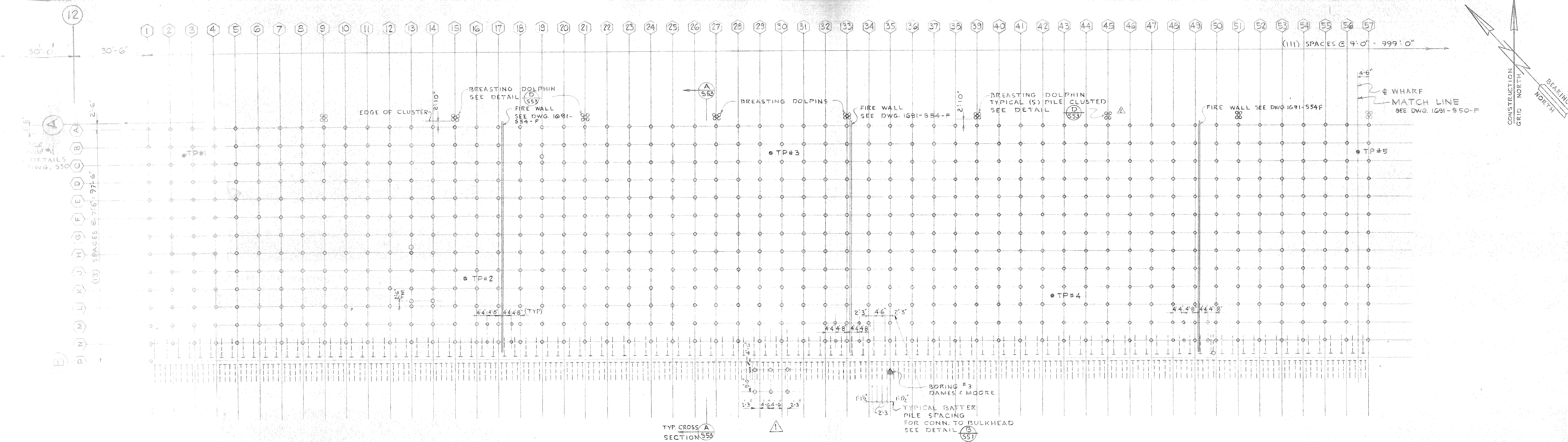
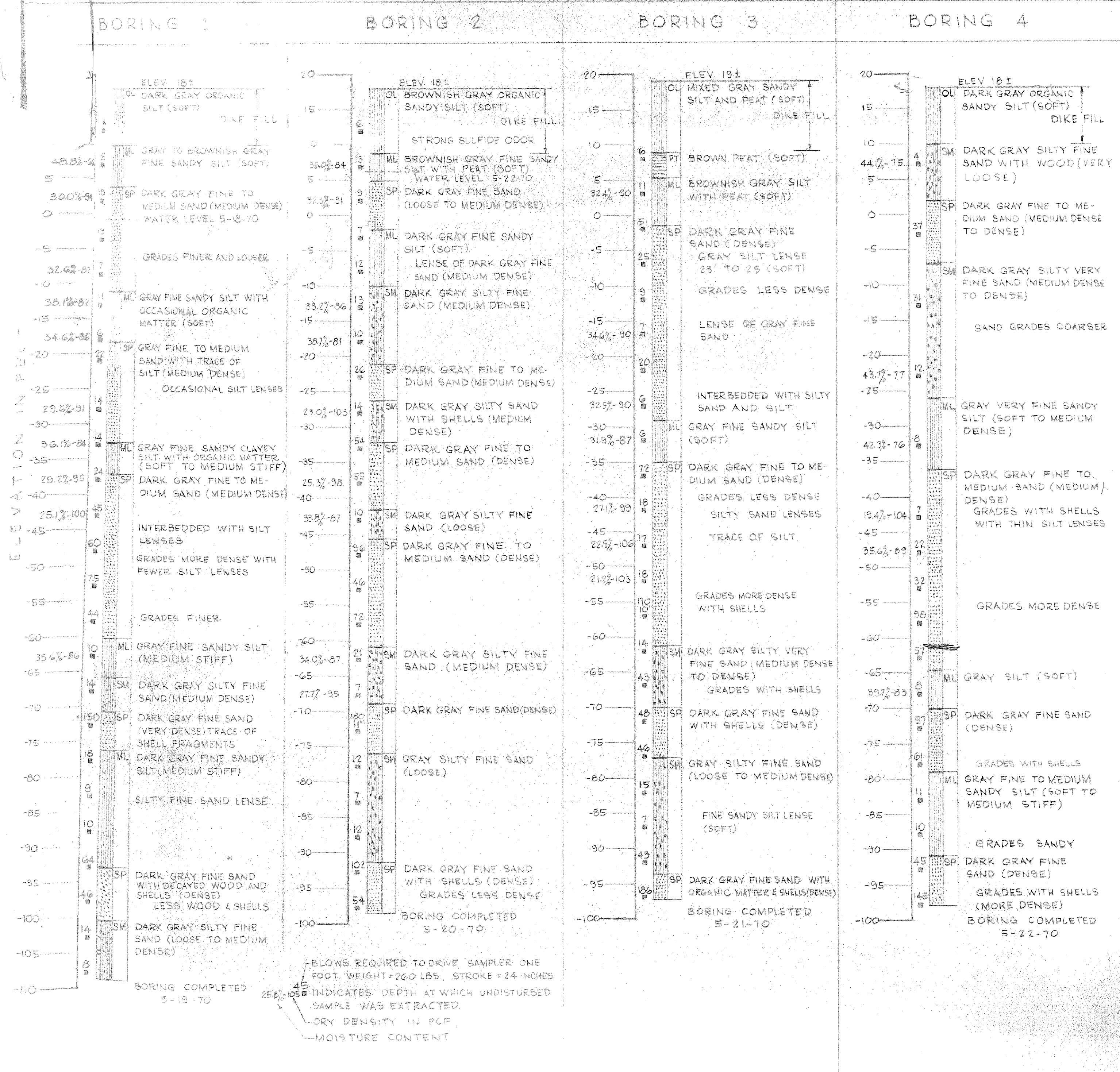




LOG OF BORINGS (DAMES & MOORE REPORT)
(SEE DWG. 1691-G3) FOR LOCATION



WHARF PILING PLAN
(PARTIAL) 1/4" = 1'-0"

- GENERAL NOTES
WHARF
- All methods and materials shall conform to the latest edition of Tacoma Building Code.
 - All dimensions and details shall be verified by the Contractor before fabrication or construction.
 - Reference elevations and base lines shall be established by the Owner at the start of construction and shall be maintained by the Contractor throughout the job at his own expense.
 - Shop drawings shall be prepared by the Contractor and submitted to the Engineer for review prior to fabrication.
 - Dredging shall be performed to the dredging lines and cross sections shown on the drawings. Dredging equipment must be approved by the Owner before beginning operations. The waste material shall be removed from the site and disposed of at a waste site approved by Government agencies and the Owner.
 - Excavation (not including dredging) shall be performed as shown on the drawings. Excess material shall be removed from the site to a waste area of the Contractor's choice, however, such waste area must be approved by the Owner.
 - Test piles and soils report: The logs of the soil boring made by Dames and Moore are shown on drawing 1691-S49F and the results of nine (9) test piles are shown on drawing 1691-S50F. This data is shown for Contractor information only and has been used to assist in the pre-determination of the pile lengths. Due to the varying nature of the soil the Owner and/or Engineer cannot be responsible for variations which might be found during construction.
 - Piling:
 - All timber piles shall be Pacific Coast Douglas Fir, pressure-treated, of the class and minimum tip and butt diameters shown in the table on drawing 1691-S50F.
 - All piling shall be given a pressure treatment in accordance with the American Wood Preservers' Association Standards (AWPA) C1-70, C3-69, and P13-65 for marine piling using 15% treatment. Incise each pile a minimum of 3/4" to insure penetration.
 - To prevent damage to the treated portions, cant hooks, peavies, pickaroons, and end hooks shall not be used on the side surfaces of treated material. When pressure treated materials have been accidentally damaged, or when it has been absolutely necessary to cut or bore into them after treatment, in such a way as to expose or nearly expose the untreated wood, such injuries, cuts or holes should be carefully field treated with hot creosote by brushing, spraying, or dipping in the manner described below.

Holes bored in pressure-treated material should be poured full of hot creosote. Horizontal holes may be filled by pouring creosote into them through a bent funnel. The use of equipment to apply creosote under pressure in holes bored in the field is highly recommended. Holes should not be bored or spikes driven into piles to support scaffolding and such holes and spikes in lumber or timbers for temporary use should be held to a minimum. Holes bored in treated material and not used for bolts should not be left open but should be poured full of hot preservative and plugged with light-fitting treated plugs.
 - All pressure-treated material that has been damaged or cut into after treatment, should have the exposed surfaces covered with at least two coats of hot creosote immediately after cutting, followed by a heavy application of coal tar pitch. Creosote or creosote solutions should be heated to temperatures from 150°F. to 200°F. before application. Coal tar pitch should be heated as necessary for ease in applying.
 - The heads of all dolphins shall be given a final cut off slope as shown and thoroughly coated with two (2) coats of hot creosote oil.
 - The heads of all bearing and batter piles, after being cut to correct elevation, shall be given three (3) brush coats of hot creosote oil. They shall be capped with a covering built up of alternate layers of hot coal tar pitch and coal tar impregnated fabric, using three (3) layers of pitch and two (2) layers of fabric. The cover shall measure at least four (4) inches more in dimension than the diameter of the pile and the edges fastened with large head galvanized nails.
 - All timber piles, except breasting dolphins, shall be driven to an adequate penetration below final soil surface to obtain a minimum bearing value of 30-Tons as verified by the ICBO formula for timber piles where capacity is equal to 11/2 as per Dames and Moore recommendation. In the event capacity is reached prior to the penetrations required by the Engineer, additional driving may be required.

- LEGEND
- VERTICAL TREATED TIMBER PILES
 - △ TREATED TIMBER BATTER PILES
 - TEST PILES
 - △ ○ EXTRA PILES

9. Structural Timber:
- All timber for wharf framing shall be Pacific Coast Douglas Fir, construction grade, and shall conform to the latest edition of the West Coast Lumber Inspection Bureau (WCLIB).
 - Holes for bolts shall be 1/16" larger than bolts to be used. Holes for drift pins shall be pre-drilled 1/16" undersize of the pin to be used. Prebored holes for lag screws shall have the same diameter as the shank for the length of the shank and 75 percent of the shank diameter for the threaded portion.
 - All timber for wharf framing, except fire stop walls, shall be pressure-treated in accordance with AWP standards C1-70, C2-70, and P13-65 with a retention of 8-lbs. of creosote per cubic foot. (Fire stop walls shall be 15-lbs. retention)
 - Refer to General Note 8.c. for detailed instructions for the handling and field treatment of pressure-treated timbers.
10. Reinforced Concrete:
- All methods and materials shall conform to the recommended practices for concrete work as given in the latest edition of American Concrete Institute (ACI), "Building Code Requirements for Reinforced Concrete."
 - Typical reinforcing requirements:
 - Reinforcing steel, $f_c=30,000$ psi, shall be new deformed billet steel bars as per ASTM designation A615-68, Grade 40.
 - Concrete coverage over bars shall be 3" for concrete poured directly against the ground.
 - Formed concrete shall have a 1-1/2" coverage for #5 bars and smaller, and 2" cover for bars larger than #5, unless specifically noted otherwise on the drawings.
 - All bars shall have a minimum splice of 40 bar diameters.
 - Concrete:
 - All concrete $f_c=1350$ psi shall develop 3000 psi compressive strength in 28 days. Water-cement ratio not to exceed 6.0 U.S. gallons of water per 94-lb. sack. Slump 2" to 4". Maximum aggregate 1-1/2".
 - Maximum continuous pour shall not exceed 100 feet in length.
11. Miscellaneous and Structural Steel:
- All structural steel plate and rolled shapes and connection units shall be ASTM A-283, Grade D or ASTM A-36.
 - All bolts and nuts shall be ASTM A-307 unless specifically called otherwise.
 - All structural steel and workmanship shall conform to the latest specifications of the American Institute of Steel Construction (AISC).
 - All welding shall conform to the latest specifications of the American Welding Society (AWS).
 - All steel, having any portion of its body exposed to the elements, shall be hot dipped zinc coated in accordance with ASTM A-153-61. Nails for laminated decking and drift pins for pile cap tie downs, therefore, would not be galvanized.
12. Sprinkling - See Specifications.

DESIGN CRITERIA

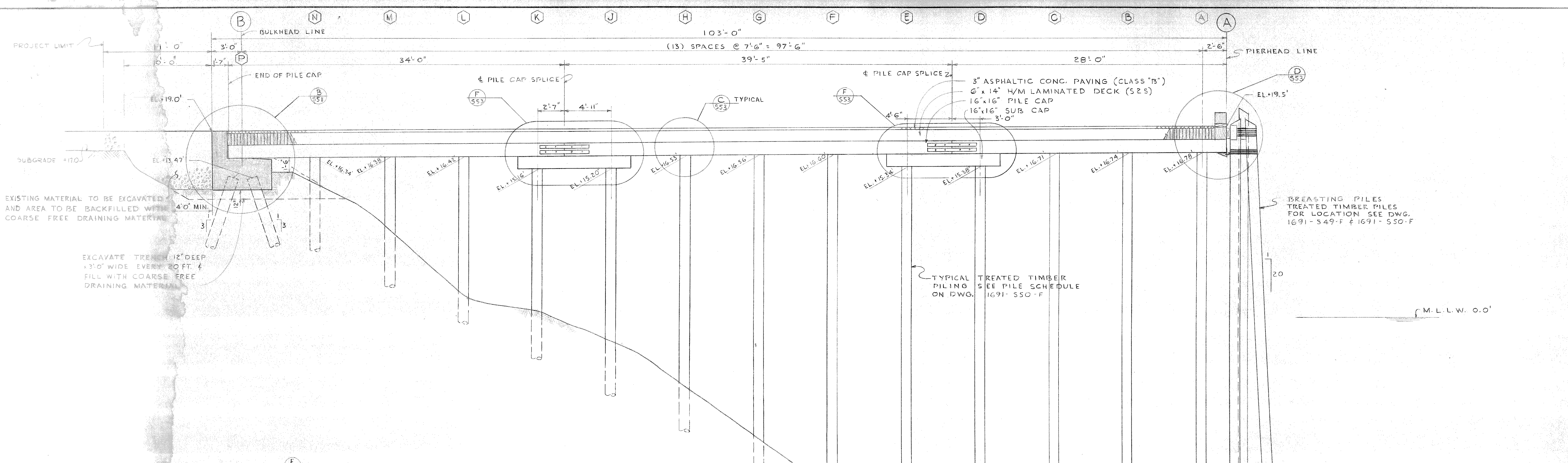
- KW 80 DART STACKER
TIRE CONTACT AREA 575"²
- UNIFORM LIVE LOAD = 600⁰ PSF
- WIND (TACOMA BUILDING CODE) = 20⁰ PSF
- SEISMIC (TACOMA BUILDING CODE) = ZONE 3



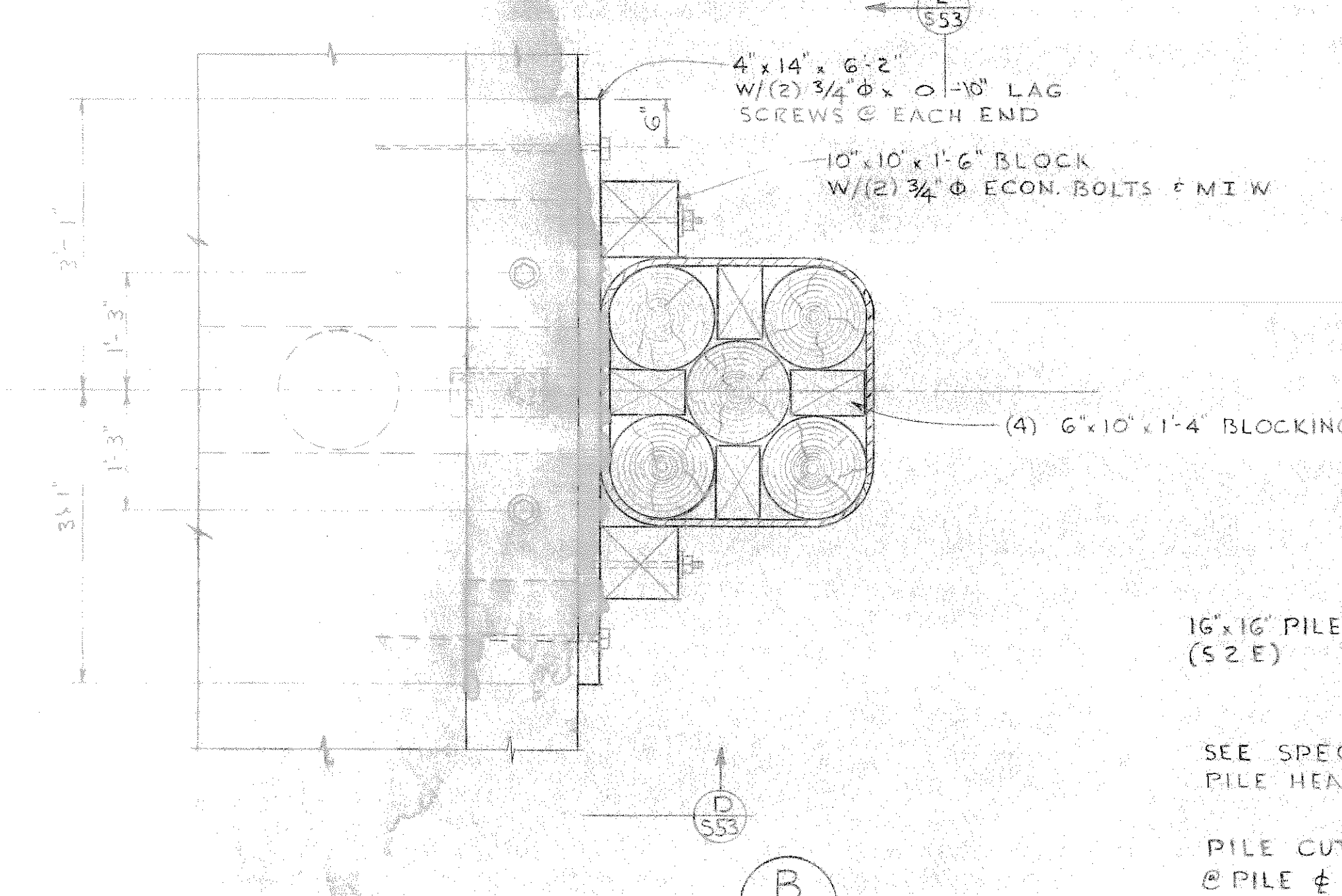
TACOMA SORTING YARD			
WHARF - PILING PLAN			
TACOMA			
Weyerhaeuser Company			
Construction Engineering			
Tacoma, Washington			
AS BUILT	DESIGNED	DRAWN	CHECKED
1614-70	1614-70	1614-70	1614-70
NO.	DATE	DESCRIPTION	DATE
REVISIONS			
1691-S49-E			
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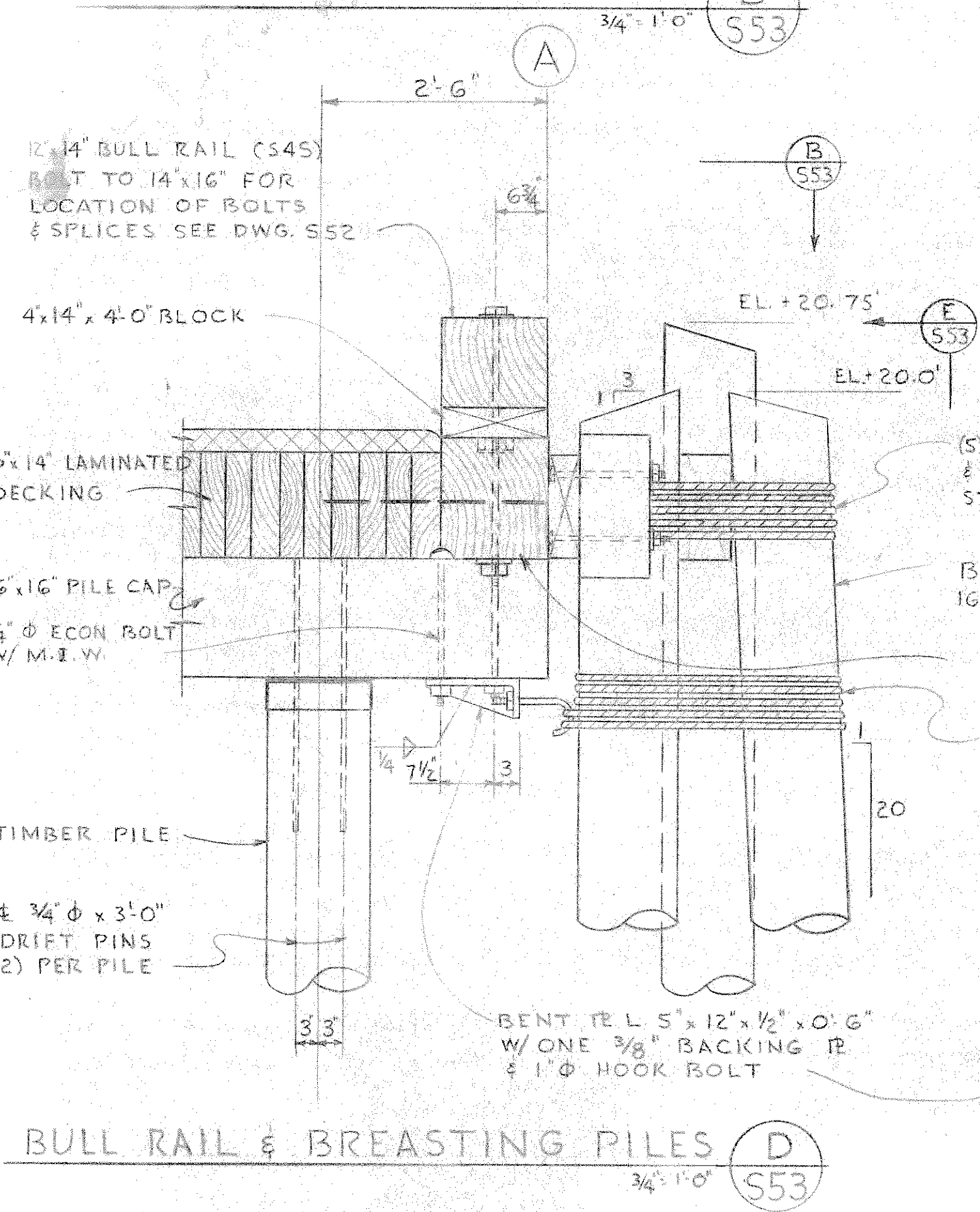
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ARM ENGINEERS



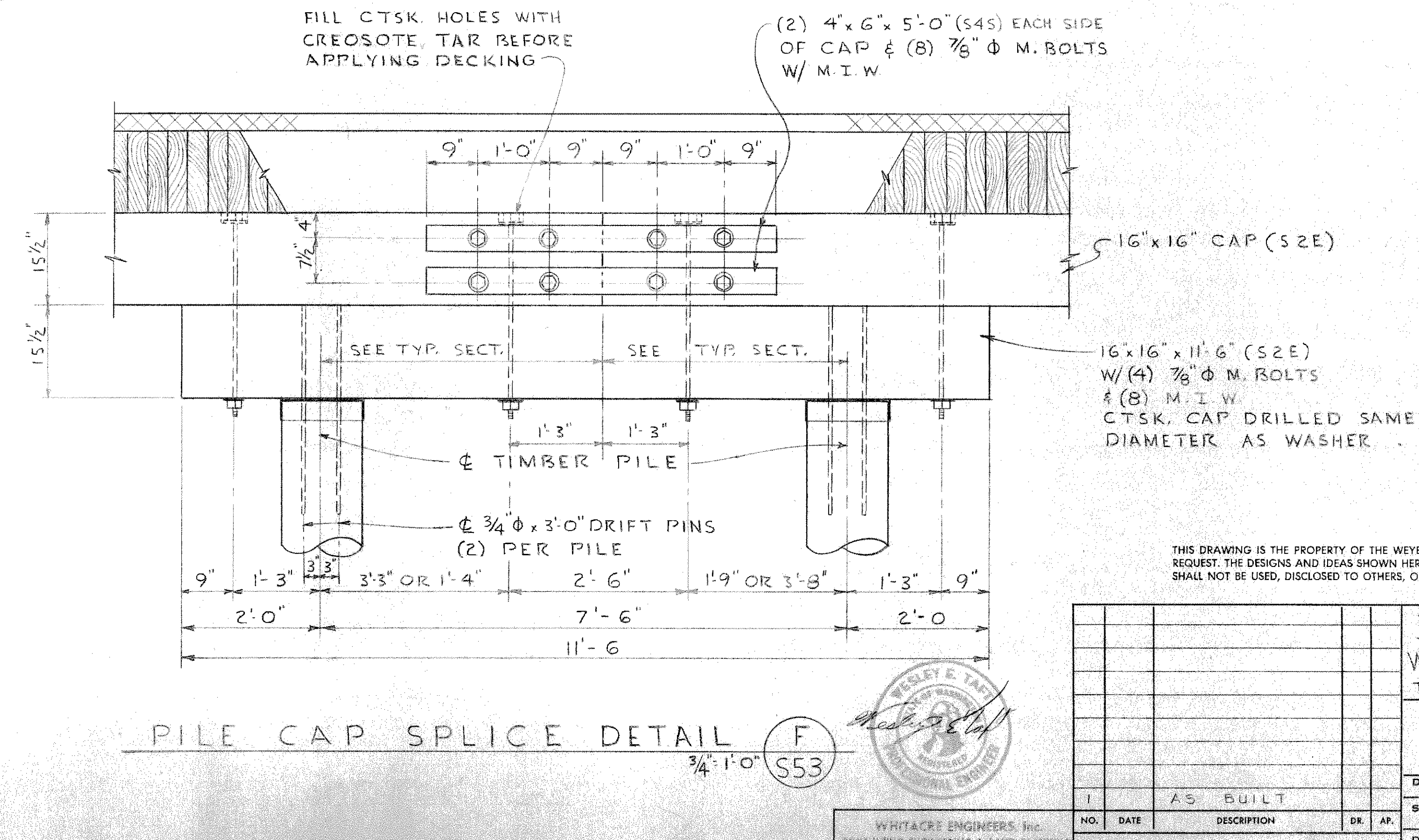
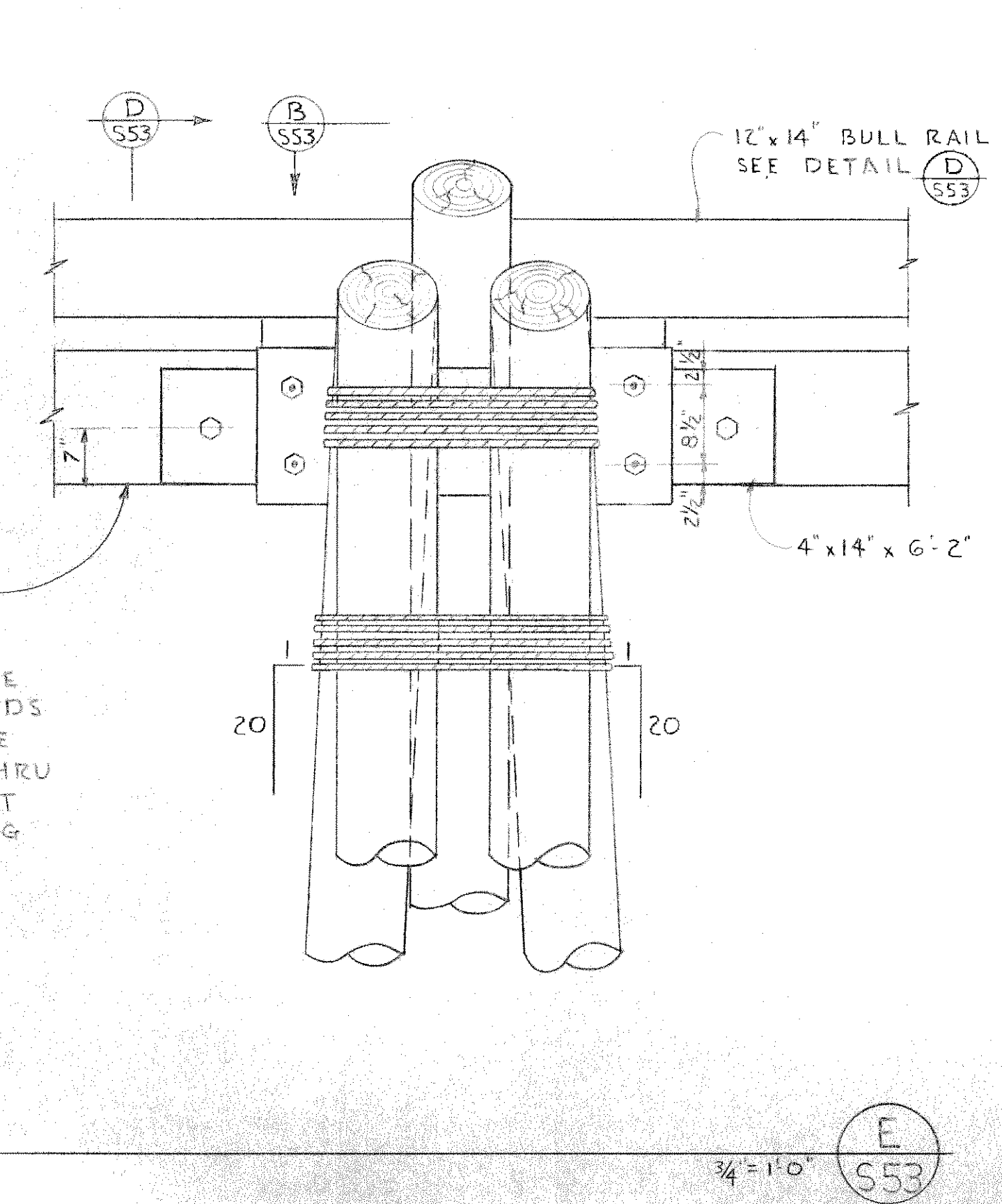
TYPICAL SECTION (A) S53



TYPICAL PILE CAP CONNECTION & DECK DETAIL (C) S53



BULL RAIL & BREASTING PILES (D) S53

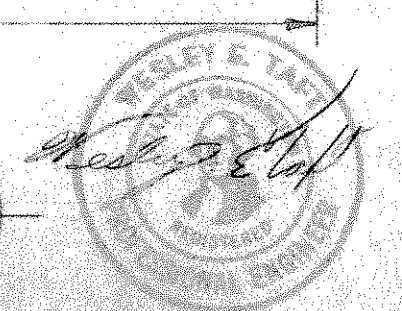


PILE CAP SPLICE DETAIL (F) S53

TACOMA SORTING YARD		WHARF TYP. CROSS SECT. & DETS.		TACOMA	
DESIGNED		DRAWN		CHECKED	
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NO.		DESCRIPTION		DATE	
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