

## NEW DREDGING PROJECTS

Please make sure that answers to all of the questions in this appendix correspond to the information on the application drawings.

### CLASSIFICATION OF CREEK TO BE DREDGED (for projects in the Inland Bays only)

1. How is the creek classified according to the State dredging program's classification system? Is it open to dredging, open to dredging but requiring further study, or restricted due to environmental sensitivity? See example "Classification System" on page S-8 of this application. For further explanation, refer to Section 2.0 of the "Goals and Objectives - Creek Evaluation Dredging Criteria" dated April, 1986.
  - a. **Step One:** If the creek to be dredged is "restricted", an application cannot be accepted.
  - b. **Step Two:** If the creek is "open" to dredging, the applicable parts of this application must be completed.
  - c. **Step Three:** If the creek is "open" to dredging but requiring further analysis, submit information request as part of procedure outlined on page 4 and further explained in Section 2.4 of the Dredging Study.

### 2. SITE LOCATION OF DREDGING PROJECT

- a. Locate the project site with respect to the county, creek, tributary (enclose 8 1/2" x 11" map).

### 3. DESCRIPTION OF DREDGING PROJECT

- a. Describe the proposed project including the equipment to be used, quantity of material to be dredged, extent of the area to be dredged, place and method of disposal, etc. Detail is important.

### 4. PURPOSE OF PROPOSED DREDGING PROJECT

- a. Define the purpose and need of the proposed dredging project. Who will benefit?

- b. Submit color photos of site and bordering upland with explanation of the views shown (prints only).

5. How often will maintenance dredging be required? \_\_\_\_\_

**ENVIRONMENTAL CONSIDERATIONS OF THE DREDGING PROJECT**

A sediment analysis must be performed in accordance with the attached sampling plan.

**6. CHARACTERIZE THE SUBSTRATE TO BE DREDGED**

- a. What is the chemical composition of the material to be dredged? Does the substrate contain more pollutants relative to known clean bay sediments of similar composition? Attach Lab Reports and Analyses
- b. What is the physical composition of the substrate? State percent of sand, gravel, mud, silt. Does it contain shell fragments?

**7. CHARACTERIZE THE UNDERLYING SUBSTRATE TO BE EXPOSED BY THE PROJECT**

- a. Is the underlying substrate (material at proposed dredging depth) of similar physical composition and chemical quality as material to be dredged? \_\_\_\_\_ Yes \_\_\_\_\_ No
- b. Project the expected turbidity levels and area of effect (extent of plume) based on the percent of silt, sand, and gravel in the dredged material.

**8. CHARACTERIZE THE BIOLOGICAL COMMUNITY IN THE AREA TO BE DREDGED**

- a. Characterize how the area is utilized by shellfish and finfish.
- b. What are the major benthic (bottom dwelling) species found at the area to be dredged?
- c. Characterize the subaquatic vegetation and other vegetation at or near the project site.

**9. CHARACTERIZE THE EXISTING WATER QUALITY**

- a. Determine the classification of the stream according to state water quality criteria. Will the dredging project cause violations of the water quality criteria? Will designated water uses be affected?
- b. Determine levels of dissolved oxygen (D.O.) in and around the project area. Measure D.O. at the water/substrate interface during worst case conditions (i.e. summer morning).

**10. IMPACT TO THE BOTTOM CONTOURS OF THE BAY OR CREEK**

- a. What is proposed dredging depth in relation to surrounding bathymetry? Provide map showing surrounding depths.
- b. Will the project change flow or circulation patterns in the bay or creek? Will shoaling patterns be altered?
- c. Describe the impact to sediment transportation along the shoreline and the potential for depriving adjacent shorelines of sediment?

**11. IMPACT TO SURROUNDING LANDS**

- a. What is the proximity of the dredging project to the nearest creek bank or banks? What are the existing land uses along this bank(s)? What is the shoreline composition (wetland, vegetated bank, rip-rap, bulkhead eroding bank)?

12. What measures will be taken during the dredging operation to minimize environmental impact?

**CONSIDERATIONS FOR DISPOSAL OF DREDGED MATERIALS**

13. What are your plans for disposing of dredged material (i.e., upland disposal, wetland creation, island creation, etc.)? What alternatives have you considered?

14. When do you plan to conduct your dredging/disposal operation (approximate dates of operation)?

15. Describe the characteristics and location of the proposed dredged material disposal site? What is the present use of the disposal site? Describe pipeline route if applicable.

**16. CHARACTERISTICS OF THE DREDGED MATERIAL**

- a. Based on sediment analysis required or other known factors, does the material contain any contaminants?
- b. What is the bulking factor of the material (e.g., how much will material increase in volume during dredging and disposal operation based on material composition, material water holding capacity and dredging method)?
- c. What is the settling rate of the dredged material?
- d. What is the mounding ability of the material being disposed of?

## 17. CONSIDERATIONS FOR HABITAT DEVELOPMENT

- a. Does similar habitat already exist in the area proposed for development?
- b. What is the depth of water at mean low water (for water disposal for marsh or island creation)?
- c. What is the salinity of water at the proposed site of development?
- d. What is the salinity of water from which material is being dredged?
- e. Is the composition of the dredged material similar to the substrate at the site of habitat development?
- f. What are the biological characteristics of the site proposed for development? Are there oyster bars, spawning grounds, submerged aquatic vegetation, or other fragile ecosystems which require temporary or permanent protection? These sites should be avoided for habitat development.
- g. What are the wind and current conditions at the site? Do they change seasonally?
- h. Will habitat development interfere with any existing commercial or recreational activities?
- i. Is there enough material to achieve desired elevations? Is the potential site of development large enough to accommodate the dredged material?
- j. Who is the owner of the site proposed for development? Who will maintain the new habitat?
- k. What types of wildlife are to be attracted to the site? Will the food and habitat needs be met?
- l. What measures will be taken to reduce potential environmental impact?

## 18. CONSIDERATIONS FOR UPLAND DISPOSAL

- a. What is the distance from the dredging operation to the proposed site of disposal?
- b. What method of disposal is to be utilized (i.e., pipeline discharge, barge, hopper, etc.)?
- c. Describe the proposed method of containment for the dredged material.
- d. How much acreage is required for the quantity of material being disposed of?
- e. Provide an engineering drawing of the proposed disposal facility.
- f. What measures will be taken to reduce potential environmental impact?
- g. What is estimated life of the dredge spoil disposal site?

19. If required, has an Erosion and Sediment Control Plan been approved by the designated plan approval agency for the project? An Erosion and Sediment Control Plan is required for any project disturbing more than 5,000 square feet of uplands. Final approved plans must be received by this office prior to permit issuance.

Yes  No  Not required

## 20. SAMPLING PLAN FOR NEW DREDGING PROJECTS

### 1. Physical and Chemical Analysis of Sediment

- a. Particle size distribution and percent solids analysis on core samples taken to depth of proposed dredging. Percentage sand, silt and clay should be given based on:  
sand: Greater than or equal to 0.0625mm  
silt: Less than 0.0635mm but greater then 0.0039mm  
clay: Less than 0.0039mm
- b. Bulk sediment analysis (mg/lg) core samples taken to depth of proposed dredging for parameters as determined by the Department.
- c. Elutriate analysis (mg/l) on core samples taken to depth of proposal dredging for parameters as determined by the Department. Dredge site water should be used for the dilution water.
- d. Surface water analysis (mg/l) on one composite sample from the dredging area for parameters as determined by the Department.

### 2. Biological Sampling

- e. Benthic Invertebrate survey based on minimum of three surface grab samples or benthic dredge. Organisms should be identified to genus-level species where possible.
- f. Description of emergent and submerged vegetation in or adjacent to the proposed dredging area.

#### Important Notes:

The number of samples is dependent on size of area to be dredged and suspected pollution level. As a general rule, a minimum of three sampling stations should be established.

If sediment contaminants are shown to exist at levels of concern by the above analyses, a bioassay may be required. Suspected contaminated sediment proposed for upland disposal should be subjected to an EP Toxicity analysis.

Please be advised that all dredging in the Inland Bays must be undertaken between September 1 and December 31 in order to protect summer and winter flounder and other aquatic species. Dredging in other Delaware waters may also be subject to certain time of year restrictions in order to protect fish and wildlife. Contact DNREC for more specific information regarding the restrictions that may apply within your project area.