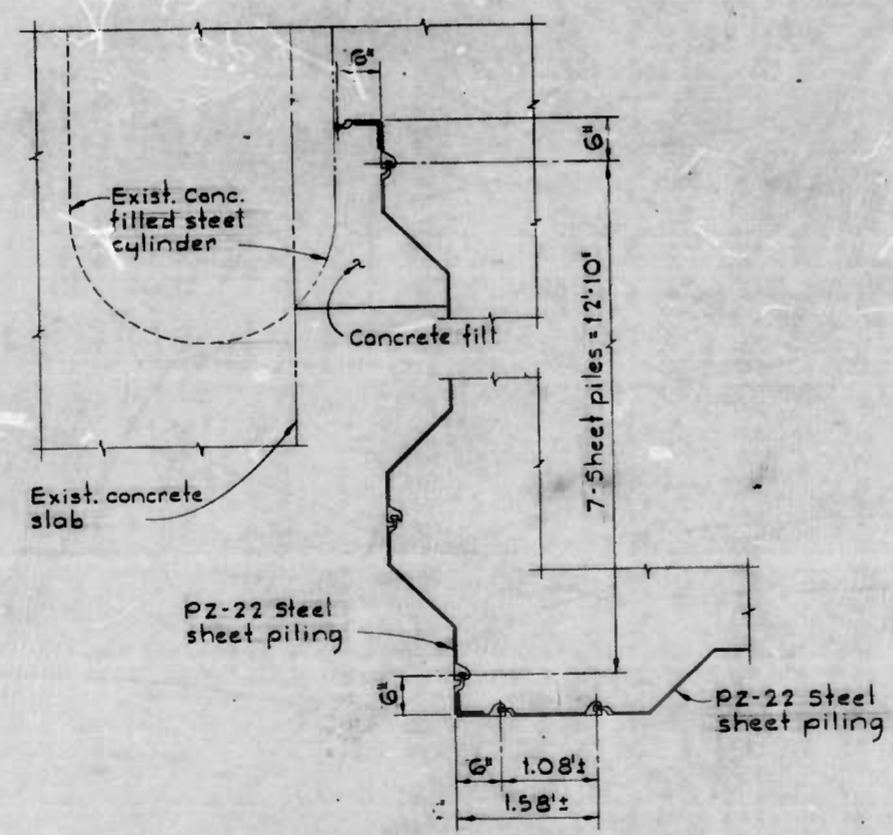
**DETAIL 5-9A/5-5**  
Scale: 3/4" = 1'-0"



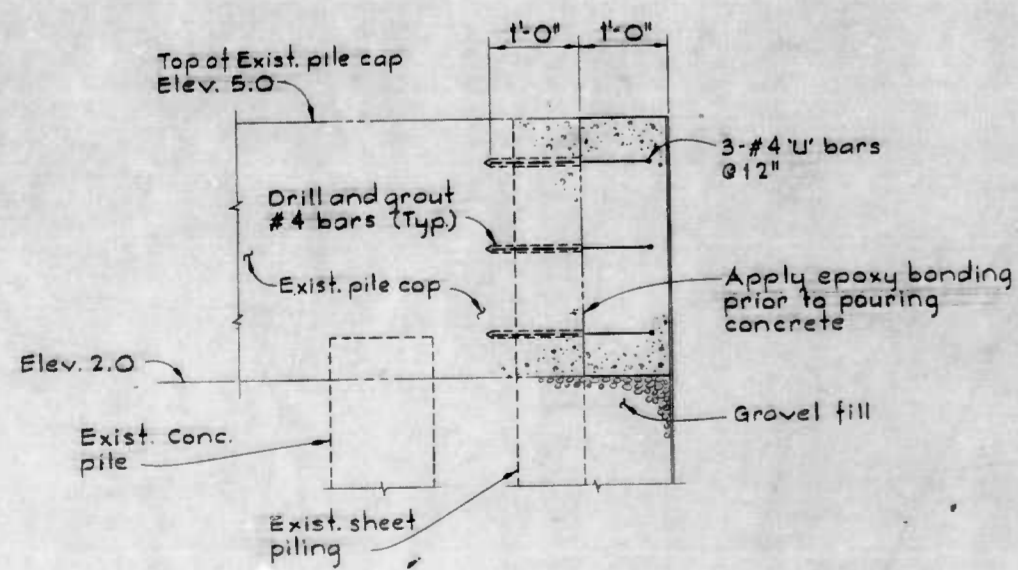
**DETAIL 5-9C/5-6**  
Scale: 3/4" = 1'-0"



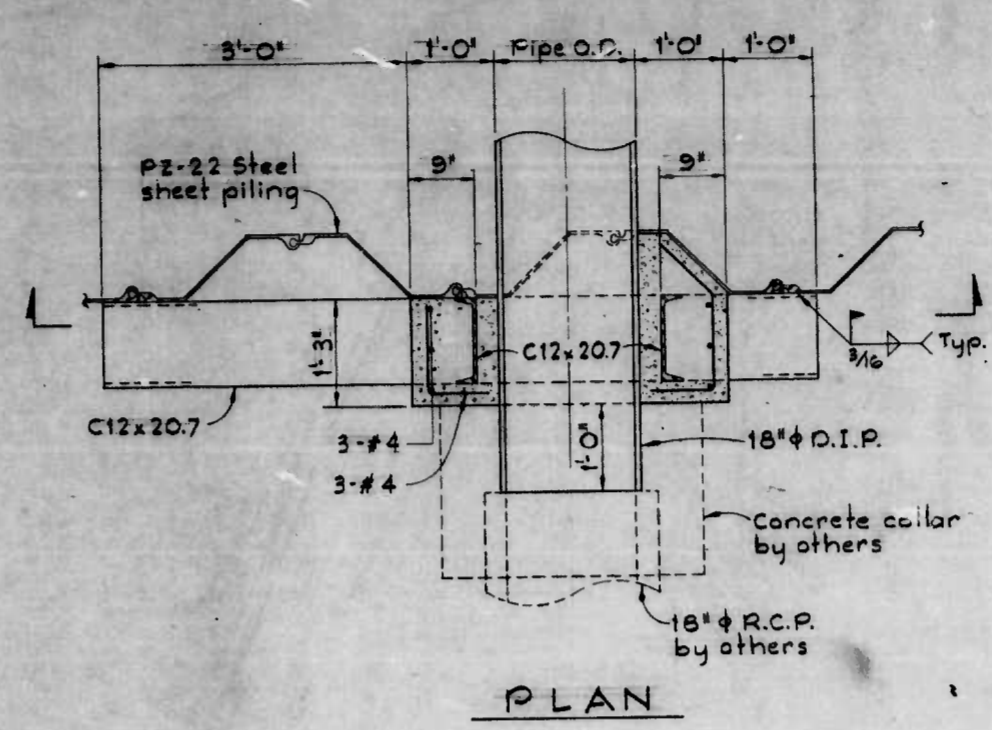
**DETAIL 5-9B/5-5**  
Scale: 3/4" = 1'-0"



**DETAIL 5-9D/5-5**  
Scale: 3/4" = 1'-0"

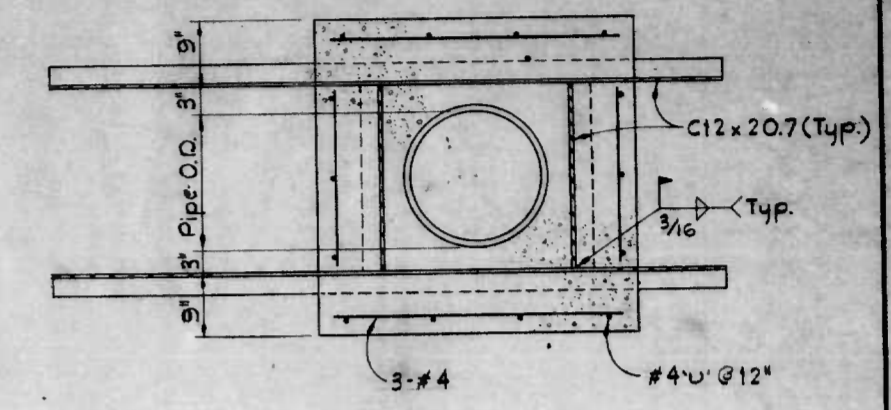


**SECTION 5-9E/5-9**  
Scale: 3/4" = 1'-0"

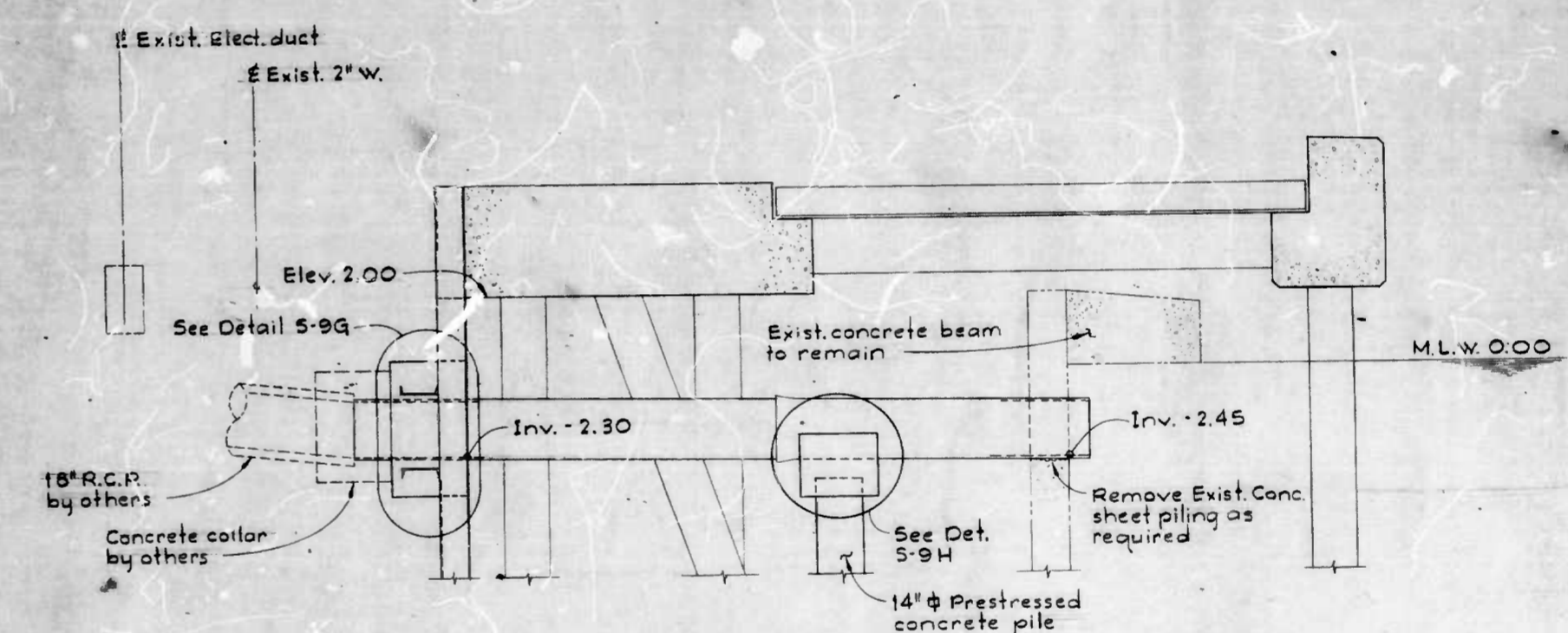


**PLAN**

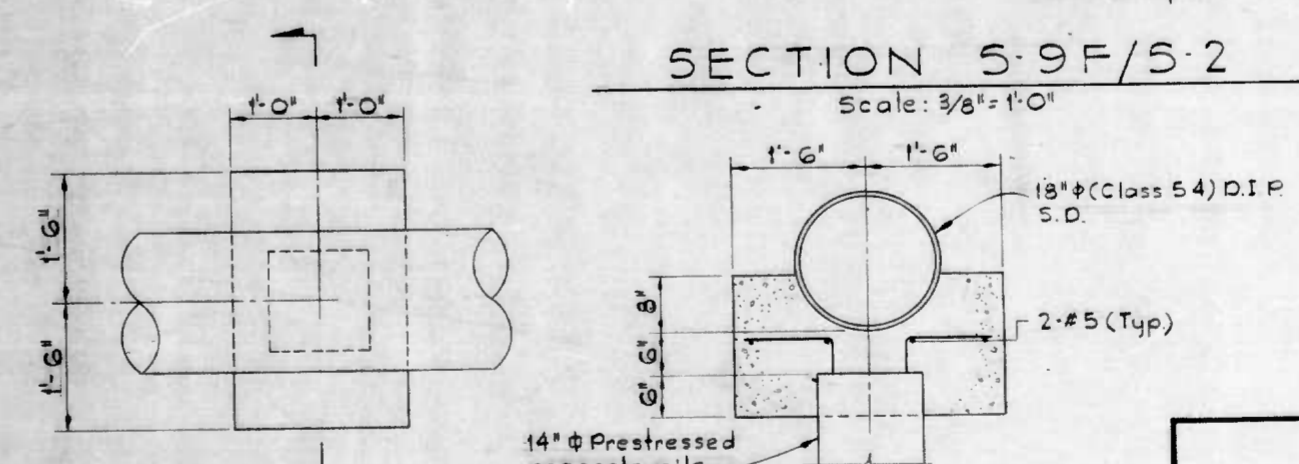
**DETAIL 5-9G/5-9**  
Scale: 3/4" = 1'-0"



**SECTION**



**SECTION 5-9F/5-2**  
Scale: 3/8" = 1'-0"



**PLAN**

**DETAIL 5-9H/5-9**  
Scale: 3/8" = 1'-0"

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

CONTRACT NO.  
PIER 5 BULKHEAD

**SHEET PILING DETAILS**

SCALE: AS SHOWN  
DRAWING NO. S-9  
DATE  
SHEET 18 OF 20

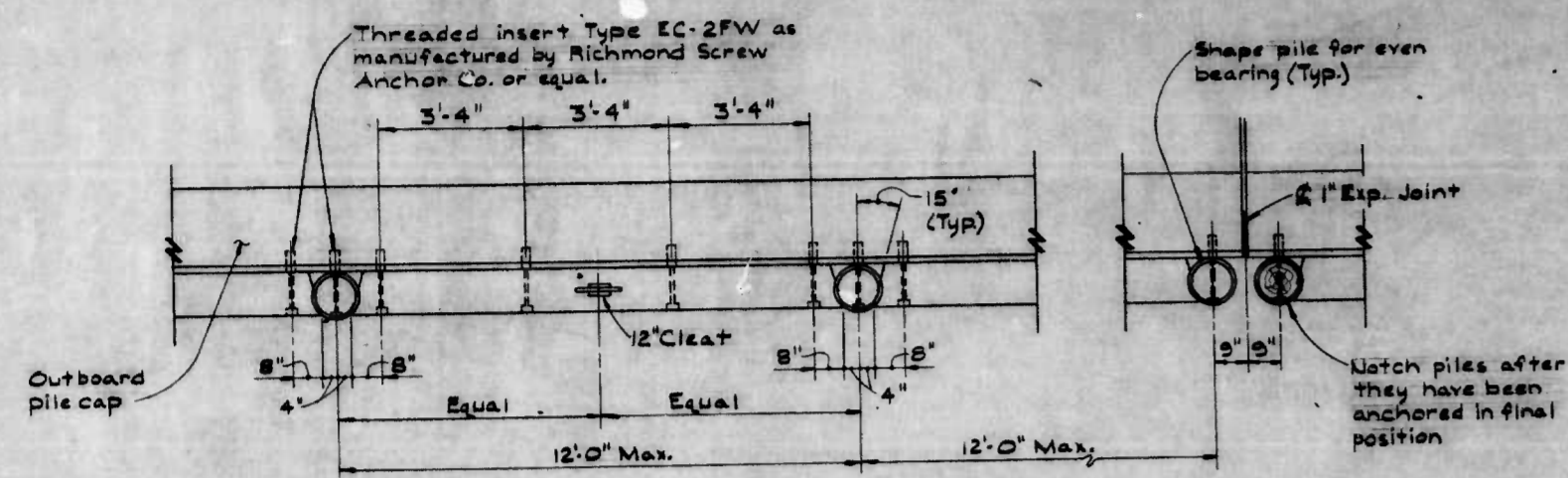
WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

DRAWN BY  
EXAMINED BY

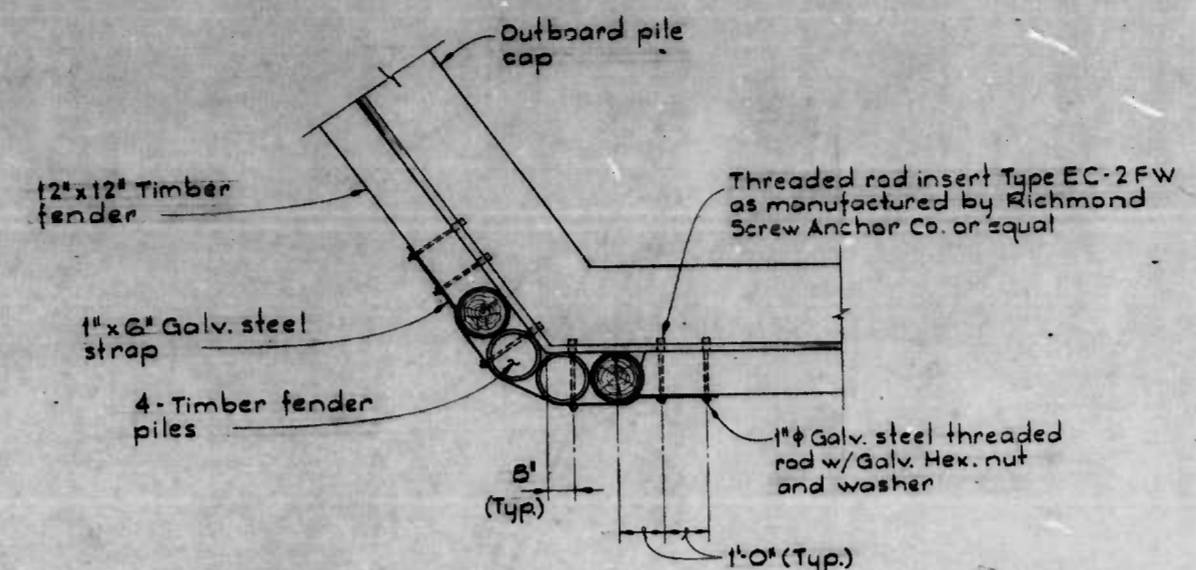
W.D. 90376

FILE REF.

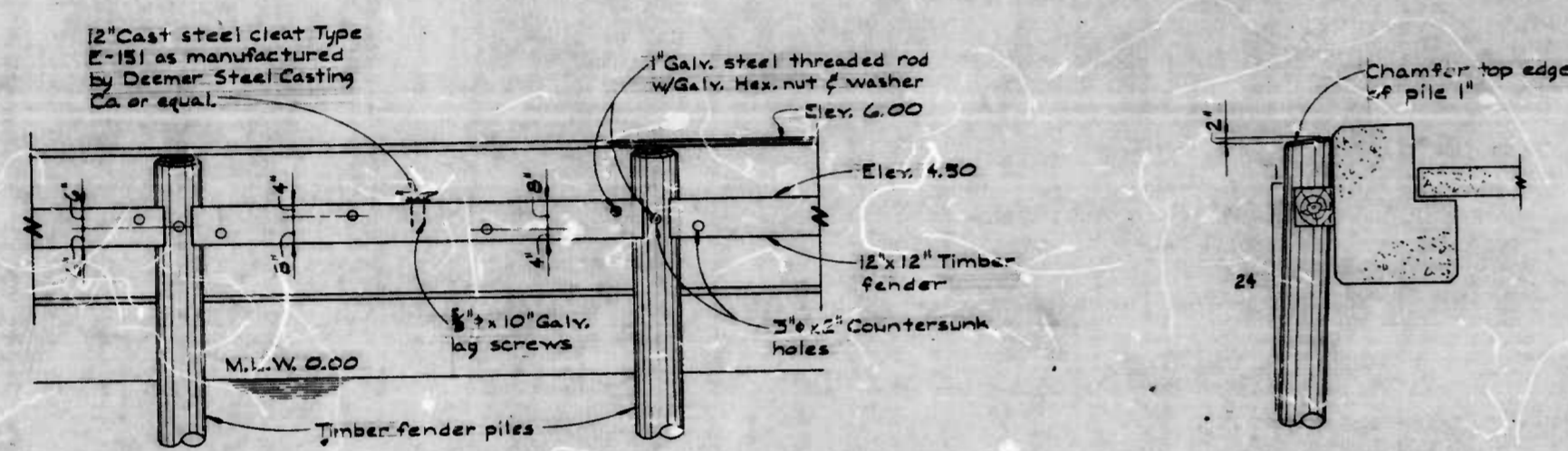
REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN



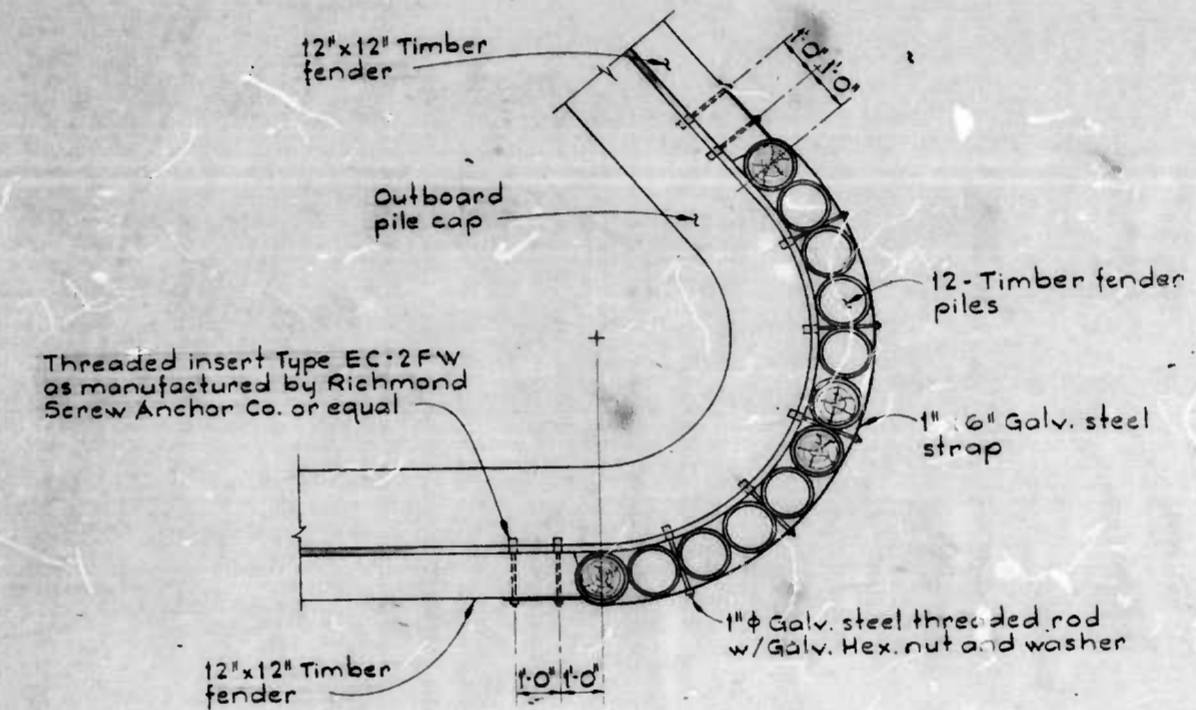
FENDER DETAIL - S.W. CORNER  
Scale: 3/8" = 1'-0"



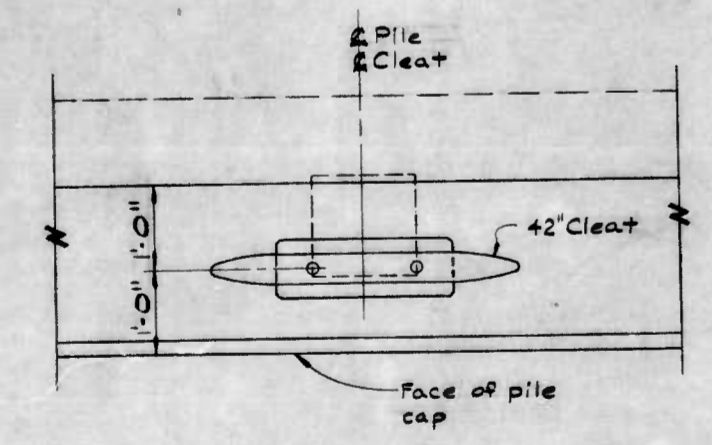
ELEVATION

TYPICAL SECTION

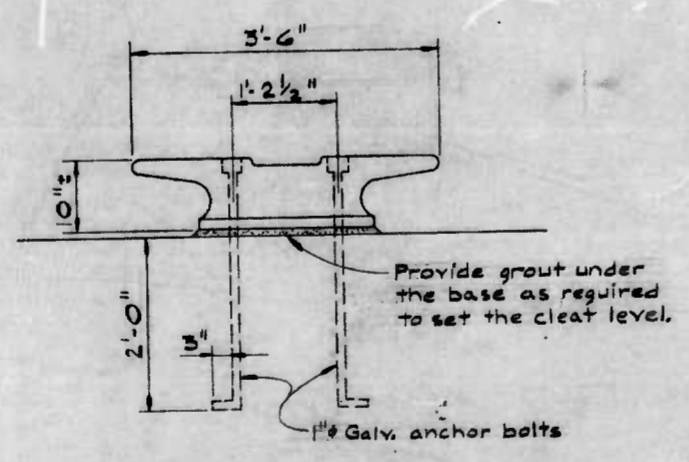
TYPICAL FENDER SYSTEM  
Scale: 3/8" = 1'-0"



FENDER DETAIL - S.E. CORNER  
Scale: 3/8" = 1'-0"



PLAN



ELEVATION

42" CLEAT DETAIL  
Scale: 3/8" = 1'-0"

DRAWN BY  
EXAMINED BY

W.O. 80376

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING  
CONTRACT NO.  
PIER 5 BULKHEAD

FENDER SYSTEM DETAILS

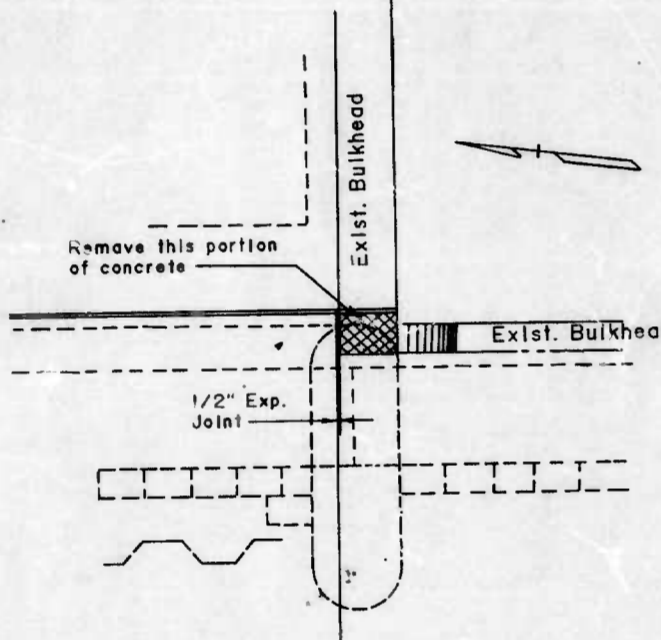
SCALE AS SHOWN  
DRAWING NO. S-10  
DATE  
SHEET 19 OF 20

FILE REF.

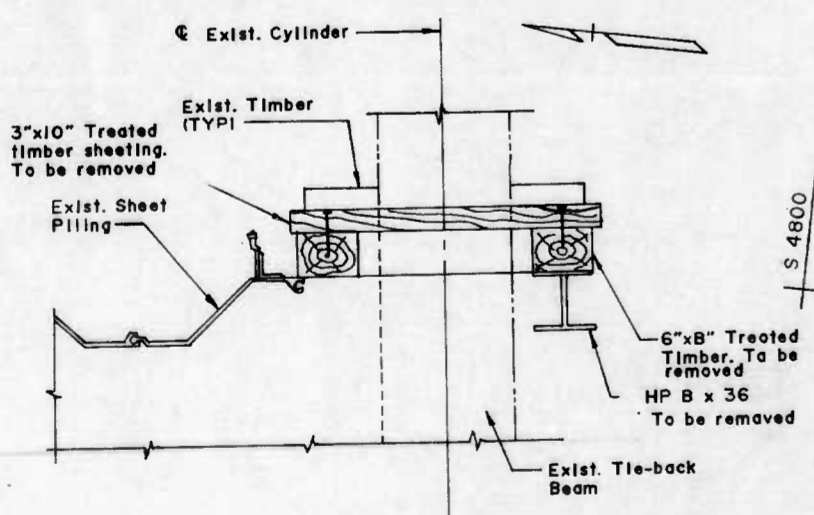
FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

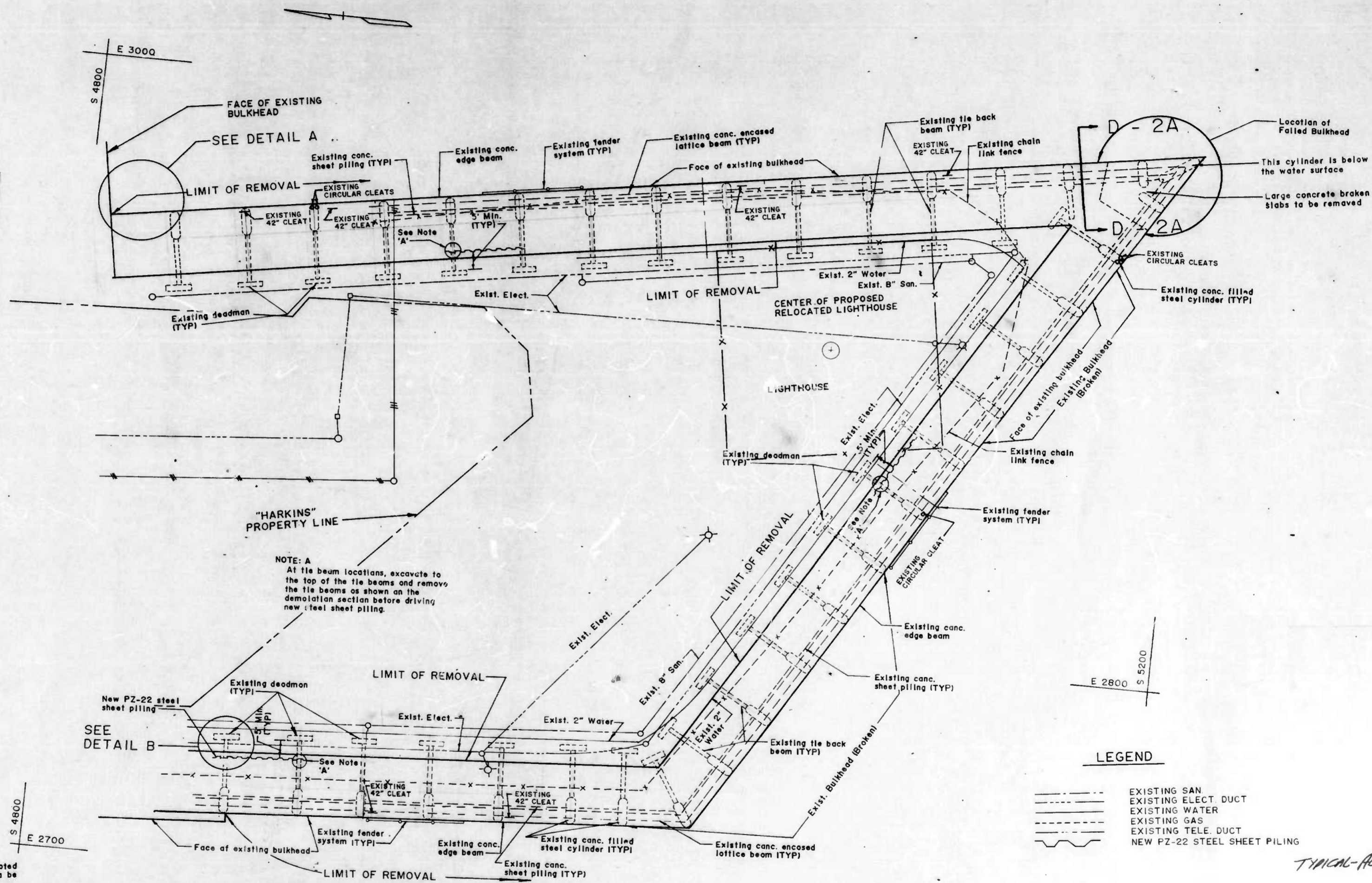
- DEMOLITION NOTES**  
(COORDINATE WITH NOTES ON DRAWING D-2)
- DEMOLITION AND REMOVAL SHALL BE LIMITED TO THE AREA WITHIN THE LIMITS OF DEMOLITION.
  - REMOVE EXISTING CONCRETE TIE-BACKS TO THE LIMITS SHOWN. EXISTING CONCRETE DEADMAN SHALL NOT BE REMOVED.
  - REMOVE EXISTING TIMBER RUBBING STRIPS AND THE VERTICAL TIMBER FENDER PILES FOR THE PIER FACE.
  - EXISTING CONCRETE EDGE BEAM SHALL BE REMOVED.
  - REMOVE THE EXISTING FENCE.
  - REMOVE EXISTING 42" CLEATS AND STORE FOR LATER USE.
  - REMOVE CLEAT FOUNDATIONS IN THEIR ENTIRETY.
  - REMOVE EXISTING PAVING.
  - REMOVE EXISTING LIGHT POLES AND FOUNDATIONS.
  - EVEN THOUGH MANY OF THE FEATURES ON EXISTING PIER 5 HAVE BEEN LISTED INDIVIDUALLY ABOVE, IT IS INTENDED THAT ALL AT GRADE FEATURES AND PAVING SHALL BE REMOVED FROM THE REMOVAL AREA. NO REMOVAL SHALL BE DONE BEYOND THE LIMITS OF REMOVAL SHOWN ON THE DRAWINGS EXCEPT NOTED OTHERWISE.
  - THE CONTRACTOR IS WARNED THAT SOME EXTENSIVE FAILURE HAS OCCURRED IN THE REMOVAL AREA. ALSO MUCH OF THE BULKHEAD EDGE IS IN THE ADVANCED STATE OF DETERIORATION. NO CONSTRUCTION EQUIPMENT SHALL BE PLACED IN FRONT OF THE EXISTING CONCRETE SHEETING. ALSO SOME UNDERWATER REMOVAL WILL BE REQUIRED OF THE FAILED BULKHEAD TO FACILITATE DRIVING OF CONCRETE PILES FOR THE NEW BULKHEAD.
  - SOME OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE PROPOSED TO BE CONSTRUCTED UNDER DEPARTMENT OF PUBLIC WORKS CONTRACT NO. 3162 WHICH PRECEDES THIS CONTRACT. THE CONTRACTOR SHALL OBTAIN "AS-BUILT" DRAWINGS OF CONTRACT NO. 3162 AND VERIFY ALL INFORMATION SHOWN ON THESE DRAWINGS.
  - CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND PERTINENT STRUCTURES DURING ENTIRE CONSTRUCTION PERIOD.



DETAIL - A  
Scale: 1/4" = 1'-0"



DETAIL - B  
Scale: 3/4" = 1'-0"



NOTE: A  
At tie beam locations, excavate to the top of the tie beams and remove the tie beams as shown on the demolition section before driving new steel sheet piling.

**LEGEND**

	EXISTING SAN
	EXISTING ELECT. DUCT
	EXISTING WATER
	EXISTING GAS
	EXISTING TELE. DUCT
	NEW PZ-22 STEEL SHEET PILING

DEMOLITION PLAN

DRAWN BY UTZ, C. F.  
EXAMINED BY

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND  
BY DATTA CONSULTANTS, INC.

CITY OF BALTIMORE  
DEPARTMENT OF PUBLIC WORKS TRANSPORTATION  
BUREAU OF HIGHWAYS  
HIGHWAY AND TRUCK ENGINEERING  
CONT. NO. 3213

**PIER 5 BULKHEAD**  
**DEMOLITION PLAN**

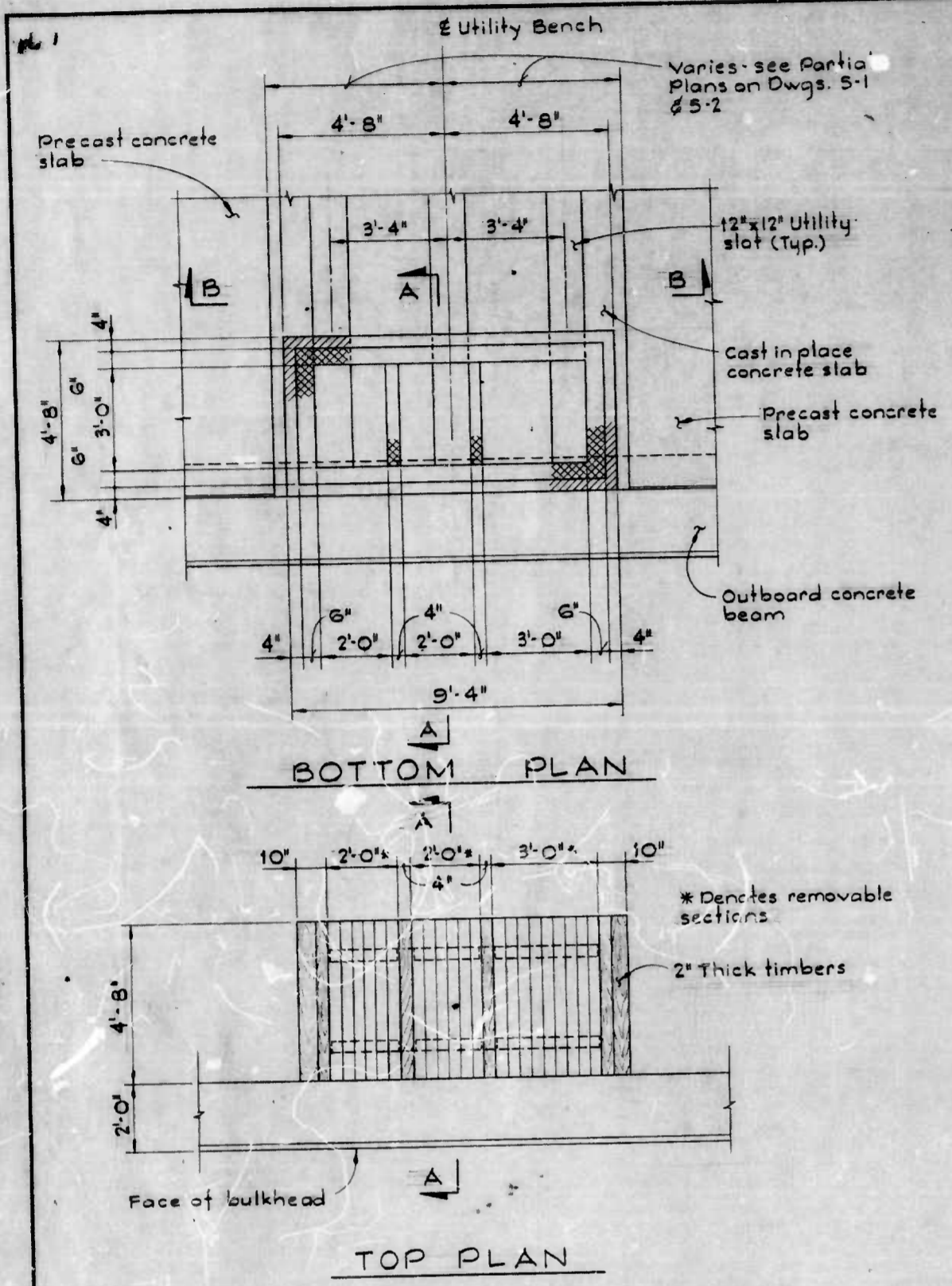
SCALE: 1" = 20'  
DATE: MARCH 4, 1988  
DRAWING NO. D-1  
SHEET 2 OF 20

FILE REF.

TYPICAL-ALL SHEETS

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



UTILITY BENCH DETAIL  
Scale: 3/8" = 1'-0"

DRAWN BY \_\_\_\_\_  
EXAMINED BY \_\_\_\_\_

W.O. 80376

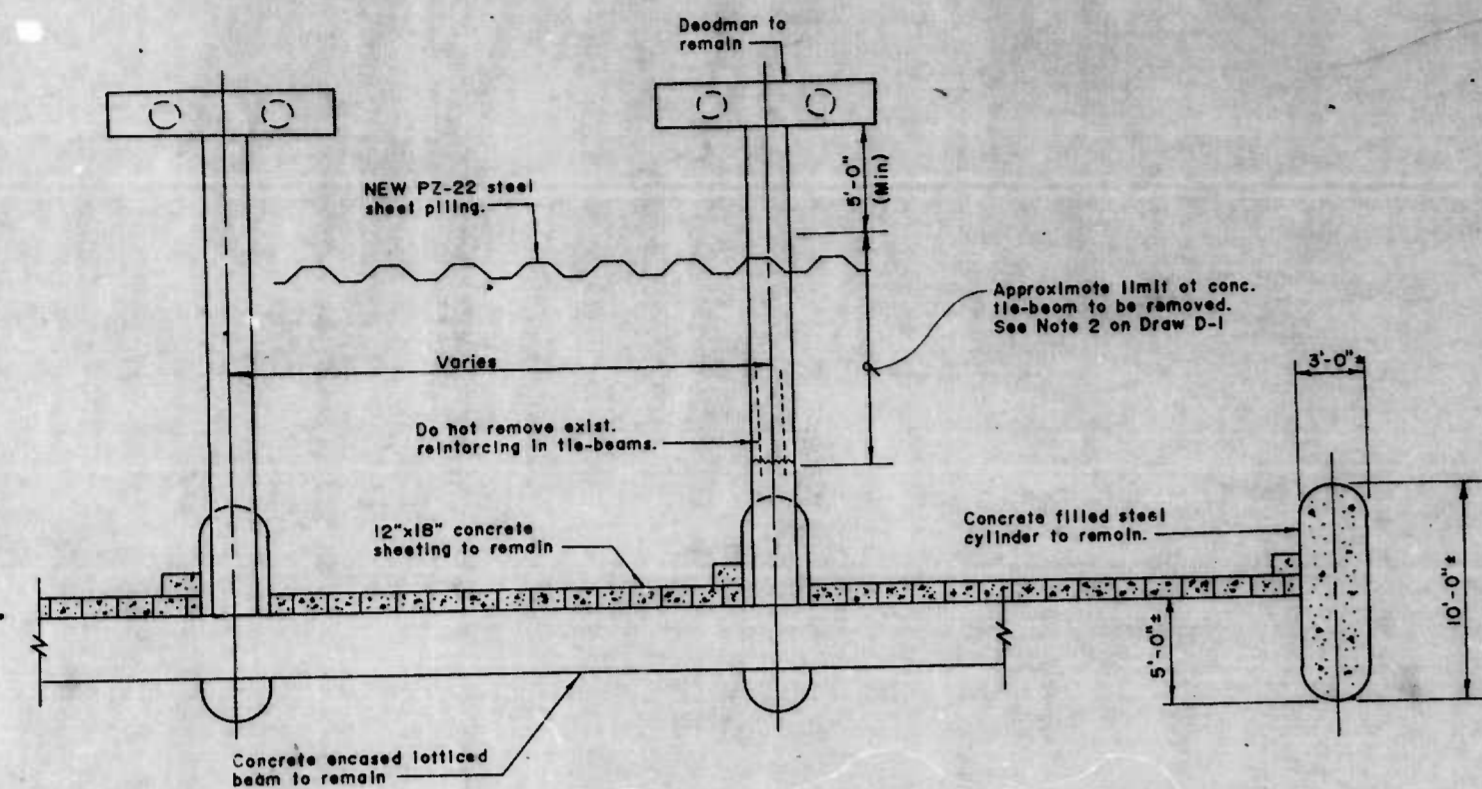
WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING  
CONTRACT NO. \_\_\_\_\_  
PIER 5 BULKHEAD  
**UTILITY BENCH DETAILS**  
SCALE: AS SHOWN DATE \_\_\_\_\_  
DRAWING NO. S-11 SHEET 20 OF 20

FILE REF.

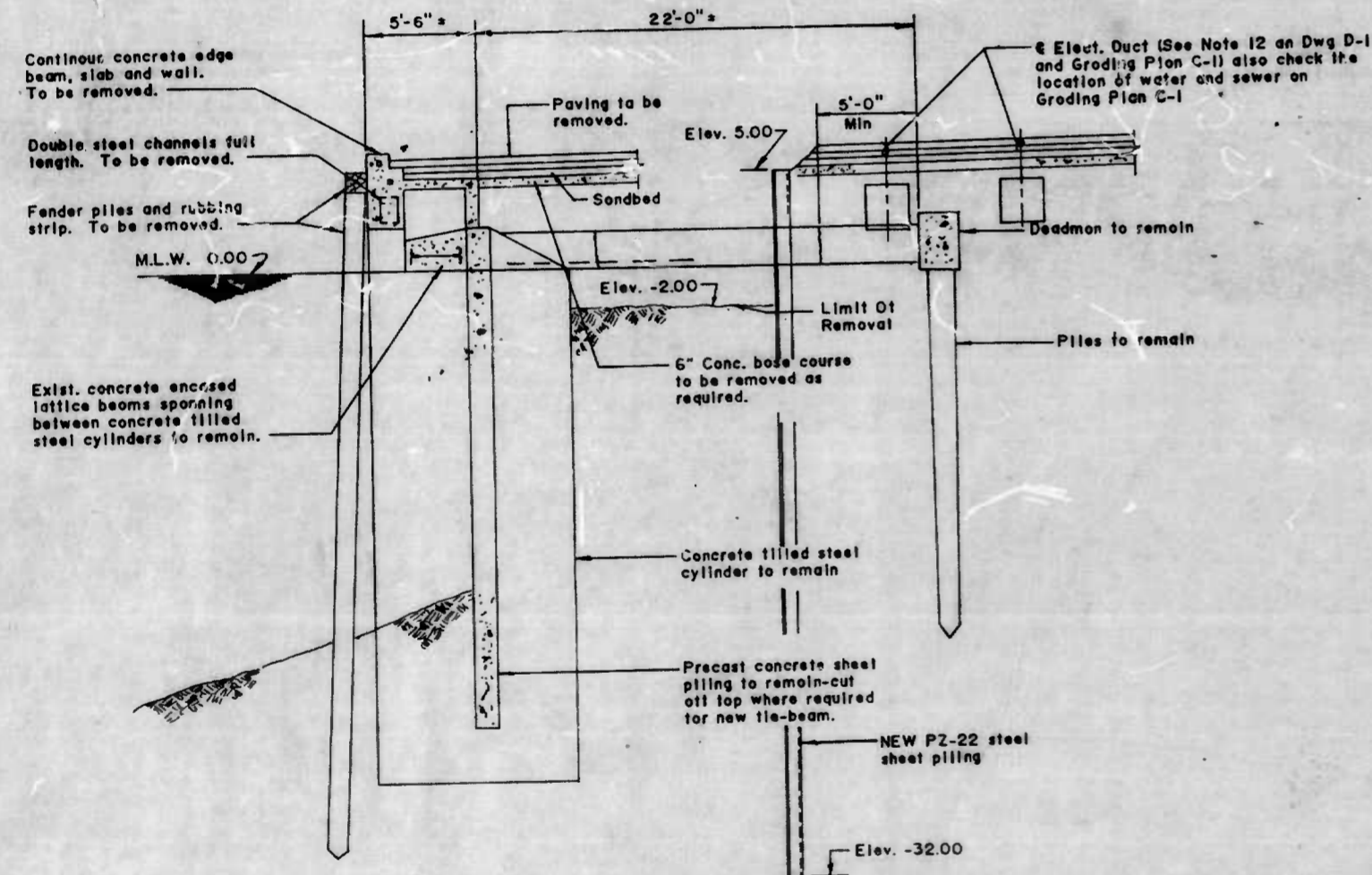
FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



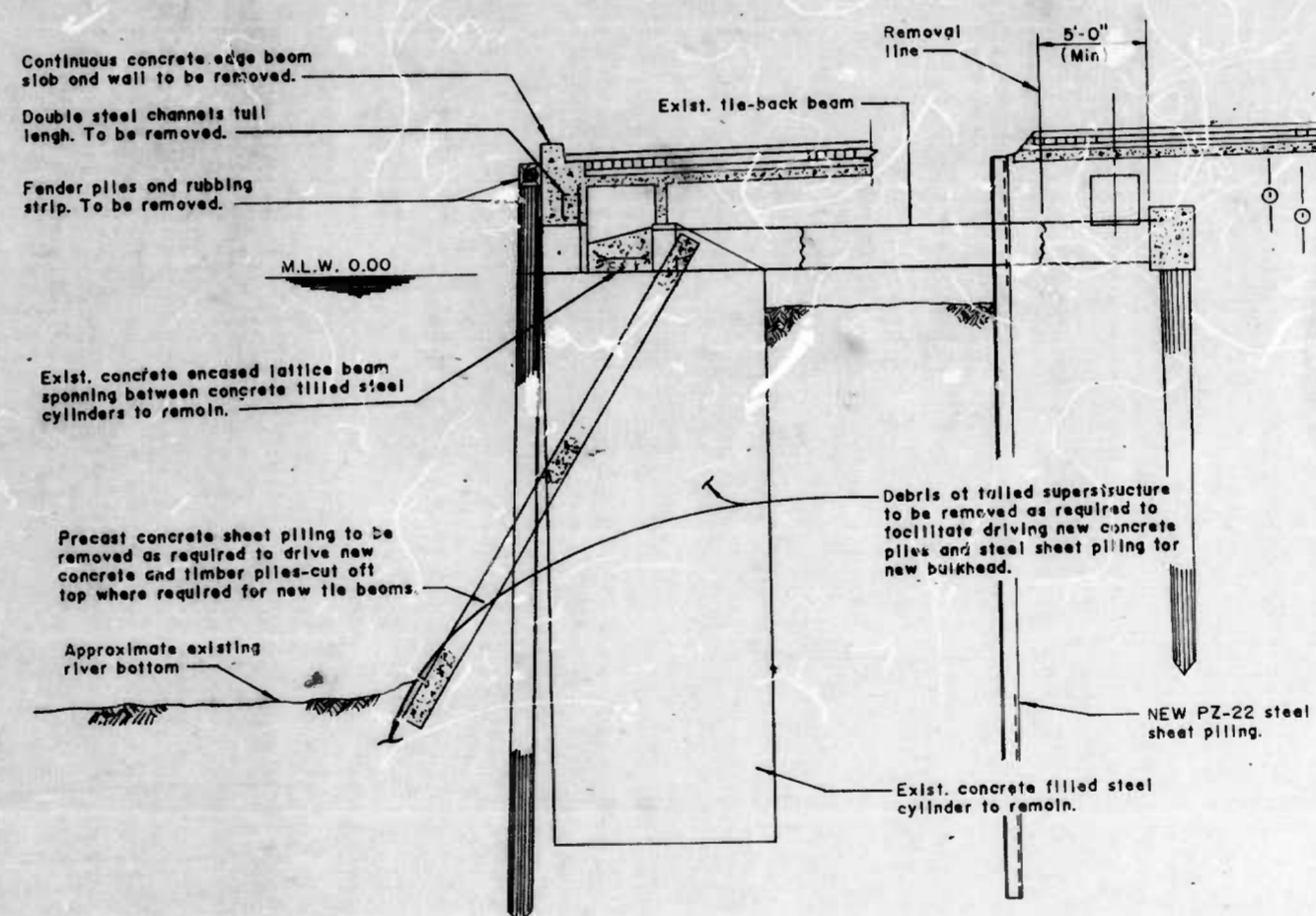
**PART PLAN ~ EXISTING BULKHEAD**

SCALE: 3/16" = 1'-0"



**TYPICAL SECTION ~ EXISTING**

SCALE: 3/16" = 1'-0"



**SECTION D-2A/D-1**

SCALE: 3/16" = 1'-0"

(Details at tall bulkhead)

DRAWN BY UTZ, C.F.  
EXAMINED BY

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND  
BY DATTA CONSULTANTS, INC.

CITY OF BALTIMORE  
DEPARTMENT OF PUBLIC WORKS  
BUREAU OF HIGHWAYS

PIER 5 BULKHEAD  
DEMOLITION PART PLAN  
& SECTIONS

SCALE AS SHOWN DATE MARCH 4, 1988  
DRAWING NO. D-2 SHEET 3 OF 20

FILE REF.

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

**BEFORE DOING ANY DIGGING NOTIFY THE FOLLOWING:**

Miss Utility 559-0100  
Bureau of Highways  
Street Lighting Section 396-1311  
Candull Section 396-3658

**NOTES: FOR SEWER CONNECTIONS**

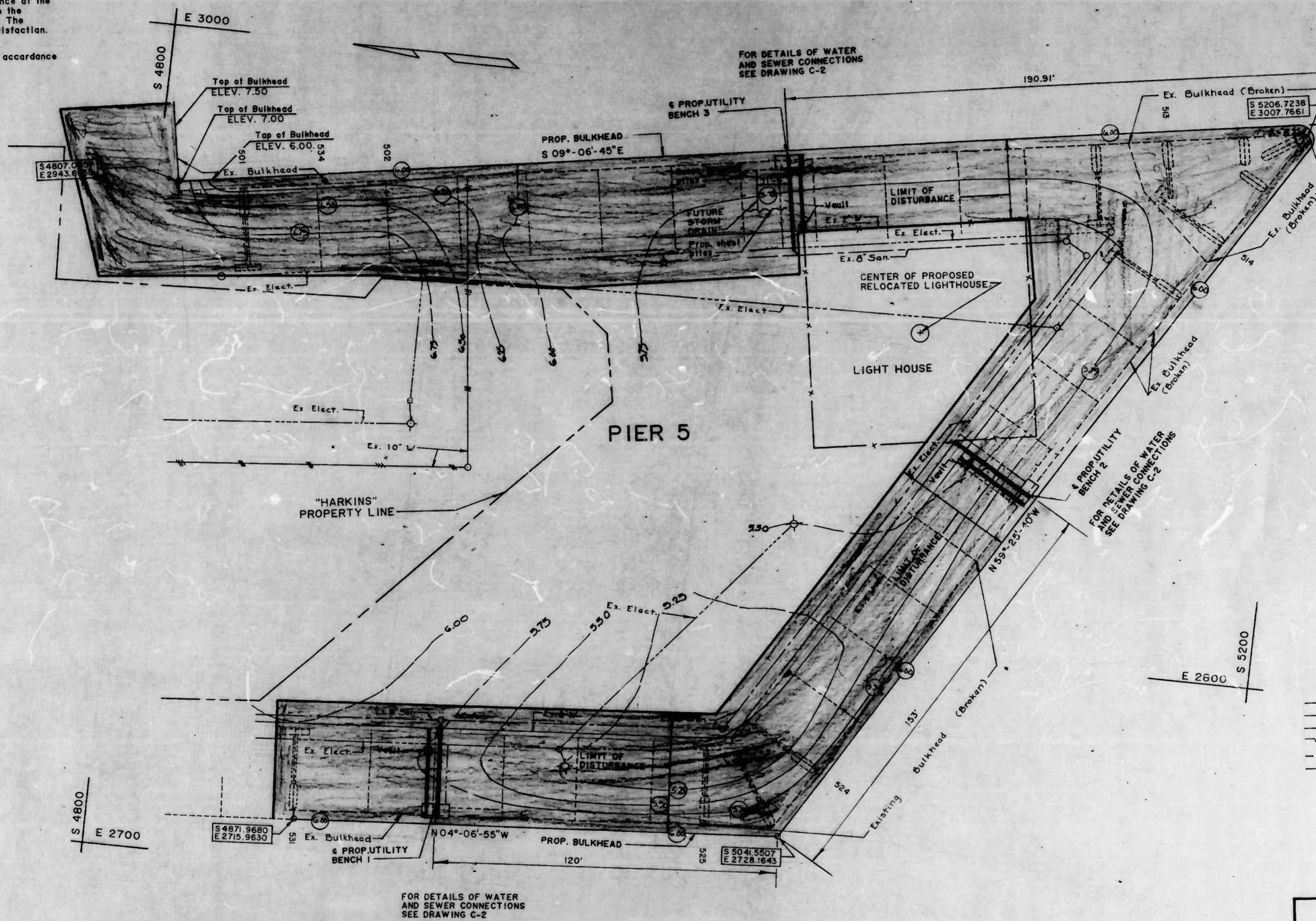
Gravel cradle is required under all pipe.  
All backfill shall be mechanically tamped. For standard details see Baltimore City Book of Standards.

Obstructions shown on these drawings are for the convenience of the contractor only and the City does not warrant or guarantee the correctness or the completeness of the information given. The contractor must verify all such information to his own satisfaction.

**JOINT NOTE:**  
For ductile iron Class 54 Pipe, Joints shall be Push-on in accordance with A.N.S.I. A21.11 (A.W.W.A. C111-72)

**NOTE:**

The proposed relocated lighthouse and/or its foundation may exist at site, at the time this contract goes under construction. The location of lighthouse and its security fences are shown for the contractor's information.



**LEGEND**

	Exist. San
	Exist. Elect. Duct
	Exist. Water
	New PZ-22 Steel Sheet Piling
	Exist. Contours
	Proposed Contours

CITY OF BALTIMORE  
DEPARTMENT OF PUBLIC WORKS  
BUREAU OF HIGHWAYS

**PIER 5 BULKHEAD  
GRADING &  
UTILITY PLANS**

SCALE: AS SHOWN  
DRAWING NO. C-1

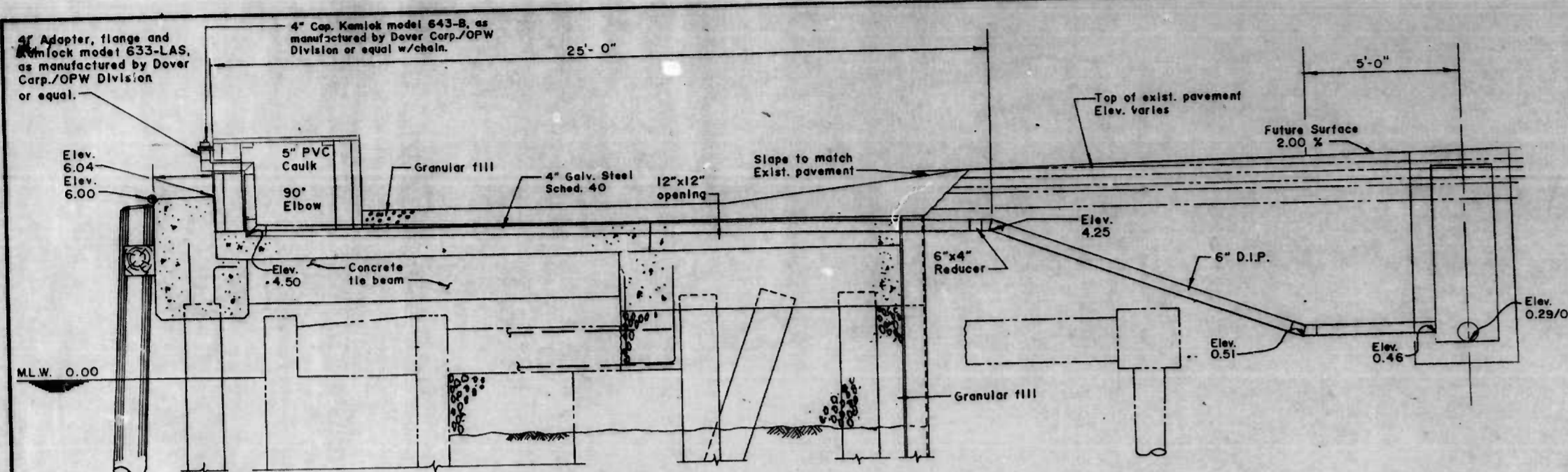
DATE: MARCH 4, 1989  
SHEET 4 OF 20

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

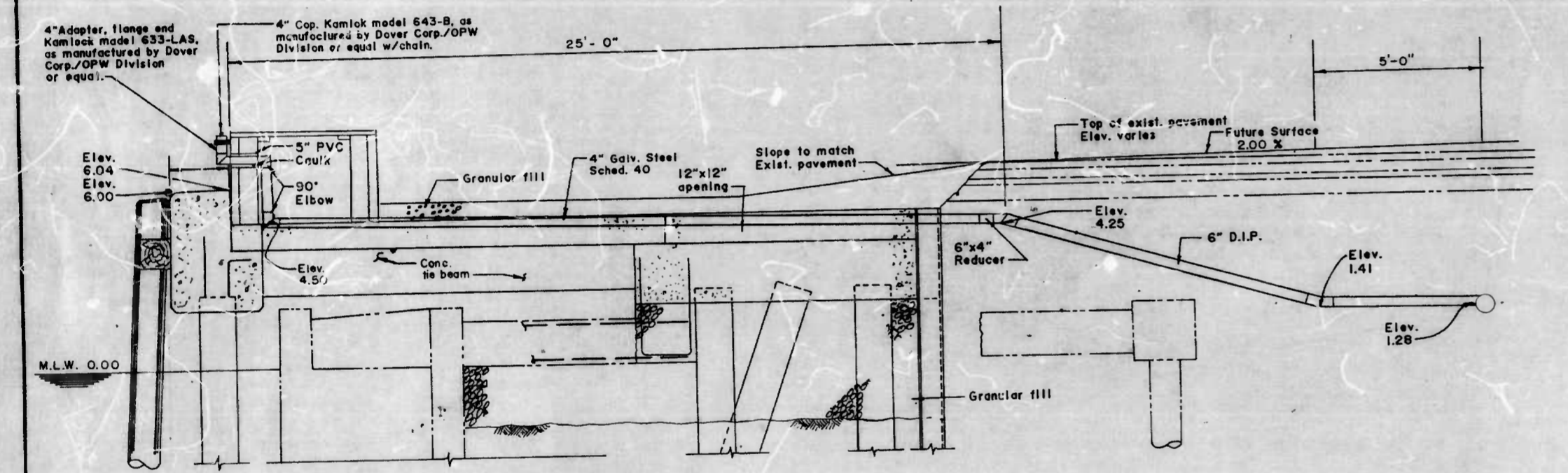
BY: DATTA CONSULTANTS, INC.

DRAWN BY: UTZ, C.F.  
EXAMINED BY:

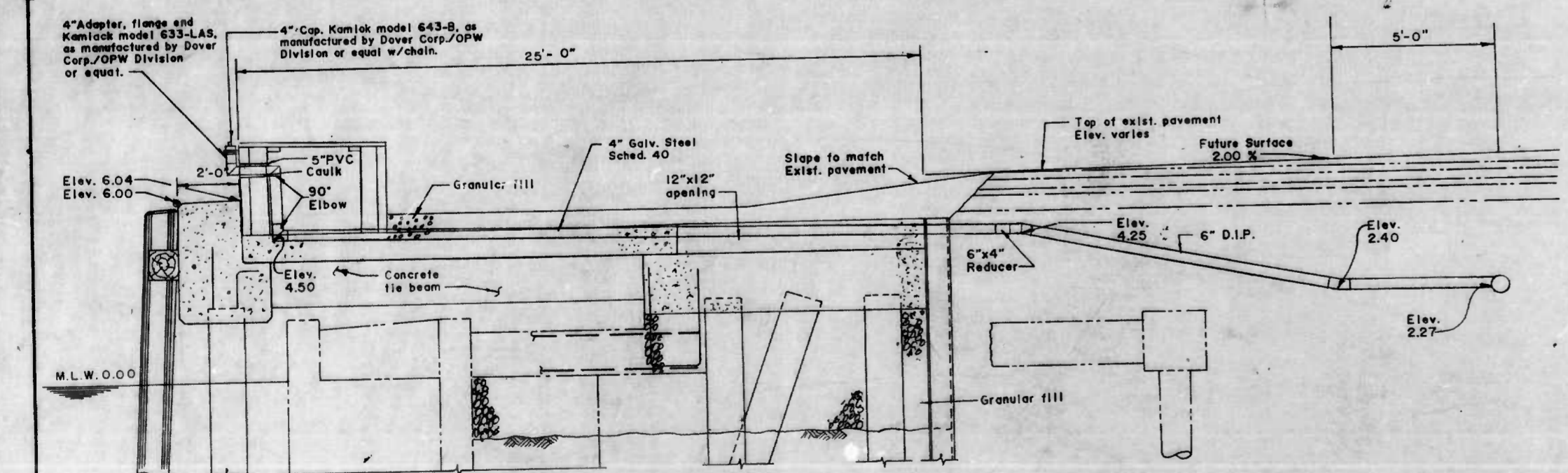
FILE REF.



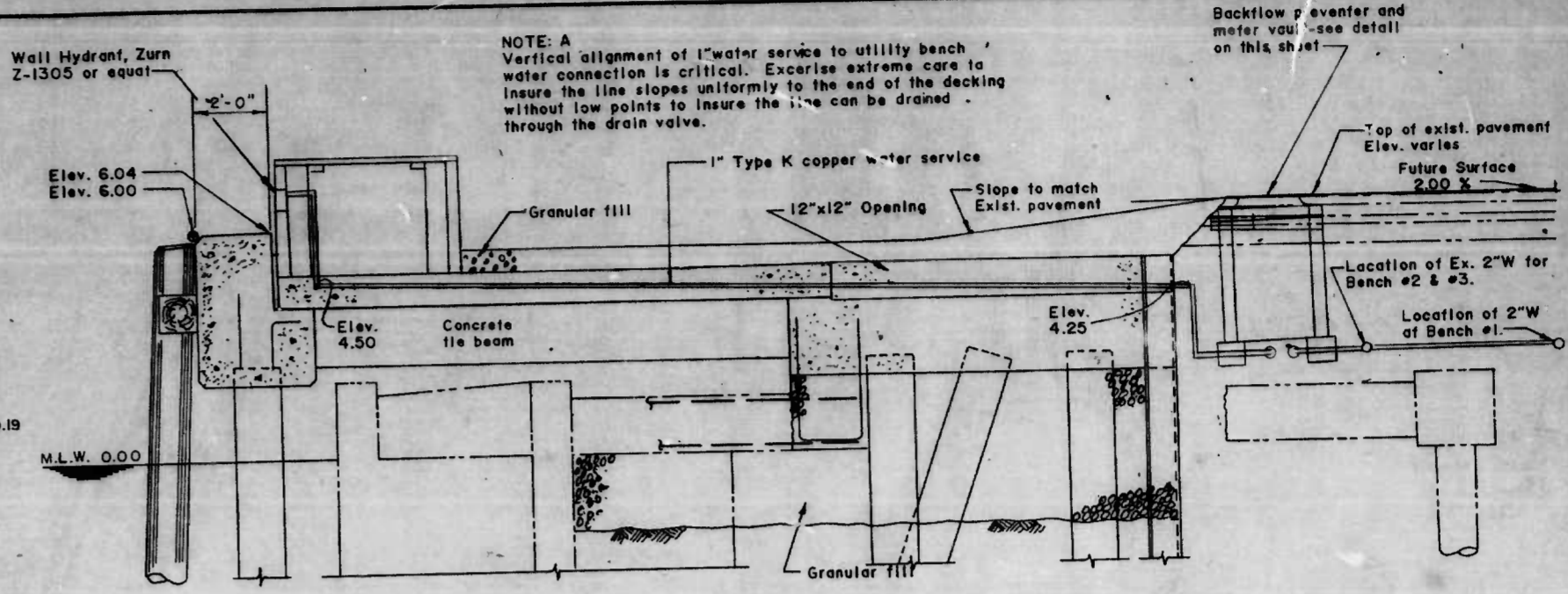
**BENCH-1 SEWER**  
SCALE: 3/8"=1'-0"



**BENCH-2 SEWER**  
SCALE: 3/8"=1'-0"



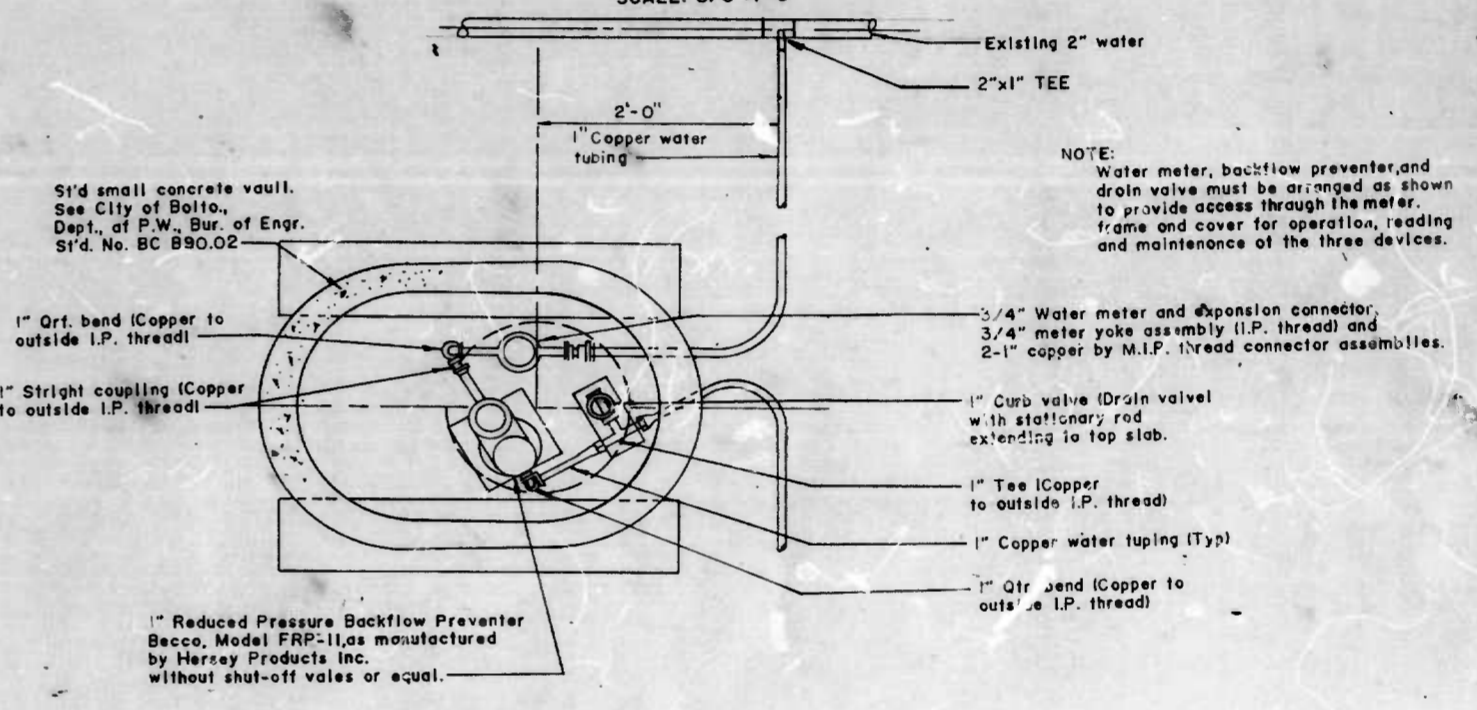
**BENCH-3 SEWER**  
SCALE: 3/8"=1'-0"



NOTE: A vertical alignment of 1" water service to utility bench water connection is critical. Exercise extreme care to insure the line slopes uniformly to the end of the decking without low points to insure the line can be drained through the drain valve.

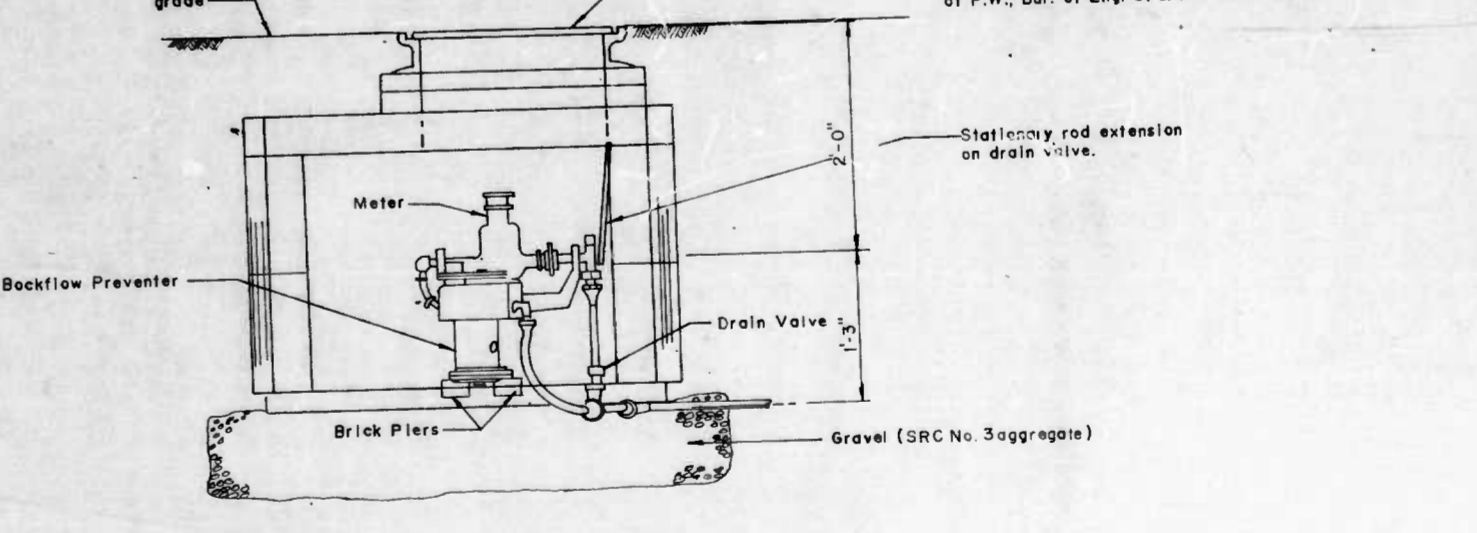
**WATER CONNECTION**

**BENCHES #1-2 & 3**  
SCALE: 3/8"=1'-0"



**PLAN**

Scale: 1"=1'-0"



**DETAIL**

**WATER METER VAULT FOR UTILITY BENCH WATER CONNECTION**  
Scale: 1"=1'-0"

WHITMAN, REQUARDT AND ASSOCIATES  
ENGINEERS  
BALTIMORE MARYLAND

BY DATTA CONSULTANTS, INC.

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
PIER 5 BULKHEAD  
UTILITIES - DETAILS

SCALE: AS SHOWN  
DRAWING NO. C-2

DATE: MARCH 4, 1988  
SHEET 5 OF 20



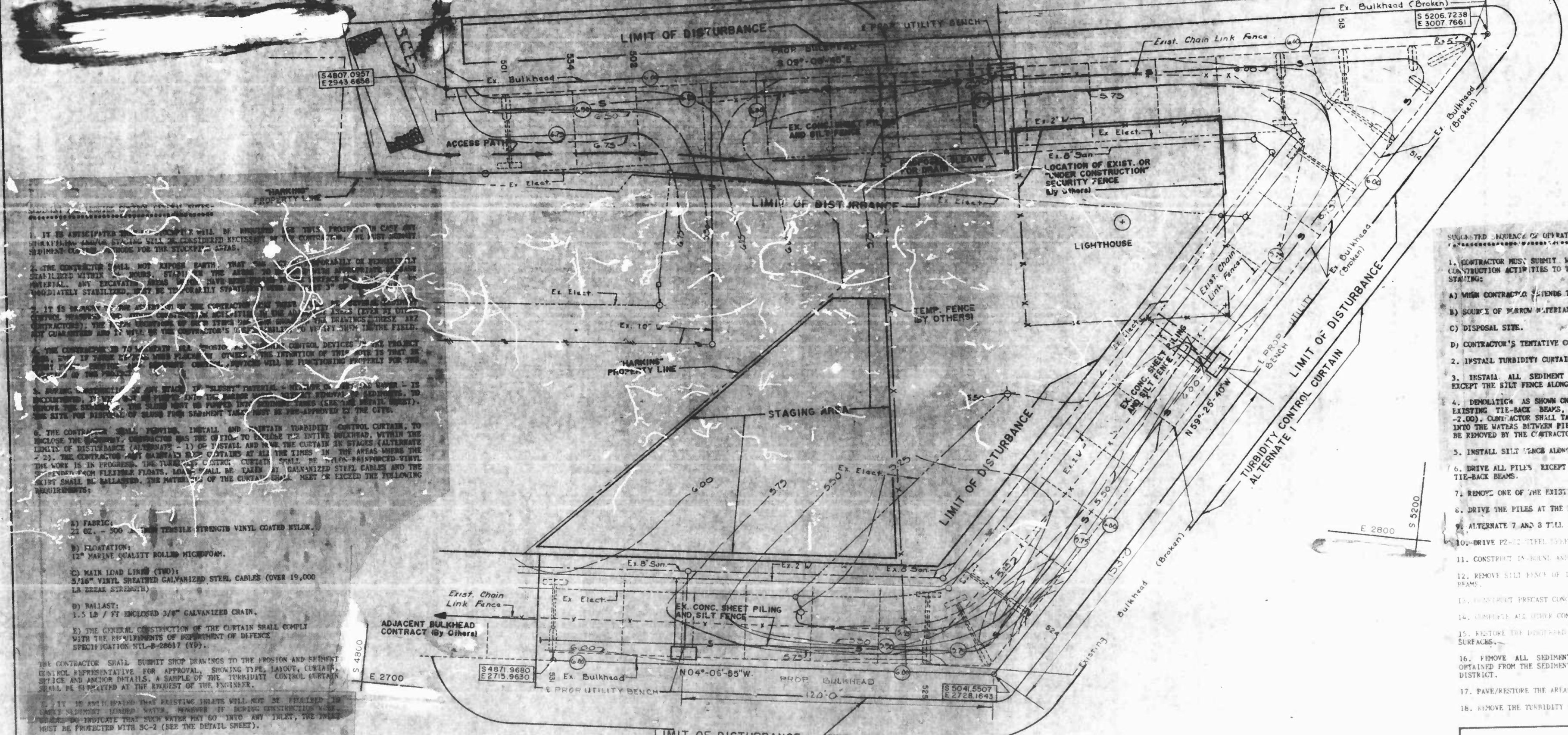
REVISIONS			
NO.	DESCRIPTION	DATE	BY

**BEFORE DOING ANY DIGGING NOTIFY THE FOLLOWING:**  
 Water Utility 559-0100  
 Bureau Of Highways  
 Street Lighting Section 396-1311  
 Conduit Section 396-3658

**NOTES:**  
 Gravel cradle is required under all pipe.  
 All backfill shall be mechanically tamped. For standard details see Baltimore City Book of Standards.

Obstructions shown on these drawings are for the convenience of the contractor only and the City does not warrant or guarantee the correctness or the completeness of the information given. The contractor must verify all such information to his own satisfaction.

**JOINT NOTE:**  
 For ductile Iron Class 54 Pipe, Joints shall be Push-on in accordance with A.N.S.I. A21.11 (A.W.W.A. C111-72)



1. IT IS UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR THIS PROJECT IN CASE ANY UNRECORDED UTILITIES ARE ENCOUNTERED DURING CONSTRUCTION. HE MUST NOTIFY THE CITY IMMEDIATELY AND STOP WORK FOR THE UTILITY AGENCIES.

2. THE CONTRACTOR SHALL NOT EXPOSE EXISTING UTILITIES UNLESS THEY ARE NEARLY OR IMMEDIATELY STABILIZED WITHIN 24 HOURS. STAKES IN THE AREA OF EXPOSED UTILITIES SHALL BE SET AND MATERIAL ANY EXCAVATION SHALL BE IMMEDIATELY BACKFILLED AND STABILIZED WITHIN 24 HOURS.

3. IT IS BLANKETTED THAT THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES BY CONTACTING THE CITY AND THE UTILITIES AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES. THESE ARE NOT GUARANTEED AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEM IN THE FIELD.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES. THESE ARE NOT GUARANTEED AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEM IN THE FIELD.

5. MOVING UTILITIES TO ANOTHER LOCATION SHALL BE APPROVED BY THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES. THESE ARE NOT GUARANTEED AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEM IN THE FIELD.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES. THESE ARE NOT GUARANTEED AND IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEM IN THE FIELD.

1) FABRIC: 22 OZ. - 500 DENIER TENSILE STRENGTH VINYL COATED NYLON.

2) ELEVATION: 12" MARINE QUALITY ROLLED MICROFOAM.

3) MAIN LOAD LINE (TWO): 5/16" VINYL SHEATHED GALVANIZED STEEL CABLES (OVER 19,000 LB TENSILE STRENGTH).

4) BALLAST: 1.5 LB / FT ENCLOSED 3/8" GALVANIZED CHAIN.

5) THE GENERAL CONSTRUCTION OF THE CURTAIN SHALL COMPLY WITH THE REQUIREMENTS OF DEPARTMENT OF DEFENSE SPECIFICATION MIL-D-26617 (19).

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE PROPOSED AND SEDIMENT CONTROL REPRESENTATIVE FOR APPROVAL. SHOWING TYPE, LAYOUT, CURTAIN, STAPLE AND ANCHOR DETAILS. A SAMPLE OF THE TURBIDITY CONTROL CURTAIN SHALL BE SUBMITTED AT THE REQUEST OF THE ENGINEER.

IT IS UNDERSTOOD THAT EXISTING UTILITIES WILL NOT BE TYPICALLY IN PLACE WITHOUT HAZARD WATER. HOWEVER IF DURING CONSTRUCTION WATER SHOULD BE INDICATED THAT SUCH WATER MAY GO INTO ANY INLET, THE INLET MUST BE PROTECTED WITH SC-2 (SEE THE DETAIL SHEET).

8. THE CONTRACTOR SHALL NOT DEVIATE FROM THE APPROVED SEDIMENT AND EROSION CONTROL PLANS WITHOUT PRIOR APPROVAL OF THE BALTIMORE CITY SEDIMENT CONTROL REPRESENTATIVE. VARIATIONS TO THE PLAN MUST BE SUBMITTED IN WRITING, ACCOMPANIED BY THE COPY OF THE ORIGINALLY APPROVED PLAN MODIFIED TO SHOW THE REQUESTED CHANGES. FOR HIS APPROVAL. SUBSTANTIAL CHANGES WILL REQUIRE AN ADDITIONAL BILLING AND/OR GRADING PERMIT IF APPLICABLE.

9. ALL UTILITIES SHOWN ON THE DRAWING ARE PROPOSED TO BE CONSTRUCTED BY OTHERS, EXCEPT THE ONES REQUIRED FOR THE UTILITY BENCHES.

- SEQUENCED SEQUENCE OF OPERATIONS:**
1. CONTRACTOR MUST SUBMIT WRITTEN NOTIFICATION 72 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES TO THE BALTIMORE CITY SEDIMENT CONTROL SECTION STATIONING.
  - A) WHEN CONTRACTOR INTENDS TO BEGIN CONSTRUCTION.
  - B) SOURCE OF BARNUM MATERIAL, IF ANY.
  - C) DISPOSAL SITE.
  - D) CONTRACTOR'S TENTATIVE COMPLETION DATE.
  2. INSTALL TURBIDITY CURTAIN.
  3. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES, EXCEPT THE SILT FENCE ALONG THE EXISTING SHEET PILING.
  4. DEMOLITION AS SHOWN ON 2: DEMOLITION PLAN. (7' DEPT REMOVAL OF EXISTING TIE-BACK BEAMS, E.T. INCLUDING EXCAVATIONS TO ELEVATION -2.000) CONTRACTOR SHALL TAKE NECESSARY CARE SO THAT NO DEBRIS FALL INTO THE WATERS BETWEEN PIERS 4 AND 5. ANY SUCH DEBRIS WILL HAVE TO BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE.
  5. INSTALL SILT FENCE ALONG THE EXPOSED EXISTING SHEET PILING.
  6. DRIVE ALL PILES EXCEPT THE ONES WHICH CONFLICT WITH THE EXISTING TIE-BACK BEAMS.
  7. REMOVE ONE OF THE EXISTING TIE-BACK BEAMS.
  8. DRIVE THE PILES AT THE LOCATION OF THE ABOVE BEAM.
  9. ALTERNATE 7 AND 8 TILL ALL THE REQUIRED PILES HAVE BEEN DRIVEN.
  10. DRIVE 12" X 12" STEEL SHEET PILING.
  11. CONSTRUCT IN-BEAM AND OUT-BEAM PILE CAPS.
  12. REMOVE SILT FENCE OF ITEM 5 AND CONSTRUCT PROPOSED CONCRETE TIE BEAM.
  13. CONSTRUCT PRECAST CONCRETE BEAMS.
  14. COMPLETE ALL OTHER CONSTRUCTION ACTIVITIES.
  15. RESTORE THE EXPOSED AREAS (EASING E.T.) WITH EQUAL OR BETTER SURFACES.
  16. REMOVE ALL SEDIMENT CONTROL DEVICES AFTER APPROVAL HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR AND THE SOIL CONSERVATION DISTRICT.
  17. PAVE/RESTORE THE AREAS OCCUPIED BY SEDIMENT CONTROL DEVICES.
  18. REMOVE THE TURBIDITY CURTAIN.

TOTAL CUT = 3,100 cu.  
 TOTAL FILL = 1,800 cu.  
 CUT/FILL = 1.72 Ac

100 YEAR FLOOD PLAIN  
 ELEV. = 9.00  
 AREA OF DISTURBANCE = 43,000 sq. ft.  
 MAXIMUM SLOP LENGTH FOR PROPOSED SILT FENCE = 116'  
 WITH AVERAGE GRADE = 0.5%

WHITMAN, REQUARDT AND ASSOCIATES  
 ENGINEERS  
 BALTIMORE MARYLAND

BY DATTA CONSULTANTS, INC.

CITY OF BALTIMORE  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF HIGHWAYS

PIER 5 BULKHEAD  
 SEDIMENT AND  
 EROSION CONTROL PLAN

SCALE: 1" = 20'  
 DATE: MARCH 4, 1998  
 DRAWING: SE-1  
 SHEET: 6 OF 20

DRAWN BY UTZ, C.F.  
 EXAMINED BY

FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

**STABILIZATION SPECIFICATIONS**

**TEMPORARY STABILIZATION - ARTICLE 36.16**

**Planting Season:** Temporary seeding can be done anytime of the year except when the ground is frozen. This item shall consist of furnishing and placing all fertilizer, temporary seed and mulch on areas disturbed for more than fourteen (14) days.

**Schedule of Procedure:** The contractor shall provide temporary stabilization as specified in the approved sediment control plan.

**Seedbed Preparation:** When the area to be seeded is packed and hard, the top layer of topsoil shall be loosened by raking or other means before seed is applied.

**Lime:** No lime shall be required for temporary seeding.

**Fertilizer:** Commercial fertilizer of an analysis 5-10-5 applied at a rate of 35 pounds per 1000 square feet.

**Seeding:** (Section 20.28-1) Seed mixture, Annual Ryegrass applied at the rate of 3 pounds per 1000 square feet.

**Mulching:** Applied at the rate of 100 pounds per 1000 square feet. Mulch anchoring - asphalt mix at the rate of 10 gallons per 1000 square feet. The mulch shall be applied by blowing and the asphalt binder material shall be sprayed into the mulch.

**PERMANENT STABILIZATION - ARTICLE 36.06**

**Planting Season:** No sod shall be placed between the dates of June 1 and August 15 inclusive nor at anytime when the temperature is below thirty-two (32) degrees Fahrenheit. No frozen sod shall be used and no sod shall be placed upon frozen soil.

**Seedbed Preparation:** Before placing or depositing sod upon any surfaces, all shaping and dressing of such surfaces shall have been completed. The completed areas to be sodded shall present a smooth, uniform, well-filled surface true to line and cross section and any raking required to accomplish this will be done prior to the placing of the sod.

**Fertilizer:** All areas to be sodded shall be fertilized with a commercial fertilizer of an analysis 10-10-0 and Ureaform fertilizer 38-0-0 applied at the rate of 20 and 5 pounds respectively per 1000 square feet.

**NOTE:** After sod is in place, topdress the sod with Ureaform fertilizer 38-0-0 at the rate of 5 pounds per 1000 sq. ft.

**Lime:** Laid at the rate of 100 pounds of ground limestone per 1000 square feet. The lime and the 10-10-0 and 38-0-0 fertilizers shall be worked into the top two (2) inches of soil prior to placing sod.

**Seedmixture Grass Sod (Section 20.28-3)**

**TYPE A - Bluegrass Sod**  
 not less than 60% Kentucky Bluegrass  
 not more than 35% Creeping Red Fescue  
 not more than 10% other grasses and legumes

**TYPE B - Tall Fescue Sod**  
 not less than 80% Tall Fescue  
 not more than 20% other grasses and legumes

**BALTIMORE CITY SEDIMENT CONTROL**

Title 6, Subtitle 11, Natural Resources, Annotated Code of Maryland and Baltimore City Ordinance 1013, requires that provisions to control erosion and sediment shall be included for all City land disturbance. As required by State Law, construction cannot be started until such erosion and sediment control provisions are approved.

The Contractor must filter all run-off and control all sediment within the project. All work must comply with all requirements of the "Baltimore City Erosion and Sediment Control Manual" and the "1983 Maryland Standards And Specifications For Soil Erosion And Sediment Control", as distributed and modified by the Baltimore City Sediment Control Section.

Nothing herein relieves the Contractor from complying with any and all other Federal, State or Municipal Regulations.

**EROSION AND SEDIMENT CONTROL NOTE**

- All utilities to be constructed first, prior to any construction on the site.
- No pumping from trench excavations will be allowed directly into City system unless it is filtered by way of Sediment Traps, Filters or Portable Sediment Tank.
- All excavation material shall be placed on the high side whenever possible and confined to an area where it will not obstruct the normal flow of drainage courses.
- Continuous inspection and maintenance of all Sediment Control devices will be required.
- The Owner/Contractor shall not deviate from the approved sediment and erosion control plans without prior approval of the Baltimore City Sediment Control Representative. Variations to the plan must be submitted in writing, accompanied by a copy of the originally approved plan modified to show the requested changes, for his approval. Substantial changes will necessitate amending the building and/or grading permit if applicable.

**INSTRUCTIONS**

For land disturbing activities it is understood that the following conditions will be met:

- A. Grading**
- All disturbed areas shall be protected to control erosion and to prevent sedimentation of adjacent properties, storm sewers and/or streams.
  - Sediment control devices such as diversion berms, sediment traps, silt fences, vegetative stabilization, etc., shall be used to prevent off-site sedimentation at all times, at every location throughout the site where natural or existing conditions would cause sediment to normally wash off the site.
  - No processed cut or fill will exceed three feet in depth (cut) or height (fill) without erosion and sediment controls. Exclusive of excavation for foundations.
  - No fill will be placed on any existing slope steeper than 5:1 without erosion and sediment controls.
  - There will be no final graded slope steeper than 2:1.
  - Borrow and/or spoil material shall not be stockpiled within the limits of this project.
  - All fills will be free of any organic or other deleterious materials and will be compacted. All areas to receive fill will have the ground surface prepared by removing all existing vegetation and root mat.
  - The proposed grading will not impede existing surface drainage, constitute a potential erosion hazard, or source of sedimentation to any adjacent property, drainage way or right-of-way.
  - All points of ingress and egress shall be protected to prevent tracking of mud onto public ways.
- B. Stabilization**
- As soon as final grading is completed, all disturbed areas will be stabilized with temporary or permanent mulch, including stone, blacktop, conc. surfacing, etc.
  - For vegetating areas steeper than three horizontal units to one vertical unit, adequate mulch, fertilizer and type of seed will be placed to ensure a vigorous ground cover and such application will be repeated, if necessary, until such growth is established.
  - Timing - Following initial soil disturbances or disturbances, permanent or temporary stabilization shall be completed within:
    - Seven calendar days for the surface of all perimeters: dikes, swales, ditches, perimeter slopes, and all slopes greater than three horizontal to one vertical (3:1) and,
    - Twenty-four (24) hours for disturbed areas such as base repairs, alley returns, curb repairs, bus pads, pedestrian ramps, sidewalks and backfilled utility trenches. Stabilization shall consist of a minimum of 4 inch Graded Aggregate Sub-base and,
    - Fourteen calendar days for all other disturbed or graded areas.
  - For details regarding temporary and permanent stabilization practices, reference the "1983 Maryland Standards And Specifications For Soil Erosion And Sediment Control", or contact the Baltimore City Sediment Control Representative.
  - Sediment control devices are to be removed only after all disturbed areas have been stabilized.

**CONDITIONS**

The Contractor will submit written notification to the Baltimore City Sediment Control Representative at least three working days before starting any grading activities, stating the following:

- The day he intends to start work
- The source of all borrow material
- The designated stockpile area
- The Contractor's staging area
- The disposal site for all excess material
- The construction sequence
- The completion day of the work

**Owners / Developers Certification**

"I/We hereby certify that any clearing, grading, construction and/or development will be done pursuant to this plan and that all responsible personnel involved in the construction project will have a certification of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project."

*Richard E. Hurley, Jr.*  
 Signature Owner/Developer

RICHARD E. HURLEY, JR. 2/29/88  
 Print Name Date

1444 North Trade Center  
 Address

(201) 531-0862  
 Phone

**Engineer's Certification**

I certify that this plan for Erosion and Sediment Control represents a practical, workable plan based on personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Baltimore City Erosion and Sediment Control Section.

*Jitender K. Datta* 2/17/88  
 Signature Date  
 DATTA CONSULTANTS, INC.  
 3601 1/2 MILFORDMILL ROAD  
 BALTIMORE, MARYLAND 21207  
 Address

JITENDER K. DATTA  
 Print Name  
 (301) 521-5000  
 Phone

APPROVED BY: \_\_\_\_\_  
 EROSION & SEDIMENT CONTROL REPRESENTATIVE

DEPARTMENT OF TRANSPORTATION, TRAFFIC AND UTILITY ENGINEERING  
 UTILITY ENGINEERING, EROSION AND SEDIMENT CONTROL SECTION  
 309 ABEL WOLMAN MUNICIPAL BUILDING, BALTIMORE, MD 21202-3618  
 Phone - (301) 396-3693

CITY OF BALTIMORE  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAY AND BRIDGE ENGINEERING

PIER 5 BULKHEAD

**SOIL EROSION / SEDIMENT CONTROL NOTES**

SE-2  
 SKJAEN/NINE

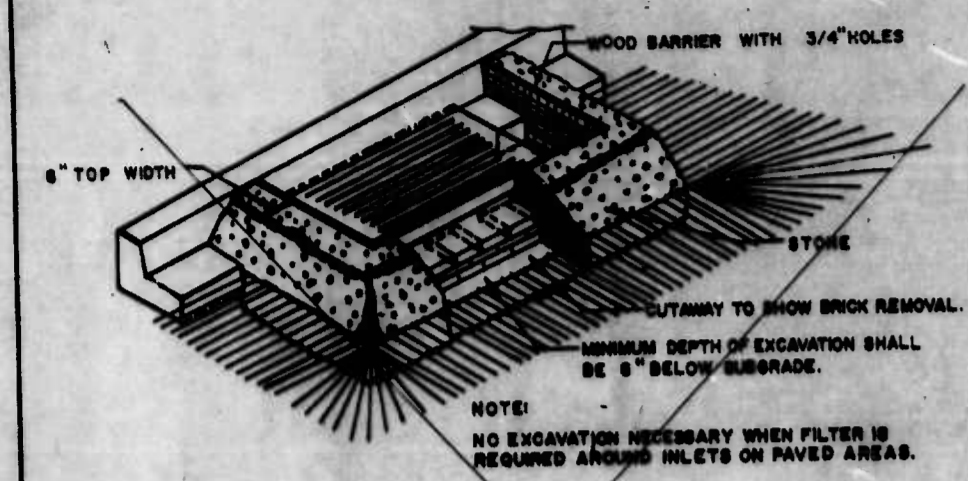
DATE: OCTOBER 14, 1987  
 SHEET 7 OF 20

DRAWN BY \_\_\_\_\_  
 EXAMINED BY \_\_\_\_\_

FILE REF.

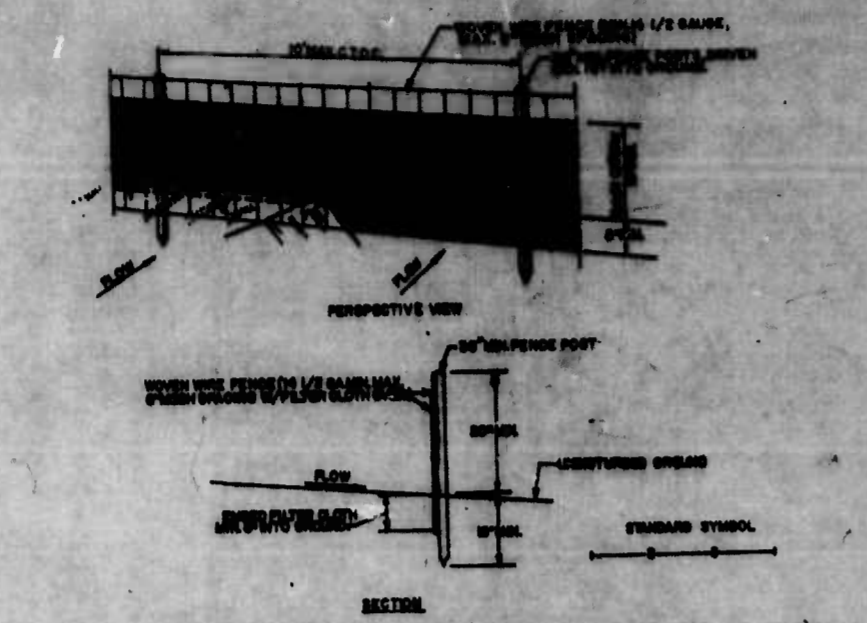
FILE REF.

REVISIONS		
NO.	DESCRIPTION	DATE BY



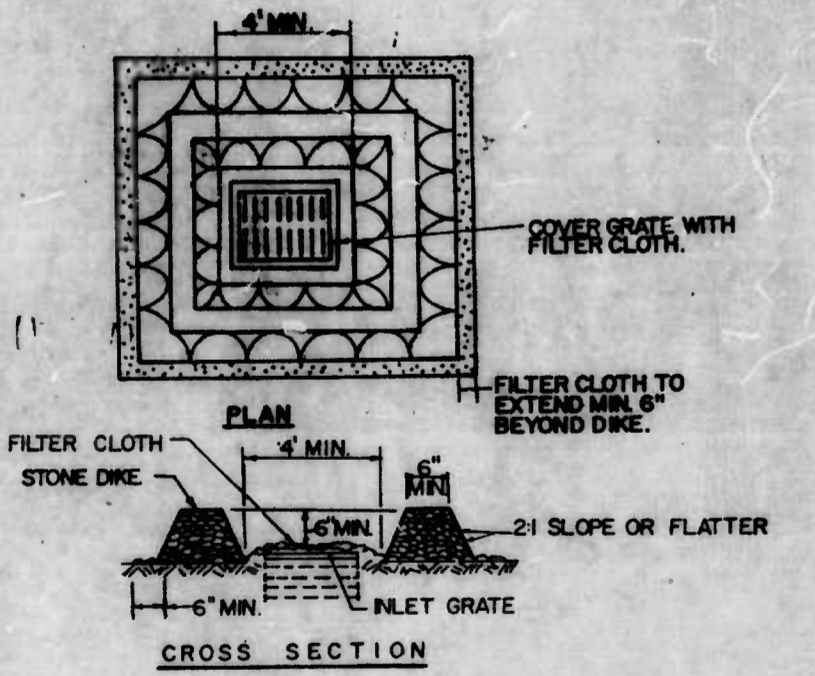
- CONSTRUCTION SPECIFICATIONS**
- Structure shall be inspected after each storm and repairs made as needed.
  - Construction operations shall be carried out in such a manner that erosion and silt pollution is minimized.
  - The structure shall be removed when drainage area has been properly stabilized.
  - The structure stone used in the outlet shall meet ASTM Designation M3 size no. 2 or 24 or the equivalent such as MSHA no. 2. Crushed stone may be used if crushed stone is not available. Crusher run is not acceptable.

**INLET PROTECTION  
DETAIL SC-1**



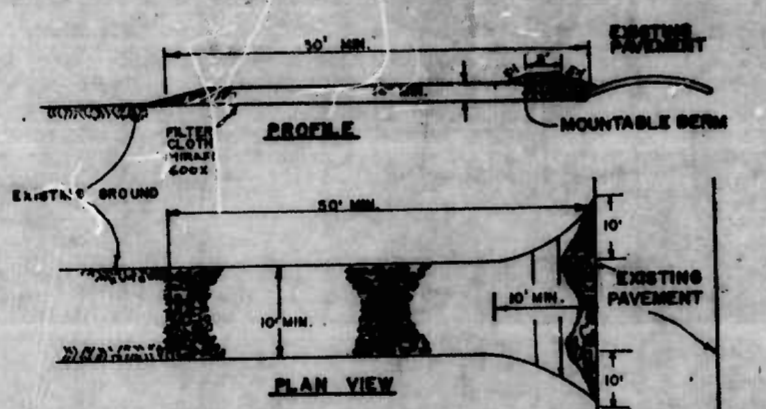
- CONSTRUCTION NOTES FOR FABRICATED FELT FENCE**
- |   |  |
|---|--|
| 1. When Wire Fences to be fastened securely to Posts with wire ties or staples.                               | FOOTS: Spaced at 10' or 12' intervals                        |
| 2. Filter Cloth to be fastened securely to Posts with Paper Wash Spacing every 24" on 3/4" and 1/2" sections. | FENCES: When Wire, 3/4" or 1" Max Wash spacing               |
| 3. When use sections of Filter Cloth along each other 2" gap shall be overlapped by one 1/2" and sealed.      | FILTER: Filter X, Filter 100X, Filter 200X or approved equal |
| 4. Maintenance shall be provided as needed and material to be used when "bulges" develop in the wire fence.   | STANDARD SYMBOL: SEE SYMBOL                                  |

**SILT FENCE  
DETAIL SC-3**



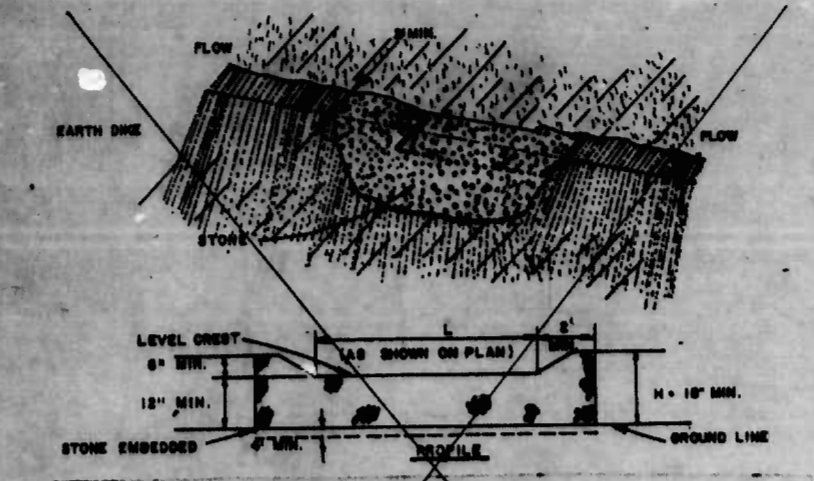
- CONSTRUCTION SPECIFICATIONS**
- Stone for the Dike shall be crushed stone. Gravel may be used if crushed stone is not available. The stone shall meet MSHA size no. 2 or ASTM designation M3 size no. 2 or 24. Crusher run is not acceptable.
  - Filter Cloth shall be Poly-Filter X or approved equal.
  - The structure shall be inspected after each rain and repairs made as needed.

**INLET PROTECTION  
DETAIL SC-2**



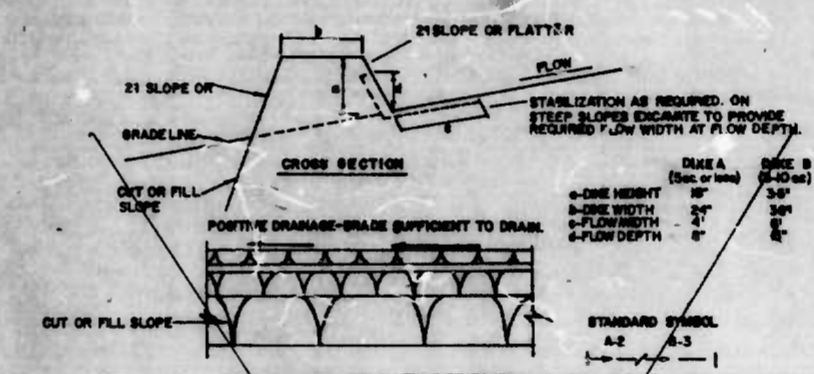
- CONSTRUCTION SPECIFICATIONS**
- Stone Size - Use 2" stone, or the next size up if the specified size is not available.
  - Length - As specified, but not less than 50 feet (except on a single building lot where a 30 foot minimum length would apply).
  - Thickness - Not less than 6" (6) inches.
  - Width - Ten (10) feet minimum, but not less than the full width of the site where located on a street corner.
  - Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
  - Surface Slope - All surface water flowing or directed toward construction activities shall be piped across the entrance. If piping is impractical, a portable pump with 5/8" slope will be permitted.
  - Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or replacement of any materials used on trap sediment.
  - Washing - Trucks shall be cleaned on their sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which provides an approved sediment trapping device.
  - Filter Cloth Inspection and needed maintenance shall be provided after each rain.

**STABILIZED CONSTRUCTION ENTRANCE  
DETAIL SC-4  
HEAVY DUTY ENTRANCE**



- CONSTRUCTION SPECIFICATIONS**
- The stone shall be crushed stone. Gravel may be used if crushed stone is not available. The stone shall meet MSHA Size No. 2 or ASTM designation M3 Size No. 2 or 24.
  - The crest of the stone dike shall be at least one inch lower than the lowest elevation of the top of the curb dike and shall be level.
  - The stone outlet structure shall be embedded into the soil a minimum of four inches.
  - The minimum length, in feet, of the crest of the stone outlet structure shall be equal to six times the number of curves of surrounding drainage area.
  - The stone outlet structure shall be inspected after each rain, and the stone shall be replaced when the structure ceases to function as intended due to silt accumulation among the stones, washout, construction traffic damage, etc.

**STONE OUTLET STRUCTURE  
DETAIL SC-5**



- CONSTRUCTION SPECIFICATIONS**
- All Earth Dikes shall be constructed by earth moving equipment.
  - All Dikes shall have positive drainage to an outlet.
  - Top width may be wider and side slopes may be flatter if desired to facilitate crossing by construction traffic.
  - Right location should be adjusted as needed to utilize a stabilized, safe outlet.
  - Dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.
  - Stabilization shall be: (a) in accordance with standard specifications for seed and straw mulch or straw matting if not in seeding season, (b) Flow channel as per the chart below. Stone Dike need not be stabilized.

**FLOW CHANNEL STABILIZATION**

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	0.5-3.0%	Seed and Straw Mulch	Seed and Straw Mulch
2	3.1-5.0%	Seed and Straw Mulch	Seed using Jute, or Excelsior; Sed: 2" Stone
3	5.1-8.0%	Seed with Jute, or Sed: 2" Stone	Lined Rip-Rap 4-8"
4	8.1-20%	Lined Rip-Rap 4-8"	Engineering Design

A. Stone to be 2 inch stone, or recycled concrete equivalent, in a layer at least 3 inches in thickness and be pressed into the soil with construction equipment.  
 B. Rip-Rap to be 4-8 inches in a layer at least 8 inches thickness and pressed into the soil.  
 C. Approved equivalents can be substituted for any of the above materials.  
 7. Periodic inspection and required maintenance must be provided after each rain event.

**EARTH / STONE DIKE  
DETAIL SC-6/DETAIL SC-7**

**LEGEND**

- LIMITS OF DISTURBANCE
- INLET PROTECTION (SC-1, SC-2, OR SC-9 AS NOTED)
- S-S- SILT FENCE (SC-3)
- STABILIZED CONSTRUCTION ENTRANCE (SC-4)
- STONE OUTLET STRUCTURE (SC-5)
- EARTH/STONE DIKE (SC-6 OR SC-7 AS NOTED)
- STOCKPILE AREA
- SUMP PIT (SP-1)
- SEDIMENT TRAP (ST-V)
- CHECK DAM
- CONTRACTOR STAGING AREA
- INSTREAM SEDIMENT TRAP (SC-8)

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

**PIER 5 BULKHEAD**

SOIL EROSION / SEDIMENT CONTROL DETAILS

SE-3  
SCALE NO SCALE  
HIGHWAY ENGINEERING DIVISION

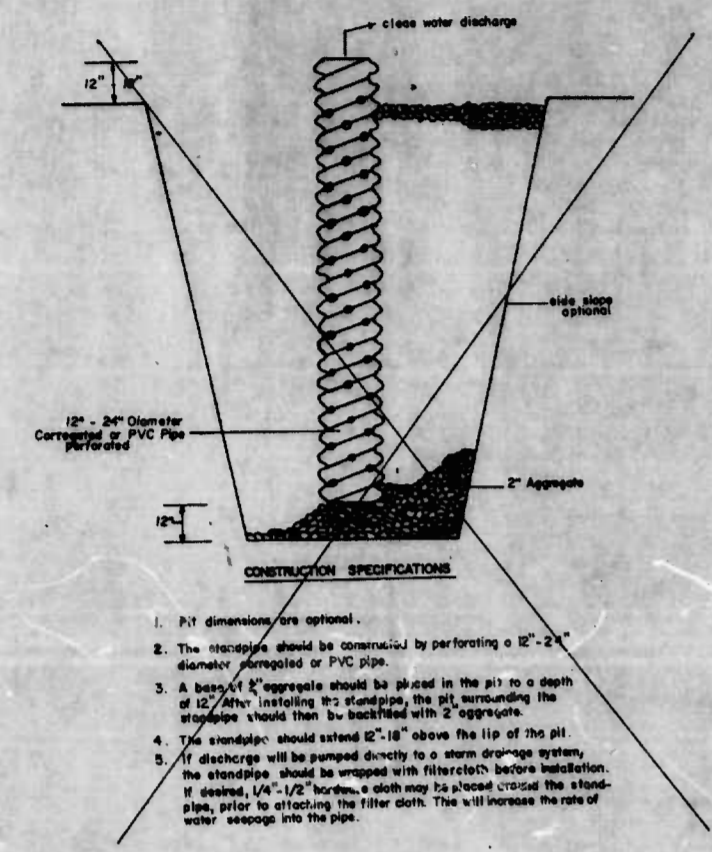
DATE: MARCH 4, 1998  
SHEET 9 OF 20

FILE REF.

DRAWN BY A. MOSCATO  
EXAMINED BY

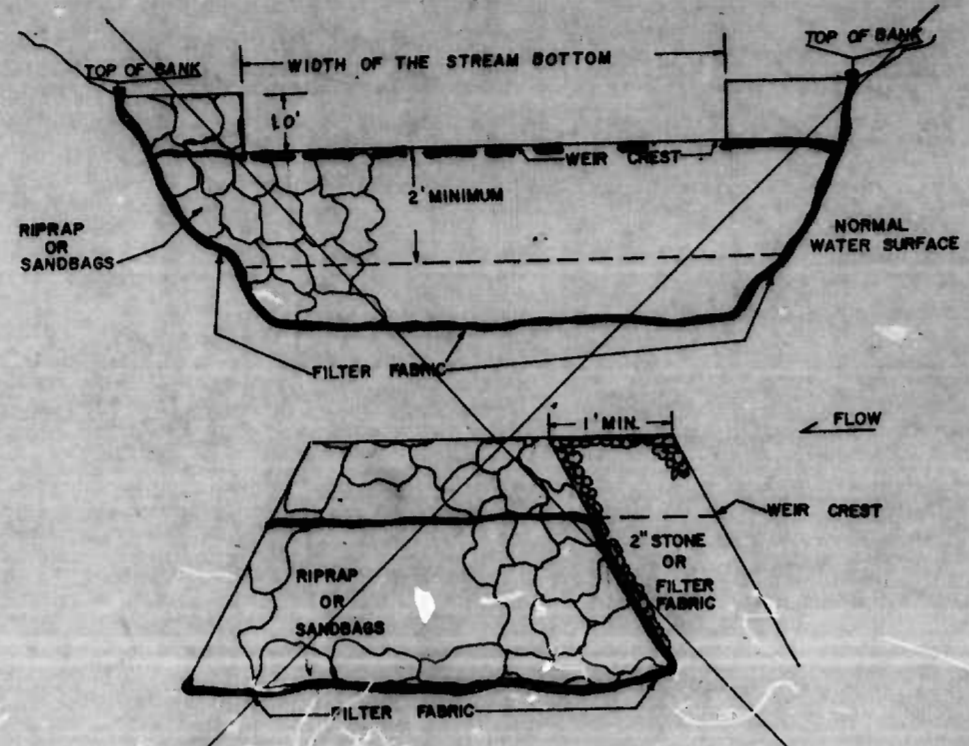
FILE REF.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



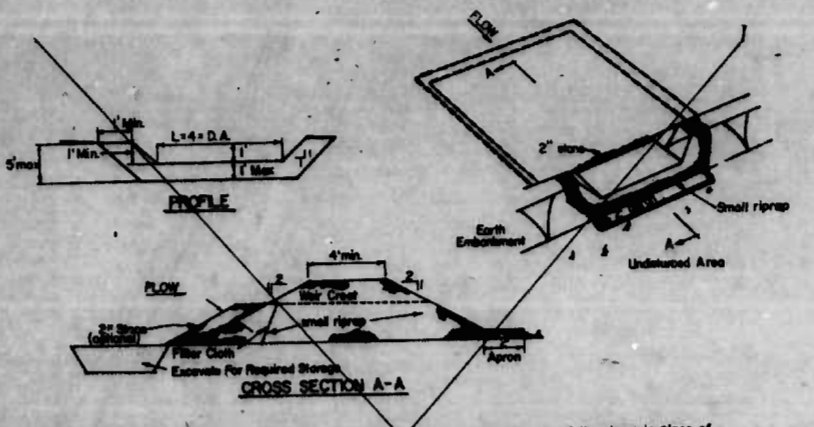
- CONSTRUCTION SPECIFICATIONS**
1. Pit dimensions are optional.
  2. The aggregate should be composed of performing a 12"-24" diameter perforated or PVC pipe.
  3. A layer of 2" aggregate should be placed in the pit to a depth of 12" after installing the standpipe. The aggregate surrounding the standpipe should then be installed with 2" aggregate.
  4. The standpipe should extend 2'-18" above the lip of the pit.
  5. If discharge will be pumped directly to a storm drainage system, the standpipe should be equipped with filtercloth before installation. If desired, 1/4" - 1/2" holes in a drain may be placed around the standpipe, prior to attaching the filter cloth. This will increase the rate of water seepage into the pipe.

SUMP PIT DETAIL SP-1



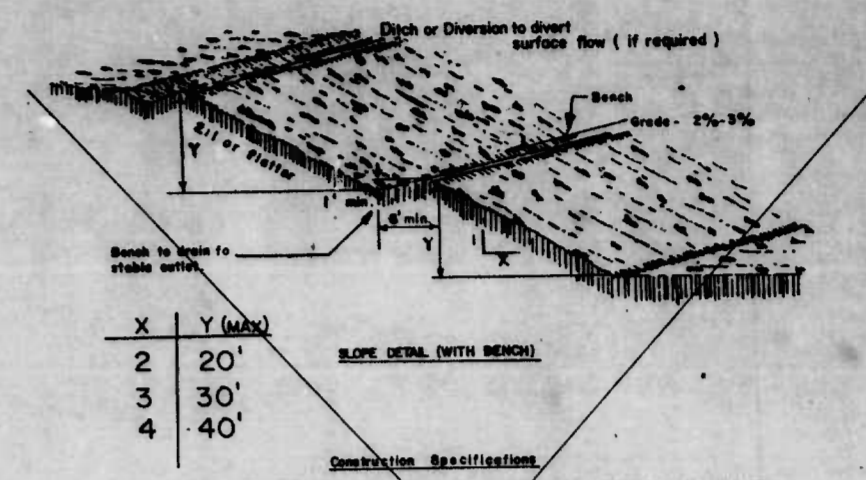
1. Riprap shall be of sufficient size to withstand completed bank velocities.
2. Devices shall be constructed from top of stream bank to top of stream bank.

STREAM SEDIMENT TRAP DETAIL SC-8



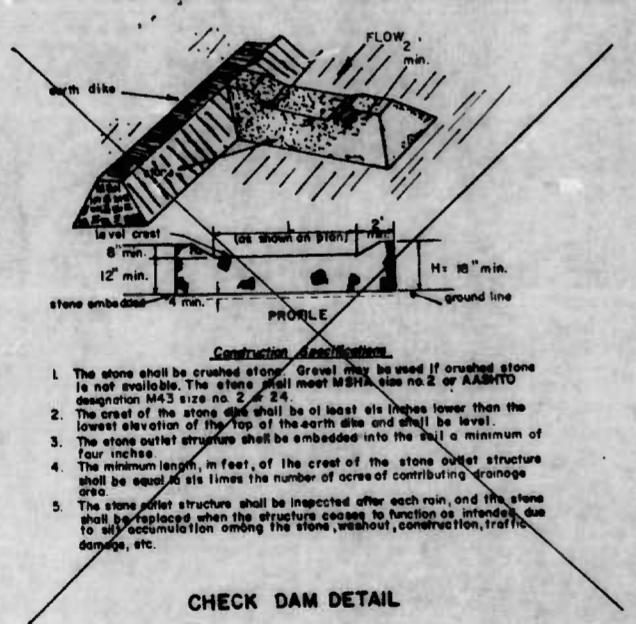
- CONSTRUCTION SPECIFICATIONS FOR ST-1**
1. Area under embankment shall be cleared, graded, and free of any vegetation and root mat. The pool area shall be cleared.
  2. The fill material for the embankment shall be free of roots and other woody vegetation as well as unburned stumps, rocks, organic material or other objectionable material. The embankment shall be compacted by tamping with equipment when it is being constructed.
  3. All cut and fill slopes shall be 2:1 or flatter.
  4. The stone used in the outlet shall be small riprap 4"-8" along with a thickness of 2" aggregate placed on the up-grade side on the small riprap or embedded filter cloth in the riprap.
  5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated 1/2 the depth south of the trap.
  6. The structure shall be inspected after each rain and repairs made as needed.
  7. Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
  8. Structures shall be removed and the area stabilized when the drainage area has 20% (or more) stabilized.

STONE OUTLET SEDIMENT TRAP DETAIL ST-1



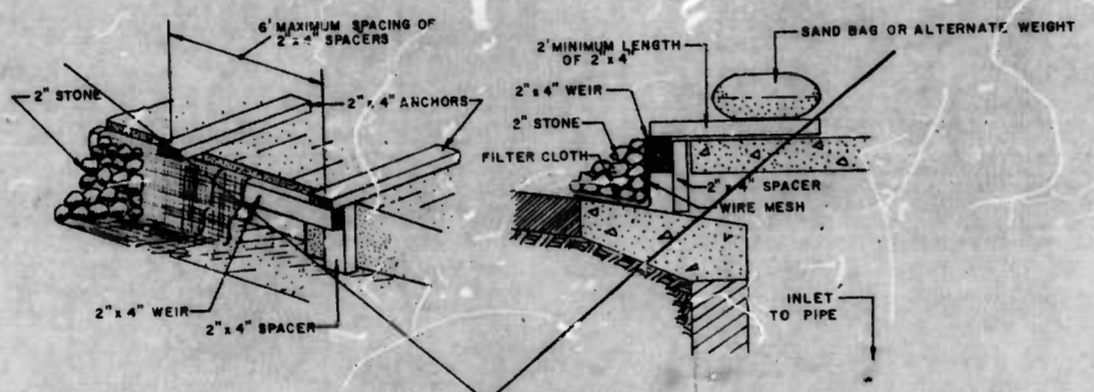
- CONSTRUCTION SPECIFICATIONS**
1. All graded or disturbed areas including those shall be protected during clearing and construction in accordance with the approved sediment control plan until they are permanently stabilized.
  2. All sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved sediment control plan and the Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas.
  3. Topsoil required for the establishment of vegetation shall be stockpiled in an amount necessary to complete finished grading of all graded areas.
  4. Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objectionable material.
  5. Areas which are to be topsoiled shall be scarified to a minimum depth of three inches prior to placement of topsoil.
  6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.
  7. All fills to be placed and compacted in layers not to exceed 8 inches in thickness.
  8. Except for approved landfills, all material shall be free of brush, rubble, rocks, with or present construction of satisfactory fills.
  9. Process materials or other, muddy or highly compressible materials shall not be incorporated into fills.
  10. Fills shall not be placed on a crust foundation.
  11. All benches shall be kept free of sediment during all phases of development.
  12. Steps or aprons encountered during construction shall be needed in accordance with the Standards and Specifications for Subsurface Drain or other approved method.
  13. All graded areas shall be permanently stabilized immediately following finished grading.
  14. Stockpiles, borrow areas and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

LAND GRADING DETAIL LG-1



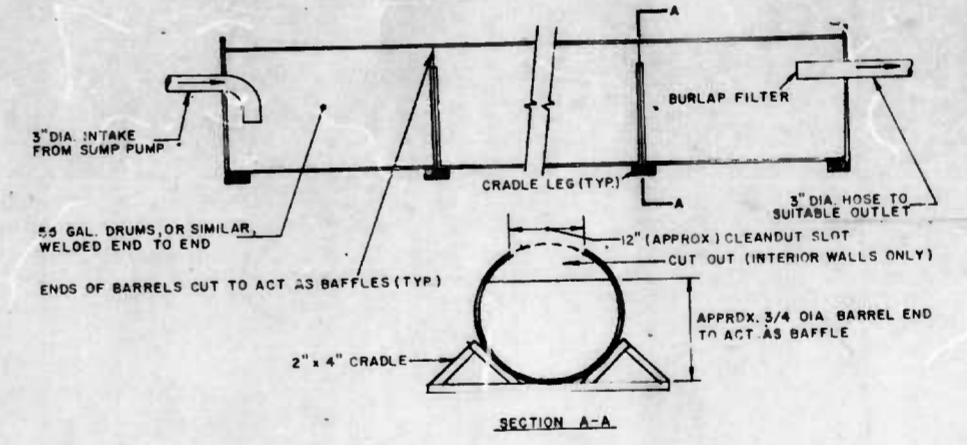
- CONSTRUCTION SPECIFICATIONS**
1. The stone shall be crushed stone. Gravel may be used if crushed stone is not available. The stone shall meet MSHA, size no. 2 or AASHTO designation M-1's size no. 2, 4, 24.
  2. The crest of the stone dam shall be at least six inches lower than the lowest elevation of the top of the earth dam and shall be level.
  3. The stone outlet structure shall be embedded into the fill a minimum of four inches.
  4. The minimum height, in feet, of the crest of the stone dam structure shall be equal to six times the number of acres contributing to the dam.
  5. The stone dam structure shall be inspected after each rain, and the stone shall be replaced when the structure ceases to function as intended due to any accumulation among the stone, resulting in construction traffic damage, etc.

CHECK DAM DETAIL



- CONSTRUCTION SPECIFICATIONS**
1. Attach a continuous piece of wire mesh (50 mil. width by throat length plus 4") to the 2" x 4" wall (measuring throat length plus 2") on shown on the standard drawing.
  2. Place a piece of approved filter cloth (40-85 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2" x 4" wall.
  3. Securely nail the 2" x 4" wall to 6" long vertical spacers to be located between the weir and inlet face (max. 6' apart).
  4. Place the assembly against the inlet throat and nail (minimum 2" lengths of 2" x 4") to the top of the weir or spacer locations. These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
  5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the direct casting.
  6. Form the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter fabric in back of gutter to prevent water from entering the inlet under or around the filter cloth.
  7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
  8. Assume that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.

CURB INLET PROTECTION DETAIL SC-9



1. CLEAN OUT THE SEDIMENT TANK WHEN ONE THIRD (1/3) FILLED WITH SILT.
2. ALL SEDIMENT COLLECTED IN THE TANK SHALL BE DISPOSED OF IN A SEDIMENT TRAPPING DEVICE OR AS APPROVED BY THE INSPECTOR.
3. STEEL DRUMS ARE USED AS AN EXAMPLE DUE TO THEIR READY AVAILABILITY. ANY TANKS MAY BE USED PROVIDED THAT THEY MEET THE FOLLOWING VOLUME REQUIREMENTS: PUMP DISCHARGE (GPM) x 16 = CUBIC FOOT CAPACITY.

PORTABLE SEDIMENT TANK DETAIL PST-1

CITY OF BALTIMORE  
DEPARTMENT OF TRANSPORTATION  
HIGHWAY AND BRIDGE ENGINEERING

PIER 5 BULKHEAD

SOIL EROSION / SEDIMENT CONTROL DETAILS

SE-4  
SCALE: AS SHOWN  
HIGHWAY ENGINEERING DIVISION

DATE: MARCH 4, 1988  
SHEET 9 OF 20

DRAWN BY A. MOSCATO  
EXAMINED BY

FILE REF.