

## MORE DOCKING SPACE FOR SHIPS AT ALASKA'S PORT OF ANCHORAGE

ASK AN ARDENT civic booster in Anchorage, Alaska, about his city and he will tell you, among other things, that (1) geographically, Anchorage lies as far west as Honolulu—and as far north as Helsinki, that (2) the climate in Anchorage is actually milder than many outsiders realize, and, that (3) Anchorage was only a tent town little more than 50 years ago when it came into existence with the start of construction on the Alaska Railroad and today is a thoroughly modern city of some 130,000. And, a true booster will add that Anchorage is continuing to grow.

One site of growth and progress is at the city's own municipal port facility. ABOVE, LEFT, cargo crane (left) on existing dock frames view of piledriver at work on 271-foot dock extension; RIGHT, forms are prepared atop piling for concrete deck 12 inches thick with 36-inch beams. BELOW, LEFT, port facility can berth ship up to 20,000 tons, will handle two ships when dock is lengthened; RIGHT, M-K supervisors, from left, Dave Fischer, office engineer, John Hermans, project engineer, Russell E. Hopkins, project manager, C. P. Middleton, business manager, and Glen Loomis, carpenter foreman.

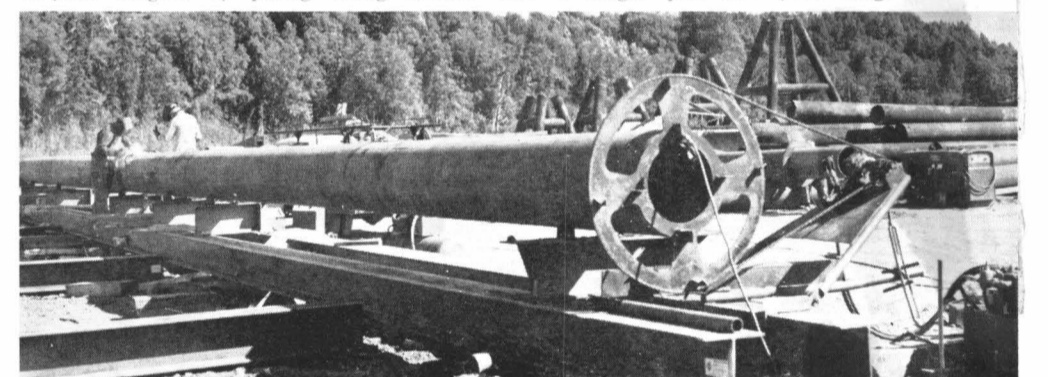
on Knik Arm of Cook Inlet, a slate-gray body of water that leads to Anchorage from the Gulf of Alaska. Here, men of M-K are building a 271-foot-long addition to a cargo dock that will give it a total length of more than 1,000 feet and permit two ocean-going ships to unload simultaneously. The construction program is being performed for the City of Anchorage under a contract awarded in May, 1968.

Sixty-nine feet in width, the dock extension will have a poured-in-place concrete deck slab that is 12 inches thick and is criss-crossed with 36-inch concrete beams that also are being poured in place. Supporting the deck and cross beams is a veritable forest

of heavy steel pipe piles—195 of them in all, totaling nearly 20,000 lineal feet in length (more than three miles). These stout underpinnings are of three different diameters—20, 24 and 42 inches. Some are being driven as friction-type piling and some as bearing type. The friction piles range from 130 to 170 feet in length and the bearing piles are approximately 85 feet in length. Six parallel rows are being hammered into the muddy bottom of Knik Arm in vertical alignment and one row is being driven on a steep slant seaward as batter piling for added stability against winter ice loads, earthquake and side-motion from ships nudging the dock structure. The row of batter piles and the outer (seaward) row of vertical piles are being completely filled with concrete after they are in position. All the other piles are being filled with sand after being pumped out to a depth 15 feet below mud-line.

Pile-driving operations are handled from a barge and are being carried on around the clock, seven days a week, to help push the project toward anticipated completion before oncoming winter. At night, a laser beam stationed 700 feet away on shore is used to guide the alignment of each pile as it is driven. In daylight hours, conventional transit methods are employed. Associated Divers, Inc., of Anchorage, is performing the pile-driving work under a subcontract from M-K. Directing the over-all operations as M-K project manager is Russell Hopkins, with John Hermans as project engineer and C. P. Middleton as business manager. The engineering firm of Tipetts, Abbott, McCarthy & Stratton is in charge of design and construction supervision for the City of Anchorage, with Edward Fila as resident engineer and Tetsu Yasuda as design engineer of this newest addition to the Anchorage waterfront.

ABOVE, steam hammer drives pile with 32,500-foot-pounds of energy per blow. Piles are 20, 24 and 42 inches in diameter. BELOW, motorized frame rotates 40-foot lengths of piling being welded into a single pile 130 feet long.



BELOW, LEFT, piles are aligned with hand winches and "clips" are welded to the piles to support deck forms; RIGHT, over-all view of barge-mounted piledriver at work on the dock extension. Six lines anchor the work barge.



12

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