

DEPARTMENT OF THE ARMY  
Corps of Engineers, Northwestern Division  
P.O. Box 2870  
Portland, Oregon 97208-2870

CENWD-MT-E  
REGULATION  
No. 1110-2-5

30 April 2004

Engineering and Design  
LAND DEVELOPMENT GUIDANCE AT CORPS RESERVOIR PROJECTS

**History.** This issue is a new Northwestern Division regulation.

**Summary.** This regulation establishes Northwestern Division (NWD) guidance for evaluating and documenting land development proposals within reservoir lands of the United States Army Corps of Engineers (Corps) for which one authorized purpose of the reservoir is flood control. These requirements apply to projects with authorized flood storage allocations. In cases where NWD has constructed levees in lieu of purchasing Real Estate, this guidance applies to development proposals along the riverward side of the levees.

1. PURPOSE. Land development proposals are those by companies, organizations, private parties, governments, agencies, or any other entities to construct buildings, roads, or other facilities or to modify in any other way the landforms, vegetation, surface characteristics, or use of lands within reservoir lands operated by the Corps for flood control. The Corps has responsibility to assure that the authorized project purposes are not compromised, that the public is not endangered, and that natural and cultural resources associated with project lands are not harmed, in accordance with applicable Federal and State regulations. The criteria and procedures for evaluation of development proposals in this regulation are to assist in meeting these responsibilities and complying with applicable laws and directives. Existing structures are exempted from this policy. However, significant modifications and/or replacement of existing structures are subject to this policy.
2. APPLICABILITY. This regulation is applicable to all NWD Districts within this command.
3. REFERENCES.
  - a. EO 11988, Floodplain Management, 42 F.R. 26951, 24 May 1977.
  - b. Further Advice on Executive Order 11988 Flood Plain Management, 1987
  - c. ER 200-2-2, Procedures for Implementing NEPA, 4 March 1988.
  - d. ER 405-1-12, Real Estate Handbook, 20 November 1985.
  - e. ER 1110-2-240, Water Control Management, 8 October 1982.

- f. ER 1130-2-530, Flood Control Operations and Maintenance Policies, 30 October 1996.
- g. ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 15 November 1996.
- h. ER 1130-2-550, Recreation Operations and Maintenance Policies, 15 November 1996.
- i. ER 1165-2-26, Implementation of Executive Order 11988 on Floodplain Management, 30 March 1984.
- j. EP 1165-2-314, Flood Proofing Regulations, 31 March 1992.
- k. Policy Guidance Letter No. 32, Use of Corps Reservoir Flowage Easement Lands; 28 April 1993.  
[http://www.usace.army.mil/inet/functions/cw/cecwp/branches/guidance\\_dev/pgls/pgl32.htm](http://www.usace.army.mil/inet/functions/cw/cecwp/branches/guidance_dev/pgls/pgl32.htm)
- l. FEMA 64, Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners, October 1998.

4. DELEGATION OF RESPONSIBILITIES. The water control authorities and responsibilities of all commands are executed through each District's Water Control Section. District Commanders will:

- a. Establish and execute the reservoir operations program in accordance with current policies;
- b. Establish and maintain liaison with District personnel in Water Control, Engineering, Operations, Regulatory, and Real Estate entities relative to the reservoir land use development;
- c. Conduct an internal review of the proposed development based on the guidance and checklists included in this policy's appendices. When modifications to the proposed development is required by the guidance and the checklists, when the reviewer needs interpretation or clarification, and/or when a development not meeting the checklist requirements has been requested for approval, the proposal will be reviewed by all pertinent offices within the District, including Engineering (including Flood Plain Management, Hydrologic and Geotechnical), Operations, Planning (Cultural Resources), Office of Counsel, and Real Estate, as needed; and
- d. Approve or disapprove development proposals and retain the evaluation package on which the decision was based.

5. FACTORS TO BE CONSIDERED FOR DEVELOPMENTS ON NWD RESERVOIRS. Numerous factors should be considered in the evaluation of land development proposals.

a. Real Estate Requirements. Proposed developments need to be evaluated to ensure they do not conflict with the terms of real estate interests held for the project or constrain future operational flexibility of the project. Provisions to be put into new real estate outgrant instruments should include recognition of the fact that the water control plan is expected to change in the future and that flood storage releases are based on the most current water control plan. A decision to limit developments on project lands must be consistent with the underlying provisions of the applicable real estate interest held by the Government or the project sponsors. For example, flowage easements held by the Corps prohibit human habitation structures. Before making a final determination on the proposed development, the Real Estate Office should be consulted.

b. Reservoir Storage.

(1) Developments that occur within an NWD reservoir (i.e. on either lands held in fee or on lands in which USACE or local sponsors may have real estate interests such as flowage, groundwater, or erosion easements) will not be allowed to reduce the reservoir's project storage space. This requirement includes the space for the Probable Maximum Flood (PMF). The primary consideration in approving excavations or landfill placements is the preservation of reservoir storage capacity". "Project storage capacity" is herein defined to include all hydrologic and hydraulic storage needs of the project, and encompasses the volume for the entire project (e.g. flood control, sedimentation, hydropower, recreation, irrigation, navigation, fish and wildlife, and water supply).

(2) Most developments require cut and fill operations that change the original topography of the flood control reservoir lands. Even if there is a balance of cut and fill, there may be an adverse effect on flooding frequency within the reservoir lands due to the change in the area-capacity curve. The cut and fill operations must not cause any property to be flooded more frequently than before the development was in place. This can be done by ensuring that for every elevation on the modified area-capacity curve, an equal or larger reservoir volume would be created by the development. For example, for any "fill" volume, an equal or greater volume of "cut" must be removed at an elevation equal to or below the fill elevation but above the conservation pool elevation. The overall intent of cut and fill balancing is to ensure long term flood storage will not be adversely impacted. Cut and fill activities may impact buried cultural resource sites. Districts are responsible to ensure that sites selected for cuts and/or fills are evaluated for operational, cultural resources, and other impacts. **Deviations from this policy will be made on a case by case basis showing the overall integrity of the flood storage has not been compromised and impact on the PMF routing, or other flood, is negligible.** Deviations will consider cumulative impacts and be examined jointly by Operations and Engineering Divisions. Impoundment areas such as lakes or spreading basins should be evaluated as "fill" if they are not designed to release their water from the impoundment structure (i.e. gravity flow, pumping or recharge) prior to a flood.

(3) Cumulative degradation of project storage through land development that does not mitigate for this lost volume has a detrimental effect on the hydrologic design and operation of the project. Therefore, proposals for excavation and grading of the flowage easement that result in loss of project storage will not be approved unless substitute flood storage is provided. Also, the boundaries of Corps held flowage easements that are based on contour elevations should not be changed by significant cut and fill operations.

(4) Normally, to account for losses in volumetric space caused by vertical development, the best engineer practices would require developers to balance cut and fill up to the elevation of the Maximum Reservoir Level (MRL). Unfortunately, from the point of volumetric calculations and legal control, real estate rights are not generally acquired for land between the elevation of the guide acquisition line (or take line) and the elevation of the top of the dam. Clearly, for land developments beyond our acquisition line we have no legal authority to regulate incursions in the vertical space that would otherwise be available for floodwaters in a design flood event. This acquisition policy represents an attempt to balance hydrologic design requirements and legal realities of real estate acquisition.

(5) When reviewing proposed developments that would be at least partially sited on project-owned lands, best engineering practices should be taken into account in considering any adverse impacts to dam safety during a design flood. In such instances, when the proposed development would interfere with the purpose for which the project easement or fee interest was acquired, the Government has the authority to require volumetric mitigation for that portion of the development proposal over which the Corps has real estate rights, to the top of the MRL (see Appendix A, Figure 1).

(6) The Government has no jurisdiction for vertical space on land over which no real estate interests exist. However, as stewards of the project, the Corps can advise the developer to mitigate for that volumetric area that is removed from the project storage space above the project acquisition line by the proposed development.

c. Flood Damage to Property. In general, where development along a reservoir occurs, the structures, roads, etc. will be susceptible to flooding ranging from frequent to very infrequent depending on the location relative to the reservoir elevation. Criteria for NWD Reservoir Land Use Projects is presented as Appendix B. Use of this appendix will provide consistent criteria for Corps staff upon which to base their land use decisions. The acceptable land uses in Appendix B reflect the Congressionally authorized responsibility of the Corps to provide leadership to reduce flood losses, to minimize the impact of floods on human safety, health and welfare, and to restore and to preserve the natural and beneficial values served by flood plains, and to support the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA). Acceptable land uses also reflect the intent to preserve the authorized purpose of flood control for which the Corps originally acquired real estate interests both in fee and in easement within the reservoir while at the same time allow for development related to other authorized purposes.

d. Flood Damage to the Reservoir

(1) Floatables. If the development has storage tanks, boats, vehicles, sheds, buildings, etc. that could float during a flood, each item must be adequately anchored to prevent it from becoming dislodged due to buoyancy and/or swift currents. A floating object could get drawn into the intake structure (act as a plug) and potentially cause loss of control of the project. Floating objects could get swept over the spillway, creating the potential for serious damage to structures or property downstream.

(2) Release of Hazardous Materials. If a development uses and/or stores hazardous materials, leakage or accidental discharge into the flood waters could lead to environmental problems, both within and downstream of the project. Operational constraints during this event could include a need to hold contaminated floodwaters until they can be treated and/or recovered. This could create a dangerous situation in which scheduled releases cannot be made. This additional operational constraint would narrow the range of options for water control decisions. It may be necessary to evaluate risk of releases, and where necessary, take corrective actions.

(3) Debris Build-up and Cleanup within the Flood Control Reservoir. Some development proposals are large enough to affect the natural flow of sediment into the reservoir. This could cause a large quantity of sediment and/or debris to deposit in the reservoir where it had not been anticipated. If debris impinges on inflow channels or conveyance areas into the reservoir, the problem could cause additional flooding. Also, the designs of the outlet works, spillway and embankment are based on the net area-capacity curve, which is developed based on the anticipated sediment distribution. Extreme changes in sediment distribution may affect the operation of the project as designed. Additionally, the build-up of debris or sediment in an area that used to be free flowing could lead to redirection of flows that produce detrimental erosive forces. If the redirected flows were to impinge upon the dam embankment, the safety of the dam could be compromised. Cleanup of the development could be very costly. Therefore, flow paths must be examined to avoid these problems.

e. Existing and Planned Project Uses. Many projects have Master Plans that guide the use of resources and the proper use of project lands. All development proposals should be reviewed for compliance with the Master Plan, and Appendix B, Criteria for Northwestern Division Reservoir Land Use Projects, to assure that the proposed development will not conflict with existing or planned uses.

f. Induced Constraints to System Flexibility. The proposed development must not adversely affect the system operations. Reservoir projects need operational flexibility in order to deal with forecast errors, operational inefficiencies, and delays in meeting operational objectives, emergencies, and unique situations. Flexibility is needed to allow the water control manager to adapt the water control plan to special circumstances that may arise in the river system. If a rising pool level in the reservoir were to approach a development where damages could result,

the water control manager must not be placed under pressure to release flood waters that otherwise may have been held back to prevent further flooding of the downstream area. In most cases, the primary purpose of the project is to provide flood protection for these downstream areas. Real-time flexibility gives the water control manager the ability to make modifications to the water control plan, and, if necessary, to make best use of the reservoir and the overall reservoir system.

g. Constraints to Future System Flexibility. Water control managers must also deal with future changes in the watershed (physiography and development), new hydrologic data and technology, operational experience, changed downstream conditions (e.g. increased/decreased channel capacity), and changing emphases for environmental concerns, water quality, water conservation, recreation, etc. Many Corps reservoir projects are no longer able to provide the degree of protection for which they were originally designed, due to one or more of the above reasons. Re-regulation studies are undertaken to try to optimize the operational objective function, i.e., to determine how the project can best be operated to maximize the authorized public benefits. **Developments on project lands that may appear to be acceptable under present conditions may not be acceptable when considering future needs for operational flexibility.** The future flexibility of the project and the entire river system to meet authorized purposes should not be compromised by inappropriate reservoir land uses.

h. Public Safety Problem. Some development proposals result in an increase in the number of people along the reservoir. The size of a proposed development should be evaluated. Facilities that can hold a large number of people may be denied for safety reasons. Examples of large facilities that will **not be allowed** in Corps reservoir fee or flowage easement areas are hospitals, schools, libraries, residential developments, museums, theaters, shopping centers and amusement parks. Developments which are occupied at least intermittently by people must have an evacuation plan in case of a flood, to maximize public safety and limit liability that could be attributed to the Corps.

i. Environmental Stewardship. Environmental ramifications of any proposed development must be fully explored and all requirements for assessing, coordinating, and reporting possible impacts must be followed. Some of the basic responsibilities for environmental stewardship at Corps-operated reservoirs are described in reference 3g, though there are numerous other pertinent directives dealing with requirements relating to the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Fish and Wildlife Coordination Act (FWCA), the Clean Water Act (CWA), the Clean Air Act (CAA), the National Historic Preservation Act, (NHPA) the Native American Graves Protection and Repatriation Act (NAGPRA), the Archeological Resources Protection Act (ARPA) etc. Additionally, development proposals should not increase the risk of non-native species encroachment. Any land development proposal should be coordinated as soon as possible with the Operations, Regulatory, and Planning elements so that the necessary steps to gather information and to deal

with environmental requirements and procedures can be planned out, as some of these might be expensive and time consuming.

j. Flood Hazard Mapping and the National Flood Insurance Program (NFIP) Recommendations. It is recommended that Corps reservoirs be mapped to illustrate flood hazards in support of the National Flood Insurance Program (NFIP). This hazard will be identified in terms of the 10%, 2%, 1% and 0.2% annual flood pool elevation, incorporated with wind/wave analysis where appropriate, and the resultant flood boundary. This information can be provided to the Federal Emergency Management Agency (FEMA) for incorporation into the FEMA Flood Insurance Rate Map (FIRM). The flood insurance rate maps will be used to indicate what flood zone the proposed development will be located in. The "zone" information can be obtained from local planning and zoning offices at the city, county, state or federal level. This information will be used by developers to obtain flood insurance which is commensurate with the flood hazard.

## 6. EMERGENCY PLANNING.

a. Evacuation Plan. The agreement that allows development should state that it is the sole responsibility of the developer owner and/or operator to evacuate an area that people occupy at least on an intermittent basis (campgrounds, cabins, etc.). The agreement should further state that: "Prior to commencement of construction, the developer will produce and finalize an evacuation contingency plan." This will ensure that a procedure has been worked out beforehand the development is built. The plan shall not require review approval from the Corps, but will be provided in its entirety prior to commencing construction. Its contents should include standard operating procedures for the following:

- regular patrols of the area (if where they are warranted );
- warning systems and their triggering mechanisms, thresholds, and minimum warning times;
- mobilization of equipment and manpower for evacuation of humans, animals and/or records, potentially hazardous materials, utilities, and equipment;
- emergency notifications (phone numbers and personnel lists);
- access roads and escape routes; and
- clean-up and repair.

For all projects where monitoring of lake levels exists, the District would will attempt to make notifications to notify affected interests when it is determined that a flood could occur.

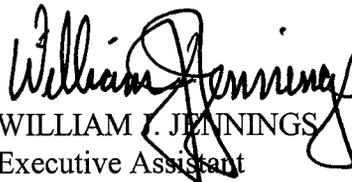
b. **Emergency Contingency Plan.** An Emergency Contingency Plan should be developed for any development on a flood control project that is subject to hazardous conditions and damages from a flood event. A thorough technical analysis by the developers will require them to consider what emergencies could arise on a flood control project and determine what contingency measures are required to deal with those emergencies. Such things as the removal and temporary storage of equipment and hazardous materials, the securing of non-removable items such as a building or marina, and the clean-up and repair of the area and any permanent structures on it should be included in the plan. The agreement that allows development should state that it is the sole responsibility of the owner and/or operator of the operational facility to remove all removable items from the area and to shut off any and all utilities. The contingency plan should also note the exact location of utility shut-off switches or valves for electricity, gas, water, and sewage.

7. **REPORTING.** The evaluation of any land development within a flood control reservoir must be well documented. The report must explain what factors were evaluated and what the results of the evaluations were. The level of detail appropriate in the documentation will vary depending on the specifics of the proposal, but must be sufficient to explain and support the recommendation and decision. The completed evaluation package, including the proposal and environmental documentation, is to be recorded by the District after approval or denial by the District Commander. A checklist of minimum requirements for a report is outlined in Appendix C, Evaluation Criteria Checklist for Land Development Proposals.

FOR THE COMMANDER:

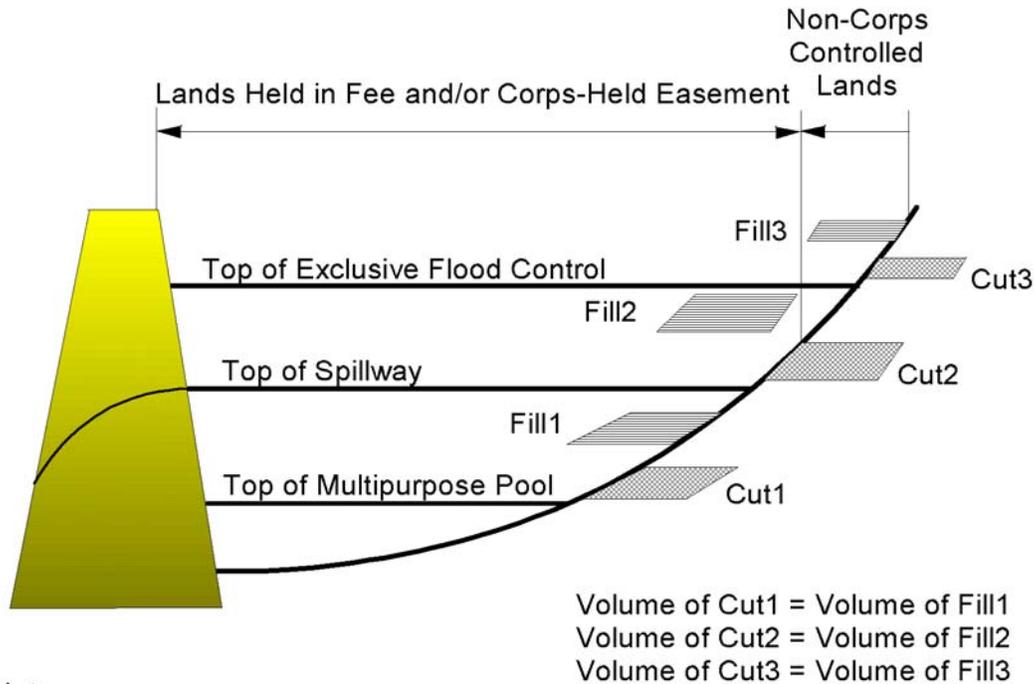
3 Appendices  
App A – Typical Cut and Fill  
    Volumes for Land Development  
    Proposals

App B - Criteria for Northwestern Division Reservoir Land Development Proposals  
App C - Evaluation Criteria Checklist for Land Development Proposals

  
WILLIAM J. JENNINGS  
Executive Assistant

DISTRIBUTION:  
HQNWD – Directorates and Office Chiefs  
NWD Districts – Chiefs, Division and Staff Offices

Appendix A - Figure 1. Typical Cut and Fill Volumes for Land Development



Notes

**For projects entirely on Corps-controlled lands:**

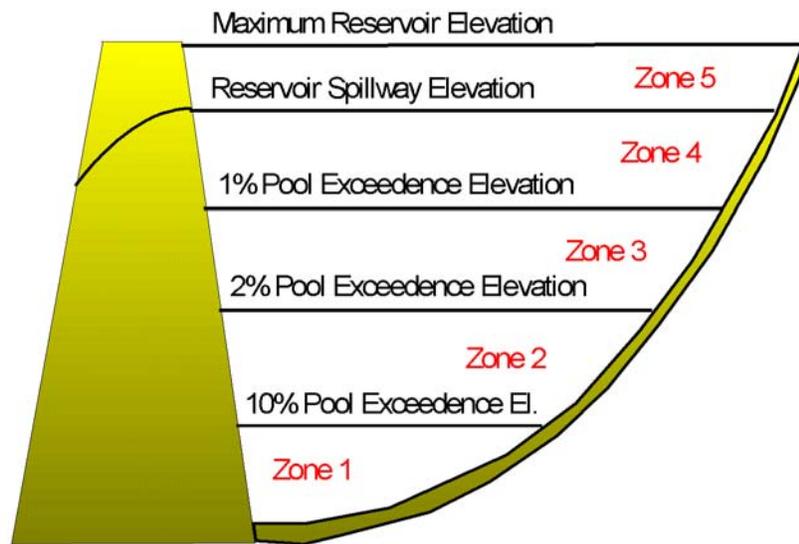
1. Whenever possible, the elevation of excavated material is always at or below the added fill.
2. Fill1 and Fill2 represent the volume of fill added to the reservoir over Corps-controlled lands due to new development.
3. Cut1 and Cut2 represent the volume of material removed from the reservoir to mitigate for Fill1 and Fill2.

**For projects that straddle Corps and non-Corps controlled lands:**

4. Fill3 represents the volume of fill added to the reservoir over non-Corps lands due to new development.
5. Cut3 represents the volume of material that the developer should be encouraged to remove from reservoir lands to mitigate for Fill3.

## Appendix B

### Criteria for Northwestern Division Reservoir Land Development Proposals



Location	Zone	Frequency Range	Development Constraints	Acceptable Land Uses
Reservoir	1	Up to the 10 % exceedence pool	Subject to frequent flooding, prolonged inundation, sedimentation, and wave erosion. Flood insurance is required for all insurable structures in Zones 1-5.	Structures are not allowed. Recreation and/or nature trails and open recreational fields are acceptable. Generally, camping facilities, primitive or modern, are prohibited. Camping facilities can be considered on a case-by-case basis. An evacuation plan is required for all recreational activities located in Zones 1-5.
	2	10% exceedence pool to the 2 % exceedence pool	Subject to frequent flooding, periods of inundation, sedimentation, and wave erosion. Flood insurance is required for all insurable structures in Zones 1-5.	Larger structures are generally prohibited. All land uses considered acceptable in Zone 1. In addition, open floodable, wet flood-proofed structures and field facilities that are functionally dependent on close proximity to water are allowed. Portable concession stands, trails, shade and picnic shelters, backstops, goalposts, fishing piers, etc. are examples considered acceptable. Camping facilities can be considered on a case-by-case basis. All structures and field facilities must be related to authorized project purposes. An evacuation plan is required for all recreational activities located in Zones 1-5.

Appendix B  
 NWDR 1110-2-5  
 30 April 2004

Location	Zone	Frequency Range	Development Constraints	Acceptable Land Uses
	3	from the 2% exceedence pool to the 1% exceedence pool	Subject to periodic flooding, sedimentation, and wave erosion. Flood insurance is required for all insurable structures in Zones 1-5.	All land uses considered acceptable in Zone 2. In addition, closed floodable, wet flood-proofed structures that are functionally dependent on close proximity to water with portable contents are considered acceptable. Larger structures that are functionally dependent on close proximity to water can be considered on a case-by-case basis. All structures and field facilities must be related to authorized project purposes. Camping facilities, primitive or modern, are allowed. An evacuation plan is required for all public use activities located in Zones 1-5.
	4	1% exceedence pool to the spillway crest elevation.*  * Spillway crest elevation refers to 1) top of spillway gates for controlled-spillway projects or 2) spillway crest elevation for projects with uncontrolled spillways	Subject to infrequent flooding, sedimentation, and wave erosion. Flood insurance is required for all insurable structures in Zones 1-5.	All land uses considered acceptable in Zone 3. In addition, closed floodable, wet flood-proofed structures are permitted that are related to authorized project purposes. An evacuation plan is required for all recreational activities located in Zones 1-5.
	5	Spillway crest to 1) maximum reservoir level or 2) to maximum elevation of Corps real estate interests, whichever is lower elevation.  * Spillway crest elevation refers to 1) top of spillway gates for controlled-spillway projects or 2) spillway crest elevation for projects with uncontrolled spillways	Subject to very infrequent flooding, sedimentation, and wave erosion. Flood insurance is required for all insurable structures in Zones 1-5.	All land uses considered acceptable in Zone 4. All structures related to authorized project purposes are permitted. An evacuation plan is required for all recreational activities located in Zones 1-5. The evacuation plan must include people in all cases and structures and contents where applicable.

- Open floodable, wet flood-proofed structures are described as those structures that are necessary for carrying out, or are related to, authorized project purposes and are susceptible to frequent flooding and prolonged inundation. These structures must remain structurally sound throughout periods of flooding and be capable of sustaining all forces associated with flooding. The structures should require no more than flushing with a hose to become operational after the flood event has passed. No water damageable materials are allowed. Acceptable structures would include an open picnic shelter or a bathhouse with no roof or closable doors and windows.
- Closed floodable, wet flood-proofed structures are described as those structures that are necessary for carrying out, or are related to, authorized project purposes and are susceptible to periodic flooding. These structures must remain structurally sound throughout periods of flooding and be capable of sustaining all forces associated with flooding. The structures should require no more than minimal maintenance to become operational after the flood event has passed. No water damageable materials are allowed. Acceptable structures would include concession or storage buildings with roof and closable doors and windows and bathhouses with roofs and closable doors and windows.

- Related to authorized project purposes is defined as those purposes which have been identified for obtaining maximum public benefits while minimizing adverse impacts to the authorized project purposes and protecting and enhancing environmental quality. The related project purposes consider applicable Federal laws and directives, regional needs, resource capabilities, and expressed public desires. The purpose must also conform to the existing Master Plan as explained in section 5.e of the regulation.
- Zone elevations are based on “still” pool elevations. This criteria does not account for wind-wave action.
- Functionally dependent on close proximity to water is defined as a use that cannot perform its intended purpose unless it is located or carried out in close proximity to water. Ancillary uses such as marina clubhouses, restaurants, storage facilities, etc. are related to functionally dependent uses, but may be located beyond zones of high risk, with access to the waterfront.
- These criteria are also applicable to reservoir flood plains, upper reservoir, or transitional areas between inflow river and reservoir or reservoir delta areas.
- Structures conducive to human habitation are prohibited in Zones 1 –5.

**Flood Frequency Terminology:**

<b>Probability of Exceedence</b>	<b>Recurrence Interval</b>
10 %	10 Year
2 %	50 Year
1 %	100 Year
0.2 %	500 Year

**Appendix C**  
**Evaluation Criteria for Land Development Proposals**

Each Question that is answered contrary to the guidance should have an explanation.

Part A. Project Review

1. Corps Project/Reservoir: \_\_\_\_\_

2. Name of Development Proposal: \_\_\_\_\_

3. Requestor Name: \_\_\_\_\_  
(or affix business card to this request)

a. Requestor Address: \_\_\_\_\_

b. Requestor Point of Contact: \_\_\_\_\_

c. Requestor Phone(s): \_\_\_\_\_

d. Requestor Fax Number: \_\_\_\_\_

e. Requestor E-mail Address: \_\_\_\_\_

4. Development Category:

a. Corps Development:

- New Area (Undeveloped)?       Yes       No

- Existing Recreation Area?       Yes       No

b. Proposed Outgrant Development:

- New Development (Reference Land Availability Guidance)?  
     Yes       No

- Development in Existing Lease Area?       Yes       No

5. Proposal Description (include Area Name):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Materials Reviewed:       Report(s)       Plan(s)       Other(s)

Appendix C  
NWDR 1110-2-5  
30 April 2004

7. Titles and Dates of Reviewed Materials:

---

---

---

---

8. Do the facilities/structures of the proposed development comply with Appendix B "Minimum Criteria for Northwestern Division Reservoir Land Development Proposals" of NWD Policy ER 1110-2-5 and Appendix B?

- Yes
- No (If No, explain **and** District review required)

---

---

---

---

9. Will any part of the proposed development conflict with the Corps project Master Plans for the area of proposed development?

- Yes (If Yes, explain)
- No

---

---

---

---

10. Is proposed development consistent with an approved Development Plan submitted in accordance with Real Estate document (lease, license, etc.)?

- Yes
- No (If No, explain)

---

---

---

---

11. Will the proposal impact waters and wetlands (a Dept. of the Army permit may be needed from the Corps of Engineers)?

- Yes (If Yes, needs review by Regulatory Branch)
- No

12. Will the proposal impact cultural resources sites?

- Yes (If Yes, need review by District Cultural Resources team)
- No

13. Is any part of the proposed development on or near the dam embankment, intake or spillway or other operational feature, including instrumentation?

- Yes (If Yes, need review by District Dam Safety team)
- No

14. Summary comments/recommendation for the proposed development:

---

---

---

---

15. Initial Submittal \_\_\_\_\_ or Resubmittal \_\_\_\_\_ (check one)

16. Project Manager: \_\_\_\_\_

17. Telephone Number: \_\_\_\_\_

Appendix C  
NWDR 1110-2-5  
30 April 2004

**Part B. District Review**

1. District Reviewers (name and phone):

- a. Project Operations Manager: \_\_\_\_\_
- b. Operations: \_\_\_\_\_
- c. Engineering (Geotech): \_\_\_\_\_
- d. Engineering (Hydro): \_\_\_\_\_
- e. Planning (Environ): \_\_\_\_\_
- f. Planning (Cult Res): \_\_\_\_\_
- g. Real Estate: \_\_\_\_\_
- h. Regulatory:
- i. Other: \_\_\_\_\_

2. NWD Water Management Reviewers (name and phone):

3. Will the proposed development be located within the reservoir (defined as all land below the Maximum Reservoir Level)?

Yes

No

4. Do any of the potentially affected easements conflict with the approved water control plan?

Yes

No

5. Will there be any significant "cut and fill" operations in preparation for the proposed development?

Yes (If Yes, would they allow drainage by gravity?  Yes  No)

No

6. Is there any loss of storage at any elevation below the Maximum Reservoir Level?

Yes (If Yes, can the developer quantify impacts on flood routing as negligible?  
 Yes  No)

No

7. If located within the reservoir, what is the elevation frequency range (currently) associated with the location?
- greater than 10% exceedence                       10% - 2%exceedence  
 2% - 1% exceedence                                       less than 1 %exceedence
8. Does the Corps have a copy of the title evidence, deed, lease, or easement for the location where the proposed development is to sited?
- Yes  
 No
9. Will the proposed development conflict with the Corps' flowage easements or other Real Estate interests?
- Yes (explain)  
 No
10. Does the proposed development qualify as a Categorical Exclusion (CATX) per ER 200-2-2?
- Yes  
 No
11. Is further NEPA review required?
- Yes (If "Yes", final approval of plans is subject to favorable environmental review and possible compliance requirements)  
 No
12. Can any potential hidden constraints or dangers be identified (e.g., submergence of electrical wiring, underground parking, etc.)?
- Yes  
 No
13. Will there be impacts to reservoir operations or potential impacts regarding operational constraints as a result of the proposed development (e.g., loss of reservoir storage capacity, increase of inflow volume into the reservoir, etc.)?
- Yes  
 No

Appendix C  
NWDR 1110-2-5  
30 April 2004

14. Are there any possibilities of damage to the Corps project as a result of the proposed development due to floatable objects/structures?

- Yes (If "Yes", is there a plan in place to rectify the problems with floatables?)       Yes       No
- No

15. Will there be any hazardous materials stored within the proposed development?

- Yes (If "Yes", what steps are being taken to minimize or eliminate contamination by hazardous materials?)
- No

16. Will there be an increase in the quantity of debris/sediment inflow into the flood control reservoir as a result of the proposed development?

- Yes (If "Yes", how much {what rate}?)
- No

17. Would the proposed development include facilities/structures that can hold a large number of people (e.g., restaurants, museums, theaters, amusement parks)?

- Yes
- No

18. Would the proposed development impact the future operational flexibility of the dam?

- Yes
- No

19. Does the proposed development have any potential impact on ongoing studies (in-basin, downstream, or re-operation studies)?

- Yes
- No

19. Recommendations:

---

---

---

---

---

---

---

---

---

---

20. Other Comments?

---

---

---

---

---

---

---

---

---

---

Submitted by: \_\_\_\_\_

Date: \_\_\_\_\_