

Chapter 45
404(b)(1) EVALUATION

MDT ENVIRONMENTAL MANUAL

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Chapter 45

404(b)(1) EVALUATION

45.1 OVERVIEW

The US Environmental Protection Agency (EPA) “Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material” (Guidelines) are set out in 40 CFR 230. The purpose of the 404(b)(1) Guidelines is “to restore and maintain the chemical, physical and biological integrity of waters of the United States through the control of discharges of dredged or fill material.” The Guidelines set forth restrictions on discharge that must be addressed for each proposed discharge of dredged or fill material covered by an individual Section 404 permit. The Guidelines also require specific “factual determinations” regarding a range of factors at the disposal site.

When MDT applies for an Individual 404 permit, the Project Development Engineer (PDE) prepares a 404(b)(1) Alternatives Analysis to provide the US Army Corps of Engineers (COE) the necessary information to determine whether the Guidelines have been followed. The 404(b)(1) Analysis demonstrates to the COE that, among other things, the proposed project is the least environmentally damaging practicable alternative (LEDPA) for achieving the project’s purpose. The Guidelines prohibit discharges:

- where a less environmentally damaging, practicable alternative exists;
- that will result in violations of State or Federal Water Quality Standards or the *Endangered Species Act*;
- that will cause or contribute to significant degradation of water and wetlands; or
- unless all appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

The COE cannot issue a permit unless the project complies with each of these tests. As a result, the 404(b)(1) Alternatives Analysis can be a “show-stopper” to project delivery. Coordination with the COE throughout project development, not just when the permit application is submitted, is critical to ensure the COE agrees that the ultimately proposed project complies with the 404(b)(1) Guidelines. In general, the 404(b)(1) Alternatives Analysis serves as a formal documentation of the dialogue and coordination that has occurred up to the point of the submittal of the application. The amount of information necessary is commensurate with the level of the project’s impacts, with more information required for large and complex projects.

As a matter of practice, MDT and FHWA have agreed that it is generally appropriate and prudent to conduct and document the 404(b)(1) analysis, in accordance with the Guidelines, for any project requiring an Individual 404 permit, regardless of the level of environmental processing. Generally the 404(b)(1) Evaluation is appended to the environmental document.

This Chapter provides guidance and procedures for conducting and documenting the required 404(b)(1) evaluation for applicable projects in accordance with the 404(b)(1) Guidelines.

45.2 LAWS, REGULATIONS AND GUIDANCE

45.2.1 33 USC 1344(b) “Specification for Disposal Sites”

This *United States Code* (USC) Section codifies Section 404(b) of the *Clean Water Act* (CWA). 33 USC 1344(b)(1) (Section 404(b)(1) of the CWA) establishes policy regarding specification of sites for discharges of dredged or fill material under a 404 permit from the COE. The policy states that the disposal sites are to be specified for each permit through the application of guidelines developed by EPA in cooperation with COE.

45.2.2 23 USC 139 “Efficient Environmental Reviews for Project Decision-Making”

For projects involving preparation of an environmental impact statement and for environmental assessments being prepared in accordance with the FHWA “SAFETEA-LU Environmental Review Process Final Guidance,” this part of the USC requires that, at appropriate times during the study process, the lead agency or agencies for the project collaborate with agencies serving as participating agencies to determine the methodologies to be used and the level of detail required for assessing project effects, including those associated with a 404(b)(1) evaluation, when applicable. See [Chapters 11 “Preparing Environmental Documentation,” 13 “Environmental Assessment/FONSI”](#) and [14 “Environmental Impact Statement/ROD”](#) for further guidance on this requirement.

45.2.3 40 CFR 230 “Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material”

45.2.3.1 Content

This Part of the *Code of Federal Regulations* (CFR) contains the Guidelines developed by EPA, in cooperation with COE, for implementing Section 404(b)(1) of the CWA. The Subparts of the Guidelines address the following topics:

- general,
- compliance with the guidelines,
- potential impacts on physical and chemical characteristics of the aquatic ecosystem,
- potential impacts on biological characteristics of the aquatic ecosystem,
- potential impacts on special aquatic sites,
- potential effects on human use characteristics,
- evaluation and testing,
- actions to minimize adverse effects,
- planning to shorten permit processing time, and
- compensatory mitigation for losses of aquatic resources.

45.2.3.2 Restrictions on Discharge

The Subpart on “Compliance with the Guidelines” addresses restrictions on discharge. The restrictions indicate that a discharge of dredged or fill material is not permitted if any of the following circumstances apply:

- There is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences.
- The discharge:
 - + causes or contributes to violations of any applicable State water quality standard;
 - + violates any applicable toxic effluent standard or prohibition; or
 - + jeopardizes the continued existence of species listed as endangered or threatened under the *Endangered Species Act*, or results in likelihood of the destruction or adverse modification of designated critical habitat.
- The discharge will cause or contribute to significant degradation of waters of the United States. Effects contributing to significant degradation considered individually or cumulatively include significantly adverse effects of the discharge of pollutants on:
 - + human health and welfare, including, but not limited to, effects on municipal water supplies, plankton, fish, shellfish, wildlife and special aquatic sites;
 - + life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration and spread of pollutants or their byproducts outside of the disposal site through biological, physical and chemical processes;
 - + aquatic ecosystem diversity, productivity and stability. These effects may include loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water or reduce wave energy; or
 - + recreational, aesthetic and economic values.

In addition, the restrictions indicate that no discharge of dredged or fill material is permitted unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

45.2.3.3 Factual Determinations

The Subpart on “Compliance with the Guidelines” also requires specific “factual determinations” regarding the following factors at the disposal site:

- effect of the proposed discharge on the physical substrate;
- effect on water circulation, fluctuation and salinity;
- effect on suspended particulate/turbidity;
- effect on introduction, relocation or increase of contaminants;
- effect on the aquatic ecosystem and organisms;
- acceptability of the proposed mixing zone for the disposal site;
- cumulative effects on the aquatic ecosystem; and
- secondary effects on the aquatic ecosystem.

Based on the required factual determinations and the identified restrictions on discharge, the proposed disposal sites for the discharge of dredged or fill material must be specified as:

- complying with the requirements of the Guidelines;
- complying with the requirements of the Guidelines with the inclusion of appropriate and practicable discharge conditions to minimize pollution or adverse effects to the affected aquatic ecosystems; or
- failing to comply with the requirements of the Guidelines.

45.3 PROCEDURES

45.3.1 Information Gathering

The Preliminary Field Review (PFR) is the initial step in the 404(b)(1) evaluation process for a proposed project. The Design Team (DT) notifies and invites appropriate MDT personnel, including the PDE, within the MDT Environmental Services Bureau (ESB), to the field review. The PDE reviews the list of ESB attendees and includes others as necessary to ensure appropriate ESB personnel are in attendance. The PDE participates in the PFR to make a preliminary evaluation of available information on the project scope and potential for discharges of dredged or fill material into waters of the United States that could require a 404(b)(1) evaluation. Following the field review, the DT prepares a PFR Report summarizing the issues discussed during the PFR, including 404(b)(1) evaluation issues. The DT distributes the final PFR Report for review and comment. Within ESB, the PDE serves as the document champion to collect and coordinate comments from the other Sections. The PDE compiles the comments into a PFR review memorandum for signature by the Environmental Services Bureau Chief.

After the PFR and receipt of the PFR Report, the PDE conducts the following:

1. Coordination. The PDE coordinates with resource and regulatory agencies and reviews available environmental databases and resource maps to gather additional information in the project area. The PDE also coordinates with staff in the ESB Resources Section to confirm that all wetlands have been delineated.
2. Permit Determination. Based on the environmental resource information gathered and the proposed project scope, the PDE makes a preliminary determination of whether the proposed action will require a 404 permit. When the PDE determines the proposed action is not specifically exempted and will involve discharge of dredged or fill material into waters of the United States, the PDE makes a preliminary determination of whether an Individual or a Nationwide 404 permit applies.

If the PDE determines an Individual 404 permit applies, the PDE initiates additional information gathering for conducting a 404(b)(1) evaluation. See 40 CFR 230.5 "General Procedures to Be Followed."

3. Determination of Methodologies and Level of Detail. For projects subject to the requirements of 23 USC 139 "Efficient Environmental Reviews for Project Decision-Making," the PDE, in cooperation with FHWA, collaborates with participating agencies in determining the appropriate methodologies to be used and the level of detail required in completing the 404(b)(1) evaluation.
4. Evaluation of Alternatives. The PDE coordinates with the DT to examine practicable alternatives to the proposed discharge(s) requiring the 404(b)(1) evaluation (e.g., not discharging into waters of the United States or discharging into an alternative aquatic site with potentially less damaging consequences). Documentation of this evaluation of alternatives is particularly important in providing the COE enough information to conclude whether or not an alternative is practicable. If MDT concludes an alternative is not practicable and decides to eliminate it from further evaluation, the PDE should consult with the COE to ensure they agree with the practicability determination.

5. Assessment of Existing Conditions. The PDE then coordinates with the ESB Resources Section and DT to obtain information on existing conditions at the candidate disposal site(s), including the following:
- a. Mixing Zone. This factor comprises the characteristics of the proposed “mixing zone,” including water depth, current velocity, direction and variability, degree of turbulence and stratification attributable to obstructions, salinity, density profiles or other conditions at the site. The Guidelines define “mixing zone” as a limited volume of water serving as a zone of initial dilution in the immediate vicinity of a discharge point where receiving water quality may not meet quality standards or other requirements otherwise applicable to the receiving water.
 - b. Physical and Chemical Components. This aspect comprises the various physical and chemical components that characterize the non-living environment of the candidate disposal site, the substrate and the water, including its dynamic characteristics (e.g., current patterns and water circulation, normal water fluctuations).
 - c. Special or Critical Characteristics. This topic includes any special or critical characteristics of the candidate disposal site and surrounding areas that might be affected, related to living communities or human uses. Examples include the following:
 - threatened and endangered species;
 - aquatic organisms in the food web;
 - other wildlife associated with aquatic ecosystems;
 - sanctuaries and refuges;
 - wetlands;
 - mud flats;
 - vegetated shallows;
 - riffle and pool complexes;
 - municipal and private water supplies;
 - recreational and commercial fisheries;
 - water-related recreation;
 - aesthetics; and
 - parks, national and historical monuments, wilderness areas, research sites and similar preserves.
6. Evaluation of Discharge Material. The PDE coordinates with the DT to obtain information on the material to be discharged, for purposes of evaluation to determine the possibility of chemical contamination or physical incompatibility. The PDE applies the guidance in 40 CFR 230.60 “General Evaluation of Dredged or Fill Material” in conducting this assessment. If the general evaluation indicates there is a reasonable probability of chemical contamination, the PDE initiates action to have tests performed on the material, in accordance with the guidance in 40 CFR 230.61 “Chemical, Biological and Physical Evaluation and Testing.”
7. Sufficiency of Information. The PDE reviews the information gathered to determine if it is sufficient to provide the necessary documentation on the proposed disposal site to

satisfy the requirements of 40 CFR 230.11 “Factual Determinations.” If additional information is needed to address the factual determinations, the PDE initiates further research, coordination and analysis, as necessary, to obtain the needed information. When the PDE determines the information is sufficient to support the required factual determinations, the PDE ends information gathering and initiates analyses for determining compliance or non-compliance with the provisions of 40 CFR 230.10 “Restrictions on Discharge.”

45.3.2 Analysis and Findings

45.3.2.1 Analysis

The PDE coordinates with the DT to identify appropriate and practicable changes to the project to minimize environmental impacts of the proposed discharge based upon the specialized methods of minimization of impacts discussed in 40 CFR 230.70 through 230.77 “Actions To Minimize Adverse Effects.” These methods address the following topics:

- actions concerning the location of the discharge,
- actions concerning the material to be discharged,
- actions controlling the material after discharge,
- actions affecting the method of dispersion,
- actions related to technology,
- actions affecting plant and animal populations,
- actions affecting human use, and
- other actions.

45.3.2.2 Findings

After appropriate and practicable changes have been incorporated in the project to minimize impacts of the proposed discharge to the extent practical, the PDE makes and documents the factual determinations for each of the topics discussed in 40 CFR 230.11. The PDE then compares the factual determinations with the restrictions on discharge discussed in 40 CFR 230.10 to determine compliance or non-compliance with the restrictions on discharge. If the evaluation results in a finding of non-compliance, the PDE coordinates with the DT to analyze options for modifying the project and/or incorporating compensatory mitigation as discussed in 40 CFR 230.91 through 230.98, as necessary to achieve compliance with the restrictions on discharge.

45.3.2.3 404(b)(1) Evaluation Format

Upon determining the proposed discharge complies with the restrictions on discharge, the PDE documents the basis for the finding, using the following format:

1. Introduction. Provide a brief discussion of the 404(b)(1) Guideline requirements including the following:
 - the basis for the requirements,

- the four conditions that must be satisfied to make a finding of compliance with the Guidelines,
 - the need for avoiding impacts to the maximum extent practicable and mitigating unavoidable impacts to the extent appropriate and practical, and
 - reference to the factual determinations to be considered in determining compliance and an indication that the factual determinations are contained in the evaluation.
2. Project Description. Provide a description of the project. Include the following:
- location (e.g., route, city, county);
 - general description of the project, including information on the project background and alternatives;
 - authority and purpose;
 - general description of the dredged or fill material, including information on the general characteristics of the material, quantity of material and source of material;
 - description of the proposed discharge sites, including:
 - + location of sites,
 - + size of sites,
 - + type of sites,
 - + types of wetland habitats, and
 - + timing and duration of discharge; and
 - description of disposal method (e.g., for roadway widening, bridge and culvert construction).
3. Factual Determinations. Provide information to address each of the required factual determinations, including the following:
- a. Physical Substrate Determinations. This should address:
- substrate elevation and slope;
 - comparison of fill material and substrate at discharge site;
 - dredged/fill material;
 - physical effects on benthos, invertebrates and vertebrates;
 - erosion and accretion patterns; and
 - actions taken to avoid and minimize impacts.
- b. Water Circulation, Fluctuation and Salinity Determinations. This should address:

- water (i.e., effects on water parameters including salinity, water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients, eutrophication);
 - current patterns and circulation;
 - normal water level fluctuations;
 - salinity gradients; and
 - actions taken to avoid and minimize impacts.
- c. Suspended Particulate/Turbidity Determinations. This should address:
- expected changes in suspended particulate and turbidity levels in the vicinity of the disposal sites,
 - effects on chemical and physical properties of the water column,
 - effects on biota, and
 - actions taken to avoid and minimize impacts.
- d. Aquatic Ecosystem and Organism Determinations. This should address:
- effects on special aquatic sites,
 - effects on threatened and endangered species and their habitats,
 - effects on other animals,
 - effects on terrestrial plants,
 - actions taken to avoid and minimize impacts,
 - compensatory actions taken to minimize impacts, and
 - monitoring of mitigation actions.
- e. Potential Effects on Human Use Characteristics. Describe the potential effects on human use characteristics (e.g., municipal water supply).
- f. Determination of Cumulative Effects on the Aquatic Ecosystems. Describe the cumulative effects of the discharge on the aquatic ecosystems.
- g. Determination of Secondary Effects on the Aquatic Ecosystems. Describe any secondary effects of the discharge on the aquatic ecosystems.
4. Findings of Compliance. As applicable, address the following:
- adaptation of the 404(b)(1) Guidelines to this evaluation;
 - evaluation of availability of practicable alternatives to the proposed discharge sites that would have less adverse impact on the aquatic ecosystem (e.g., no-build alternative, other build alternatives);
 - compliance with applicable State water quality standards;
 - compliance with applicable toxic effluent standards or prohibition under Section 307 of the CWA;
 - compliance with the *Endangered Species Act* of 1973, as amended;

- compliance with specific measures for marine sanctuaries designated by the *Marine Protection, Research and Sanctuaries Act of 1972*;
- evaluation of extent of degradation of the waters of the United States;
- appropriate and practicable steps taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem; and
- conclusions regarding compliance.

When applicable, the PDE ensures information on the results of the 404(b)(1) evaluation is incorporated into the environmental document for the project (see [Chapters 11 “Preparing Environmental Documentation,” 13 “Environmental Assessment/FONSI” and 14 “Environmental Impact Statement/ROD”](#)).

45.3.3 Mitigation and Commitments

The PDE accomplishes the following actions:

1. Design. The PDE coordinates with the DT to ensure measures for avoiding, minimizing, and/or mitigating potential adverse effects of the proposed discharge(s) are incorporated in the project plans.
2. Special Provisions. Once the Individual 404 Permit is received from the COE, the PDE prepares a special provision for inclusion in the contract document. That special provision, entitled "Clean Water Act Section 404 Permit and Section 401 Certification," reiterates verbatim those activities permitted under the 404 permit and any special conditions imposed by the COE in the permit.
3. Final Plan Review. The PDE coordinates with the DT to review the final project plans to ensure that measures for avoidance, minimization and mitigation of adverse impacts have been incorporated and are accurately reflected. The PDE coordinates as necessary with the DT and the MDT Contract Plans Bureau to implement any needed changes.
4. Construction. The PDE coordinates with Construction personnel and the District Environmental Engineering Specialist to ensure the special provisions and design elements concerning discharge of dredged and fill material impacts and associated impact avoidance, minimization and mitigation measures are implemented during project construction.