MARKET SURVEY QUESTIONNAIRE (RFI)

New Trailing Suction Hopper Dredge (TSHD) – ACP

Rev 3.2 – Updated per project confirmations

A. PURPOSE, SCOPE AND RESPONSE INSTRUCTIONS

The Panama Canal Authority (ACP) is currently evaluating the potential acquisition (design and construction) of one (1) new Trailing Suction Hopper Dredge (TSHD). A public procurement process is anticipated prior to the end of 2026.

ACP is conducting a market study to collect high-level technical and commercial information from qualified shipyards and integrators. The objective is to support the development of commercial terms and conditions, contract structure, payment mechanisms, indicative delivery commitments, and other parameters that would facilitate broad and competitive participation in a future Request for Proposals (RFP).

This Request for Information (RFI) is issued solely for market survey, benchmarking, and planning purposes. All responses are voluntary and non-binding and are requested for informational purposes only.

Nothing contained herein, nor any response provided by a respondent, shall be construed as, or deemed to constitute: (i) an offer or acceptance; (ii) a request for an offer; (iii) an invitation or commitment to negotiate; or (iv) any representation, obligation, or commitment of any kind on the part of ACP. Participation in this market survey does not confer any advantage or disadvantage in any subsequent procurement process, nor does it obligate ACP to issue a solicitation or award a contract.

CONFIDENTIALITY (Market Survey): Information received shall be treated as confidential and used by ACP for planning and benchmarking purposes only.

A.1 Confirmed target characteristics (final for market survey context)???

- Bridge location: Aft. (preferred)
- Hopper capacity: 3,500–4,300 m^3 (confirmed).
- Number of dredging pipelines: one (1) trailing suction pipe (starboard).
- Maximum dredging depth: 30 m at 45° (confirmed).
- Bottom discharge: valve-type discharge system (confirmed).
- Additional discharge modes: rainbow (jet) discharge and pump-out to shore
- Operating concept: 24/7 operation; maximum crew expected during daytime hours; maximum production expected during day hours (please provide typical manning and operational practices for this operating concept).

A.2 Requested response format

- Please answer using concise text and the tables/templates provided in Section D below
- Where a range is requested, please provide an indicative range and state any assumptions.
- Where applicable, please attach brochures/datasheets for major equipment and a list of reference vessels/clients.

B. TECHNICAL QUESTIONS

1. How many years of experience does your organization have in the design and construction of trailing suction hopper dredges in the 3,500–4,300 m^3 class (or comparable complexity)?

2. How many dredges of similar size and technical complexity has your organization engineered and built during the last ten (10) years? Please provide vessel names and year of delivery.

3. Do you work with IACS Member classification societies for trailing suction hopper dredges? If yes, which societies and typical notations applied?

4. Can you provide reference technical specifications (or outline specifications) for a trailing suction hopper dredge of similar characteristics?

5. For a 24/7 operating concept with maximum crew expected during daytime hours, what is the maximum accommodation capacity and typical manning split by shift (day/night) you recommend for a dredger in this class?

6. How many weeks of personnel training are typically provided for dredger operation and maintenance? Please indicate (i) classroom, (ii) onboard commissioning, and (iii) simulator (if offered).

7. How many weeks are typically allocated for (i) Factory Acceptance Tests (FAT), (ii) Harbor/Dock Trials (HAT), (iii) Sea Trials, and (iv) Dredging Trials (production, loading times, pump-out/rainbow/bottom discharge), including trials to be conducted in Panama? Please describe the scope of each phase.

8. Configuration confirmation request: For this project the current intended configuration is diesel-electric with azimuth propulsion and dual bow thrusters. Please describe your typical diesel-electric configuration for propulsion, dredge pumps, jet pumps, and bow thrusters for this vessel class, including redundancy philosophy.

9. What are the main performance differences between a conventional diesel-mechanical configuration and a diesel-electric configuration for a trailing suction hopper dredge (fuel efficiency, maintenance, redundancy, CAPEX/OPEX)?

10. Azimuth propulsion and bow thrusters: Please describe your typical azimuth unit and bow thruster solutions for this vessel class. DP is a REQUIREMENT for this project—please confirm DP integration approach and interfaces with propulsion/thruster controls.

11. Maintainability requirement: Propulsion and thrusters shall be capable of being dismounted/removed from above for maintenance and emergency situations. Please describe the design/arrangement concepts that enable removal from above, including required hull openings, adapter flanges, and clearances.

12. Can your azimuth propulsion unit(s) be removed and replaced while the vessel is afloat ("exchange afloat")? If yes, what hull opening and mounting arrangement is typically required (e.g., mounting from above with adapter flange)? Please describe the maintenance concept and required clearances.

13. What types of emission reduction or emission control systems have been implemented (e.g., SCR/DPF), and what are the impacts on space, consumables (urea/DEF), maintenance, and lifecycle?

14. Bottom discharge (valve-type): Please describe the valve-type bottom discharge solutions that can be provided for hopper material discharge, including actuation, sealing, wear protection, maintainability, and typical acceptance tests.

15. Alternatives for Designs/configurations for bow pump-out using flexible pipelines (and/or shore pipeline) as well as rainbowing? Please describe typical performance limits and required auxiliary systems.

16. Suction pipe diameter: ACP currently operates cutter suction dredges (CSD) with 900 mm discharge pipelines. For a TSHD in this class, what suction pipe diameters are typically recommended and what are the implications on dredge pump sizing, wear, and production?

17. For long-term operation and asset management, can a digital twin of the dredger suitable for predictive maintenance be provided or supported(e.g., integration of condition monitoring data such as vibration, temperatures, pressures, motor currents, and alarms; health indicators; failure prediction models; and dashboards)? Please describe: (i) scope (which systems/components are covered); (ii) data sources/sensors required; (iii) software platform(s) and licensing approach; (iv) deliverables to ACP (models, configurations, data schemas, APIs); (v) cybersecurity and data ownership considerations; and (vi) any reference projects where this has been implemented.

18. What types of dragheads and/or suction heads do you offer? Please describe applicability for fine sand, coarse sand, clay, stiff clay, gravel, mixed soils.

19. Can a supply of recommended spare parts for two (2) years of operation be delivered together with the dredger? If yes, please describe the typical scope and strategy.

20. What is the expected normal service life of the dredger, and under what operational conditions?

21. What technical solutions can be offered to improve dredging performance in materials such as sand, silt, gravel, and small rocks, considering material properties such as specific gravity 2.73 and density 1.34 g/cm^3?

22. What safety factors are applied in the design of main dredging equipment components (pumps, piping, draghead, winches, structural interfaces)?

23. What advanced automation, monitoring and control systems can you provide to support navigation, dredging operations, and accurate positioning of the dredging pipeline and draghead?

24. Can a non-nuclear production meter be provided for monitoring purposes (density/flow/production)? Please describe typical solutions and integration.

25. Can a closed-circuit camera system be provided? Please describe typical coverage and recording.

26. Can a remote position control system operable from bridge wings (port and starboard) for conning and vessel maneuvering during dredging operations de provided and integrated?

27. For long-term operation, maintenance, and post-warranty troubleshooting, can an as-built software and configuration for control/automation systems (PLC programs, HMI/SCADA projects, parameter files, backups, licenses/access keys, and service/admin credentials), subject to contractual IP protections be supplied?

28. Please describe the warranty terms you typically offer for a comparable newbuild TSHD (period, scope/coverage, exclusions, remedies, and any performance/availability guarantees). Please also describe extended warranty options (if offered) and after-sales maintenance/service support arrangements.

29. Please describe the recommended maintenance program for this type of dredger, including (i) inspection/overhaul intervals by running hours and/or calendar basis for major components, (ii) typical major maintenance stops and expected durations (out-of-service), and (iii) typical critical wear components and consumables.

30. Please describe your standard long-term support offering, including spare-parts availability/guaranteed supply, special tools strategy, lead times for critical spares and repair/overhaul services, and obsolescence management for automation/control systems (software updates, licensing, cybersecurity patches).

31. Who would typically be responsible for the design and supply of the dredging equipment and systems (shipyard vs specialist subcontractor vs OEM integrator)?

32. Will you supply the dredger as the main contractor, or only as a subcontractor, designer, or equipment supplier?

33. Where do you propose to build the dredger?

34. Instead of country of origin, please list the typical OEM brands/manufacturers you propose for the main machinery and critical systems (main engines/generators, azimuth units, bow thrusters, dredge pumps, hydraulics, electrical switchboards/drives, PLC/SCADA). Also indicate whether these OEMs have authorized service facilities in Panama or nearby regions.

35. INFORMATION REQUEST ONLY: For planning purposes, what extent of design maturity and engineering calculations would your organization typically be willing to submit as part of a competitive proposal (e.g., GA and datasheets only vs preliminary analyses)? This is a request for information only and is non-binding.

C. CONTRACTUAL / COMMERCIAL QUESTIONS (Market Practices)

The purpose of this section is to understand typical market practices and indicative ranges for commercial and contractual terms commonly used for comparable newbuild dredger procurements.

43. Based on your market experience, following the issuance of an RFP for a comparable newbuild dredger, what proposal preparation period is typically allowed/required by the market (indicative range in weeks/calendar days)?

44. Considering current market conditions and typical shipyard capacity/backlog assumptions, what are indicative lead times for delivery (from contract award or notice to proceed through delivery and final acceptance), expressed as a typical range?

45. Please describe the payment structures most commonly used in the market for newbuild dredgers, including indicative advance payment ranges, typical milestone structures, and the types of securities usually associated with each payment stage.

46. Please summarize typical market practices regarding ownership and permitted use of technical data/documentation (as-built drawings, manuals), including how software/automation deliverables are generally handled (licensing, use restrictions, owner/operator rights), where applicable.

47. From a market practice perspective, is pricing and submission of quotations in U.S. dollars customary for contracts of this nature? If so, would your organization be able to comply?

48. From a market practice perspective, what bond/securities/insurancepackage is typically required for a newbuild dredger contract? Please address separately (as applicable): (i)proposal bond (garantía de propuesta); (ii) performance bond (fianza de cumplimiento); (iii) payment bond (fianza de pago); (iv) advance payment bond (if advance payments are recommended); and (v) warranty/retention mechanisms. For each, provide

typical ranges (amount as % of contract price or fixed amount), reduction mechanisms, validity/expiry milestones, and usual issuance requirements.

49. From a market perspective, what key factors most influence a shipyard's decision to participate in a competitive tender for a dredger of this type (schedule realism, risk allocation, warranty/support, payment/security, trial requirements, logistics)?

50. ACP Contract Regulations are published on its website. Please provide any general comments that may be relevant to this market survey. Reference: https://pancanal.com/reglamentos-del-canal/.

D. RECOMMENDED RESPONSE TEMPLATES (for comparability)

D.1 Reference vessels table (attach additional rows as needed)

Vessel name	Year	Hopper (m^3)	Max depth (m)	Propulsion / power	Azimuth make/model	DP (Y/N + class)	Operator / region

D.2 Trials and schedule table (indicative)

Phase	Typical duration (weeks)	Scope highlights	Location assumptions
FAT			
Harbor/Dock Trials (HAT)			
Sea Trials			
Dredging Trials			
Panama trials (if applicable)			

D.3 Warranty & support summary (bullet format)

- Warranty period(s):
- Extended warranty option(s):
- Coverage scope (systems included):

- Exclusions:
- Remedies (repair/replace, response time):
- Performance/availability guarantees (if offered):
- Post-warranty maintenance/service offerings:
- Spare parts availability / guaranteed supply period:
- Obsolescence & cybersecurity patch strategy:

D.4 Payment & bonds/securities (indicative ranges)

- Advance payment range (%):
- Milestones used (examples): design / keel laying / launch / trials / delivery / final acceptance:
- Bonds/securities /insurances per stage (type and % / fixed amount):
- Reduction mechanisms and expiry milestones: