

March 20, 2003

Colonel Brian E. Ostendorf
New England Division
US Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Re: **Water Quality Certification**
Providence River and Harbor Maintenance Dredging Project
WQC File No. 01-61

Dear Sir:

On February 15, 2002, the Rhode Island Department of Environmental Management (RIDEM) issued Water Quality Certification (WQC) for the above referenced project. Subsequent to issuance of the WQC, it has come to our attention that certain conditions within this Certification require revision. The following is the revised Water Quality Certification.

The Rhode Island Department of Environmental Management has reviewed your application for a Water Quality Certificate for the above referenced project. The Army Corps of Engineers (ACOE) proposes to conduct maintenance dredging of the federal channel and harbor of the Providence River from Fox Point in Providence Harbor to a location in the channel just north of Prudence Island. The waters associated with this project are classified in the Rhode Island Water Quality Regulations as SB (Providence Harbor south to a line from Conimicut Point in Warwick to Nayatt Point in Barrington) and SA (the remainder of the project).

We have reviewed the document entitled, Providence River and Harbor Maintenance Dredging Project, Final Environmental Impact Statement (FEIS), dated August 2001, and associated Appendices A through S. Based on the information submitted, the Department has determined that the project complies with the State Water Quality Regulations and hereby grants Water Quality Certification for this project subject to the provisions contained in this Certification. This Certification is for the one-time activity detailed in the FEIS.

Project Description

The project as described in the FEIS documentation is summarized as follows:

The Providence River federal channel begins near the head of Providence Harbor and follows the Providence River south to the deep water near Prudence Island (Figure 1). The upper two and one-half miles comprise the main harbor of the Port of Providence. The channel will be dredged to the

authorized width of 600 feet except for a length between Fields Point and Providence where the channel has varying widths of up to 1,700 feet. The channel will be excavated to the authorized depth of 40 feet.

The total volume of material to be removed from the federal channel is 3.9 million cubic yards of maintenance material. The material defined as suitable for unconfined open water disposal (2.8 million cubic yards) will be disposed of at the off-shore disposal site defined as Site 69B. Site 69B is located outside of state waters, however, the transport barges will travel through state waters to reach the disposal site. Material defined as unsuitable for unconfined open water disposal (1.1 million CY) will be placed in Confined Aquatic Disposal (CAD) cells located in the upper reaches of the Providence River. Five CAD cells will be excavated to a depth of approximately -95 feet MLLW. The estimated storage capacity in the CAD cells is approximately 2.3 million cubic yards. This volume is adequate for the estimated 1.1 million cubic yards of unsuitable material from the federal channel and an estimated 0.5 million cubic yards of material from potential non-federal dredging projects, even considering a bulking factor of 1.3. For the federal project, approximately 1.6 million cubic yards of material will be excavated from the CAD cells. The parent material from the CAD cells is composed of approximately 0.7 million cubic yards of silt and 0.9 million cubic yards of sand and gravel. The parent material from the CAD cells is considered suitable for unconfined open water disposal. A portion of this parent material will be transferred to two upland dewatering sites. Any parent material not utilized at an upland dewatering/disposal site will be disposed at Site 69B. Sediment from sediment sampling locations G and H, as identified in the FEIS, will be used to cap the CAD cells.

There are two dewatering sites associated with the project, identified in the FEIS as the Providence and Worcester Railroad Company property on the east shore of the Providence Harbor and the Johnson and Wales University property located on the southern portion of Fields Point. The Providence and Worcester Railroad site will dewater and retain a quantity estimated at 250,000 CY of material at the existing South Quay bermed area. An additional quantity estimated at 300,000 CY of material will be transported to the proposed dewatering site at the Johnson and Wales site. In both cases, the dewatered material will be used as construction fill on these sites as described in the FEIS.

In the EIS process, there has been exhaustive review of the project through a cooperating agencies review process. In the course of these processes, the ACOE has incorporated the following measures into the project for the purpose of minimizing the potential environmental impacts from the dredging portion of the project.

- Dredge maintenance silt from all reaches of the federal channel and harbor using an enclosed clamshell bucket dredge. A hopper dredge may be used instead of the enclosed clamshell bucket dredge after prior review and approval by the Department. No overflow of the scow will be permitted when dredging maintenance silts.
- Dredge parent material from the CAD cells using an open bucket. The scows shall be permitted to overflow while sand and gravel is being removed from the CAD cells.
- Conduct monitoring for dissolved oxygen, turbidity, and total suspended solids at the dredge sites within the federal channel, as proposed. ACOE will submit a Monitoring Plan to the Department for review prior to commencement of dredging. The analytical data from the monitoring will be provided to the Department within 7 calendar days of receipt from the laboratory.
- Sequence dredging operations to minimize impacts to fishery resources. (Sequencing priorities are addressed in more detail in Appendix A attached to this Water Quality Certificate.)

- Sequence dredging activities as a continuous operation without the need for (additional) demobilizations/mobilizations.
- Work cooperatively with the dredging contractor and DEM to implement the sequencing priorities noted in Appendix A to the maximum extent practicable.

The ACOE expects to develop a final sequencing plan in accordance with the above. Should it subsequently appear necessary to deviate from the sequencing plan, the ACOE will consult with the Department prior to implementing any changes. The ACOE will identify the dates, duration and need for the variation along with a discussion of the potential environmental and economic impacts to the project and provide an explanation of the steps taken to minimize deviations from the approved sequencing plan. The Department has agreed to review this information within twenty-four hours of receiving it. The Department's review of proposed deviations will take into account both the need to protect valuable resources and the need to maintain project goals.

The estimated start date for this project is November 2002 with estimated project duration of 18 months. The ACOE will notify the Department one week prior to the start of dredging to enable staff to be available for project inspection.

This Water Quality Certification approves the project as described above, subject to the following conditions:

General Conditions

1. This permit shall be referenced and included as an attachment in the project specifications.
2. The ACOE shall coordinate with the Department during the development of the plans and specifications for the project.
3. The applicant and their contractors shall meet with the Department at a pre-construction meeting prior to undertaking any construction activity. This meeting will provide an opportunity for the regulatory and project staff to review permit conditions.
4. All waters, including wetlands, are protected by anti-degradation provisions of the Rhode Island Water Quality Regulations. The ACOE shall ensure that their contractor will take all steps necessary to assure that the proposed activities will be conducted in a manner that will avoid violation of said standards.
5. The ACOE shall be responsible for compliance with the conditions set forth in this Water Quality Certificate for all disposal activities at the CAD cells, and will coordinate disposal activities with the non-federal applicants.
6. The two upland sites referenced and described in the FEIS as the Providence and Worcester Railroad Company property and the Johnson and Wales University property are the only sites authorized by this Certification to receive materials for dewatering and disposal. Any other upland disposal site that may be proposed subsequent to the issuance of this Water Quality Certificate will require approval from the Department.
7. All capping of the CAD cells shall be completed within the 18-month estimated project construction period. An extension may be requested at least 60 days prior to the expiration date.

8. Once a CAD cell has been capped, it shall not be re-excavated.
9. Any non-federal disposal of dredged material into a CAD cell must occur during the 18-month federal navigation project construction period. An extension may be requested at least 60 days prior to the expiration date.
10. In order to accommodate unanticipated delays in the project, this Water Quality Certificate will expire 5 years from the date of issuance. An extension may be requested at least 60 days prior to the expiration date.
11. Any barge used to transport dredged material shall be in good operating condition and shall contain the sediment and water placed in it so that minimal discharge of sediment or water occurs until the barge has been transported to an authorized disposal location.

CAD Cell Disposal Operations

12. The Department shall be notified 7 calendar days prior to the initial disposal of any material into a CAD cell.
13. During construction, the unsuitable material from the surface of the starter CAD cell shall be temporarily stored on barges or scows. This material shall be permanently disposed of in the CAD cell.
14. All dredge material considered unsuitable for unconfined open water disposal shall be placed in the CAD cells. The 1.1 million cubic yards of unsuitable material from the federal channel is located in the Fox Point Reach (identified in the FEIS as sediment sample locations A through E). Material from the Upper Fuller Rock Reach (identified as sample location G and H) shall be used to cap the material in the CAD cells with one to three feet of material after the unsuitable material has been allowed to consolidate. Reference Figure 2 to view the location of the suitable and unsuitable areas of dredged material.
15. A detailed plan outlining the methods to be used to ensure disposal barges are within the boundaries of the disposal cell during sediment discharge must be submitted to the Department for review and approval prior to the commencement of any disposal into the CAD cells.
16. Bathymetric surveys of each CAD cell shall be conducted at the following intervals: 1) prior to placement of any material into the cell, 2) following the last placement of unsuitable material into the cell, 3) just prior to placing the cap, and 4) within 15 days after placement of the cap. A report including the data and an assessment of the data shall be submitted to the Department within 90 days of completion of the surveys. The assessment shall include contoured bathymetry and calculations of the total volume of material placed in each CAD cell.

CAD Cell Disposal Compliance Monitoring

General

17. Monitoring shall be completed as specified below. The monitoring requirements may be modified after consultation with the applicant following Department review of the initial monitoring data.

18. The results of any state monitoring or state approved monitoring conducted in the Providence River when disposal operations are ongoing may be used by the Department to assess compliance with the Rhode Island Water Quality Standards.
19. A detailed plan outlining the reporting format and schedules to be utilized for all compliance monitoring shall be submitted to the Department for review and approval prior to the commencement of compliance monitoring.
20. All monitoring data results shall be forwarded to the Department within 7 calendar days after the completion of the monitoring event.
21. A copy of the draft Quality Assurance/ Quality Control (QA/QC) Plan to be utilized for all field sampling and chemical/biological testing shall be submitted to Department for review and approval prior to awarding of the dredge contract. The Plan shall contain all elements outlined in the "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" EPA QA/R-5, October 1998.
22. A measurement system that includes the real-time measurement, recording, and display of turbidity, dissolved oxygen, temperature, salinity, depth, latitude and longitude shall be used to track the movement of the sediment plume resulting from dredging and dredge disposal operations. This system shall be utilized to conduct the monitoring outlined in Conditions 24 through 34. The turbidity and dissolved oxygen measurements will be monitored with sensors mounted on an undulating body towed behind the survey vessel so that measurements may be made and reported continuously as the vessel moves through the plume field. An acoustic Doppler current profiler (ADCP) will be mounted to the vessel hull to provide preliminary information on the location of the plume field to the vessel operator and survey crew. Equipment specifications, pre- and post- cruise calibration procedures for each sensor and cruise sampling protocols for the system will be included in the QA/QC Plan submitted for Department approval under Condition 21, above.
23. The disposal contractor shall provide the sampling/monitoring contractor with a signal acceptable to both parties indicating when the disposal of sediment from the barge or scow begins.

Monitoring

24. Post-dredge disposal monitoring will include sampling for toxicity, dissolved silver, dissolved copper, turbidity, total suspended solids, dissolved oxygen, temperature, and salinity. Toxicity and dissolved metals will be evaluated at the edge of the applicable mixing zone. Measurements of the other parameters will be conducted to support interpretation of the compliance parameters.
25. The mixing zone boundary for dissolved copper and dissolved silver will be 1500 feet from the disposal point. At the boundary, concentrations of dissolved copper and silver in the water column may not exceed the state's standard for acute concentrations. The acute concentration for copper is 4.8 micrograms per liter and the acute concentration for silver is 1.9 micrograms per liter.
26. A minimum of eleven disposal events shall be monitored for dissolved metals, turbidity, Total Suspended Solids, dissolved oxygen, temperature, and salinity. The events shall encompass the following environmental and operational conditions:
 - a. The first dredge disposal event will occur within one hour after the time of high tide in Providence Harbor. The first sampling event will start immediately following this disposal event;

- b. The second sampling event will occur by the fifth dredge disposal operation. The disposal event will be timed to occur within one hour after the time of low tide in Providence Harbor. The first low tide sampling event will start immediately after this disposal event;
 - c. Four more of the first 100 dredge disposal operations will be scheduled to occur within one hour after high tide. Two of these events will be scheduled to occur during a period of spring tide range, when the predicted tide range in Providence Harbor is at least 5.5 feet. Monitoring of these four disposal operations shall commence immediately following disposal;
 - d. Another four of the first 100 dredge disposal operations will be scheduled to occur within one hour after low tide. Two of these events will be scheduled to occur during a period of spring tide range, when the predicted tide range in Providence Harbor is at least 5.5 feet. Monitoring of these four disposal operations shall commence immediately following disposal;
 - e. Three sampling events shall occur at the following intervals: 1) when the starter CAD cell is approximately 20 feet from the surface, 2) when the starter cell is approximately 5 feet from the surface, and 3) when the first cap material is placed at the CAD cell. If properly timed, these events may occur as a subset of the sampling outlined in Conditions 31(c) and 31(d), above;
 - f. One sampling event shall occur when disposal is occurring in the northern limits of the northernmost CAD cell. The disposal operation associated with this sampling shall occur within one hour of high tide in Providence Harbor. The sampling shall commence immediately following disposal.
27. Each of the sampling events outlined in Condition 26 require discrete samples to be obtained at each of the following three locations.
- a. Sample 1 shall be obtained at a point 1500 feet downcurrent of the disposal site as the peak concentration of the plume passes through the mixing zone boundary;
 - b. Sample 2 shall be obtained at a point outside the influence of the dredging and disposal plumes; and,
 - c. Sample 3 shall be obtained within the dredge plume.
28. As described in Condition 27, water samples shall be obtained for analysis at each of three sample locations. At each location samples shall be obtained from 1 meter above the bottom, mid-depth, and 1 meter below the surface and shall be analyzed for dissolved copper, dissolved silver, total suspended solids, and turbidity.
29. If the plume extends beyond 1500 feet from the disposal point as evidenced by turbidity measurements of >10 NTU's above background (Sample 2 for each sampling event), additional samples shall be obtained. Turbidity monitoring shall continue downcurrent of the mixing zone boundary to the point where peak turbidity meets the 10 NTU threshold. Additional sampling and analysis as described in Condition 28 shall be conducted at that point. Three discrete samples shall be obtained at 1 meter above the bottom, mid-depth, and 1 meter below the surface.

30. The mixing zone boundary for water column toxicity will be extended both upstream and downstream of the disposal point. The southern limit falls at the southern tip of Fields Point and the northern limit is located at the upstream face of the Washington Bridge (Route 195). At the boundary, the water column-averaged chronic toxicity will be determined from a composite of samples obtained from 1 meter below the surface, mid-water column, and 1 meter above the bottom. The *Arbacia* rapid chronic 80-minute sea urchin sperm cell toxicity water column test and 48-hour embryo development and survival tests shall be conducted on samples collected in accordance with the requirements of Conditions 31 through 34. **There shall not be a statistically significant reduction in the percent fertilization (determined from the 80 minute test) or the percentage of normally developed embryos (determined from the 48 hour test), between the composite sample collected at the mixing zone boundary and the reference site (defined as Sample 2 in conditions 32 and/or 34).**
31. Sampling for toxicity following high tide shall be conducted following each of the three disposal events defined below. A high tide disposal event is defined as a disposal occurring within 1-hour of the predicted high tide in Providence.
- a. Toxicity sampling event 1 shall occur following the first high tide disposal event into the starter cell;
 - b. Toxicity sampling event 2 shall occur following one of the next ten high tide disposal events;
 - c. Toxicity sampling event 3 shall occur during the placement of cap material on the first CAD cell to be capped.
32. Samples for each high tide event shall be obtained at the following three locations:
- a. Sample 1 shall be obtained as the peak turbidity concentration of the plume passes through a point at the edge of the down current mixing zone (Fields Point), or, if the plume does not reach the edge of the mixing zone by slack low tide, the sample shall be obtained at slack low tide;
 - b. Sample 2 shall be obtained at a point outside the influence of the dredging and disposal plumes; and,
 - c. Sample 3 shall be obtained within the dredge plume.
33. Sampling for toxicity following low tide shall be conducted following each of the three low tide disposal events. A low tide disposal event is defined as a disposal occurring within 1-hour of the predicted low tide in Providence.
- a. Toxicity sampling event 1 shall occur following the first disposal event into the starter cell;
 - b. Toxicity sampling event 2 shall occur following one of the next ten disposal events;
 - c. Toxicity sampling event 3 shall occur during the placement of cap material on the first CAD cell to be capped.
34. Samples for each low tide event shall be obtained at the following three locations:

- a. Sample 1 shall be obtained as the peak turbidity concentration of the plume passes through a point at the edge of the down current mixing zone (Washington Bridge), or, if the plume does not reach the edge of the mixing zone by slack high tide, the sample shall be obtained at slack high tide;
- b. Sample 2 shall be obtained at a point outside the influence of the dredging and disposal plumes; and,
- c. Sample 3 shall be obtained within the dredge plume.

Decision Criteria for Failing Sample Results

35. For either toxicity or dissolved metals, a failing sample is defined as any sample collected at the edge of the applicable mixing zone, (Sample 1 as noted above) with results that exceed criteria specified above in Conditions 25 and 30 or the test results for the Reference Site sample, whichever is greater. The Reference Site sample is collected at a point outside the influence of the dredge and disposal plume and is defined herein as Sample 2 in any condition of this Certificate that describes sampling locations. A failing sample shall require the testing protocol be repeated for the applicable parameters. Within 24 hours of receipt of a failing test result from the laboratory, the ACOE shall notify the Department. Repeat sampling and testing shall occur within three (3) working days of Department notification, unless the Department approves a longer period.
36. If repeat sampling results in a second failing sample for either toxicity or dissolved metals at the **original** barge disposal volume, the volume of material released with each barge disposal shall be reduced by one-third of the original volume. The testing protocol shall be repeated at the reduced disposal volume. If testing at the reduced disposal volume meets criteria, disposal shall continue at the reduced barge disposal volume (see Condition 39).
37. If testing at the reduced disposal volume results in a failing sample, the procedures outlined in Condition 35 shall be repeated at the reduced volume. If the repeated sample results in a failing sample, see Condition 38.
38. Two failing samples (per Condition 36) for either toxicity or dissolved metals at the **reduced** disposal volume shall require that each barge disposal event occur at slack tide. The ACOE must submit a plan outlining the proposed strategy for the remaining disposal events within two weeks of receipt of the second failing sample. This strategy should include a list of priorities that the ACOE would like to initiate to ensure compliance with toxicity and dissolved metals criteria. These priorities may include adjustments to the timing of the disposal events, or further reduction in the disposal volume. Additional monitoring will occur at the direction of the Department.
39. If testing at the reduced disposal volume meets criteria, the ACOE may request that the barge disposal volume be increased. This request must be submitted in writing to the Department and must include documentation as to why the increase in volume should be permitted. The request can be submitted any time the ACOE believes there is sufficient documentation to justify the request. The Department will make a determination as to whether the increase in barge disposal volume will be permitted. Repeat sampling and testing will occur at the direction of the Department.

Other Monitoring

40. Additional sampling for dissolved oxygen, salinity and temperature shall occur three times per month during the months of June, July, August, and September for the first 12 months of operation.

Measurements shall be taken along a transect beginning 500 feet upcurrent from the CAD cell disposal to 1,500 feet downcurrent, beginning within 30 minutes after the disposal event. This sampling shall only occur at neap tides and shall be separated by 24-hour intervals. Measurements shall be monitored with sensors mounted on an undulating body towed behind the survey vessel so that the measurements may be made and reported continuously as the vessel moves through the plume field. The monitoring shall be conducted in accordance with the QA/QC Plan, as identified in Condition 21. All monitoring results shall be submitted within 7 days of the end of each calendar month.

Dewatering and Upland Disposal

41. All transfer, movement, offloading and other handling of material and sediments associated with the proposed dewatering and upland disposal sites must implement Best Management Practices to minimize the migration of sediments from the site and the occurrence of suspended solids in waters of the State.
42. Detailed site plans and documents addressing the following items must be submitted to the Department for review and approval prior to the commencement of any dewatering activities. The selection, design and operation of the proposed dewatering, settling and storage basins must follow the ACOE publication entitled Engineering and Design, Confined Disposal of Dredged Material, Engineer Manual No. 1110-2-5027. Both the dewatering sites and the upland disposal sites must be addressed.
 - a. A Materials Management Plan shall be developed that includes a Sediment and Erosion Control Plan, methods to reduce material losses when offloading the dredge scows, Best Management Practices for treatment of discharges from the dewatering sites that are to be utilized, a method of collecting stormwater runoff from any storage areas and directing it to the settling basins for treatment, and a statement that addresses all aspects of the day-to-day material transfer operations. The plan shall include contingency measures to be taken if material is released at the dock or other locations en-route to the dewatering site;
 - b. The location of dewatering basins, settling basins and storage areas for all material. The location of any pier or dock proposed for transfer or offloading of material from scows to land and their position relative to the dredge site and the proposed dewatering site;
 - c. All access roads to be utilized by trucks for offloading, transferring or removing dredge material;
 - d. Engineering design specifications demonstrating that the dimensional area and volume of the proposed dewatering, settling and storage basins are sufficient to adequately handle the proposed rate and volume of material disposed. The basins should be shown on scale drawn site plans with cross sectional views of the berms provided;
 - e. The material handling methods (i.e. hydraulic or mechanical) and an estimate of the volume of discharge water expected from the material;
 - f. Details of the berms, overflow weirs, outlet weirs and runoff collection systems;
 - g. Final site contours for the fully developed condition must be provided on the site plans; and

- h. Monitoring shall be conducted to verify that discharges to the receiving waters are consistent with the design of the approved dewatering facility.

This is the State's Water Quality Certification. Violations of the terms and conditions of this Certification may result in a violation of the State's Water Quality Regulations and appropriate enforcement action. All submittals and questions relative to this Certification should be addressed to Ron Gagnon, Office of Customer and Technical Assistance at 401-222-4700 extension 7500.

Sincerely,

Jan H. Reitsma,
Director

cc: Alicia Good, RIDEM
Grover Fugate, CRMC
Vern Lang, USFW
Michael Ludwig, NMFS
David Tomey, USEPA
David Turin, USEPA
Edward O'Donnell, USACOE
Ron Gagnon, RIDEM
Angelo Liberti, RIDEM
Russ Chateauneuf, RIDEM
Mark Gibson, RIDEM
Terry Walsh, RIDEM

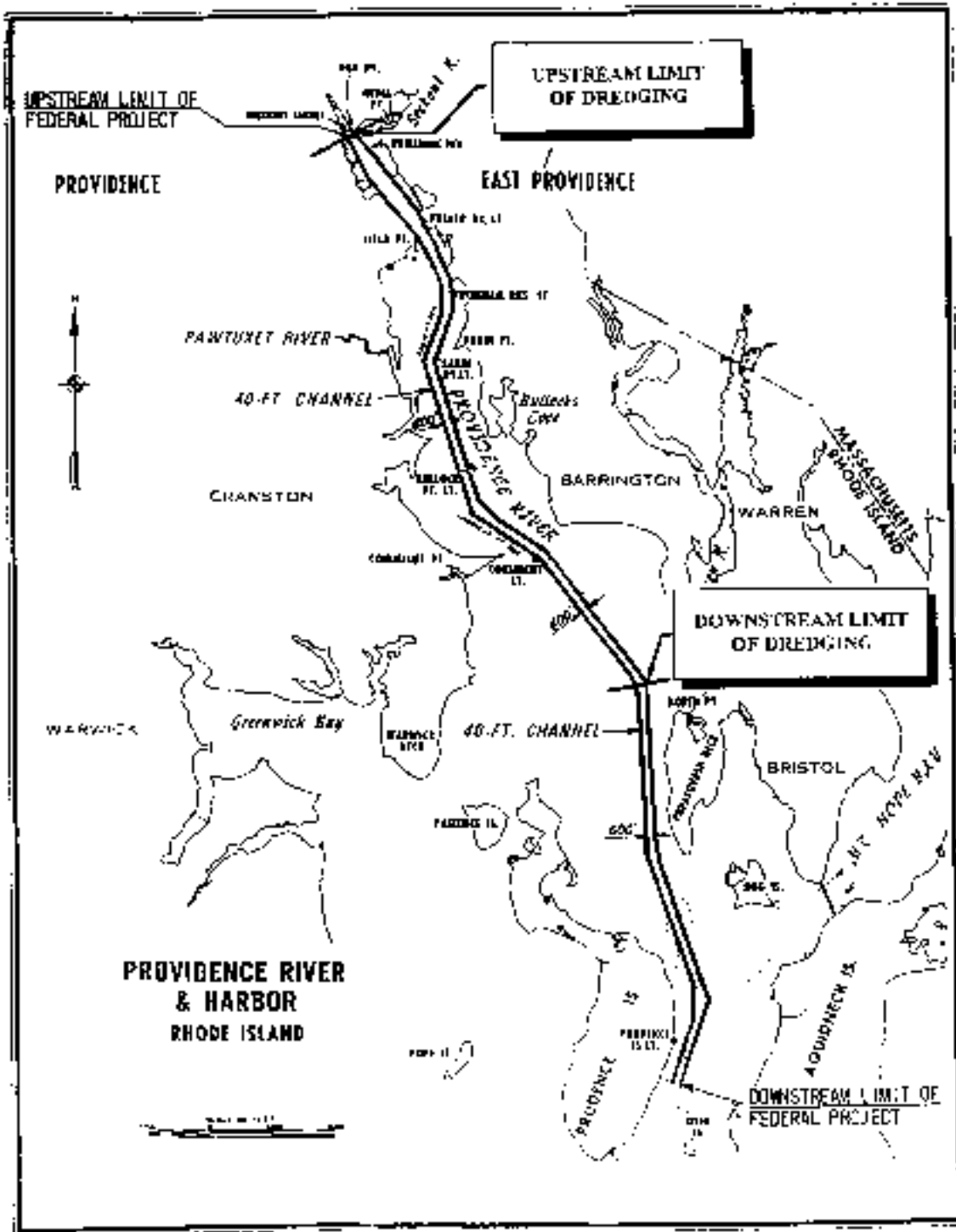


Figure 1: Federal Navigation Project and Dredging Limits

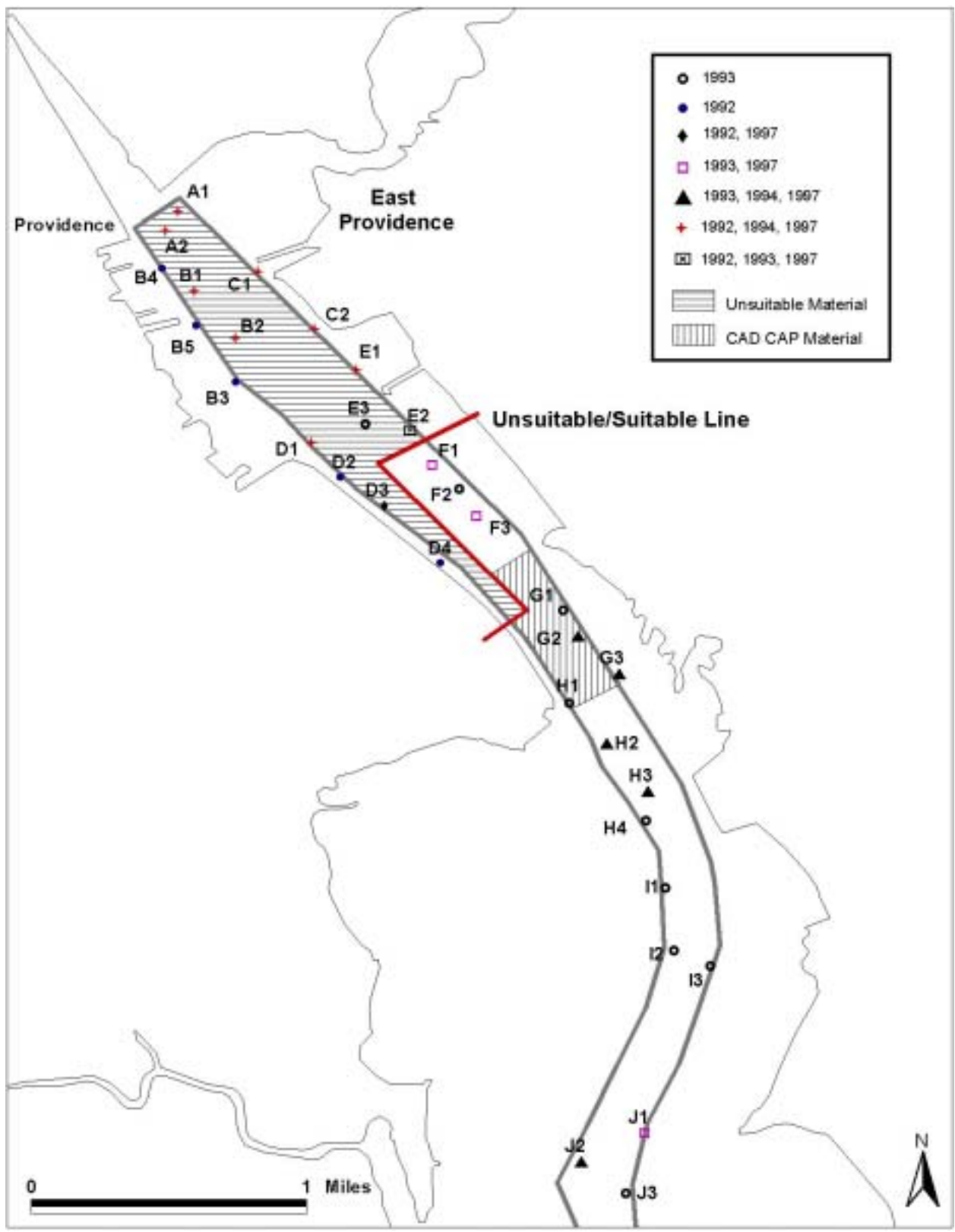


Figure 2: Suitable/Unsuitable Areas of Dredged Material

Appendix A

- Sequencing priorities outlined by the ACOE in the FEIS to be applied to the project for the purpose of minimizing potential impacts to fishery resources:
 - a. Avoid dredging or disposal north of Fields Point (Fox Point and upper Fuller Rock Reaches) from February 1 through April 30 of each year (the period when winter flounder larvae are most abundant in the water column);
 - b. Avoid dredging or disposal between Bullock Point and 3,500 feet south of Conimicut Point from February 1 through March 30 of each year (the winter flounder spawning (egg) period);
 - c. Dredge the Rumstick Neck Reach, which is located in a conditionally open shellfishing area, during the rainy season (March - April of each year);
 - d. Avoid dredging between Sabin Point and Conimicut Point from June 1 through July 14 of each year to avoid quahog-spawning areas during the spawning season;

Additional priorities proposed by the RIDEM for additional consideration:

- e. Avoid dredging between Fields Point through Bullock Point Reach from February to April.
- f. Avoid dredging in Sabin Point Reach through Conimicut Point Reach from June 1 to July 31.