

APPENDIX I

OUTLINE OF A TYPICAL DESIGN MEMORANDUM
FOR A HOPPER DREDGE

I-1. AUTHORIZATION - Cite authority for design, construction or both.

I-2. BASIC OBJECTIVES AND SCOPE

a. Proposed service and use

b. Pertinent physical data

- (1) Length
- (2) Breadth
- (3) Depth
- (4) Draft
- (5) Hopper capacity
- (6) Dredging depths
- (7) Propulsion (type of drive, estimated horsepower)
- (8) Speeds (light, loaded, dredging)
- (9) Dredge pumps (number, size)
- (10) Cruising radius and number of days vessel can operate with normal supply of fuel, water, etc.

I-3. HULL AND SUPERSTRUCTURE

a. General

- (1) Rules and regulations (ABS, USCG, etc)
- (2) Model Tests
- (3) Special Requirements

b. Hull Proper

- (1) Form
- (2) Type of Construction
- (3) Trim
- (4) Compartmentation

c. Fuel and Water Tanks

- (1) Number
- (2) Capacity
- (3) Location

d. Storage

- (1) Ship and supplies

(2) Operating stores

e. House and Superstructure

- (1) General arrangement
- (2) Pilot house
- (3) Quarters
 - (a) Number in crew
 - (b) Number and type of accommodations to be provided
 - (c) Furniture
- (4) Mess facilities
- (5) Shops and workspaces
 - (a) Boatswain and carpenter shop
 - (b) Machine shop
 - (c) Electrical shop
 - (d) Welding shop
 - (e) All other

f. Miscellaneous Hull and Deck Equipment

- (1) Rudders and steering gear
- (2) Hoists, cranes, booms, masts and kingposts
- (3) Lifeboats, launch and davits
- (4) Anchors, windlasses, winches, capstans and chain
- (5) Bitts and cleats
- (6) Fire fighting equipment

I-4. HOPPERS

- a. Number
- b. Capacity
- c. Location
- d. Shape and slopes
- e. Dump doors (number, type)
- f. Dump door operating gear (hydraulic, electric, etc.)
- g. Unwatering system
- h. Jetting (or Washout) system
- I. Lower overflow or emergency discharge gates
- j. Overflow system
- k. Yardage (or load) measurement equipment

I-5. SUCTION AND DISCHARGE SYSTEMS

- a. Number and size of suction and discharge pipes
- b. Type of trunnion (fixed, sliding)
- c. Type dragarm and operating gear and stowage
- d. Type of distribution system
- e. Discharge control
- f. Drag depth indicating system
- g. Dredge production instrumentation

- h. Dragheads

- i. Boom discharge - Type and dimensions (Where applicable)

I-6. MACHINERY

a. Propulsion

- (1) Number and size of boilers, if any
- (2) Number, size and type of engines, generators and/or motors
- (3) Number and type of propellers
- (4) Controls
- (5) Instruments

b. Dredging

- (1) Pump (Number, size, capacity, dynamic head, etc.)
- (2) Pump motors (number, size, characteristic)
- (3) Gas ejection system
- (4) Instruments

c. Miscellaneous

- (1) Auxiliary power
- (2) Heating and ventilation
- (3) Piping
- (4) Electronic Equipment (Radio, Radar, Depthfinder, Electronic Positioning, etc.)

I-7. CONSTRUCTION COST ESTIMATE

I-8. SCHEDULES FOR DESIGN AND CONSTRUCTION (including summary of fund requirements)

I-9. ESTIMATED PRODUCTION (DREDGING)

I-10. ESTIMATED OPERATING COST

a. Estimated plant rental computation

b. Estimated monthly operating cost

- (1) Payrolls
- (2) Subsistence
- (3) Fuel
- (4) Plant rental
- (5) Other direct costs
- (6) Indirect costs (supervision, inspection and overhead)
- (7) Total

c. Estimated average unit costs

I-11. RECOMMENDATIONS