Definitions and Standards – Proposed Regulations

California Code of Regulations, Title 23, Division 1, Article 2, Article 8

The Board proposes to amend the following sections to Article 2 and to amend and adopt the following sections and figures to Article 8:

Definitions are provided herein for uses of word and phrases different from that found in common dictionaries. The definitions herein include the plural in addition to the singular.

(a) "Access Ramps" mean those ramps that provide access to the Levee crown from adjacent property and roads.

(b) "Adopted Plan of Flood Control" means a flood control or reclamation strategy for a specific area that has been enacted by the Legislature or adopted by the Board and includes the following:

(1) In the case of State Plan of Flood Control (SPFC) flood channels without Levees, it means the natural Stream channel and overbank area at Design Flood levels;

(2) In the case of SPFC channels with Levees, it means the area between and including the Levees, and includes:

(A) The Levee Right of Way;

(B) Any flowage areas that are part of the SPFC; and

(C) Areas where there are real property rights for the purpose of operation and maintenance of the Levee and any associated Sacramento-San Joaquin Drainage District (SSJDD) easements or Flowage Easements;

(3) In the case of Designated Floodways, it means the area between the Floodway Encroachment Lines;

(4) The Regulated Streams listed in section 112 Table 8.1 of this division;

(5) In the case of Regulated Streams that are neither a SPFC channel nor a Designated Floodway, it means the area within the identified county(s) and associated limits listed in Table 8.1 and between a line thirty (30) feet landward of the top of the left bank and a line thirty (30) feet landward of the top of the right bank;

(6) In the case of a non-SPFC Levee outside of a Designated Floodway, it means the extent of the non-SPFC Levee that has bearing upon an SPFC Levee should the non-SPFC Levee fail and allow flood water to rise against the landside slope of the SPFC Levee and the area within the Levee Right of Way;

(7) Where SPFC Levees are involved, the Adopted Plan of Flood Control means the area within the Levee Right of Way;

(8) The Levees, channels, facilities, and right of way of the Lower San Joaquin River Flood Control Project;

(9) The regulations of this division; and

(10) The Central Valley Flood Protection Plan as most recently adopted by the Board.

(c) "Approved Soils Testing Laboratory" means a testing laboratory validated by the U.S. Army Corps of Engineers, meeting the criteria detailed in ASTM D3740 Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction and ASTM E329 Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction, or equivalent.

Deleted: (a) Adopted Plan of Flood Control. "Adopted Plan of Flood Control" means a flood control or reclamation strategy for a specific area that has been adopted by the board or the Legislature and includes the following:¶
(1) In the case of project flood channels without levees, it means the natural stream channel and overbank area at design flood levels;¶
(2) In the case of project channels with levees, it means the area between and including the project levees, and includes: ¶
(A) Additional area outside of the project levees where encroachments could affect the integrity, functioning or maintenance of the works (generally ten [10] feet landward of the levee toe);¶
(B) Any flowage areas that are part of the federal or state flood control project; and¶
(C) Areas where there are flowage easements; and¶
(3) In the case of designated floodways, it means the area between the encroachment lines. For purposes of this section, boundary lines and encroachment lines are interchangeable terms.¶
(4) Where levees are involved, the "Adopted Plan of Flood Control" extends at least ten (10) feet landward from the levee toe except where an operation and maintenance manual furnished pursuant to 33 C.F.R. 208.10 or the real property rights acquired by the board specifically provide otherwise.¶
(b) Berm. "Berm" means the strip of ground between the waterward levee toe and the top of the bank of the low water channel.¶
(c) Board. "Board" means The Central Valley Flood Protection Board of the Resources Agency of the State of California as provided in Water Code section 8521.¶
(d) CEQA. "CEQA" means the California Environmental Quality Act, beginning at Public Resources Code section 21000.¶
(e) Chief Engineer. "Chief engineer" means the person appointed by the board pursuant to Water Code section 8581 for that purpose.¶
(f) Conforming Existing Encroachment. "Conforming existing encroachment" means an existing facility or use that is consistent with these regulations.¶
(g) Crest Elevation. "Crest elevation" means the elevation of the top of a levee, dike, or dam.¶
(h) Department. "Department" means the Department of Water Resources of The Resources Agency of the State of California as provided in Water Code section 120.¶
(i) Designated Floodway. "Designated floodway" means either:¶
(1) the channel of the stream and that portion of the adjoining floodplain reasonably required to provide for the passage of a design flood, as indicated by floodway encroachment lines on an adopted map; or¶
(2) the floodway between existing levees as adopted by the board or the Legislature.¶
(j) Design Flood. "Design flood" means the flood against which protection is provided or may eventually be provided by means of flood protection or control works, or that flood which the board otherwise determines to be compatible with future developments.¶
(k) Design Flood Plane. "Design flood plane" means the water surface elevation at design flow as determined by the Army Corps of Engineers, the Board, or Federal Emergency Management Agency, or other higher elevations based upon best available information, as determined by the board.¶
(l) Dwelling. "Dwelling" means an improvement of real property used, intended to be used, or suitable to be used for residential purposes, including, but not limited to, living, sleeping, cooking, or eating.¶
(m) Encroachment. "Encroachment" means any obstruction or physical intrusion by construction of works or devices, planting or removal of vegetation, or by whatever means for any purpose, into any of the following:¶
(1) any flood control project works;¶
(2) the waterway area of the project;¶
(3) the area covered by an adopted plan of flood control; or (4) any area outside the above limits, if the encroachment could affect any of the above.(n) Floodway. "Floodway" means the channel of a river or other watercourse and the adjacent land areas that convey flood waters.¶
... [1]

(d) "Board" means the Central Valley Flood Protection Board (formerly the Reclamation Board) of The Natural Resources Agency of the State of California as provided in Water Code section 8521.
(e) "Board Standards" means all sections within article 8 of this division.
(f) "Borrow" means any excavation for generation of earthen material.
(g) "Building" means a structure with walls and a roof used for any purpose other than for Human Habitation constructed within a Floodway.
(h) "CEQA" means the California Environmental Quality Act, division 13 of the Public Resources Code, beginning at section 21000.
(i) "Chief Engineer" means the Person appointed by the Board pursuant to Water Code section 8580 for that purpose.
(j) "Conforming Existing Encroachment" means an existing Encroachment that is consistent with the regulations of this division and that was in existence prior to the Adopted Plan of Flood Control being enacted by the Legislature or adopted by the Board.
(k) "Controlled Low Strength Material (CLSM)" means a flowable fill comprised of Portland Cement, fine aggregates, fly ash, admixtures, and water, designed to be placed or poured into a self-leveling, self-compacting, low strength, cementitious material. CLSM shall have a unit weight of between 90 and 110 pounds per cubic foot, a 28-day unconfined compressive strength between 30 and 200 pounds per square inch (psi), and a maximum hydraulic conductivity of $5x10^{-6}$ centimeters per second at 28 days.
(l) "Crest Elevation" means the elevation of the top of the Levee.
(m) "Delta" means the area of the Sacramento-San Joaquin Delta as defined in section 12220 of the Water Code and the Suisun Marsh, as defined in section 29101 of the Public Resources Code.
(n) "Department" means the Department of Water Resources of The Natural Resources Agency of the State of California as provided in Water Code section 120.
(o) "Designated Floodway", pursuant to Water Code section 8609, means either:
(1) The channel of the Stream and the portion of the adjoining floodplain reasonably required to provide the passage of the Board adopted Design Flood, as indicated by Floodway Encroachment Lines on the Board adopted map; or
(2) The Floodway between existing Levees as adopted by the Board or the Legislature.
(p) "Design Flood" means the flood flow or event which the flood control facility or Project Works is designed to convey, or the flood flow or event which the Board otherwise determines to be compatible with future developments, including the flood with a 1-in-200 annual chance of exceedance for Urban Criteria Areas.
(q) "Design Water Surface Elevation (DWSE)" means the highest of the following water surface elevations:
(1) The water surface elevation at Design Flood flow as determined by the USACE or the Board;
(2) The water surface elevation recognized by the Board based upon best available information;
(3) The water surface elevation corresponding to the 100-year flood as determined by the Federal Emergency Management Agency outside of Urban Criteria Areas; or
(4) The water surface elevation corresponding to the 200-year flood in Urban Criteria Areas, following the Urban Levee Design Criteria.
(r) "Dwelling" means a permanent structure used, intended to be used, or suitable to be used for full or part-time Human Habitation.

(s) "EM 1110-2-1913" means USACE Engineering and Design Manual No. 1110-2-1913 dated April 30, 2000 titled "Design and Construction of Levees". This manual superseded EM 1110-2-1913 dated March 31, 1978.
(t) "EM 1110-2-2902" means USACE Engineering Manual No. 1110-2-2902 dated March 31, 1998 titled "Engineering and Design, Conduits, Culverts and Pipes".
(u) "Embankment Material" means soil with one hundred (100) percent passing the two (2) inch sieve and at least twenty (20) percent passing the No. 200 sieve with a plasticity index between eight (8) and forty (40), a liquid limit of forty five (45) or less, saturated unit weight of at least one hundred and twelve (112) pounds per cubic foot (pcf), no visible concentration of organic content, and without unsatisfactory materials, such as trash, etc.
(v) "Encroachment" means installation or placement by whatever means for any purpose, of any Building, Dwelling, structure, bridge, tower, pole, pipe, culvert, fence, projection, object, Obstruction, vegetation and landscaping (planting or removal), embankment, excavation, fill or debris, of any kind or character that is placed in, on, over, under, through, or adjacent to areas covered by an Adopted Plan of Flood Control, and other activities that in the judgment of the Board, may constitute a risk to public safety, or may impact or impede the operations, maintenance, physical integrity, or flood carrying capacity, of an Adopted Plan of Flood Control.
(w) "Endorsement" means conceptual plan approval, support, or no objection by a Local Maintaining Agency of an application for a Board Permit which may include conditions regarding operation, maintenance, repair, replacement, rehabilitation, and/or removal.
(x) "ETL 1110-2-569" means USACE Technical Letter No. 1110-2-569 dated May 1, 2005 titled "Design Guidance for Levee Underseepage"
(y) "Executive Officer" means the Person appointed by the Board pursuant to Water Code section 8580 for that purpose.
(z) "Floodway" means the area of a river, creek, canal, channel, bypass, or other watercourse and the adjacent land areas that convey flood waters.
(aa) "Floodway Encroachment Lines" means the exterior limits of any Designated Floodway adopted by the Board.
(bb) "Flood Season" means a specific non-permissible work period when work in the Floodways or when cutting into Levee(s) of Regulated Streams within an Adopted Plan of Flood Control is not allowed without written approval from the Chief Engineer or the Executive Officer. This period typically begins on November 1 and, depending on location, ends on either April 15 or July 15. An exception would be the Merced Stream Groups Project which has a Flood Season that ends on May 1. Section 112, Table 8.1 lists the Regulated Streams and their non-permissible work periods.
(cc) "Flowage Easement" means the right to use another's land to overflow, flood and submerge the lands affected; reserving however, to the fee owner of the lands all such rights and privileges as may be used and enjoyed without interfering with or abridging the rights granted in the Flowage Easement.
(dd) "Freeboard" means the vertical distance between the Crest Elevation and the DWSE, and serves as a factor of safety for containing water in the Stream without overtopping the Levee.
(ee) "Human Habitation" means an improvement of real property used, or intended to be used, for residential purposes, including but not limited to living, sleeping, cooking, or eating.
(ff) "Hydraulic Impact Evaluation Procedure" means a procedure for evaluating the hydraulic effect created by an Encroachment, when considered cumulatively with other Encroachments. The procedure requires an initial step of evaluating blockage of Stream cross sectional area by dividing

the blockage area of the Encroachment by the total cross-sectional area of the Floodway conveyance up to the DWSE. The blockage calculation should be done at the flow cross section within the applicant's proposed Encroachment area where the calculated blockage percentage is the greatest, considering all other existing and authorized Encroachments at the location so as to evaluate the cumulative impact of the Encroachments. If the blockage calculation indicates a Floodway conveyance blockage of less than one (1) percent of the cross sectional area at the design discharge, typically no additional analysis is required. If the blockage calculation indicates a Floodway conveyance blockage of more than one (1) percent, a hydraulic impact study employing a one (1) dimensional model will normally be required to determine the hydraulic impact of the Encroachment along with all other existing and authorized Encroachments. In some cases, a two (2) dimensional model may be required.

(gg) "Hydraulic Top of Levee" means the water surface elevation as defined in the Department's Urban Levee Design Criteria.

(hh) "Levee" means a human-made structure, usually an earthen embankment, constructed to contain, control, or divert the flow of water so as to reduce risk from flooding. A Levee may include a floodwall or may be comprised entirely of a floodwall. In general, the Board Standards apply to Levees that are earthen embankments. But some Board Standards may apply to floodwalls, as deemed appropriate by the Board. This definition applies to SPFC and non-SPFC Levees.

(ii) "Levee Right of Way" means the Levee Section and appurtenant Levee features (such as a Seepage Berm, Stability Berm, relief well, or Revetment), plus land parallel to the Levee ten (10) feet in width landward from the landside Levee Toe and appurtenant Levee features, plus land parallel to the Levee fifteen (15) feet in width waterward from the waterside Levee Toe and appurtenant Levee features, except where either (1) a USACE operation and maintenance manual or as-built drawing furnished pursuant to Title 33 Code of Federal Regulations section 208.10 or permission issued pursuant to Title 33 United States Code section 408 provides otherwise, (2) real property rights acquired for Levee operation and maintenance provide otherwise, or (3) the Board, Local Maintaining Agency, or an agency constructing Levee improvements is actively pursuing acquisition of real property rights beyond ten (10) feet from either Levee Toe. In the case where the Board, Local Maintaining Agency, or an agency constructing Levee improvements is actively pursuing acquisition of real property rights beyond ten (10) feet from either Levee Toe, "Levee Right of Way" means the Levee Section and appurtenant Levee features (such as a Seepage Berm, Stability Berm, relief well, or Revetment), plus land parallel to the Levee consistent with the proposed acquisition a minimum of twenty (20) feet in width landward from the landside Levee Toe and appurtenant Levee features, and/or land parallel to the Levee consistent with the proposed acquisition a minimum of fifteen (15) feet in width waterward from the waterside Levee Toe and appurtenant Levee features. For the Board, Local Maintaining Agency, or an agency constructing Levee Improvements to be actively pursuing acquisition of real property rights, at least one of these entities shall have provided a public notice of the acquisition goals in the area, and such acquisitions shall be pursued with coordination between these entities.

(jj) "Levee Section" means the physical Levee structure from the landside Levee Toe to the waterside Levee Toe, and typically a 20-foot wide crown, or a 12-foot wide crown for Minor Tributary Levees, and 2h:1v or flatter landside slope and 3h:1v or flatter waterside slope, such as with some bypass Levees, except where a USACE operation and maintenance manual or as-built drawing furnished pursuant to Title 33 Code of Federal Regulations section 208.10 or permission issued pursuant to Title 33 United States Code section 408 documents otherwise. In the case of a

Levee significantly wider than the Levee Section of a typical Levee, or the width specified in a USACE operation and maintenance manual or as-built drawing, "Levee Section" means the typical Levee width, or width specified in a USACE operation and maintenance manual or as-built drawing, that falls within the wider physical Levee – by matching the Levee centerlines if the locations of both the physical Levee centerline and the specified Levee centerline are known, or matching the waterside Levee crown shoulders if the locations of both centerlines are not known. This definition applies to SPFC and non-SPFC Levees.

(kk) "Levee Toe" means the point of intersection of the Levee slope with the natural ground elevation as shown on the USACE as-constructed drawings for the project or best available information.

(ll) "Local Maintaining Agency" means a local or State agency responsible for operation and maintenance of Levees and other flood control works, such as a reclamation district, Levee district, flood control district, drainage district, the State, county, or city.

(mm) "Low Water Channel" means the flowage area within a natural channel below Top of Bank.

(nn) "Low Water Crossing" is a structure designed to serve as a bridge when water flow is low. Under high flow conditions, water floods the roadway or deck of the crossing and precludes traffic.

(oo) "Maintenance Activities" means any work required to retain or maintain the maximum benefits of flood control facilities and of existing Permitted Encroachments. Maintenance Activities include but are not limited to controlling Encroachments (with or without a Permit), controlling unauthorized vehicular access, managing vegetation, dredging, removing sediment deposits, controlling erosion, drilling (according to an approved drilling plan), controlling rodents, painting, coating, patching, and similar activities; but do not include without prior written approval from Board staff (1) any significant excavation into the Levee Section, or (2) any excavation into the Levee during Flood Season. Maintenance activities of public agencies consistent with the operation and maintenance manual for flood control facilities within their jurisdiction generally do not require a Board Permit and are authorized and defined by Water Code sections 8361, 8370 and 12642.

(pp) "Minor Tributary Levee" means a Levee constructed with a crown width of twelve (12) feet in accordance with a USACE operation and maintenance manual or as-built drawing furnished pursuant to Title 33 Code of Federal Regulations section 208.10 or permission issued pursuant to Title 33 United States Code section 408.

(qq) "Mobilehome" means both a Mobilehome as defined in section 18008 Chapter 1, division 3 of the California Health and Safety Code and a manufactured home as defined in section 18007 Chapter 1, division 3 of the California Health and Safety Code, and does not include a Recreational Vehicle.

(rr) "Nonconforming Existing Encroachment" means an existing Encroachment that is inconsistent with the regulations of this division.

(ss) "Non-SPFC Facilities" means the entirety or any component of a flood control project within areas covered by Adopted Plans of Flood Control that are not State Plan of Flood Control Facilities (SPFC Facilities).

(tt) "Obstruction" means any natural or artificial structure or matter which:

(1) May impede, retard, or change the direction of the flow of water, either in itself or by catching or collecting debris carried by the water;

(2) Is placed where the flow of water could carry it downstream to the damage or detriment of either life or property;

(3) May impede the mode of operation and/or maintenance;

(4) May restrict or significantly delay execution of Board orders or other required actions; or
(5) May adversely affect flood fighting.

(uu) "Parties" means Permit applicants, the Board, protestants, and interested public agencies.

(vv) "Patrol Road" means a road that provides vehicular access along a Levee crown or flood channel for inspection, maintenance, and flood fighting. Patrol Roads include landside Levee Toe roadways.

(ww) "Permit" means the Board's written authorization that approves Proposed Work, with or without conditions, resulting in Encroachments, flood control facilities, projects, alterations, improvements, or changes in land uses including environmental stewardship projects occurring in areas covered by Adopted Plans of Flood Control. A Permit may include time limitations. A Permit may be revoked by the Board and a Permitted Encroachment can only be modified or transferred with the written approval of the Board or the Executive Officer. A modified Permit may contain new conditions consistent with the Board Standards. A Permit may be modified by the Board if construction of the authorized project has not commenced within one (1) year of Permit issuance.

(xx) "Permitted Work" means Encroachments, flood control projects and alterations or improvements thereto, or other structures, improvements, or land uses in an Adopted Plan of Flood Control that alone or cumulatively, in the judgment of the Board, are in compliance with this division (unless a variance is authorized by the Board) and will not unduly impede the free flow of water in a Stream or jeopardize public safety, and which are approved by the Board through issuance of a Board Permit.

(yy) "Permittee" means any Person who has been issued a Permit from the Board.

(zz) "Person" means a person, entity, partnership, firm, corporation, association, organization, or agency.

(aaa) "Projected Levee Section" means the projection of the Levee slope below natural ground with 2h:1v landside slope and 3h:1v waterside slope, except where a USACE operation and maintenance manual or as-built drawing furnished pursuant to Title 33 Code of Federal Regulations section 208.10 or permission issued pursuant to Title 33 United States Code section 408 documents otherwise.

(bbb) "Project Works" means the entirety or any component of a flood control project within the area of the Board's jurisdiction that has been approved or adopted by the Board or the Legislature, including state or federally constructed Levees, channels, bank protection, weirs, pumping plants, and any other related flood control works, or right of way.

(ccc) "Proposed Work" means activities within the Board's jurisdiction which require a Board Permit including Encroachments, flood control or environmental stewardship projects, flood system alterations, land use activities, or other proposals within the jurisdiction or authority of the Board. Proposed Work, once issued a Board Permit, becomes "Permitted Work".

(ddd) "Recreational Vehicle" means Recreational Vehicle as defined in section 18010 Chapter 1, division 3 of the California Health and Safety Code.

(eee) "Residential Development" means a real estate housing development, such as a subdivision as defined in the California Code of Regulations Title 7, division 2, for residential purposes.

(fff) "Regulated Streams" means the Streams listed in section 112, Table 8.1 of this division.

(ggg) "Respondent" means the Person named in an enforcement proceeding notice served and filed pursuant to sections 20, 21, and 22 of this division.

(hhh) "Revetment" means a layer or layers of material, such as stone or concrete, to prevent soil erosion.

(iii) "River Mile" means the numbered miles along a river channel as determined by the Sacramento and San Joaquin River Basins Comprehensive Study or as otherwise indicated on a map adopted by the Board.
(jjj) "Sacramento-San Joaquin Valley" means lands in the bed or along or near the banks of the Sacramento River or San Joaquin River, or their tributaries or connected therewith, or upon any land adjacent thereto, or within the overflow basins thereof, or upon land susceptible to overflow therefrom. The Sacramento-San Joaquin Valley does not include lands lying within the Tulare Lake Basin, including the Kings River.
(kkk) "Seasonal Occupancy" means to occupy or reside in a Dwelling only outside of the Flood Season as defined in section 112, Table 8.1 of this division.
(lll) "Secondary Levee" means a Levee within the Floodway of an Adopted Plan of Flood Control that provides flood protection for property within the Floodway and does not provide flood protection for property outside of the Adopted Plan of Flood Control.
(mmm) "Seepage Berm" means the earthen feature constructed at the landside Levee Toe which primarily serves to control underseepage.
(nnn) "Significant Damage" means damage or destruction by any cause, to the cumulative extent of more than fifty (50) percent of market value, as calculated with a generally accepted method approved by the Board.
(ooo) "SPFC Levee" as defined in subdivision (g) of section 5096.805 of the Public Resources Code, means a Levee that is part of the facilities of the State Plan of Flood Control, and such Levees are considered Project Works. Prior to Board adoption of the Department's Central Valley Flood Protection Plan in 2012, SPFC Levees were commonly referred to as "Project Levees", "Federal Project Levees", or "Project Works".
(ppp) "Spur Levee" means a Levee that protrudes into the Floodway for the purpose of directing the flow of floodwater. Spur Levees are also sometimes referred to as training Levees.
(qqq) "Stability Berm" means the earthen feature constructed at the landside Levee Toe to enhance the Levee's landside slope stability.
(rrr) "State Plan of Flood Control" or "SPFC" as defined in subdivision (j) of section 5096.805 of the Public Resources Code, means the State and federal flood control works, lands, programs, plans, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in section 8350 of the Water Code, and of flood control projects in the Sacramento River and San Joaquin River watersheds authorized pursuant to article 2 (commencing with section 12645) of Chapter 2 of Part 6 of division 6 of the Water Code for which the Board or the Department has provided the assurances of nonfederal cooperation to the United States.
(sss) "State Plan of Flood Control Facilities", hereinafter referred to as "SPFC Facilities", has the same meaning as Facilities of the State Plan of Flood Control defined in subdivision (e) of section 5096.805 of the Public Resources Code, and means the Levees, weirs, channels, and other features of the federally and State-authorized flood control facilities located in the Sacramento River and San Joaquin River drainage basin for which the Board or the Department has given assurances of nonfederal cooperation to the United States required for the project, and those facilities identified in sections 8361 and sections 12645 – 12670.23 of the Water Code.
(ttt) "Stream" means natural or regulated water flowing in any natural or artificial channel. Streams may be perennial, flowing continuously; intermittent or seasonal, flowing only at certain times of the year; or ephemeral, flowing only in direct response to precipitation.

(uuu) "Time Variance Request" means a written request to the Board to carry out work within the area of an Adopted Plan of Flood Control during Flood Season, typically approved in two (2) week increments.
(vvv) "Top of Bank" means the point of intersection of the Waterside Berm with the bank.
(www) "Toe of Bank" means the point of intersection of the bank with the bottom of the channel of a watercourse.
(xxx) "Tulare Lake Basin" means the Tulare Lake Hydrologic Region as defined in the California Water Plan Update 2018, prepared by the Department pursuant to Chapter 1 (commencing with section 10004) of Part 1.5 of division 6 of the Water Code.
(yyy) "Urban Area" means a developed area in which there are ten thousand (10,000) residents or more as defined in Government Code section 65007(l).
(zzz) "Urban Criteria Area" means an Urban Area or Urbanizing Area, as determined by the governmental agency that exercises land use decision-making in the area, that meets all of the following conditions:

(1) It is located within a flood hazard zone that is mapped as either a special flood hazard area or an area of moderate hazard on the Federal Emergency Management Agency's official (i.e., effective) Flood Insurance Rate Map for the National Flood Insurance Program;
(2) It is located within the Sacramento-San Joaquin Valley;
(3) It is located within an area with a potential flood depth above three (3) feet, from sources of flooding other than localized conditions that may occur anywhere in a community, such as localized rainfall, water from stormwater and drainage problems, and water from temporary water and wastewater distribution system failure; and
(4) It is located within a watershed with a contributing area of more than ten (10) square miles.

(aaaa) "Urban Levee Design Criteria" means the Levee and floodwall design criteria developed by the Department for providing the Urban Level of Flood Protection, dated May 2012.
(bbbb) "Urban Level of Flood Protection" means the level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department. "Urban Level of Flood Protection" shall not mean shallow flooding or flooding from local drainage that meets the criteria of the national Federal Emergency Management Agency standard of flood protection.
(cccc) "Urbanizing Area' means a developed area or an area outside a developed area that is planned or anticipated to have ten thousand (10,000) residents or more within the next ten (10) years as defined in Government Code section 65007 (m).
(dddd) "U.S. Army Corps of Engineers" and "USACE" mean the federal agency to which the Board provided assurances to operate and maintain SPFC Facilities.
(eeee) "Waterside Berm" means the strip of ground between the waterside Levee Toe and the top of the bank of the Low Water Channel.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8361, 8370, 8521, 8525, 8581, 8608, 8630 and 8710, Water Code

History:

1. Amendment of article 2 heading, new article 2 (sections 4 through 5) and renumbering and amendment of old section 46 to new section 4 filed 9–30–96; operative 10–30–96 (Register 96, No. 40). For prior history, see Register 85, No. 26.
2. Amendment of subsections (a)(1), (a)(3)–(4) and (c) filed 12–1–2009; operative 12–31–2009 (Register 2009, No. 49).
3. Amendment of subsection (p), new subsections (r) and (jj), subsection relettering and amendment of NOTE: filed 2-15-2012: operative 2-15-2012 pursuant to Government Code section 11343.4 (Register 2012. No. 7).

(a) The Board Standards govern the design, construction, operation and maintenance of Permitted Work which affect an Adopted Plan of Flood Control and are used by the Board to regulate Permitted Work.
(b) The Board Standards also provide the public with technical information needed to prepare and submit applications for Proposed Work requiring a Permit.
(c) Where any provision in the Board Standards requires the application of judgment, including but not limited to, use of terms such as "where practical," "where feasible," or "where reasonable," the Board shall have the final judgment and the burden of proof on such issues as impracticality, infeasibility, or unreasonableness lies with the applicant or Permittee.
(d) Many types of Proposed Work on Levees and within Floodways have the potential to obstruct flood flows and increase Stream stages, causing hydraulic impacts that can overload Levees and/or result in unnecessary flood damages. The Board may require application of the Hydraulic Impact Evaluation Procedure for evaluating the hydraulic impact of any Proposed Work. The Board may deny a Permit if the hydraulic impact is deemed significant.

Deleted: These standards govern the design and construction of encroachments which affect the flood control works and floodways and are used by the board for the regulation of encroachments. The standards apply to any work within the limits of, or which can affect, any authorized flood control project or any adopted plan of flood control.(c) These standards also provide the public with information needed to prepare and submit encroachment applications to the board.(d) Where any provision in this division requires the application of judgment, such as where "practical," "feasible," or "reasonable," the burden of proof on such issues as impracticality, unfeasibility, or unreasonableness lies with the applicant or permittee.¶

Note:

Authority cited: section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New article 8 (sections 111 through 137) and section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) The Board requires Permit applications to be filed for all Proposed Work within an Adopted Plan of Flood Control or that may negatively impact an Adopted Plan of Flood Control.
(b) Banks, Levees, and channels of Floodways along any Stream, tributary, or distributary may not be excavated, cut, filled, obstructed, or left to remain excavated during the Flood Season.
(1) The Flood Seasons for Board Regulated Streams are listed in Table 8.1.
(2) The Executive Officer or Chief Engineer, at the applicant's prior written request, may approve a Time Variance Request to authorize performance of Permitted Work during the Flood Season provided that, in the judgment of the Executive Officer or Chief Engineer:
(A) The Permitted Work is not potentially injurious to the Adopted Plan of Flood Control;
(B) The Permitted Work will not constitute a threat to public safety;
(C) Forecasts for weather and Stream conditions are favorable and will be continuously monitored by the applicant; and
(D) An emergency action plan is provided that describes personnel, equipment, methods, materials, and time requirements for completing necessary actions if the Permitted Work could adversely impact the flood project integrity or flood operations under unfavorable weather or Stream conditions.
(3) Time Variance Requests shall be submitted to the Chief Engineer, preferably by email, at least seven (7) days prior to the start of work but no more than ten (10) days prior to the start of work.
(4) Time Variance Request approval may be rescinded at any time based on weather or Stream conditions.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section and table 8.1 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).
2. Amendment of table 8.1 filed 12–1–2009; operative 12–31–2009 (Register 2009, No. 49).

Table 8.1—Regulated Streams and Nonpermissible Work Periods

[1] Flood Season November 1 through July 15
[2] Flood Season November 1 through April 15

Deleted: Streams

Deleted: (a) The board requires applications to be filed for all proposed encroachments within the floodways under its jurisdiction (identified in Table 8.1) and on levees adjacent thereto, on any stream which may affect those floodways.¶
(b) Banks, levees, and channels of floodways along any stream, its tributaries, or distributaries may not be excavated, cut, filled, obstructed, or left to remain excavated during the flood season.¶
(1) The flood seasons for the various floodways are shown in Table 8.1.¶
(2) The board, at the prior written request of the applicant, may allow work to be done during flood season within the floodway, provided that, in the judgment of the board, forecasts for weather and river conditions are favorable.¶
(c) The following definitions apply to this section:¶
(1) Bank. "Bank" means the ground bordering a river, stream, lake, or sea, or forming the edge of a cut or hollow.¶
¶

Deleted: Streams

Stream Title	*County-Limits*	*Flood Season*
Alta Main Canal	Fresno	1
American River	Sacramento - to Nimbus Dam	2
Antelope Creek	Placer - to settlement ponds	2
Antelope Creek	Tehama	2
Angel Slough	Butte	2
Arcade Creek	Sacramento - to Roseville Road	2
Ash Creek	Modoc	2
Ash Slough	Madera	2
Atherton Cove	San Joaquin - northeast bank only	2
Auburn Ravine	Sutter and Placer	2
Banta Carbona Intake Canal	San Joaquin	2
Beacon Creek	Sacramento - Morrison Creek to Franklin Boulevard	2
Battle Creek	Tehama	2
Bear Creek	Merced	2
Bear Creek	San Joaquin up to Jack Tone Road	2
Bear Creek	Shasta, reach within designated floodway of the Sacramento River	2
Bear River	Sutter Placer & Yuba	2
Berenda Slough	Madera - A venue 21-1/2 to Ash Slough	2
Best Slough	Yuba	2
Big Chico Creek	Butte	2
Black Rascal Creek	Merced	2
Butte Basin	Butte, Glenn, and Colusa	2
Butte Creek	Butte and Glenn - to Skyway Bridge	2
Butte Creek Diversion Canal	Sutter	2
Butte Slough	Sutter	2
Byrd Slough	Fresno	1
Cache Creek	Yolo, Yolo Bypass to 1/2 mile west of I-5	2
Cache Slough	Solano	2
Calaveras River	San Joaquin - to New Hogan Dam	2
Cameron Slough	Fresno within the Kings River designated floodway	1
Canal Creek	Merced	2
Cherokee Creek	Butte	2
Chowchilla Canal Bvnass	Merced, Madera and Mariposa	1
Chowchilla River	Merced Madera and Mariposa to Buchanan Dam	2
Chum Creek	Shasta - within Sacramento River floodway	2
Cirbv Creek	Placer	2
Clarks Fork	Kings	1
Clear Creek	Shasta - Sacramento River to Whiskeytown Dam	2
Clover Creek	Shasta - to 1.1 miles upstream from Millville Plains Road	2
Clover Creek	Lake	2
Cole Slough	Fresno	1
Colusa Bypass	Colusa	2
Colusa Basin Drain and Canal	Glenn, Colusa, and Yolo	2
Colusa Trough	Colusa	2
Coon Creek	Placer and Sutter	2
Co~~n~~sumnes River	Sacramento	2
Cottonwood Creek	Shasta and Tehama - divides counties - to Dutch Gulch Dam	2
Cottonwood Creek South Fork	Tehama	2

Deleted: Streams

Stream Title	*County-Limits*	*Flood Season*
Cottonwood Creek	Tulare - St. Johns River to Grapevine Creek	2
Cow Creek	Shasta - to 0.6 miles upstream of Millville Plains	2
Cresent Bypass	Kings and Fresno - North Fork Kings River	1
Cross Creek	Kings and Tulare - Nevada Avenue to St. Johns	1
Davis Drain	Yolo	2
Dead Horse Slough	Butte	2
Deer Creek	Sacramento	2
Deer Creek	Tehama	2
Dog Creek	Fresno	2
Dry Creek	Butte	2
Dry Creek	Fresno	2
Dry Creek	Sacramento and Placer - to Antelope Creek	2
Dry Creek	Shasta, reaches within designated floodways of Clear and Cottonwood Creeks	2
Dry Creek	Stanislaus - Tuolimne River to AT &SF RR	2
Dry Creek	Sutter	2
Dry Creek	Tehama	2
Dry Creek	Tulare	2
Dry Creek	Yuba	2
Duck Creek	San Joaquin	2
Duck Creek, South Branch	San Joaquin	2
Duck Slough	Merced	2
Duck Slough	Yolo	2
Dutch John Cut Slough	Kings	1
Dye Creek	Tehama	2
East Sand Slough	Tehama - within Sacramento R. floodway	2
Eastside Bypass	Merced and Madera	1
Edendale Creek	Merced	2
El Capitan Canal	Merced	2
Elder Creek	Tehama - to Ralston Road Bridge	2
Elder Creek	Sacramento County	2
Elk Bayou	Tulare	1
Elk Slough	Yolo	2
Fahrens Creek	Merced	2
Feather River	Butte and Yuba	2
Feather River, North Fork	Plumas	2
Five Mile Slough	Fresno	1
Florin Creek	Sacramento County	2
Fourteenmile Slough	San Joaquin	2
French Camp Slough	San Joaquin	2
Fresno River	Madera to Hidden Dam	2
Fresno River, South Fork	Madera	2
Fresno Slouch	Kinas and Fresno	1
Georgiana Slough	Sacramento	2
Globe Slough	Fresno	1
Gold Run Creek	Butte	2
Haas Slough	Solano	2
Hastings Cut	Solano	2
Honcut Creek	Butte and Yuba - to 112 mile west of S.P .R.R.	2
Hughes Creek	Kings	2
Hutchinson Creek	Yuba	2

Deleted: Streams

Stream Title	*County-Limits*	*Flood Season*
Ida Island	Sacramento	2
Inside Creek	Tulare	1
James Bypass	Kings and Fresno	1
Jack Slough	Yuba	2
Kaweah River	Tulare	1
Kaweah River North Fork	Tulare	1
Kaweah River Middle Fork	Tulare	1
Kaweah River South Fork	Tulare	1
Kern River, South Fork	Kern, Isabella Dam to Tulare County Line	1
Kern River	Kern and Kings	1
Kern River Bypass Channel	Kern and Kings	1
Kings River	Kings, Tulare and Fresno - to Pine Flat Reservoir	1
Kings River, North Fork	Tulare	1
Kings River, South Fork	Tulare	1
Knights Landing Ridge Cut	Yolo	2
Laird Slough	Stanislaus	1
Laguna Creek	Sacramento-Morrison Creek to Franklin Boulevard	2
Laurel Creek	Solano	2
Ledgewood Creek	Solano	2
Linda Creek	Sacramento and Placer	2
Lindo Channel	Butte	2
Lindsey Slough	Solano	2
Little Chico Creek	Butte	2
Little Chico Diversion Canal	Butte	2
Little Cow Creek	Shasta	2
Littlejohns Creek	San Joaquin	2
Lone Tree Creek	San Joaquin	2
Lower San Joaquin River Flood Control Proiect	Fresno, Madera, and Merced	1
Magpie Creek	Sacramento - UP to Raley Boulevard	2
Main Drain Canal	Kern	1
Mariposa Bypass	Merced	1
Mariposa Creek	Merced	2
Markham Creek	Sutter	2
Mayberry Slough	Sacramento	2
McClure Creek	Tehama	2
McCoy Creek	Solano	2
Merced River	Merced	1
Middle Creek	Lake	2
Miles Creek	Merced	2
Mill Creek	Tehama Sacramento River to Hizhwav 99	2
Miners Ravine	Placer - to Interstate 80 Highwav	2
Miner Slouch	Solano	2
Mokelumne River	Sacramento San Joaquin - to Camanche Reservoir	2
Moody Slough	Solano	1
Mormon Slough	San Joaquin	2
Morrison Creek	Sacramento	2
Mosher Slough/Creek	San Joaquin - to Eight mile Road	2
Moulton Bypass and Weir	Colusa	2
Mud Creek	Butte	2

Deleted: Streams

Stream Title	*County-Limits*	*Flood Season*
Mud Slough Creek	Butte	2
Murphy Slough	Butte	2
Natomas Cross Canal	Sutter	2
Natomas East Main Drainage Canal	Sutter and Sacramento	2
Oak Run Creek	Shasta - to 0.6 miles upstream from Millville Plains Road	2
Old River	San Joaquin to Paradise Cut	1
Outside Creek	Tulare	1
Owens Creek	Merced	2
Paddy Creek and South Paddy Creek	San Joaquin to Tully Road	2
Paradise Cut	San Joaquin	1
Paynes Creek	Tehama	2
Pixley Slough	San Joaquin - Eight mile Road to Rear Creek	2
Pleasant Grove Creek Canal	Sutter and Placer - to Union Pacific R.R.	2
Porter Slough	Tulare - Road 192 to Tule River	1
Putah Creek	Yolo Solano - to Monticello Dam	2
Putah Creek South Fork	Solano	2
Red Bank Creek	Tehama, only the reach that confluences with the Sacramento River desiznated floodwav	2
Reeds Creek	Yuba	2
Sacramento Bypass	Yolo	2
Sacramento Deep Water Ship Channel	Solano and Yolo	2
Sacramento River	Kenswick Dam - to west end Sherman Island	2
Salt Creek	Shasta	2
Sand Creek	Tulare and n Fresno	2
Sandy Gulch	Butte	2
San Joaquin River	Friant Dam to West End of Sherman Island	1
Scotts Creek	Lake	2
Secret Ravine	Placer	2
Shag Slough	Solano and Yolo	2
Sheep Hollow Creek	Butte	2
Smith Canal	San Joaquin - north levee onlv	2
Sevenmile Slough	Sacramento	2
Simmerly Slough	Yuba	2
Stanislaus River	San Joaquin, Stanislaus, Calaveras, Tuolumne to Goodwin Dam	1
State Main Drain	Sutter	2
Steamboat Slough	Sacramento and Yellow	2
Stockton Diverting Canal	San Joaquin	2
Stony Creek	Tehama and Glenn	2
Sutter Bypass	Sutter	2
Sutter Slouch	Solano , Sacramento & Yolo	2
Sycamore Creek	Butte	2
Sycamore Slough	Yolo	2
Svcamore Slouch	Colusa	2
Thomes Creek	Tehama - within the Sacramento River floodway	2
Threemile Slough	Sacramento	2
Tisdale Bypass	Sutter	2
Tom Paine Slough	San Joaquin - Old River to W.P.R.R.	2
Tule River	Tulare Road 192 to Success Dam	1
Tule River, North Fork	Tulare - confluence at Hickman Creek	1

Deleted: Streams

Stream Title	*County-Limits*	*Flood Season*
Tule River. Middle Fork	Tulare - confluence at Long Canyon	1
Tule River South Fork	Tulare - confluence at Long Branch	1
Tuolumne River	Stanislaus and San Joaquin - to La Grange Dam	1
Ulatis Creek	Solano - to Cache Slouch	2
Unionhouse Creek	Sacramento	2
Wadsworth Canal	Sutter	2
Wadsworth Intercepting Canal, East	Sutter -to Township Road south hank only	2
Wadsworth Intercepting Canal, West	Sutter - south bank only	2
Walker Slough	San Joaquin	2
Walthall Slough	San Joaquin	2
Western Pacific Interceptor Channel	Yuba	2
West Side Canal	Kern	1
Willow Creek	Glenn and Colusa	2
Willow Slough and Bypass	Yolo - to SPRR	2
Wright Cut	Solano - to confluence Cache and Shag Slouch	2
Yankee Slouch	Sutter and Placer	2
Yokohl Creek	Tulare	2
Yolo Bypass	Solano and Yolo	2
Yuba River	Yuba - to Daguerre Point Dam/Highway 70	2

(a) The following definitions apply to this section:

(1) "Existing Building" means a Building constructed within a Floodway prior to the adoption of the Floodway as an Adopted Plan of Flood Control, or as otherwise authorized by the Board.

(2) "Existing Dwelling" means a structure used for Human Habitation constructed within a Floodway prior to the adoption of the Floodway as an Adopted Plan of Flood Control, or as otherwise authorized by the Board.

(3) "Existing Mobilehome" means a Mobilehome that was positioned within a Floodway prior to the adoption of the Floodway as an Adopted Plan of Flood Control, or as otherwise authorized by the Board.

(b) Dwellings, Existing Dwellings, Dwellings for Seasonal Occupancy, Buildings, and Existing Buildings within an Adopted Plan of Flood Control shall comply with the following requirements:

(1) New Dwellings are not allowed except as provided in subdivisions (d) and (e) of this section.

(2) New Dwellings for Seasonal Occupancy, Existing Dwellings, Buildings, and Existing Buildings are allowed within the Floodway under the following conditions:

(A) They are not abandoned and are maintained in a condition suitable for the approved use;

(B) They do not impede flood flows or increase bank erosion;

(C) They are properly anchored to prevent flotation during periods of high water;

(D) They shall not impact Levee integrity such as increase the seepage through a Levee or its foundation, decrease Levee slope stability, or increase erosion potential of a Levee;

(E) The lowest finished floor level of new Dwellings for Seasonal Occupancy must be a minimum of two (2) feet above the DWSE; and

(F) New Dwellings for Seasonal Occupancy and Buildings may not be constructed within the Levee Right of Way.

(3) Any exterior remodeling, modification, addition, or repair to the Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, or Existing Building which modifies the footprint or consists of replacement of over fifty (50) percent of its market value, as calculated with a generally accepted method approved by the Board, shall have prior approval by the Board and meet the following conditions:

(A) Any remodeling, modification, addition, or repair may not place the Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, or Existing Building closer to the Low Water Channel of the Floodway, or within the Levee Right of Way; and

(B) The lowest finished floor of any remodeling, modification, addition, or repair to the Dwelling, Existing Dwelling, or Dwelling for Seasonal Occupancy shall be a minimum of two (2) feet above the DWSE.

(4) If a Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, or Existing Building experiences Significant Damage, it shall not be reconstructed or replaced without the approval of the Board.

(5) A damaged Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, or Existing Building that is not repaired or replaced, shall be completely removed, along with all stored materials, equipment, and debris, within a reasonable period of time, as determined by the Board, and the area shall be restored so that there is no interference with an Adopted Plan of Flood Control.

(6) Buildings may be constructed within an Adopted Plan of Flood Control provided they conform to the following:

Deleted: Dwelling

Deleted: Structures

Deleted: (a) The following definitions apply to this section:¶
(1) Existing Dwelling — "Existing Dwelling" means a building used for human habitation constructed within a floodway prior to the adoption of the floodway as an authorized flood control project, as a plan of flood control, or as a designated floodway, or as otherwise permitted by the board.¶
(2) Existing Mobile Home — "Existing Mobile Home" means a mobile home that was positioned within a floodway prior to the adoption of the floodway as an authorized flood control project, as a plan of flood control, or as a designated floodway, or as otherwise permitted by the board.¶
(3) Existing Structure — "Existing Structure" means a building used for any purpose other than for human habitation constructed within a floodway prior to the adoption of the floodway as an authorized flood control project, as a plan of flood control, or as a designated floodway, or as otherwise permitted by the board.¶
(4) Human Habitation — "Human Habitation" means an improvement of real property used, or intended to be used, for residential purposes, including but not limited to living, sleeping, cooking, or eating.¶
(5) Seasonal Occupancy — "Seasonal Occupancy" means to occupy or reside in a dwelling only during the nonflood season.¶
(6) Residential Development — "Residential Development" means any development or subdivision where a subdivision map is required.¶
(b) Dwellings and structures within an adopted plan of flood control must comply with the following requirements:¶
(1) New dwellings, with the exception of dwellings for seasonal occupancy (nonflood season), are not permitted except as provided in subdivisions (d) and (e) of this section.¶
(2) New dwellings for seasonal occupancy and existing dwellings and structures constructed prior to adoption of the plan of flood control are permitted within the floodway under the following conditions:¶
(A) The dwelling or structure is not abandoned and is maintained in a condition suitable for the approved use;¶
(B) The dwelling or structure does not impede floodflows;¶
(C) The dwelling or structure is properly anchored to prevent flotation during periods of high water;¶
(D) The finished floor level of new dwellings for seasonal occupancy must be a minimum of two (2) feet above the design flood plane or two (2) feet above the 100–year flood elevation, whichever is higher; and (E) New dwellings for seasonal occupancy may not be constructed on a levee section or within ten (10) feet of a levee toe.¶
(3) Any exterior remodeling, modifications, additions, or repairs to the dwelling, or structure, or property which modifies the footprint or consists of replacement of over fifty (50) percent of the structure must have prior approval by the board and meet the following conditions:¶
(A) Any remodeling, modifications, additions, or repairs may not place the dwelling or structure closer to the low water channel of the floodway; and¶
the design flood plane or two (2) feet above the 100-year flood elevation, whichever is higher.¶
(4) If a dwelling or structure is damaged, due to any cause, to a cumulative extent of more than fifty (50) percent of its market value within a ten year period, the dwelling or structure may not be reconstructed or replaced without the approval of the board;¶
(5) If a damaged dwelling or structure is not repaired or replaced, the entire dwelling or structure, including all stored materials, equipment, and debris, must be completely removed within a reasonable period of time, as determined by the board, and the area restored so that there is no interference with the adopted plan of flood control.¶
(6) Structures may be constructed within an adopted plan of flood control provided they conform to the following:¶ ... [2]

Deleted: Dwelling
Deleted: Structures

(A) Buildings shall not be constructed within the Levee Right of Way;
(B) Buildings shall be securely anchored and floodproofed to at least two (2) feet above the DWSE. The floodproofing shall be consistent with the potential uses of the Building;
(C) Buildings shall be located and oriented to have minimal impact on flood flows. A hydraulic analysis considering the effect of all proposed and Existing Buildings may be required to demonstrate that there are no significant adverse hydraulic impacts due to proposed Buildings. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant; and
(D) The number of Buildings allowed is limited to the minimum reasonably necessary to accomplish an appropriate land use activity.

(c) Mobilehomes within an Adopted Plan of Flood Control shall comply with the following requirements:

(1) New Mobilehomes are not allowed unless the Mobilehomes are located within an Existing Mobilehome Park or as provided in subdivisions (d) and (e) of this section;
(2) Existing Mobilehomes, not located within a Mobilehome Park (as defined in section 114 of this division), may remain and the requirements are the same as those for Existing Dwellings;
(3) Owners of Existing Mobilehomes which are not located within a Mobilehome Park (as defined in section 114 of this division) and which are not anchored in place shall have an evacuation plan on record with the Board as defined in section 114(B)(3) of this division; and
(4) If flood damage occurs to the Mobilehome due to failure of the evacuation plan or its execution, the Mobilehome may not remain or be replaced within the Adopted Plan of Flood Control without the approval of the Board.

(d) Dwellings, Existing Dwellings, Dwellings for Seasonal Occupancy, Buildings, Existing Buildings, and Mobilehomes are allowed within designated "Zone B" shallow flooding areas as shown on some Designated Floodway maps adopted by the Board. The Board's Zone B designation is not to be confused with the Federal Emergency Management Agency's "B-zone" which relates to a different floodplain identification. In addition to the other standards in this section, the following conditions apply to Dwellings, Buildings, and Mobilehomes within a Board-designated Zone B:

(1) Dwellings, Buildings, and Mobilehomes shall not be allowed within the Levee Right of Way.
(2) New Dwellings, new Dwellings for Seasonal Occupancy, new Buildings, and Mobilehomes shall not be allowed within twenty (20) feet landward from the furthest upward surface projection of a 3h:1v slope tangent to any point on the riverbank profile (refer to attached Figure 8.01). This regulation shall be followed even if any Revetment is to be considered. An erosion analysis shall be performed to evaluate integrity of the streambank.
(3) The lowest finished floor of any remodeling, modification, addition, or repair to Dwellings, Existing Dwellings, Dwellings for Seasonal Occupancy, and Mobilehomes shall be a minimum of two (2) feet above the DWSE.
(4) Only the minimum Floodway area necessary for the placement of the Dwelling, Dwelling for Seasonal Occupancy, Building, or Mobilehome shall be used.
(5) Sufficient area of the Floodway shall remain clear of the Dwelling, Dwelling for Seasonal Occupancy, Building, or Mobilehome to prevent any increase in Stream stages and velocities.

Deleted: Dwelling
Deleted: Structures

The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(6) If a Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, Existing Building, or Mobilehome experiences Significant Damage, it shall not be reconstructed or replaced without the approval of the Board.

(7) Except for approved mining activities, excavating, or grading that would increase the depth of flooding within a Zone B and which might interfere with the safe evacuation of the area during flooding is not allowed.

(e) New Dwellings, Dwellings for Seasonal Occupancy, Buildings, and Mobilehomes along a Stream without a Levee shall be allowed landward of a minimum of twenty (20) feet from the furthest upward surface projection of a 3h:1v slope tangent to any point on the riverbank profile (see Fig. 8.1). Revetment may be added but the structures shall be set back as above. An erosion analysis shall be performed to ensure integrity of the streambank. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(f) The Board Permit approving the construction, reconstruction, improvement, or repair of a Dwelling, Dwelling for Seasonal Occupancy, Building, or Mobilehome shall run with the land, pursuant to a document executed pursuant to section 16(f) of this division. Upon transfer of title of the land, the land owner relinquishing title is responsible to provide written notification to the Board of the title transfer and the new land owner's name and address.

(g) Prior to abandonment of the Permitted Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, Existing Building, or Mobilehome, the Permittee or property owner shall notify the Board in writing of the intent to abandon the Dwelling, Existing Dwelling, Dwelling for Seasonal Occupancy, Building, Existing Building, or Mobilehome and surrender the Permit. The Permittee or property owner shall be responsible for its removal along with all appurtenance, vehicles, equipment, stockpiles of materials, and debris as directed by the Board.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) The following definitions apply to this section:

(1) "Existing Mobilehome Park" means any area within a Floodway where two (2) or more Mobilehomes have been maintained prior to the adoption of the area as an Adopted Plan of Flood Control, or as otherwise authorized by the Board.

(2) "Existing Recreational Vehicle Park" means any area within a Floodway where two (2) or more Recreational Vehicles have been maintained prior to the adoption of the area as an Adopted Plan of Flood Control, or as otherwise authorized by the Board.

(3) "Mobilehome Park" means any area within a Floodway where two (2) or more Mobilehomes are maintained.

(4) "Recreational Vehicle Park" means any area within a Floodway where two (2) or more Recreational Vehicles are maintained.

(b) Mobilehome Parks are subject to the following requirements:

(1) New Mobilehome Parks are not allowed within an Adopted Plan of Flood Control except in Floodway areas classified as Zone B as described in subdivision (d) of section 113 of this division.

(2) New Mobilehome Parks are not allowed within the Levee Right of Way.

(3) Existing Mobilehome Parks located within an Adopted Plan of Flood Control may remain if a Permit from the Board has been obtained, a current implementable evacuation plan is on file with the Board, and the following criteria are continuously enforced:

(A) The locations of all structures, Mobilehomes, Recreational Vehicles, and appurtenances are shown on the evacuation plan.

(B) The location of the river staff gauge and the gauge height that will indicate an evacuation of the Mobilehome Park are shown on the evacuation plan.

(C) The number of tow vehicles and the usual location of each tow vehicle to be used to evacuate the Mobilehome Park are shown on the evacuation plan.

(D) The locations of emergency storage areas outside the Floodway for the Mobilehomes, Recreational Vehicles, and portable and floatable structures are shown on the evacuation plan.

(E) The route to be used to evacuate Mobilehomes from the Mobilehome Park to the emergency storage area is shown on the evacuation plan.

(F) After the initiation of an evacuation, all Mobilehomes not anchored in place and all Recreational Vehicles, and portable and floatable structures are removed from the Floodway within the time period specified in the evacuation plan.

(G) Existing multiple wide Mobilehomes, unless specially designed for quick removal, are anchored in place with concrete deadmen.

(H) New multiple wide Mobilehomes, unless specially designed for quick removal, are not allowed.

(I) A copy of the evacuation plan is provided to all residents of the Mobilehome Park.

(J) The Mobilehome Park Permittee or the manager has a duplicate of all keys necessary to move each Mobilehome and a signed statement allowing the removal of an absentee owner's Mobilehome during an emergency evacuation.

(K) The Mobilehome Park Permittee accepts sole responsibility for initiating an evacuation of the Mobilehome Park.

(L) Mobilehomes not anchored in place, all portable structures, and Recreational Vehicles have axles, wheels, and any required tow hitch installed, and are in a readily movable condition at all times.

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Deleted: (2) Recreational Vehicle Park —…4) "Recreational Vehicle Park" means any area within a floodway…loodway where two (2) or more recreational vehicles … [4]

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(M) Any related structures, such as laundry rooms and storage buildings, are securely anchored to prevent flotation during high water and are not utilized for Human Habitation.

(N) If Significant Damage occurs to any of the Mobilehomes or other park structures due to failure of the evacuation plan or its execution in response to flooding, the park may not continue operating without approval of the Board.

(O) Facilities that would remain in place after evacuation of the park shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(c) New and Existing Recreational Vehicle Parks are allowed within an Adopted Plan of Flood Control if a Permit is obtained from the Board, a current implementable evacuation plan is on file with the Board, and the following requirements are enforced:

(1) The locations of all Recreational Vehicle pads and appurtenances are shown on the evacuation plan.

(2) All Recreational Vehicles have axles, wheels, and any required tow hitch installed, and are in readily movable condition at all times.

(3) At the initiation of an evacuation, all Recreational Vehicles are removed from the Floodway within the time period specified in the evacuation plan.

(4) At the initiation of the evacuation, all floatable and portable structures are removed from the Floodway within the time period specified in the evacuation plan.

(5) The locations of emergency storage areas outside the Floodway for Recreational Vehicles, and portable and floatable structures are shown on the evacuation plan.

(6) The location of the river staff gauge and the gauge height that will initiate an evacuation are shown on the evacuation plan.

(7) Permittees or managers of Recreational Vehicle Parks accept sole responsibility for initiating an evacuation.

(8) Any related structures, such as laundry rooms and storage buildings, are securely anchored and are not utilized for Human Habitation.

(9) If Significant Damage occurs to any of the Recreational Vehicles or other park structures due to the failure of the evacuation plan or its execution in response to flooding, the park may not continue operating without the approval of the Board.

(10) Facilities that would remain in place after evacuation of the Recreational Vehicle Park shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(d) Incidental day-use of Recreational Vehicles within an Adopted Plan of Flood Control does not require a Board Permit.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

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Deleted: (d) The following restrictions apply to recreational vehicles within an adopted plan of flood control that are not in a recreational vehicle park:¶
(1) The random use of recreational vehicles within an adopted plan of flood control does not require a permit from the board. Recreational vehicles are not permitted overnight within the floodway during the flood season. However, recreational vehicles may be stored in those limited areas where dwellings are p... [18]

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1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

a) Dredged, spoil, or waste material, regardless of their composition, shall not be placed on the Levee crown, Levee slopes, adjacent Seepage Berm or Stability Berm, Levee Toe drains or relief wells, within any portion of the Levee Right of Way, or within the limits of a Floodway without prior approval of the Board.
(b) Suitable dredged, spoil, or waste material may, upon Board approval, be placed on or against the landside Levee slope provided that the applicant submits sufficient evidence demonstrating that placement will not be detrimental to the safety of the Levee, toe drains, Seepage Berms or relief wells; and will not impact access or flood fighting operations.
(c) Dredged material shall be drained of excess moisture before being placed, and shall have the moisture content controlled to the required limits to obtain proper compaction of the material.
(d) All placement of dredged, spoil or waste material shall be done pursuant to all applicable Board Standards and the approved Permit.
(e) Dredged, spoil, or waste material is typically not allowed to be placed in the Floodway, but if approved by the Board the material shall not redirect flows or cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.
(f) Hazardous dredged, spoil, or waste materials may not be placed within an Adopted Plan of Flood Control.

Deleted: (a) Dredged, spoil, or waste materials, regardless of their composition, may not be deposited on the levee crown, levee slopes, or within the limits of a project floodway without specific prior approval of the board.¶
(b) Suitable dredged, spoil, or waste material may be deposited on or against the landside levee slope if the board determines thatnot detrimental to the safety of the levee.¶
(c) Dredged materials must be drained of excess moisture before being used as fill material.¶
(d) Dredged, spoil, or waste materials may not be deposited within the limits of the stream channel, project floodway, or within a bypass area without a determination by the board as to the effect of the deposition regarding¶
(1) the flood–carrying capacity of the stream channel, floodway, or bypass; (2) recreational and environmental factors; and (3) fish and wildlife.¶
¶

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609, 8708, 8709 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) The removal of earthen material and related activities within the limits of an Adopted Plan of Flood Control or that may impact an Adopted Plan of Flood Control are subject to the provisions of this section. The Board may limit removal of earthen material for Borrow (mining) and excavation activities based on the geotechnical characteristics, hydraulics, hydrology, sediment transport, and history of the site. The Board may waive specific requirements for Borrow and excavation activities if the Permittee provides appropriately detailed geotechnical, hydraulic, and/or sediment transport studies which the Board then deems sufficient to justify the waiver. The Board may waive the requirement for a Permit or for detailed geotechnical, hydraulic, and/or sediment transport studies for Borrow and excavation activities of a minor, incidental, or temporary nature. Borrow and excavation activities may be allowed if:

(1) The activity shall not negatively impact Levee stability or underseepage performance;

(2) The activity shall not cause an unplanned change of the Stream's alignment;

(3) The activity shall not change the sediment transport downstream from the site in a manner that produces or tends to produce increased flood or erosion concerns; and

(4) The activity is consistent with the overall flood control objectives for the area.

(b) General requirements for Borrow and excavation include the following, unless other specific provisions for a specific area or Stream modify these requirements:

(1) A geotechnical analysis may be required before initiating any Borrow or excavation activity within a Leveed Floodway or on the landside of a Levee within four hundred (400) feet of the Levee Right of Way. The geotechnical analysis shall include seepage modeling performed by a California registered civil engineer demonstrating that the Borrow or excavation configuration is stable and will not adversely impact the underseepage and stability characteristics of the adjacent Levee. The seepage modeling shall be performed for Stream stage at the DWSE. Within or adjacent to Urban Criteria Areas, the seepage modeling shall include evaluation of performance for the Stream stage at the Hydraulic Top of Levee and demonstrate compliance with Levee underseepage requirements of the Urban Levee Design Criteria. Based upon the geotechnical analysis, the Board may deny the Permit or require monitoring, including installation of piezometers and monitoring of pore pressures to demonstrate there is no adverse impact on Levee safety.

(2) A hydraulic study and/or sediment transport study may be required by the Board before initiating any Borrow or excavation activity within a Leveed Floodway. The study shall determine if the proposed Borrow or excavation activity would increase Stream stages or velocities that may cause or increase erosion conditions during the Design Flood. A significant increase in stage or velocity or significant change to sediment transport conditions can be the basis for denying a Permit.

(3) The minimum required distance for locating a Borrow area or excavation within a Leveed Floodway is one hundred (100) feet measured from the waterside Levee Toe; geotechnical, hydraulic, and/or sediment transport studies acceptable to the Board are generally required for locating a Borrow area or excavation within a Leveed Floodway closer than three hundred (300) feet to the waterside Levee Toe.

(4) No Borrow or excavation is allowed within the existing or planned Levee Right of Way.

(5) Material may not be removed within fifty (50) feet of the Levee Toe of any Spur Levee. Additional analysis may be required to verify stability and erosion conditions of the Spur Levee for removal of material within three hundred (300) feet of the Levee Toe of the Spur Levee.

Deleted: (a) The removal of earthen material and related activities within the limits of an adopted plan of flood control are subject to the provisions of this division. The board may limit borrow and excavation activities based on the area's hydraulics, hydrology, sediment transport, and history of the borrow sites. The board may waive specific requirements for borrow or excavation activities if the permittee provides detailed studies which the considers sufficient to justify the waiver.¶
Borrow and excavation activities maya be allowed if:¶
(1) The activity willnot cause an unplanned change of the stream's location;¶
(2) The sediment transport downstream will not change in a manner that produces or tends to produce increased flood or erosion problems in the area; and¶
(3) The activity is consistent with the overall flood control objectives for the area.¶
(b) General requirements for all borrow permits include the following, unless other specific provisions for a specific area or stream modify these requirements:¶
(6) Any levee crown or access ramp used to transport borrow material must be maintained by the permittee in the same or better condition as existed at the start of the borrow operation.¶
(A) A surveyed longitudinal profile of the existing levee crown roadway and access ramps to be utilized for access to the borrow area must be submitted to the board prior to any excavation.¶
(B) A surveyed longitudinal profile of the levee crown and access ramps utilized for access to the borrow area must be submitted yearly as well as upon abandonment of the borrow area.¶
(C) Upon order of the board, the permittee shall restore a damaged levee and/or access ramp to the original profile.¶
2) Land and channel borrow material of any type may not be stored at any time on a levee section or within ten (10) feet of either toe 3) No land and channel borrow material may be stored in a manner that could destabilize a riverbank, e.g., within thirty (30) feet of the top of bank .¶
(4) Periodic topographic surveys of the active borrow area and vicinity may be required.¶
(5) All boundaries of an active borrow area must be delineated by steel posts or other permanent markers which are clearly visible.¶
(6) Stockpiles of materials or the storage of equipment, unless securely anchored, downed trees or brush, and floatable material of any kind are not allowed within a floodway during the flood season as defined in Table 8.1.¶
(7) Excavation is not permitted within one hundred (100) feet of a levee toe or property line within the floodway.¶
(8) Material may not be removed within fifty (50) feet of the toe of any spur levee. A spur levee is a levee that protrudes into the floodway for the purpose of directing the flow of floodwater.¶
(9) Channel or berm excavations are not permitted within a leveed floodway where there is active erosion unless an engineering study demonstrates that the borrow will not exacerbate the erosion.¶
(10) The side slopes of the perimeter of a borrow area may not exceed three (3) feet horizontal to one (1) foot vertical.¶
(11) The upstream and downstream ends of a borrow area connected to the low– channel shall be transitioned into the channel to prevent an abrupt change in streamflow velocity or cause an obstruction to the flow.¶
(12) The bottom of a borrow area that is seasonally dry and located within two hundred (200) feet of a levee toe shall be graded to be reasonably uniform with the gradient sloping towards the low–water channel.¶
(13) When the borrow area is to be connected to the low– water channel, excavation must start at the riverward edge of the borrow area and progress uniformly landward.¶
(14) The bottom elevation of any berm excavation may not be lower than the adjacent channel bottom without adequate setback from the channel. Five hundred (500) feet is generally considered an adequate setback.¶
(15) Dredging of material from channel waterways generally must be confined to the area beyond one hundred (100) feet of th ... [19]

(6) In a Floodway or less than four hundred (400) feet landward of the Levee Toe, the side slopes of the perimeter of a Borrow area or excavation shall be 5h:1v or flatter unless steeper slopes are justified by engineering analyses of seepage, stability, and erosion.

(7) The bottom of a Borrow area or excavation landward of a Levee must be located above a 10h:1v slope projected downward from the landside Levee Toe, Seepage Berm toe, or Stability Berm toe unless a geotechnical analysis demonstrates that the Borrow or excavation will not adversely impact the integrity of the Levee. If the Borrow area or excavation will be seasonally dry and located within four hundred (400) feet of the landside Levee Toe, the bottom shall be graded to drain water away from the Levee Toe.

(8) Any Levee crown or Access Ramp used to transport Borrow or excavated material shall be maintained by the Permittee in the same or better condition as existed at the start of the Borrow or excavation operation.

(A) A surveyed longitudinal profile of the existing Levee crown roadway and Access Ramps to be utilized for access to the Borrow area or excavation shall be submitted to the Board prior to excavation of material.

(B) A surveyed longitudinal profile of the Levee crown roadway and Access Ramps utilized for access to the Borrow area shall be submitted yearly as well as upon abandonment of the Borrow area.

(C) The Permittee shall restore a damaged Levee and/or Access Ramp to the integrity, lines, grades, and slopes that existed at the start of the Borrow operation.

(D) The Permittee shall provide notifications to the Board when damage has occurred to a Levee and/or Access Ramp. The notifications shall include a scope of work and date when repairs will commence, to provide for inspection of the work by Board staff. The repairs shall restore the integrity of the Levee and/or Access Ramp and, to the extent practical, be completed prior to the start of Flood Season.

(9) Borrow or excavated material of any type may not be stored at any time within the Levee Right of Way without prior approval by the Board, and further setback may be required to prevent the stockpile from adversely impacting Levee integrity or operation and maintenance of the Levee.

(10) No Borrow or excavated material may be stored in a manner that could destabilize a Waterside Berm. The applicant shall demonstrate that stability of the Waterside Berm and any adjacent Levee are not impacted by the temporary storage of Borrow or excavated material.

(11) Periodic topographic surveys of the active Borrow area and vicinity may be required.

(12) All boundaries of an active Borrow area shall be delineated by steel posts or other permanent markers which are clearly visible.

(13) Stockpiles of materials or the storage of equipment, downed trees or brush, and floatable material of any kind are not allowed within a Floodway during the Flood Season.

(14) Channel or Waterside Berm excavations are not allowed within a Leveed Floodway where there is active erosion unless an engineering study demonstrates the Channel or Waterside Berm excavations will not exacerbate the erosion.

(15) The upstream and downstream ends of a Borrow area connected to a Low Water Channel shall be transitioned into the channel to prevent an abrupt change in Stream velocity or cause an Obstruction.

(16) When the Borrow area is to be connected to the Low Water Channel, excavation shall start at the riverward edge of the Borrow area and progress uniformly landward.

(17) The bottom elevation of any Waterside Berm Borrow site may not be lower than the adjacent channel bottom without adequate setback from the channel. Five hundred (500) feet is generally considered an adequate setback.

(18) Dredging of material from channel waterways generally shall be confined to the area beyond one hundred (100) feet of the toe of the bank, or the waterside Levee Toe if there is no bank. The slope of the dredging perimeter nearest the toe of the bank, or the waterside Levee Toe if there is no bank, may not exceed 5h:1v. Localized exceptions may require bank protection. Additional seepage and stability analyses shall be required to verify the integrity of the Levee Section near the dredging area.

(19) Before any Borrow operation in a Floodway, including suction dredging, is allowed within one (1) mile of a bridge, a study shall be submitted to show the Borrow operation will not adversely affect any of the bridge footings, piers, or bents.

(20) Before any Borrow operation in a Floodway, including suction dredging, is allowed within one thousand (1,000) feet of any pipeline or cable crossing beneath the channel, or within one thousand (1,000) feet of a project control structure (e.g., a weir) a study shall be submitted to show that the Borrow operation will not adversely affect that facility. A study may be required for distances greater than one thousand (1,000) feet where deemed appropriate by the Board.

(21) Any proposed Borrow operation in a Floodway within one mile of a State highway bridge shall be approved by the California Department of Transportation.

(c) If periodic inspections reveal that a Borrow operation will adversely affect an Adopted Plan of Flood Control, additional Permit conditions may be imposed, or the Permit may be revoked.

(d) Removal of sediment deposits by Local Maintaining Agencies to restore flood channel capacity may be considered Maintenance Activities.

(e) Excavations made within a Floodway that are not an approved Borrow or excavation activity shall be backfilled with suitable material in conformance with section 120(a) of this division. Analyses may be required to confirm seepage, stability, and erosion conditions have not been impacted for either the flood channel or adjacent Levee(s). Field density testing by an Approved Soils Testing Laboratory may be required to confirm the minimum relative compaction of backfill. All disturbed surface features shall be completely restored to the original condition. This restoration shall include but is not limited to, sodding, seeding, surfacing, slope protection, and bedding restoration.

Note:

Authority cited: section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

Additional Borrow standards have been established for the removal of material from the Floodway of the Yuba River. These additional standards supplement and, where in conflict with, supersede standards in section 116 of this division.

(a) Material may not be removed within four hundred (400) feet of the waterside Levee Toe of Levees of the Yuba River.

(b) Material may not be removed within four hundred (400) feet of the perimeter of any bank or Revetment.

(c) Between Daguerre Point Dam (approximately River Mile 11.4) and Cenedella Bend (approximately River Mile 4.1), material may not be removed within one thousand five hundred (1,500) feet of the top of the banks of the Yuba River.

(d) The elevation of the bottom of the Borrow area nearest the bank of the river may be no lower than ten (10) feet above the normal low-water elevation of the Yuba River.

(e) Existing Borrow pits or depressions between the Levee and four hundred (400) feet waterward of the waterside Levee Toe and adjacent to a proposed Borrow area shall be backfilled to within twenty (20) feet vertically of the Levee Crest Elevation by the Permittee of the proposed Borrow area. The backfill shall be placed in the ratio of one (1) cubic yard placed in the low areas to ten (10) cubic yards removed from the Floodway.

(f) Material may not be removed from the area between nine hundred (900) feet upstream of the Union Pacific Railroad bridge (near River Mile 1.2) and the confluence of the Yuba and Feather Rivers.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section and graphic 8.1 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

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Article 8 Standard **Section 118, Supplemental Borrow Standard for the Lower San Joaquin River Flood Control Project**

A supplemental Borrow standard has been established for the removal of material from the Floodways of the Lower San Joaquin River Flood Control Project. The standard supplements and, where in conflict with, supersedes standards in section 116 of this division. This supplemental standard requires that all Waterside Berm excavations shall connect to the channel, and the bottom of Waterside Berm excavations shall be sloped to drain away from the Levee.

Note:

Authority cited: Section 8571, Water Code.

Reference:

Sections 8608 and 8710, Water Code.

History:

1. New section filed 9-30-96; operative 10-30-96 (Register 96, No. 40).

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(a) Dams and structures that act as dams constructed in the channels of Streams must meet the following criteria:

(1) A study shall be submitted to the Board confirming that the installation of a dam will not increase flooding outside of the Floodway or increase flood damages in the Floodway.

(2) A study shall be submitted to the Board that evaluates the potential for erosion of the bank or Levee slopes upstream and downstream of the proposed dam. If the analysis shows the potential for erosion, erosion control shall be required on the bank or Levee slopes upstream and downstream of the proposed dam based on the results of the study.

(3) Earthfill, including sand, and rockfill dams shall be completely removed from the Floodway prior to the beginning of Flood Season each year and may not be reinstalled prior to the end of Flood Season unless approved by the Board. (See Table 8.1.)

(4) All stanchions shall be removed or lowered, and all flashboards and slide gates of a dam shall be removed from the Floodway prior to the beginning of Flood Season each year and may not be reinstalled prior to the end of Flood Season unless approved by the Board (see Table 8.1).

(5) The Permittee shall remove or lower all stanchions and shall remove the flashboards and slide gates of a dam within twenty four (24) hours after receiving written notification from the Board.

(6) The Permittee shall remove an earthfill or rockfill dam within ninety-six (96) hours after receiving written notification from the Board.

(7) Upon removal of an earthfill or rockfill dam, the material from the dam shall not be stockpiled within the Levee Right of Way or within the Floodway.

(8) The Permittee shall provide warning signs upstream and downstream of a rockfill dam at a distance that under normal conditions of visibility the warning will be recognizable by boaters in time to avoid danger.

(b) Crop checks, ditch banks, ditch pads, road fills, and Secondary Levees installed within Floodways may not be reinforced or revetted and shall be limited to a height, length, and orientation that will not cause a significant increase in Stream stage or velocities. Crop checks, ditch banks and ditch pads limited to a maximum height of three (3) feet above the adjacent natural ground normally do not require a Permit. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

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(a) Levees constructed, reconstructed, raised, enlarged, or modified within an Adopted Plan of Flood Control shall be designed and constructed in accordance with USACE manual "Design and Construction of Levees" (EM 1110-2-1913 which is incorporated by reference) and USACE technical letter, "Design Guidance for Levee Underseepage" (ETL 1110-2-569) which is incorporated by reference) and as supplemented with the following standards (see Figure 8.02 for illustrated details, dimensions, and terminology for Levees and Floodways):

(1) Levee construction or reconstruction shall be designed, stamped, and signed by a California registered civil engineer.

(2) An engineering analysis that evaluates Levee embankment and foundation stability shall be submitted to the Board with the Permit application. The analysis shall comply with the following requirements:

(A) Document the basis for selection of the water surface elevation(s) used in the analysis for the DWSE and, in Urban Criteria Areas, the Hydraulic Top of Levee.

(B) The analysis shall verify that the waterside and landside Levee slopes are adequately designed and will be constructed to remain stable under all applicable loading conditions as per EM 1110-2-1913, and, in Urban Criteria Areas, per the Urban Levee Design Criteria.

(3) A detailed seepage and slope stability analysis, settlement analysis, erosion analysis, wind setup, and wave runup analysis for the designed flood event shall be submitted to the Board. For Levees in Urban Criteria Areas, the analyses shall also comply with the requirements of the Urban Levee Design Criteria.

(4) A copy of all geotechnical studies and tests used during the process of designing the Levee shall be provided to the Board when applying for a Permit.

(5) The applicant shall provide the Board with a permanent easement granting the Sacramento and San Joaquin Drainage District all flood control and flood control maintenance rights upon, over, and across the property to be occupied by the proposed flood control works. The easement shall include the Levee Right of Way if the area is not presently encumbered by a Board easement. The Board may require an easement over a larger area and over any property when it is foreseeable that the proposed activities subject to a Permit could potentially be injurious to or interfere with the Adopted Plan of Flood Control. The Board may waive the requirement for an easement if property rights satisfactory to the Board are provided through a different mechanism or if the flood control works will not be State Plan of Flood Control Facilities.

(6) All drains, abandoned conduits, and other penetrations shall be removed from the proposed construction site prior to or during construction.

(7) Prior to construction or enlargement of a Levee, Seepage Berm, or Stability Berm, all voids left after removal of drains, conduits, and other penetrations, and all holes, depressions, and ditches in the foundation area shall be backfilled with compacted Embankment Material unless the results of geotechnical analysis requires placement of a more permeable material. Field density testing by an Approved Soils Testing Laboratory will be required to confirm the minimum relative compaction of backfill within or adjacent to a Levee or Seepage Berm or Stability Berm.

(8) Prior to construction or enlargement of either the Levee or Seepage Berm or Stability Berm, all surface vegetation and their roots shall be removed from the area to receive fill. The depth of stripping is determined by local conditions and normally varies from six (6) to twelve (12) inches. Organic soil and roots one and one half (1-1/2) inches in diameter or larger, shall be removed to a depth of at least three (3) feet from the area to receive fill.

Deleted: (a) Levees constructed, reconstructed, raised, enlarged, or modified within afloodway shall be designed and constructed in accordance with the U.S. Army Corps of Engineers manual "Design and Construction of Levees" (EM 1110–2–1913 dated March 31, 1978, which is incorporated by reference) and as supplemented with the following standards:¶
(1) Levee construction or reconstruction shall be designed by a civil engineer.¶
(2) An engineering analysis that evaluates levee embankment and foundation stability shall be submitted to the board with the permit application. The analysis must verify that the levee is adequately designed and will be constructed to remain stable under loading conditions for "Case¶
IV – Steady seepage from full flood stage" as defined in the Department of the Army manual, "Design and Construction of Levees" (EM 1110–2–1913), pp.6–6, 6– 7.¶
(3) A detailed settlement analysis, using procedures such as those described in the Department of the Army manual, "Settlement Analysis" (EM 1110–1–1904, dated September 30, 1990, which is incorporated by reference), must be submitted to the board.¶
(4) A copy of all geotechnical studies and tests used in the design determination of the levee shall be provided to the board when applying for a permit.¶
(5) The applicant shall provide the board with a permanent easement granting the Sacramento and San Joaquin Drainage District all flood control rights upon, over, and across the property to be occupied by the proposed flood control works. The easement must include the area within the proposed floodway, the levee section, and the area at least ten (10) feet in width adjacent to the landward levee toe if the area is not presently encumbered by a board easement. The board may require an easement over a larger area and over any property when it is foreseeable that the proposed activities subject to a permit would be injurious to or interfere with the adopted plan of flood control.¶
(6) All drains and abandoned conduits shall be removed from the proposed construction site prior to start of construction. ¶
(7) Prior to construction or enlargement of the embankment, all holes, depressions, and ditches in the foundation area shall be backfilled and compacted to a density equal to that of the adjacent undisturbed material. (8) Prior to construction or enlargement of the embankment, all surface vegetation shall be removed from the area to receive fill to a depth of six (6) inches. Organic soil and roots one and one–half (1–1/2) inches in diameter or larger, shall be removed from the area to receive fill to a depth of three (3) feet.¶
(9) An inspection trench shall be excavated to a minimum depth of six (6) feet beneath levees being constructed or reconstructed to a height of six (6) feet or greater. If necessary to ensure a satisfactory foundation, the depth of the inspection trench may be required to exceed six (6) feet.¶
(A) The minimum depth of an inspection trench excavated beneath levees to be constructed or reconstructed less than six (6) feet in height must be equal to the height of the design water surface above natural ground adjacent to the levee.¶
(B) The inspection trench must have a minimum bottom width of twelve (12) feet, and the side slopes must be one (1) foot horizontal to four (4) feet vertical, or flatter.¶
(C) The centerline of the inspection trench shall be located approximately under the outer edge of the shoulder of the waterside levee crown.¶
(10) When subsurface explorations disclose a pervious substratum underlying a levee to be constructed or reconstructed, a cutoff trench must be excavated to an impervious stratum, where practical.¶
(11) Cutoff trenches shall have a minimum bottom width of twelve (12) feet and the side slopes shall be one (1) foot horizontal to four (4) feet vertical, or flatter.¶
(12) Impervious material, with twenty (20) percent or more of its passing the No. 200 sieve, and having a plasticity index of eight (8) or more, and having a liquid limit of less than (50), must be used for construction of new levees and the reconstruction of existing levees. Special construction details (e.g., 4:1 slopes) may be substit ... [20]

(9) An inspection trench shall typically be excavated to a minimum depth of six (6) feet beneath Levees being constructed or reconstructed to a height of six (6) feet or greater. The inspection engineer may allow a lesser depth based on material competency. If necessary to ensure a satisfactory foundation with competent material, the depth of the inspection trench may be required to exceed six (6) feet.

(A) If the Levee to be constructed or reconstructed is less than six (6) feet in height, the depth of the inspection trench beneath the Levee shall be at least equal to the Levee height.

(B) The inspection trench shall have a minimum bottom width of twelve (12) feet, and the side slopes shall be no steeper than 0.25h:1v, or flatter if required for worker's safety.

(C) The centerline of the inspection trench shall be located approximately under the outer edge of the shoulder of the waterside Levee crown, unless justified with a geotechnical analysis, subject to Board approval, to be located under the waterside Levee slope.

(10) When subsurface explorations indicate a shallow pervious substratum underlying the Levee to be constructed or reconstructed, where practical the inspection trench shall be deepened to penetrate at least two (2) feet into an underlying low permeability stratum. If this is not practical, other seepage control measures such as Seepage Berms, pervious toe trenches, relief wells, and/or cutoff walls shall be constructed as needed to meet Levee underseepage criteria.

(11) Fill material for construction of new Levees and reconstruction, enlargement, and modification of existing Levees shall consist of Embankment Material, with the following exceptions, provided that exceptions shall not impair the usefulness or serviceability of the Levee:

(A) Special construction details may be substituted where Embankment Material is not readily attainable;

(B) The design of a new Levee structure utilizes zones of various materials or soil types;

(C) The Levee has been excavated, the Levee backfill is localized, typically involving less than ten thousand (10,000) cubic yards of fill, and adjacent undisturbed Levee material does not meet Embankment Material specifications;

(D) The fill or backfill is placed outside of the Levee Section of a wide Levee.

(12) Levee fill that does not meet Embankment Material specifications must be approved by the Board prior to placement. When placed as Levee embankment backfill or as additional Levee fill, it shall be generally consistent with engineering properties of adjacent undisturbed Levee material.

(13) Fill material for Levee embankment construction or backfill within an existing Levee embankment shall be placed and compacted in horizontal lifts with a loose lift thickness no greater than six (6) inches. For major Levee projects utilizing very large equipment, the loose lift thickness may be increased to eight (8) inches if approved by the Board prior to construction. The fill shall be compacted to either a minimum ninety seven (97) percent Standard Proctor dry density according to ASTM D698 or minimum ninety two (92) percent Modified Proctor dry density according to ASTM D1557, or equivalent. Moisture control limits are to be within minus one (-1) percent to plus three (+3) percent of optimum and zero (0) percent to plus four (+4) percent of optimum for ASTM D698 and ASTM D1557, respectively, or equivalent.

(14) Fill material for Seepage Berm and Stability Berm construction or backfill shall be placed and compacted in horizontal lifts no greater than six (6) inches in thickness. For major Levee projects utilizing very large equipment, the loose lift thickness may be increased to eight (8)

inches if approved by the Board prior to construction. The fill shall be compacted to either a minimum ninety (90) percent Standard Proctor dry density according to ASTM D698 or minimum eighty eight (88) percent Modified Proctor dry density according to ASTM D1557, or equivalent. Moisture control limits are to be within minus one (-1) percent to plus three (+3) percent of optimum and zero (0) percent to plus four (+4) percent of optimum for ASTM D698 and ASTM D1557, respectively, or equivalent.

(15) Fill material placed outside of the Projected Levee Section shall be compacted to a minimum ninety (90) percent Standard Proctor dry density according to ASTM D698 or a minimum eighty eight (88) percent Modified Proctor dry density according to ASTM D1557, or equivalent, unless otherwise directed. Moisture control limits are to be within minus one (-1) percent to plus three (+3) percent of optimum and zero (0) percent to plus four (+4) percent of optimum for ASTM D698 and ASTM D1557, respectively, or equivalent.

(16) Fill materials placed outside the Levee or Seepage Berm or Stability Berm can consist of either Embankment Materials or native excavated soils.

(17) Where zoning of the Levee and/or Seepage Berm or Stability Berm is consistent with the use of pervious material, it shall be placed in maximum six (6) inch thick layers in a manner that will prevent segregation. Compaction shall be performed to a minimum of seventy (70) percent relative density according to ASTM D2049, or equivalent. The moisture content shall be controlled to achieve the required minimum relative density.

(18) Fill material placed within four (4) feet of a structure or pipeline shall meet all requirements for Embankment Material, but with a maximum plasticity index of thirty five (35), and shall be compacted in horizontal lifts with a loose lift thickness no greater than four (4) inches using appropriate hand operated compaction equipment. Structures that would be easily damaged by soil expansion shall have this plasticity index limited to a maximum of fifteen (15). Horizontal lifts are not required alongside pipelines on Levee slopes.

(19) Fill material may only be placed within the area indicated on the submitted plans.

(20) Fill placement on the existing Levee slope shall be keyed and benched into the Levee slope. The benches shall extend into the firm soil and shall have minimum width as required by the equipment, and maximum depth of two (2) feet, and shall extend the full length of the slope. Each fill layer shall be less than six (6) inches thick. These requirements do not apply for repairs of surficial damage.

(21) Field density testing by an Approved Soils Testing Laboratory will be required to confirm the minimum relative compaction of Levee embankment fill and trench backfill. Levee embankment fill material index properties, strength tests, and/or permeability tests may be required to verify material suitability.

(22) Existing ditches, power poles, standpipes, distribution boxes, and other above-ground structures located within the Levee Right of Way shall be relocated outside of the Levee Right of Way. The required distance for relocation of ditches shall be determined based on underseepage analyses by a California registered civil engineer in accordance with section 120(a) of this division.

(23) Pipelines (but not pipeline crossings) located alongside (typically parallel to) the Levee and within the Levee Right of Way shall be relocated outside of the Levee Right of Way.

(24) Construction work of any type may not be done on Levees or within the Floodway during the Flood Season unless authorized by the Executive Officer or Chief Engineer pursuant to section 112 of this division.

(25) The areas adjacent to the Levee shall be graded to drain away from the Levee within the Levee Right of Way or for a minimum distance of fifteen (15) feet waterward of the waterside Levee Toe and twenty (20) feet landward of the landside Levee Toe, whichever is less.
(26) The finished slope of any Levee construction or reconstruction shall be 3h:1v, or flatter, on both waterside and landside slopes. Existing Levees with landside slopes of 2h:1v or flatter may be used in Levee reconstruction projects if landside slope performance has been good and Levee through-seepage breakout is not a concern, or the reconstruction includes a cutoff wall and meets minimum USACE design criteria for slope stability.
(27) The finished slopes of any bypass Levee shall be 4h:1v or flatter on the waterside and 3h:1v or flatter on the landside except as may be approved by the Board when repairing or reconstructing an existing bypass Levee that has been authorized with steeper slopes and the Levee has performed well and meets minimum stability and seepage criteria. Narrow bypasses often have Levees with steeper waterside slopes due to lack of large waves.
(28) An existing Levee Section being reconstructed, realigned, or otherwise altered, and having Encroachments that are located within the Levee that are to be replaced in-kind or modified, shall have detailed plans of the proposed Encroachment changes approved by the Board prior to start of construction.
(29) The Board may require the modification, as necessary, of existing pipelines within a Levee Section that is being raised to accommodate a higher DWSE in order to prevent seepage along the pipeline and to prevent backflow through the pipeline during the design event.
(30) Within 120 days upon completion of any Levee project, a set of "as constructed" drawings, stamped and signed by a California registered civil engineer, shall be submitted to the Board.
(31) Stone Revetment may be required on Levee slopes where turbulence, flow, or wave action may cause erosion.
(32) Grasses or other approved ground covers shall be required on new and reconstructed Levee slopes that do not have Revetment.
(33) The minimum crown width of a Levee is normally twenty (20) feet, and twelve (12) feet for Minor Tributary Levees. The Levee crown width for a Levee on a specific Stream is defined by the project document and/or operations manual in current use and shall be consistent with minimum width requirements of existing Levees on the specific Stream.
(34) A Levee having a crown width of fifteen (15) feet or less shall have vehicular turnouts at approximately two thousand-five hundred (2,500) foot intervals if there is no existing Access Ramp within that distance.
(35) As used in this subsection, the term "approved risk-based analysis" means an analysis which uses simulation modeling of river discharge versus probability of occurrence, river stage versus river discharge estimates, and river stage versus flood damage estimates and accounts for uncertainty in these functions to determine the performance of a proposed flood control feature.

(A) All Levees to be constructed or reconstructed shall have a minimum of three (3) feet of Freeboard above the DWSE, or a Crest Elevation no lower than designed using an approved risk-based analysis.

(B) Bypass Levees to be constructed or reconstructed shall have additional Freeboard as needed for large waves. The Freeboard of reconstructed bypass Levees shall not be reduced from the previously authorized design. Freeboard required for bypass Levees varies from three (3) feet to six (6) feet depending on fetch and authorized design, with wide bypasses

requiring between four (4) and six (6) feet of Freeboard due to their large fetch. Freeboard for bypass Levees may be designed using an approved risk-based analysis.

(C) Unless designed using an approved risk-based analysis, the design Freeboard of a Levee to be constructed or reconstructed shall be appropriately increased to address the following conditions, where applicable:

(i) High velocity Stream flow

(ii) Excessive wave action

(iii) Excessive hydrologic, hydraulic, or geotechnical uncertainty in the Levee design parameters

(iv) Settlement

(v) Superelevation of the water surface on the outside of a Stream's meander bend

(vi) Sea level rise

(vii) Increased peak Stream flow for the Design Flood resulting from climate change

(D) Unless designed using an approved risk-based analysis, Levees within one hundred (100) feet of a bridge, or other structure which may constrict flood flows, shall have one (1) foot of additional Freeboard.

(b) Pavement is not allowed on Levee slopes with the exception of Access Ramps and bicycle trails. Pavement subject to travel by Levee maintenance vehicles shall be designed to withstand a load of sixty-eight thousand (68,000) pounds from two consecutive sets of tandem axles. Soil tests may be required to determine that the design of the pavement can accommodate the design load.

(c) Pavement for roadways and similar uses may be allowed within the Levee Right of Way.

(d) Pavement within the Levee Right of Way shall have appropriate features to intercept seepage and prevent particle migration.

(e) Levee seepage control facilities (e.g., Seepage Berms, relief wells, toe drains, and toe ditches) shall meet the following requirements:

(1) The seepage control facilities shall be designed, stamped and signed by a California registered civil engineer.

(2) All studies and calculations relating to design and maintenance of the seepage control facility shall be submitted to the Board with the Permit application.

(3) An easement shall be provided for the seepage control facilities, consistent with the Levee Right of Way.

(f) The Board may require installation of piezometers within the Levee and the Levee Right of Way in association with construction of a new Levee or reconstruction of a Levee, with requirements for monitoring and reporting piezometric readings. Piezometer design and installation shall be approved by the Board prior to installation. Board approval is required before abandoning a piezometer.

(g) The Levee to be constructed, raised, enlarged, or modified shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(h) If a proposed project which includes Levee improvements would result in substantial Residential Development within an area that without the Levee improvements would be subject to the Federal Emergency Management Agency's regulatory 100-year floodplain constraints, the Board may require the Permittee to mitigate for any increased average annual flood damage by increasing the required level of flood protection provided by the proposed project, up to and including the 200-year flood.

(i) The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact of Secondary Levees to be constructed, reconstructed, raised, enlarged, or modified within an Adopted Plan of Flood Control. In such cases, the design standards in this section are not required, but are advisable. The Board may deny a Permit if the hydraulic impact is deemed significant.
(j) The Board may waive or modify the requirements of this section that conflict with other special Levee design requirements for Levees in the Delta outside of an Urban Criteria Area that are to be constructed, reconstructed, raised, enlarged, or modified within an Adopted Plan of Flood Control.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8598, 8608, 8609 and 8710, Water Code

History:

1. New section and figure 8.02 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).
2. Amendment of subsections (a)(5) and (a)(22) filed 12–1–2009; operative 12–31–2009 (Register 2009, No. 49).

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(a) Riprap rock armoring may be used for erosion control along Streams if the material meets the criteria below. Typical sections delineating methods of placement and dimensions of Revetment using rock are shown in Figure 8.03.

(1) Riprap rock armoring and bedding materials shall be designed by a California registered civil engineer for the Stream velocities associated with the Design Flood.

(2) Bedding materials shall be placed under the stone protection at locations where the underlying soils require such material for stabilization, considering such factors as gradation of the stone protection, soil properties of the base material, tidal fluctuation, wave action, and Stream flow velocity.

(3) Riprap shall be composed of properly sized and graded quarry stone or equivalent. Quarry stone should be durable and with an angular shape and a specific gravity of two and one-half (2-1/2) or greater. Quarry stone should not be thin or platy.

(4) Riprap shall be placed on prepared slopes or fill so that the finished slope of the rock Revetment is no steeper than one and one-half (1-1/2) feet horizontal to one (1) foot vertical (1.5h:1v) unless a steeper slope is demonstrated to be stable to the satisfaction of the Board.

(5) Quarry stone shall be placed in a manner which avoids segregation.

(6) Alternative bank protection materials may be allowed by the Board. Possible alternatives include but are not limited to: reinforced concrete, block units, biotechnical treatments, and stone-filled gabion baskets. A complete design by a California registered civil engineer shall be submitted to the Board for approval.

(7) Asphalt or other petroleum-based products shall not be used either as fill or as erosion control on a Levee Section or within a Floodway.

(8) The minimum thickness of Revetment shall be the larger of one and one-half (1-1/2) times D50 (rock diameter for which fifty (50) percent is finer by weight) or one (1) times D100 (rock diameter for which one hundred (100) percent is finer by weight) perpendicular to the bank or Levee slope.

(9) The Revetment shall extend a minimum of two (2) feet vertically above the DWSE, except where demonstrated to the satisfaction of the Board that this height is infeasible or unnecessary based on a hydraulic analysis of the site specific conditions.

(10) If bank erosion is anticipated to occur at the toe of the Revetment, the toe of the Revetment shall be properly keyed to the maximum expected scour depth. If a toe key cannot be placed, a mounded toe shall be designed in such a manner as to be launchable (EM 1110-2-1601) if erosion occurs.

(11) Revetment shall be uniformly placed and gradually transitioned into the bank, Levee slope, or adjacent Revetment.

(b) When Revetment is proposed by an applicant but not required by the Board, the standards relating to Revetment bedding, gradation, size, shape, and thickness are recommended but not required.

(c) Revetment placed by Local Maintaining Agencies to repair erosion damage to a Stream bank or Levee may be considered Maintenance Activities.

(d) The Revetment shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

Note:

Authority cited: Section 8571, Water Code

Deleted: (a) Quarry stone, cobblestone, or their equivalent may be used for erosion control along rivers and streams if the material meets the criteria below. Typical sections delineating methods of placement and dimensions of revetment using rock and sacked concrete are shown in Figures 8.02 and 8.03.¶
(1) Bedding materials must be placed under the stone protection at locations where the underlying soils require such material for stabilization, considering such factors as tidal fluctuation, wave action, and streamflow velocity.¶
three (3) feet horizontal to one (1) foot vertical or flatter.¶
(3) Cobblestone protection, having acceptable cobblestone gradations, may be used where streamflow velocities ten (10) feet from the bank do not exceed eight (8) feet per second.¶
(4) Quarry stone protection must be placed on prepared slopes steeper than three (3) feet horizontal to one (1) foot vertical.¶
(5) Quarry stone protection, meeting required gradations and sizes, may be used at locations where streamflow velocities ten (10) feet from the bank do not exceed twelve (12) feet per second.¶
(6) Required gradations of cobblestone and quarry stone are as follows:¶
¶
Cobblestone ... [21]

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section and figures 8.03 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

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(a) Irrigation ditches, drainage ditches, detention and retention ponds, and similar facilities must satisfy the following criteria:

(1) All ditches and ponds shall be located outside of the Levee Right of Way.

(2) The bottom of any ditch or pond landward of the Levee must be located above a 10h:1v slope projected downward from the landside Levee Toe, Seepage Berm toe, or Stability Berm toe unless a geotechnical analysis demonstrates that the ditch or pond will not adversely impact the integrity of the Levee.

(3) For any ditch or pond within four hundred (400) feet landward of the Levee Right of Way, the Board may require a geotechnical analysis with appropriate seepage modeling to demonstrate that the ditch or pond excavation does not result in a configuration whereby the Levee and/or Seepage Berm or Stability Berm does not meet design criteria or an existing seepage problem is worsened. The modeling shall use the DWSE and assume the ditch or pond is empty unless adequate assurances of a water level in the ditch or pond are provided to the Board. The bottom of the ditch shall remain visible and accessible for inspection of potential boils during high water. The Board may waive this geotechnical analysis requirement for a temporary ditch or pond or for a minor, shallow ditch or pond that, in the judgment of the Board, poses no risk to the integrity of the Levee.

(4) In Urban Criteria Areas, the seepage modeling shall include evaluation of performance for the Stream stage at the Hydraulic Top of Levee and comply with Levee underseepage requirements of the Urban Levee Design Criteria.

(b) Tile drains, septic systems, and similar facilities must satisfy the following criteria:

(1) Tile drains, septic systems, and similar facilities must be designed to maintain Levee safety for all seepage and stability conditions and must be located outside of the Levee Right of Way. Where other alternatives for location/features exist, these improvements shall be avoided within at least fifty (50) feet from the Levee Toe.

(2) The bottom of any tile drain, septic tank, or leach field must be located above a 10h:1v slope projected downward from the nearest Levee Toe, Seepage Berm toe, or Stability Berm toe unless a geotechnical analysis demonstrates that the tile drain, septic tank, or leach field will not adversely impact the integrity of the Levee. The geotechnical analysis shall include appropriate seepage modeling using the DWSE to verify that the facility will not result in a configuration whereby the Levee does not meet design criteria or an existing seepage problem is worsened. In Urban Criteria Areas, the seepage modeling shall include evaluation of performance for the Stream stage at the Hydraulic Top of Levee and comply with Levee underseepage requirements of the Urban Levee Design Criteria.

(3) Positive closure valves may be required on a tile drain pipeline to prevent backflow.

Deleted: (a) Irrigation ditches, drainage ditches, and similar facilities must satisfy the following criteria:¶
(1) All ditches must be located at least ten (10) feet from the levee toe.¶
(2) The bottom of any agricultural ditch must be located above the projected levee slope. Accordingly, a deep ditch may need to be located farther than the minimum ten (10) feet from the levee toe. (See Figure 8.01.)¶
(b) Tile drains, septic systems, and similar facilities must satisfy the following criteria:¶
(1) All tile drains, septic tanks, or leach fields must be located at least ten (10) feet from the levee toe.¶
(2) The bottom of any tile drain, septic tank, or leach field must be located above the projected levee slope.¶
(3) Positive closure valves may be required on a tile drain pipeline to prevent backflow.¶

Note:

Authority cited: Section 8571, Water Code.

Reference:

Sections 8608 and 8710, Water Code.

History:

1. New section filed 9-30-96; operative 10-30-96 (Register 96, No. 40).

(a) The definition for "Delta Lowlands" applies to this section. "Delta Lowlands" means those lands within the Delta that are approximately at the five (5) foot contour and below as shown in Figure 8.04.

(b) Pipelines, conduits, utility lines, and appurtenant structures shall conform to the following general criteria:

(1) In general, the installation of pipelines, conduits, and utility lines parallel to the Levee is not allowed within the Levee Right of Way, with the following exceptions:

(A) Low volt age electrical or communication lines installed pursuant to section 123(b)(7) of this division.

(B) Pipelines, conduits, and utility lines installed within or on an authorized structure, such as a pump station or a Dwelling in Reclamation District 1000 pursuant to section 133 of this division.

(2) Pipelines, conduits, utility lines, utility poles, and appurtenant structures shall not be installed within the Levee Right of Way or Floodway during the Flood Season unless authorized by the Executive Officer pursuant to section 112 of this division.

(3) Appurtenant structures such as standpipes, utility poles, distribution boxes, guy wires, and anchors are generally not allowed in the Levee Right of Way. Appurtenant structures may be allowed where they will not interfere with Levee Maintenance Activities or flood fight activities. Where there is no alternative to placing a pole within the Levee Section and/or foundation, the following requirements apply:

(A) Applicants must submit for Board approval a seepage and stability analysis that supports the request. The analysis should include boring logs of the area adjacent to the proposed pole location, identifying the stratigraphy.

(B) In order to avoid vibration that can cause cracking, new poles within the Levee Section and within fifteen (15) feet of the Levee Toe must be installed in pre-drilled holes.

(C) After installation, the entire hole should be filled with a cement-bentonite grout slurry. The slurry should fill the hole to the surrounding ground surface. Alternatively, the upper two (2) feet may be compacted soil. Soil should be mounded immediately adjacent to the pole to direct water away from the pole.

(D) Guy wires should be anchored with concrete.

(E) Exceptions and alternate pole installation techniques may be approved under some circumstances, but only after appropriate engineering review.

(F) Maintenance requirements specific to poles include:

(i) The poles shall not be allowed to deteriorate and create holes in the impervious layer.

(ii) The poles shall not be allowed to lean or fall over or interfere with Levee inspections, operations, maintenance, or flood fighting.

(iii) The bases of poles shall be kept clear of debris.

(iv) Supports and anchors shall be maintained to prevent overturning by wind or water.

(4) Appropriate visible markers, such as a metal post with paddle, acceptable to the Local Maintaining Agency shall be required to identify the location of buried pipelines, conduits, and utility lines. Markers shall be made of durable, long lasting, fire-resistant material, and shall be maintained by the Permittee until the pipeline, conduit or utility line is properly removed or abandoned. The Local Maintaining Agency may also require the Permittee to record information on the marker, including but not limited to, Encroachment identification, date of

Deleted: (a) The following definitions apply to this section:¶
(1) Delta Lowlands. "Delta Lowlands" means those lands within the Sacramento–San Joaquin Delta that are approximately at the five-(5) foot contour and below as shown in Figure 8.04.¶
(2) Delta Uplands. "Delta Uplands" means those lands within the Sacramento–San Joaquin Delta that are above the five– (5) foot contour as shown in Figure 8.04.¶
(b) Pipelines, conduits, utility lines, and appurtenant structures must conform to the following criteria:¶
(1)) Pipelines, conduits, utility lines, utility poles, and appurtenant structures may not be installed within the levee section, within ten (10) feet of levee toes, or within the floodway during the flood season unless authorized by the General Manager based on reservoir levels, stream levels, and forecasted weather conditions on a case–by–case basis, pursuant to section 11.¶
(2) Appurtenant structures such as standpipes, utility poles, distribution boxes, guy wires, and anchors, but not including siphon breakers, are generally not permitted in or below the levee crown, on the levee slopes, or within ten (10) feet of the levee toes. Appurtenant structures may be permitted where they will not interfere with levee maintenance or flood fight activities.¶
(3) Appropriate, visible markers acceptable to the local maintaining agency may be required to identify the location of buried pipelines, conduits, and utility lines. A siphon breaker or other visible appurtenance may be considered an acceptable marker for the attached buried line. Markers must be made of durable, long lasting, fire–resistant material, and must be maintained by the permittee until the pipeline, conduit or utility line is properly abandoned.¶
(4) Pipelines, conduits, and utility lines that pose a threat or danger to levee maintenance or flood fight activities, such as high–voltage lines, gas lines, and high pressure fluid lines, must be distinctively labeled to identify the contents.¶
(5) Buried high–voltage lines of greater than twenty–four (24) volts are required to be protected with schedule 40 PVC conduit, or equivalent.¶
(6) Overhead electrical and communication lines must have a minimum vertical clearance above the levee crown and access ramps of twenty–one (21) feet for lines carrying 750 volts or less, and twenty–five (25) feet for lines carrying higher voltage.¶
(7) Fluid– or gas–carrying pipelines installed parallel to a levee must be a minimum distance of ten (10) feet from the levee toe and, where practical, may not encroach into the projected levee slope.¶
(8) Low–voltage electrical or communication lines of twenty–four (24) volts or less may be installed parallel to a levee and within ten (10) feet of the levee toe when it is demonstrated to be necessary and to not interfere with the integrity of levee, levee maintenance, inspection, or flood fight procedures.¶
(9) The board may require the applicant to have any pipelines, conduits, utility lines and appurtenant structures designed by a registered civil engineer.¶
(e) Pipelines, conduits, and utility lines installed within the floodway must conform to the following additional conditions:¶
(1) Pipelines, conduits, and utility lines installed within the floodway must have a minimum cover of five (5) feet beneath the low–water channel, and a minimum of two (2) feet in the remaining area of the floodway. A greater depth of cover may be required based upon the feasibility of achieving the required cover or local soil stability and channel hydraulics.¶
(2) Open–trench backfill to cover pipes must be placed in a manner consistent with floodway characteristics such as erosion, deposition, and streamflow velocities. This requirement is generally ensured by using suitable material and compacting to the density of adjacent undisturbed material. Compaction tests by a certified oils aboratory may be required.¶
(3) In general, any standard material may be used for pipelines or conduits to be installed within the floodway ten (10) feet or more from the levee toe or the projected levee slope.¶ ... [22]

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installation, contents, contact information, date of last exercise of any closure device, and date of last inspection or pressure test.

(5) Pipelines, conduits, and utility lines that pose a threat or danger to Levee maintenance or flood fight activities, such as high-voltage lines, gas lines, and high pressure fluid lines, shall be distinctively labeled to identify the contents.

(6) Overhead electrical and communication lines shall have a minimum vertical clearance above the Levee Crest Elevation, Patrol Roads, and Access Ramps of twenty one (21) feet for lines carrying seven hundred fifty (750) volts or less, twenty five (25) feet for lines carrying between seven hundred fifty (750) volts and twenty two thousand five hundred (22,500) volts, and thirty (30) feet for lines carrying twenty two thousand five hundred (22,500) volts or higher voltage.

(7) Low voltage electrical or communication lines of twenty four (24) volts or less may be installed parallel to a Levee within the Levee Right of Way, but beyond fifteen (15) feet waterward of the waterside Levee Toe and twenty (20) feet landward of the landside Levee Toe, when it is demonstrated to be necessary and to not interfere with the integrity of Levee or appurtenances, Levee maintenance, inspection, flood fight procedures, and future planned uses of the Levee Right of Way. Such lines shall be protected within a conduit and encased in concrete or Controlled Low Strength Materials (CLSM) with a minimum thickness of four (4) inches or one-half (1/2) times the conduit exterior diameter, whichever is greater, for conduits with an exterior diameter less than two (2) feet; for larger conduits the minimum thickness of encasement is one (1) foot or one-quarter (1/4) times the conduit exterior diameter, whichever is greater.

(8) The Board shall require the applicant to have any pipelines, conduits, utility lines and appurtenant structures designed by a California registered civil engineer.

(9) All gravity drains, conduits, and utility lines installed within the Levee Right of Way shall be periodically visually inspected no less frequently than every five (5) years. Pressurized pipelines shall be periodically pressure tested no less frequently than every five (5) years against the same benchmark time and pressure that were set for pressure testing during construction (usually the pressure test during construction exceeds the design working pressure to provide a margin of safety, often in the range of one hundred twenty five (125) percent to one hundred fifty (150) percent of the design working pressure). With justification satisfactory to the Board, pressurized pipelines may be visually inspected, no less frequently than every five (5) years, instead of pressure tested. Visual inspection of the pipeline interior may be accomplished with an inspector or a camera. Alternative methods for inspection and testing may be approved by the Board for pipelines that do not contain water and would be difficult to inspect by camera, or that would present a hazard if the pipe were to leak during a pressure test (e.g., a petroleum pipeline). Visual inspection of the exterior shall include all exposed areas and should include sample representative areas where the pipeline is in contact with soil. The Board may also require a visual inspection and/or pressure test in response to an unplanned event that may have compromised the integrity of the pipeline, such as evidence of potential damage from vandalism, Levee slope instability, or settlement. The Board may waive or reduce the requirements for visual inspection and/or pressure testing for pipelines, conduits, and utility lines of one (1) inch or less internal diameter, electrical and communication lines, and within or on Dwellings and structures authorized by the Board within the Levee Right of Way.

(10) A report of the results of pipeline, conduit, or utility line inspection and/or pressure test and any other tests shall be provided to the Board, stamped and signed by a California

registered civil engineer or a pipeline inspector certified through the National Association of Sewer Service Professionals Pipeline Assessment Certification Program.

(11) Permits for gravity drains, pressurized pipelines, conduits, and utility lines within the Levee Right of Way shall be subject to revocation after the date of required inspection and/or pressure test if the inspection and/or pressure test has not been performed, if the report of the inspection and/or pressure test has not been provided to the Board, or if the inspection and/or pressure test revealed a deficiency and that deficiency has not been repaired and documented in a report stamped and signed by a California registered civil engineer or a pipeline inspector certified through the National Association of Sewer Service Professionals Pipeline Assessment Certification Program. If the report is not provided to the Board within one (1) year after the date of required inspection and/or pressure test and the Permit has not been revoked or otherwise acted upon by the Board, the Permit automatically expires. Once the Permit has been revoked or has expired, the pipeline, conduit, or utility line and appurtenances shall be removed or properly abandoned by the Permittee at Permittee's expense pursuant to the requirements of section 124 of this division, unless the Permittee applies for a new Permit and such Permit is granted. Removal or abandonment shall be accomplished under supervision of the Board after providing written notice to the Board. Removal or abandonment shall be performed within ninety (90) days after the Permit is expired, but may occur later with Board approval, such as to avoid excavation in the Levee during the Flood Season. If the Permittee does not remove or properly abandon the pipeline, conduit, or utility line and appurtenances as required by the Board, the Board will remove or properly abandon the pipeline, conduit, or utility line and appurtenances at the Permittee's expense.

(12) The Board Permit approving the construction or modification of a pipeline, conduit, or utility line within the Levee Right of Way shall run with the land, pursuant to a recorded document executed pursuant to section 16(f) of this division. Upon transfer of title of the land, the land owner relinquishing title is responsible to provide written notification to the Board of the title transfer and the new land owner's name and address.

(13) All pipes and structures related to the piping system (e.g., sumps, distribution boxes, etc.) shall be analyzed during design for uplift based on hydraulic gradients determined pursuant to EM 1110-2-1913 using the appropriate water surface elevation(s) pursuant to section 120(a)(2)(A) of this division.

(14) Plastic pipe is not allowed within the Levee Section or foundation unless it is encased in concrete, a minimum thickness of four (4) inches or one-half (1/2) times the pipe exterior diameter, whichever is greater, for pipes with an exterior diameter less than two (2) feet; for larger pipes the minimum thickness of concrete encasement is one (1) foot or one-quarter (1/4) times the pipe exterior diameter, whichever is greater. Electrofusion butt welded high-density polyethylene is considered to be plastic for purposes of this requirement, except when installed under the Levee by horizontal directional drilling pursuant to the requirements of section 123(f) of this division.

(15) Plastic pipe and high-density polyethylene pipe within and on the Levee Section shall be protected from being damaged by fire, in areas where the Levee is subject to maintenance burning or wildfires.

(16) A new Permit may be required for installing a liner inside of an existing pipeline, conduit, or utility line if the existing pipeline, conduit, or utility line has a Permit or should have a Permit. The new Permit may establish new conditions consistent with Board Standards. The method of installing the new liner is subject to Board approval and must be appropriate for the

demonstrated integrity of the existing pipe and fill all significant voids between the liner and existing pipe without causing damage to the Levee.

(17) Replacement of an existing pipeline, conduit, or utility line within the Levee Right of Way or Floodway, including in-kind replacement and liner installation, requires a new Permit unless such replacement is performed by a Local Maintaining Agency under Maintenance Activities and prior written approval from Board staff has been provided.

(18) The pipelines, soil cover, Revetment, and related structures shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(c) Pipelines, conduits, and utility lines installed within the Floodway shall conform to the following additional conditions:

(1) Pipelines, conduits, and utility lines installed within the Floodway off the Levee Section shall be buried with a depth of cover as determined by a scour analysis performed by a California registered civil engineer. Minimum covers of five (5) feet beneath the Low Water Channel, and two (2) feet in the remaining area of the Floodway are required. As determined from the scour analysis, the same cover as provided beneath the Low Water Channel shall be maintained beyond the Low Water Channel for an appropriate distance, but not less than ten (10) feet, transitioning to the depth of cover required in the remaining area of the Floodway. A greater depth of cover may be required in the remaining area of the Floodway based upon the feasibility of achieving the required cover or local soil stability and channel hydraulics.

(2) Open trench backfill to cover pipes shall be placed in a manner consistent with Floodway characteristics such as erosion, deposition, and Stream flow velocities. This requirement is generally ensured by using suitable material and compacting to at least the density of adjacent undisturbed material, or ninety (90) percent as per ASTM D698 with moisture content within minus one (-1) percent to plus three (+3) percent of optimum, or eighty eight (88) percent as per ASTM D1557 with the moisture content within zero (0) percent to plus four (+4) percent of optimum, or equivalent. Field density testing by an Approved Soils Testing Laboratory shall be required to confirm the minimum relative compaction of trench backfill.

(3) In general, any standard material may be used for pipelines or conduits to be installed within the Floodway fifteen (15) feet or more waterward of the waterside Levee Toe, or the waterside toe of the Projected Levee Section if the location of the waterside Levee Toe is not evident.

(4) All debris that accumulates around utility poles and guy wires within the Floodway shall be completely removed following the Flood Season and immediately after major accumulations.

(d) Pipelines, conduits, and utility lines crossing over, through, or under a Levee shall conform to the following additional conditions:

(1) Pipelines, conduits, and utility lines shall be installed over, through, or under a Levee as nearly at a right angle to the Levee centerline as practical.

(2) Buried pipelines, conduits, and utility lines that do not surface near the Levee Toes shall have location markers near both Levee Toes.

(3) Buried pipelines, conduits, and utility lines that cross the Levee at right angles shall have a location marker located on the Levee slope adjacent to either shoulder. The markers should include Permit information, date installed, owner, and contact information for emergencies.

(4) Buried pipelines, conduits, and utility lines that cross the Levee at other than right angles shall have location markers on the Levee slopes adjacent to each shoulder. At least one of these

markers shall include Permit information, date installed, owner and contact information for emergencies.

(5) The invert of all pipelines shall be above the DWSE. For Levees designed without Freeboard using risk and uncertainty, the invert of all pipelines shall be above the Levee crown. Exceptions to these requirements may be allowed as follows:

(A) Where the Levee crown has additional fill that has been placed on top of the designed Levee Section, the fill may be considered as being above the Levee crown.

(B) Where a railroad line or paved public roadway for motor vehicle travel occupies the Levee crown, the invert of the pipeline otherwise required to be above the Levee crown may be placed below the Levee crown to the minimum extent required for establishing adequate cover, but in no case shall the pipeline invert be placed below the DWSE (if there is a DWSE below the Levee crown). In order to minimize the depth of cover, a reinforced concrete cover or other engineered cover is required.

(C) Where the pipeline will serve as a gravity drain pursuant to section 123(e) of this division or will be installed under the Levee pursuant to section 123(f) of this division, there is no requirement for the invert of the pipeline to be above the DWSE or Levee crown.

(6) All pressurized pipelines shall have a positive closure device, except for pipelines open to the Stream with the pipeline invert above the Levee crown. Closure instructions and any necessary equipment and keys shall be provided to the Local Maintaining Agency, if requested. The closure device shall be located as follows:

(A) For pipelines open to the Stream that have the pipeline invert below the Levee crown, the closure device shall be located at the waterside edge of the Levee crown, so that it is accessible during high water.

(B) For pipelines not open to the Stream, particularly gas lines, the closure device shall be clearly labeled for contents and located landward of the Levee outside of the Levee Right of Way but no further than one hundred (100) feet from the landside Levee Toe. For pipelines that would still be pressurized within the Levee Right of Way if such a closure device was shut, the Board may require a closure device waterward of the Levee instead or in addition.

(C) For pipelines installed by horizontal directional drilling, the closure device shall be located no farther from the Levee than the nearest points of entry and exit used for installation. Closure devices that can be controlled remotely must be located a reasonable distance from the landside Levee Toe, acceptable to the Board. For pipelines that would still be pressurized within the Levee Right of Way if such a closure device was shut, the Board may require a closure device waterward of the Levee instead or in addition.

(7) Pressurized pipelines shall be confirmed free of leaks during construction by pressure tests, X-ray, or equivalent methods, and shall be tested at the end of construction, or any time necessary, upon request of the Board. Access to the interior of the pipeline for performing periodic pressure tests (and/or visual inspection when approved by the Board) in subsequent years shall be provided so as to confine the tests or inspections to the length of pipeline within the Levee Right of Way, such as through access ports or flanged apertures or connections.

(8) Backfill for pipelines crossing over the Levee shall be compacted fill, concrete, or CLSM. No anti-seepage collars shall be allowed.

(9) Pipelines on a Levee slope shall be provided with a minimum twelve (12) inches of soil cover locally on the Levee slope which shall be transitioned horizontally to 10:1 slopes (see Figure 8.05), except where leaving the pipeline exposed on the landside Levee slope is

acceptable to the Local Maintaining Agency. The Board may require the applicant to provide additional Levee Right of Way pursuant to section 120(a)(5) of this division to compensate for the space occupied by the pipeline and/or soil cover on the Levee slope at the Levee Toe.

(10) The minimum pipeline cover over or through the Levee crown is twenty four (24) inches. It is usually necessary to increase the height of the Levee crown to provide the minimum cover, with a gradual transition of fill and Patrol Road surfacing along the longitudinal slope of the crown that is no steeper than 10h:1v. Where twenty four (24) inches of cover is not practical, a reinforced concrete cover or other engineered cover is required (see Figure 8.05).

(11) The slopes of trench walls excavated for the installation of pipelines, conduits, or utility lines that will be backfilled with compacted soil shall be constructed no steeper than 1h:1v, or flatter if required for worker's safety. This requirement does not apply where the backfill will be concrete or CLSM, unless required for worker's safety.

(12) The bottom width of trenches excavated for the installation of a pipeline, conduit, or utility line shall be a minimum of two (2) feet wider than the exterior diameter of the pipeline, conduit, or utility line or two (2) times the exterior diameter of the pipeline, conduit, or utility line, whichever is greater, unless concrete or CLSM is used. If concrete or CLSM is used for backfill, the required width shall be a minimum of eight (8) inches wider than the exterior diameter of the pipeline, conduit, or utility line or two (2) times the exterior diameter of the pipeline, conduit, or utility line, whichever is greater, for pipes with an exterior diameter less than two (2) feet; for larger pipelines the required width shall be a minimum of two (2) feet wider than the exterior diameter of the pipeline, conduit, or utility line or one and one-half (1 1/2) times the exterior diameter of the pipeline, conduit, or utility line, whichever is greater.

(13) Pipelines, conduits, and utility lines shall have a minimum vertical clearance of six (6) inches between them when crossing other pipelines, conduits, or utility lines.

(14) Pipelines, conduits, and utility lines installed parallel to each other on or within a Levee Section shall be separated with a minimum horizontal clearance of twelve (12) inches, or the exterior diameter of the largest pipeline, conduit, or utility line, whichever is larger.

(15) Pressurized pipelines crossing over the Levee or crossing through the Levee above the DWSE shall be limited to coated steel and high-density polyethylene unless it can be shown to the satisfaction of the Board that the preferred pipe material is equivalent or superior. The Board may deny use of high-density polyethylene where significant Levee settlement is expected.

(16) Steel pipelines shall have butt-welded connections, except at structures and except that a minimal number of flexible bolted joints may be allowed for steel pipelines in Levees expected to experience significant settlement after installation of the pipeline (e.g., new Levees, and Levees recently raised or enlarged). For pipelines with soil cover, each bolted joint shall be protected from soil contact within a vault that can be accessed for inspection. Seals between the vault and pipeline shall be designed to accommodate deflection and differential settlement without damage to the seal, vault, or pipeline. A report prepared by a California registered civil engineer shall be submitted for the Board's approval that justifies the need for the flexible bolted joints and estimates expected settlement of the Levee and pipeline, and deflections at the bolted joints and vaults.

(17) Steel and high-density polyethylene pipeline connections at structures shall be designed to accommodate deflection and differential settlement without leaking.

(18) High-density polyethylene pipeline joints must be electrofusion butt-welded (ASTM Standard F1055-16a, dated 2016, or equivalent).

(19) All pressurized pipelines open to the Stream shall have a siphon breaker with protective housing. The siphon breaker shall be located off the Levee crown roadway near the waterside Levee shoulder, landward of any positive closure device.

(20) Electrical lines of greater than twenty four (24) volts are required to be protected with schedule 40 polyvinyl chloride (PVC) conduit, or equivalent, encased in concrete with a minimum thickness of four (4) inches or one-half (1/2) times the conduit exterior diameter, whichever is greater, for conduits with an exterior diameter less than two (2) feet; for larger conduits the minimum thickness of concrete encasement is one (1) foot or one-quarter (1/4) times the conduit exterior diameter, whichever is greater. CLSM may be used instead of concrete for encasement of an equivalent non-plastic conduit.

(21) Communication lines and electrical lines of twenty four (24) volts or less buried within the Levee Right of Way shall be protected within a conduit and encased in concrete or CLSM with a minimum thickness of four (4) inches or one-half (1/2) times the conduit exterior diameter, whichever is greater, for pipes with an exterior diameter less than two (2) feet; for larger conduits the minimum thickness of concrete encasement is one (1) foot or one-quarter (1/4) times the conduit exterior diameter, whichever is greater. CLSM may only be used for encasing non-plastic conduit.

(22) Existing Levee erosion protection shall be restored by the Permittee if it is damaged during the installation of a pipeline, conduit, or utility line.

(23) The Permittee shall provide for replanting or reseeding Levee slopes to restore sod, grasses, or other non-woody ground covers that are destroyed or damaged during the installation of a pipeline, conduit, or utility line.

(24) The Permittee shall provide for restoring the Levee crown surfacing damaged by the installation of a pipeline, conduit, or utility line.

(25) Within the Levee Right of Way any excavation for the installation of a pipeline, conduit, or utility line shall be backfilled in less than six (6) inch layers with approved material and compacted as per section 120(a) of this division, except for backfill accomplished with concrete or CLSM.

(26) No new pipeline penetrations shall be installed through a seepage cutoff wall below the DWSE.

(e) Gravity drain pipelines crossing the Levee may be installed by the open cut method through a Levee or within the Levee foundation and shall conform to the following additional conditions:

(1) The gravity drain pipeline shall be maintained by a public agency that can demonstrate good long-term capability for maintenance of the pipeline.

(2) Gravity drain pipelines shall be constructed of reinforced concrete and equipped with a sluice gate or equivalent positive closure device at the waterside edge of the Levee crown and a flap gate at the waterside outlet.

(3) Unless CLSM is specifically approved as backfill for the entire length of the gravity drain pipeline, seepage along gravity drain pipelines shall be controlled by constructing a minimum eighteen (18) inch thick drainage layer around the landside one third (1/3) of the length of the pipeline where landside levee zoning does not provide for such drainage fill, constructed in accordance with EM 1110-2-1913 and EM 1110-2-2902. The drainage layer shall have sufficient permeability to convey seepage and filter compatibility with adjacent Levee and/or foundation materials that it contacts. If a zoned drainage layer is required to achieve this, each layer shall be a minimum of nine (9) inches thick. The terminus of the drainage layer near the landside Levee Toe shall be designed and constructed to allow seepage to exit freely without

transporting particles, and to prevent long term contamination of the drainage material. Seepage along the waterward two thirds (2/3) of the pipeline shall be controlled by any of the following methods:

(A) The pipeline is encased in reinforced concrete cast against firm undisturbed earth.

(B) The pipeline is encased in reinforced concrete battered walls at an inclination of one (1) horizontal to four (4) vertical or flatter to facilitate compaction of soil against the structure.

(C) The pipeline is encased in reinforced concrete or made of reinforced concrete pipe, backfilled with CLSM placed against undisturbed earth to at least one (1) foot above the top of the reinforced concrete.

(4) The Permitted Work shall commence and be completed prior to the Flood Season unless a Time Variance Request is approved by the Chief Engineer.

(5) Levees located within the Delta Lowlands may only be cut below the DWSE after appropriate engineering studies are performed and approved.

(f) Pipelines, conduits, and utility lines crossing a Stream channel and/or a Levee by tunneling, jacking, or boring (boring is also known as horizontal directional drilling) under the Stream channel and/or under the Levee embankment, shall meet the following additional conditions:

(1) The pipeline, conduit, or utility line shall not pass through the Levee embankment using tunneling, jacking, or boring.

(2) Installation of pipelines, conduits, or utility lines through a Levee foundation or other flood control project feature foundation shall be designed by a California registered civil engineer. The design shall include an analysis of the pipe's ability to sustain installation load and long-term loads. The design shall comply with EM 1110-2-1913, EM 1110-2-2902, and ERDC/GSL TR-02-9 and the following requirements:

(A) The pipeline, conduit, or utility line installed by tunneling or jacking shall be at least thirty (30) feet under the Levee embankment. Borings shall be a minimum of fifty (50) feet below the Levee embankment and channel unless less depth is justified with a geotechnical analysis, but the depth shall not be less than thirty (30) feet. Greater than fifty (50) feet depth may be required for borings over two thousand (2,000) feet long or when installed in adverse ground conditions.

(B) Detailed subsurface investigations shall be performed along the proposed tunneling, jacking, or boring site to determine the stratigraphy and the parameters including the limiting pressures, setback distances, and depth of cover.

(C) Grout improvements and dewatering plans associated with the pipe installation shall be designed by a California registered civil engineer experienced in such works. Plans for the ground improvements and/or dewatering shall be submitted to the Board for approval prior to start of construction.

(D) The Board may require the Permittee to complete a technical questionnaire regarding the proposed pipeline installation, construction methods, installer experience, and other information helpful to the Board for evaluating the proposed project's potential effects on the Levee and Floodway.

(E) The Levee shall be monitored for movement during and after pipe installation and any associated settlement due to pipe installation shall be repaired at the Permittee's expense. Monitoring and remediation plans shall be approved by the Board prior to installation. A survey shall be performed at the Permittee's expense to establish baseline conditions at and near the Levee crossing prior to start of construction.

(F) A contingency plan for anticipated adverse conditions and unintended occurrences during installation that could adversely impact Levee integrity shall be submitted to the Board for approval prior to start of construction.

(G) Thorough documentation of the progress of the installation is required. Such documentation shall include notes on steering and tracking, significant events, rig performance parameters such as thrust and torque, times, distances, and other relevant data. The documentation shall be made available to the Board upon request.

(H) Shaft entrance and exit points for tunneling and jacking shall be located outside of the Levee Right of Way and at least twenty (20) feet beyond the Projected Levee Section and further as needed to keep all shaft components at least twenty (20) feet from the Projected Levee Section.

(I) Fluid jetting is not allowed when crossing through the Levee Right of Way.

(J) The risk of hydraulic fracturing due to high fluid pressures used for excavation during the boring process and the risk of borehole collapse due to high fluid pressures shall be evaluated:

(i) Pressure in the annular space of the borehole shall remain below the maximum allowable pressure throughout the drilling process to minimize the potential for losing drilling mud to the surface. In establishing the maximum allowable drilling fluid pressure, the internal friction angle of the soil, the shear modulus of the soil, the depth of the soil cover, and the initial pore pressure shall be considered.

(ii) The minimum required drilling fluid pressure shall be maintained above the groundwater pressure to prevent collapse of the borehole.

(iii) The minimum required drilling fluid pressure and the maximum allowable drilling fluid pressure shall be estimated prior to construction and clearly stated in the contract documents or in the contractor's submittals.

(K) For boring installations, the following additional requirements apply:

(i) During the boring process the fluid pressure in the annular space shall be monitored. It is recommended that an external pressure measuring device shall be installed when boring beneath flood protection structures.

(ii) The drill shall not penetrate the top stratum within three hundred (300) feet from the Levee centerline on the landside. If entering or exiting the top stratum on the waterside of the Levee, the entrance or exit shall be at least twenty (20) feet farther waterward of the waterside Levee Toe than the distance between the waterside Levee Toe and an eroding bank line that meets minimum Levee slope stability requirements.

(iii) The minimum depth of cover for the pipeline, conduit, or utility line shall be established by comparing the maximum borehole pressures to the drilling pressures and the depth of scour as per section 123(c)(1) of this division.

(iv) Speed of boring shall be controlled to maintain the planned line and grade. Drill bit advance rates shall be limited to prevent pressure buildup.

(v) The annular space between the boring and pipeline shall be grouted with cement or a cement-bentonite grout mixture, with grout pressures controlled to prevent hydraulic fracturing of overlying soils.

(vi) The design depth of the pipeline, whenever feasible, shall remain below the water table when boring within a lateral distance of twenty five (25) feet from the Levee Toe.

(vii) For boring installations outside of the Delta Lowlands, containment cells adequate to hold heavy seepage along the borehole coming from the Stream, shall be constructed

at the points of entrance and exit when the installation is less than seventy (70) feet below the streambed and the installation occurs during the Flood Season, except as may be provided through a Time Variance Request granted pursuant to section 112 of this division. The containment cells shall be constructed to the elevation of the DWSE that applies at the Levee crossing.

(viii) For boring installations under Levees in the Delta Lowlands, containment cells adequate to hold heavy seepage along the borehole coming from the Stream shall be constructed at the points of entrance and exit when the installation is less than seventy (70) feet below the streambed. The containment cells shall be constructed to the elevation of the Stream stage at high tide that could be expected during the time of installation. During Flood Season, the DWSE that applies at the Levee crossing could be expected. The potential for migration of drilling fluid upward through light, weak soils needs to be addressed in the contingency plan.

(ix) Evidence of any drilling fluid returning to the surface or any surface fracturing shall require complete repair of the affected blanket layer, Levee, and flood control project feature in accordance with Board Standards.

(x) Only experienced operators who have "Proof of Training" for horizontal directional drilling by the North American Society of Trenchless Technology shall be allowed to operate the drilling equipment within the Levee Right of Way and within and under the Floodway.

(L) A Levee underseepage analysis may be required by the Board where the installation penetrates a blanket layer that may be important for Levee underseepage performance.

(M) The pipeline shall not penetrate through a cutoff wall that has been installed beneath the Levee embankment, or that is planned for installation. The penetration must be at least five (5) feet lower than the lowest elevation of the cutoff wall.

(N) Any evidence of impending danger to the Levee or flood control project feature shall be immediately reported to the Board. If unplanned deviations from the planned installation occur during installation, the installation shall immediately cease, and the issue shall be reported to the Board. If required by the Board, all equipment shall be removed, and the entire installation shall be grouted.

(O) For tunneling and jacking, the annular space between the casing and the carrier pipe should be filled with grout from the bottom using "pull back tubes." The volume of the space to be filled should be calculated and the material being placed should be measured and monitored as it is placed. Measurements should include volume, pressure, and flow rate as a minimum. A plan prepared by a California registered civil engineer for how this will be accomplished shall be provided to the Board for approval before starting the installation. The plan shall include the placing method, mix design, monitoring plan, measurement plan, and measurement devices.

(P) For tunneling and jacking, a plan prepared by a California registered civil engineer for contact grouting outside of the tunnel shall be provided to the Board for approval before starting installation. The plan needs to address pressure monitoring, injection ports, mix design, and measurement requirements.

(Q) The installed pipeline shall have watertight joints.

(g) Pipe materials allowed on a Levee, within a Levee Section, and under a Levee embankment when designed to resist all anticipated loading conditions and properly installed, are:

(1) Cast-in-place reinforced concrete pipes and box culverts may be used above and below the DWSE if the concrete wall thickness is at least six (6) inches. The pipeline liner inside of the reinforced concrete is considered to be a form for placement of the concrete and may be constructed of any suitable pipe material that will hold its form for concrete placement. Waterstops shall be installed at the cast-in-place reinforced concrete pipe joints.

(2) Precast reinforced concrete pipes and box culverts and concrete cylinder pipes may be used above and below the DWSE if the following conditions are met:

(A) Precast reinforced concrete pipe meets the ASTM C76 dated November 1, 2016.

(B) Precast reinforced concrete pipe joints and precast box culvert joints shall use rubber gaskets.

(C) The cylinders of concrete cylinder pipes are welded and corrosion protected internally and externally.

(D) When installed below the DWSE, precast reinforced concrete pipes shall be fully encased in CLSM cast against undisturbed earth to at least one (1) foot above the top of the pipeline, except for the landside one third (1/3) of the length of the pipeline where a drainage layer is installed instead of CLSM.

(3) Steel pipe may be used for all types of pipeline or conduit installations over a Levee or through a Levee above the DWSE if the following requirements are met:

(A) The steel pipe is resilient and not materially reduced in quality due to weathering, prior use or other deteriorating conditions.

(B) The steel pipe installations are corrosion-proofed externally with a coating of material such as coal-tar enamel, asphalt-dipped wrap, mortar, PVC tape, or polyethylene tape wrapped to a minimum thickness of thirty (30) mils, high solids epoxy, or equivalent.

(C) Unless a continuous internal lining of cement, mortar, or equivalent is provided, as appropriate for the fluid to be conveyed, new steel pipe installations may convey only non-corrosive material, and water is considered corrosive.

(D) The design calculations shall be submitted to the Board for approval unless the steel pipe meets the following criteria:

(i) Twelve (12) inches in diameter or less ten (10) gauge steel pipe.

(ii) Greater than twelve (12) inches and a maximum of thirty (30) inches in diameter seven (7) gauge steel pipe.

(iii) Greater than thirty (30) inches and a maximum of forty-eight (48) inches in diameter three (3) gauge steel pipe.

(4) Electrofusion butt-welded high-density polyethylene pipe may be used for all types of pipeline or conduit installations over a Levee or through a Levee above the DWSE if the following requirements are met:

(A) The design calculations, including consideration of potential Levee settlement, shall be submitted to the Board for approval.

(B) The pipe is encased in concrete and protected from ultraviolet radiation.

(5) High-density polyethylene and other standard pipe materials not subject to corrosion may be used for borings under Levees, upon approval by the Board.

(h) The following materials are not allowed within the Levee Right of Way for pipelines or conduits used to carry natural gas or fluids:

(1) Aluminum pipe.

(2) Cast iron pipe.

(3) Pipe with flanges, flexible couplings, or other mechanical couplings, except where needed for accommodating differential settlement at structures and large deflections associated with pipe settlement in a new Levee or recently enlarged Levee if approved by the Board.
(4) Prestressed concrete pipe.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8598, 8608, 8710 and 8712, Water Code

History:

1. New section and figures 8.04 and 8.05 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).
(a) This section describes the criteria with the removal of pipelines, conduits, utility lines, and appurtenances.
(1) Except as provided in section 124(b) of this division, Permitted pipelines, conduits, utility lines, and all appurtenances (such as headwalls, pumps, standpipes, or positive closure structures) that are being abandoned and are located within the Levee Right of Way, shall be completely removed, and disposed of outside the Levee Right of Way and Floodway and the Permit surrendered to the Board.
(2) The slopes of trench walls excavated to remove an abandoned pipeline or conduit from within the Levee Right of Way shall be no steeper than 1h:1v, or flatter if required for worker's safety. A slope stability analysis may be required where the depth of cut and soil properties indicate a potential for slope instability.
(3) After removal of a pipeline, conduit, utility line, or appurtenant structure from a Levee Section or Projected Levee Section, approved backfill shall be keyed in with each lift and compacted as per section 120(a) of this division.
(4) Field density testing by an Approved Soils Testing Laboratory will be required to confirm the minimum relative compaction of Levee embankment fill.
(5) Pipelines, conduits, and utility lines to be abandoned in the Floodway shall be removed if required by the Board for preventing interference with channel conveyance, contributing to bank erosion, or becoming exposed by bank erosion where the Board deems any of these situations is arising or may arise in the future, considering Floodway characteristics such as erosion, deposition, and Stream flow velocities. Abandoned pipelines, conduits, and utility lines within the Waterside Berm and thirty (30) feet of the top of the streambank shall be removed if exposed by bank erosion.
(6) After any pipeline, conduit, utility line, or appurtenance is removed from the Floodway, open trench backfill shall be placed in a manner consistent with local Floodway characteristics so as to not promote erosion or deposition. This requirement is generally ensured by using suitable material and compacting to at least the density of adjacent undisturbed material, or ninety (90) percent as per ASTM D698 with moisture content within minus one (-1) percent to plus three (+3) percent of optimum, or eighty eight (88) percent as per ASTM D1557 with the moisture content within zero (0) percent to plus four (+4) percent of optimum, or equivalent.

Deleted: ¶
(a) Abandoned pipelines, conduits, and all appurtenances (such as pumps, standpipes, or positive closure structures) that are located within a levee section, within the projected levee section, or within ten (10) feet of the levee toes shall be completely removed, when practical, and disposed of outside the floodway.¶
(1) When the invert of an abandoned pipeline or conduit within a levee is above the design flood plane elevation, the pipeline or conduit must be removed.¶
(2) An abandoned pipeline or conduit located within one (1) foot of the surface of the levee slope shall be removed.¶
(3) When the invert of an abandoned pipeline or conduit within a levee is six (6) feet or less below the design flood plane elevation, the board may require the removal of the pipeline or conduit.¶
(4) The side slopes of an excavation to remove an abandoned pipeline or conduit from within a levee must be one (1) foot horizontal to one (1) foot vertical or flatter.¶
(5) After any pipeline, conduit, or appurtenance is removed from a levee, approved backfill shall be keyed into the levee section with each lift and compacted in four– (4) to six– (6) inch layers with a relative compaction of not less than ninety (90) percent, per ASTM D1557–91, dated 1991, which is incorporated by reference and above optimum moisture content.¶
(6) Compaction tests by a certified oils aboratory will be required to verify compaction of backfill within a levee or within the projected levee section.¶
(b) Abandonment of pipelines and conduits within a floodway must be in a manner consistent with the following:¶
(1) After any pipeline, conduit or appurtenance is removed from a floodway, open–trench backfill must be placed in a manner consistent with the local conditions. Erosive stream reaches will require methods that compact the backfill to at least the density of that of adjacent soils. Compaction tests by a certified soils laboratory may be required to verify compaction within the floodway.¶
(2) Abandoned pipelines or conduits within the berm and within thirty (30) feet of the top of the streambank must not be filled with concrete but may be removed if exposed by bank erosion.¶
(c) If it is determined by the board that it is impractical or detrimental to the levee to remove an abandoned pipeline or conduit from a levee section, the pipeline or conduit must be completely filled with concrete.¶
(1) Concrete to be used to fill an abandoned pipeline or conduit must be a three– (3) sack cement mix, or equivalent, with aggregate having a maximum size of three–eighths (3/8) inch, and a water content sufficient to produce a six– (6) to eight– (8) inch slump.¶
(2) A detailed plan for filling an abandoned pipeline or conduit with concrete may be required to be submitted for approval by the board prior to start of work.¶
() A pipeline or conduit to be filled with concrete must have a minimum cover of three (3) feet below the waterward levee slope.¶
(4) See Figure 8.07 for illustrated details on sealing abandoned pipelines and conduits.¶
(d) Concrete pipes may be plugged with concrete at each end as an alternative to complete filling. The length of each plug shall be a minimum of two (2) feet or twice the diameter of the pipe, whichever is greater.¶
Note:¶
Authority cited: Section 8571, Water Code¶
¶
Reference:¶
Sections 8608 and 8710, Water Code¶
¶
History:¶
1. New section and figure 8.07 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).¶

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Compaction testing by an Approved Soils Testing Laboratory shall be required to confirm the minimum relative compaction of trench backfill.

(7) Details for removal of pipelines, conduits, and utility lines, including plans and profiles showing the limits and elevations of pipelines, conduits, and utility lines to be removed relative to the Levee embankment or flood control project feature, excavation and backfill details (such as backfill material and compaction), and existing soil strata shall be provided to the Board for review and approval prior to removal.

(b) This section describes the criteria for the filling of pipelines, conduits, utility lines, and appurtenances abandoned in place.

(1) If approved by the Board, pipelines, conduits, and utility lines penetrating the Levee foundation that have shown no history of seepage may be abandoned in place.

(2) Pipelines, conduits, and utility lines to be abandoned in place within the Floodway and the Levee Right of Way shall be completely filled with low permeability, low bleed, self-leveling, non-shrink grout. Certain types of cellular concrete may be used provided they can be shown to have similar properties.

(3) In exceptional circumstances, the Board may allow some or all of a pipeline, conduit, or utility line within the Floodway to be abandoned in place without being filled, if it is determined by the Board that it is impractical or unnecessary to remove or fill the pipeline, conduit, or utility line. The Board may require conditions that retain the Board's ability to have the Permittee remove or fill the abandoned pipeline, conduit, or utility line in the future if, in the opinion of the Board, conditions change such that removal or filling becomes necessary.

(4) In exceptional circumstances, if it is determined by the Board that it is impractical or detrimental to the Levee to remove an abandoned pipeline, conduit, or utility line from a Levee Section, the pipeline, conduit, or utility line shall be completely filled. Only pipelines, conduits, and utility lines that have shown no history of seepage and are determined to be sound by inspection or pressure testing shall be abandoned in place by filling. Factors that influence the decision to allow a pipe to be abandoned in place include, but are not limited to:

(A) Pipe material
(B) Pipe depth
(C) Pipe diameter
(D) Pipe length
(E) Levee size
(F) Presence of a railroad or State highway on Levee crown
(G) Presence of a seepage cutoff wall

(5) A detailed plan for filling an abandoned pipeline, conduit, or utility line shall be submitted for approval by the Board prior to start of work. The plan shall include plan and profile drawings with limits and elevations of pipes to be filled relative to the Levee embankment. See Figure 8.06 for illustrated details on filling abandoned pipelines and conduits.

(6) The grout or cellular concrete mix shall be approved by the Board prior to use.

(7) Grout or cellular concrete shall be pumped in an "upslope" direction so that the mix is first discharged into the lower end and the upper end is filled last by ponding of the mix, resulting in the pipe being completely filled without voids.

(8) Planned grout (or cellular concrete) pressures are to be provided to ensure that any pipe leaks do not damage the Levee or Levee foundation.

(9) Access points shall be provided along the pipe at sufficient intervals to fill the pipeline, conduit, or utility line.

(10) A pipeline, conduit, or utility line to be filled shall have a minimum depth of cover of three (3) feet below the waterside Levee slope. If the depth of cover is less than three (3) feet, the Board shall require the Permittee to remove the pipeline, conduit, or utility line.

Note:
Authority cited: Section 8571, Water Code

Reference:

Sections 8608 and 8710, Water Code

History:

1. New section and figure 8.06 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) Retaining walls within an Adopted Plan of Flood Control shall comply with the following requirements:

(1) Retaining walls parallel to the Levee are not allowed within the Levee Right of Way, except as floodwalls along the Levee crown to provide Freeboard and as required at gravity drains.

(2) Retaining walls within the Levee Right of Way shall be constructed as nearly at a right angle to the Levee centerline as practical.

(3) Retaining walls within the Levee Right of Way shall be designed by a California registered civil engineer.

(4) Retaining walls in the Floodway greater than three (3) feet in height shall be designed by a California registered civil engineer.

(5) Retaining walls within the Levee Right of Way may be made of reinforced concrete, concrete gravity section, or of equivalent material and durability.

(6) Retaining walls shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

Deleted: (a) Retaining walls within an adopted plan of flood control must comply with the following requirements:¶
(1) Retaining walls greater than three (3) feet in height must be designed by a licensed civil engineer.¶
(2) Retaining walls may be of reinforced concrete, concrete gravity section, or of equivalent material and durability.¶
(3) Retaining walls in the landside levee slope must have appropriate features that intercept seepage and prevent particle migration.¶

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8606, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) New fences shall not be constructed on the Levee Section, except as necessary for preventing unauthorized Levee access and protecting structures owned or operated by a public agency.

(1) New fences constructed on the waterside of a Levee that are partially or wholly under water during high water events shall be constructed so as to be removable by the Permittee in segments during times of high water as the water level rises up the Levee, if in the judgment of the Board the fence would impede flood flow or misdirect flow against the Levee and cause erosion. If removal is required by the Board, the Permittee shall remove fence segments at its own expense during high water events so that no part of any fence on the waterside Levee slope is submerged.

(2) Where the distance between fences would be as close as to interfere unreasonably with Levee inspection, channel inspection, Maintenance Activities, flood fight activities, and inspection or maintenance of any feature of an Adopted Plan of Flood Control, the Board may deny approval for additional fences.

(3) If, in the opinion of the Board, a fence becomes unnecessary due to changes in location of public access points or construction of other fences, the Permittee shall remove the fence at the request of the Board.

(b) Fences within the Floodway, or within the Levee Right of Way, but not on the Levee Section, shall conform to the following requirements:

(1) Fences, walls, and similar structures may be allowed within Floodways if they do not obstruct flood flows or cause the accumulation of debris that would obstruct flood flows. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(2) Fences firmly anchored and constructed parallel to the Stream flow are normally allowed.

(3) All fences parallel to a Levee shall be located outside of the Levee Right of Way.

(4) If, in the opinion of the Board, a fence becomes unnecessary due to changes in location of public access points or construction of other fences, the Permittee shall remove the fence at the request of the Board.

(5) Debris that accumulates along the fence shall be cleared and disposed outside the limits of the Floodway by the Permittee prior to the Flood Season.

(c) Gates crossing the Levee crown or within a Floodway are allowed by the Board. Gates within a Floodway or on a Levee shall conform to the following requirements:

(1) The gate width on a Levee crown shall match or exceed the width of the Levee crown with a minimum gate width of fourteen (14) feet. A gate width exceeding twenty (20) feet is normally not required. A gate width of less than fourteen (14) feet, but no less than twelve (12) feet, may be allowed on a Levee within an Urban Area if it can accommodate the Levee maintenance equipment and equipment for responding to flood or fire emergencies which shall use the gate.

(2) Cable or chain gates are not authorized across a Levee crown or across a Levee Access Ramp.

(3) Gates shall be hinged, and constructed to provide for ease of operation, maximum longevity, and public safety.

(4) Gate posts shall not penetrate the Levee by more than twelve (12) inches unless encased in concrete cast in place against firm undisturbed earth.

5) Gates may be opened by authorized personnel representing the Local Maintaining Agency, Department, Board, or USACE. Gates shall remain open when required for Levee inspections, Maintenance Activities, construction, high water patrol, and flood fight activities.

Deleted: (a) Fences within a floodway, on a levee, or near a levee must conform to the following:¶
(1) Fences, walls, and similar structures are permitted within floodways if they do not obstruct floodflows or cause the accumulation of debris that would obstruct floodflows.¶
(A) Fences firmly anchored and constructed parallel to the streamflow are normally permitted.¶
(B) Fences not parallel to the streamflow shall be designed and constructed to not adversely affect stages and velocities.¶
(2) All fences parallel to a levee must be located a minimum distance of ten (10) feet off the levee toe.¶
(3) Fences crossing a levee, where permitted, must be installed at a right angle across the levee.¶
(4) Fences crossing a levee crown must have an opening a minimum of fourteen (14) feet in width or a suitable gate installed on the levee crown.¶
(5) After January 1, 1998, new fences that are designed to give way during high water events shall not be allowed on the water side of a levee. Fences proposed to be constructed after January 1, 1998 on the water side of a levee that are partially or wholly under water during high water events, and that are located within state maintenance areas within city limits under the jurisdiction of the board, shall be constructed so as to be removable by the permittee in segments during times of high water events as the water level rises up the levee. The permittee shall remove fence segments at its own expense during high water events so that no part of any fence on the water side levee slope is submerged.¶
(6) Where the distance between fences would be so close as to interfere unreasonably with levee inspection, maintenance and flood fight activities, the board may deny approval for additional fences.¶
(7) If, in the opinion of the board, a fence becomes unnecessary due to changes in location of public access points or construction of other fences, the permittee must remove the fence at the request of the board.¶
(b) Gates within a floodway or on a levee must conform to the following:¶
(1) The gate width on a levee crown must match or exceed the width of the levee crown with a minimum gate width of fourteen (14) feet. A gate width exceeding twenty (20) feet is normally not required. A gate width of twelve (12) feet may be allowed on levees within urban areas if the levee maintenance equipment and any agricultural equipment which must use the gates are less than twelve feet in width.¶
(2) Cable or chain gates are not permitted across a levee crown or across a levee access ramp.¶
(3) Gates shall be hinged, and constructed to provide for ease of operation, maximum longevity, and public safety.¶
(4) Gates may be opened by authorized Department of Water Resources and maintenance personnel and must remain open when required for levee inspections, maintenance, construction, high water patrol, and flood fight activities.¶
(5) Where the distance between gates would be so close as to unreasonably interfere with levee inspection and maintenance, the board may deny approval for additional gates.¶
(6) If, in the opinion of the board, a gate becomes unnecessary due to changes in location of public access points or construction of other gates, the permittee must remove the gate at the request of the board.¶
(7) Keys shall be provided to local the maintaining agency and the Department of Water Resources for all locks on gates providing access to the floodway, levee ramp, levee toe, and along the levee crown.¶
(c) If the board approves an activity or encroachment that directly or indirectly may result in future unauthorized encroachments (e.g., approving levee modifications associated with a new residential development adjacent to the levee), the board may require the permittee to construct a fence parallel to the levee at a distance of ten (10) feet from the landside levee toe. If a fence is required, it must conform to board standards.¶ ... [23]

(6) Where the distance between gates would be so close as to unreasonably interfere with Levee inspection and maintenance, the Board may deny approval for additional gates.
(7) If, in the opinion of the Board, a gate becomes unnecessary due to changes in location of public access points or construction of other gates, the Permittee shall remove the gate at the request of the Board at the Permittee's expense.
(8) At the time locks are installed, keys for the locks shall be provided to the Local Maintaining Agency, Department, Board, and USACE for all locks on gates providing access to the Floodway, Levee ramps, Levee Toe, and along the Levee crown.

(d) If the Board approves Proposed Work that directly or indirectly may result in future unauthorized Encroachments (e.g., approving Levee modifications associated with a new Residential Development adjacent to the Levee), the Board may require the Permittee to construct a fence parallel to the Levee at the landward limit of the Levee Right of Way. If a fence is required, it shall conform to Board Standards.

(e) No fence, wall or other barrier may interfere with or preclude legal public access.

Note:

Authority cited: Sections 8571 and 8709.3, Water Code

Reference:

Sections 8608, 8609, 8709.3 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).
2. New subsection (a)(5), subsection renumbering, and amendment of NOTE filed 2–13–98 as an emergency; operative 2–13–98 (Register 98, No. 7). A Certificate of Compliance must be transmitted to OAL by 6–15–98 or emergency language will be repealed by operation of law on the following day.
3. New subsection (a)(5), subsection renumbering, and amendment of NOTE refilled 6–11–98 as an emergency; operative 6–11–98 (Register 98, No. 24). A Certificate of Compliance must be transmitted to OAL by 10–9–98 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 6–11–98 order transmitted to OAL 10–2–98 and filed 11–16–98 (Register 98, No. 47).

(a) The standards for construction of wharves, piers, docks, boat houses, ramps, and similar boating facilities, are as follows:

(1) Boat ramps may not be cut into the Levee Section, but may be cut into a Waterside Berm or placed on a fill. Additional analysis may be required to verify seepage, slope stability, and erosion of the Levee Section have not been impacted.

(2) Boating facilities shall be properly anchored to prevent breakaway during flood flows. Acceptable anchoring methods are as follows:

(A) Driven piling may be installed outside of the Levee Section and Projected Levee Section and shall meet the following criteria:

(i) If timber piles are used they shall be a minimum of twelve (12) inches in butt diameter and shall be pressure treated.

(ii) The elevation of the top of each pile shall be a minimum of two (2) feet above the lower of the Crest Elevation of the Levee nearest the boat dock and the Levee directly across the Stream.

(iii) The driven piling shall not penetrate a waterside blanket layer that is important for Levee underseepage performance. A geotechnical investigation will normally be required by the Board for making this determination.

(B) Cast-in-place piling may be installed within and outside of the Levee Section and Projected Levee Section and shall meet the following criteria:

(i) The piling installed within the Levee Section or Projected Levee Section shall be designed by a California registered civil engineer.

(ii) Piles that penetrate the Levee Section and Projected Levee Section shall be avoided to the extent practical.

(iii) Piles that penetrate the Levee Section, Projected Levee Section, or waterside blanket shall be cast against firm undisturbed earth.

(iv) The elevation of the top of each pile shall be a minimum of two (2) feet above the lower of the Crest Elevation of the Levee nearest the boat dock and the Levee directly across the Stream.

(3) All appurtenant facilities, including utilities and walkways, installed on or through a Levee Section to provide service to wharves, piers, or docks, shall conform to the appropriate section of the standards.

(b) After each period of high water, all debris caught by a boating facility shall be cleared and disposed of outside the limits of the Floodway and Levee Section.

(c) In the event that Levee or bank erosion injurious to the Adopted Plan of Flood Control occurs at or adjacent to a boating facility, the Permittee of the boating facility is responsible for the repair of the eroded area, and for the placement of adequate Revetment to prevent further erosion. Revetment shall meet the standards in section 121 of this division.

(d) Any existing Levee Revetment or bank Revetment damaged during the construction or operation of a boating facility shall be restored to its original condition by the Permittee of the boating facility.

(e) The Levee crown may not be used for parking boat trailers or motor vehicles except where there is adequate crown roadway width to provide twenty (20) feet of unobstructed clearance for two-way vehicular traffic.

(f) Boating materials, equipment or accessories may not be stored on Levee slopes.

(g) Floatable boating materials, equipment, or accessories shall be securely anchored when stored in the Floodway during the Flood Season.

Deleted: (a) The standards for construction of wharves, piers, docks, boat houses, ramps, and similar boating facilities, are as follows:¶
(1) Boat ramps may not be cut into the levee section, but may be cut into a berm or placed on a fill.¶
(2) Boating facilities must be properly anchored to prevent breakaway during floodflows. Acceptable anchoring methods are as follows:¶
(A) Driven piling must meet the following criteria:¶
(i) Timber piles must be a minimum of twelve (12) inches in diameter and must be pressure treated.¶
(ii) The elevation of the top of each pile must be a minimum of two (2) feet above the design flood plane.¶
(B) Concrete deadmen must meet the following criteria:¶
(i) The concrete deadman must be of sufficient size to restrain the boating facility and be a minimum of one (1) cubic yard of concrete.¶
(ii) The concrete deadman must be attached to the floating facility with a steel cable, or equivalent, of sufficient size to restrain the facility.¶
(3) All appurtenant facilities, including utilities and walkways, installed on or through a levee section to provide service to wharves, piers, or docks, must conform to the appropriate section of the standards.¶
(b) After each period of high water, all debris caught by a boating facility must be cleared and disposed of outside the limits of the floodway and levee section.¶
(c) In the event that levee or bank erosion injurious to the adopted plan of flood control occurs at or adjacent to a boating facility, the permittee of the boating facility is responsible for the repair of the eroded area, and for the placement of adequate revetment to prevent further erosion.¶
(d) Any existing levee revetment or bank revetment damaged during the construction or operation of a boating facility must be restored to its original condition by the permittee of the boating facility.¶
(e) The levee crown may not be used for parking boat trailers or motor vehicles except where there is adequate crown roadway width to provide twenty (20) feet of unobstructed clearance for two–way vehicular traffic.¶
(f) Boating materials, equipment or accessories may not be stored on levee slopes.¶
(g) Floatable boating materials, equipment, or accessories must be securely anchored when stored in the floodway during the flood season.¶
(h) Boating materials, equipment, or accessories may be stored on the levee crown if storage does not prevent adequate inspection and maintenance of the levee, does not obstruct flood fight procedures, and the following additional requirements are met:¶
(1) There is adequate levee crown roadway width to provide a minimum of twenty (20) feet of unobstructed clearance for two–way vehicular traffic.¶
(2) Where a public road or highway is on the levee crown, the design width of the roadway, including the roadway shoulders, must remain clear.¶
(3) Boating materials, equipment, or accessories may not be stored within fourteen (14) feet of the landward levee shoulder.¶
(4) Boating materials, equipment or accessories may be stored to within fourteen (14) feet of the waterward levee shoulder provided the waterward levee slope is revetted to the standards in section 121.¶
(5) Boating materials, equipment, or accessories may not be stored within thirty (30) feet of the waterward levee shoulder of a levee having an unrevetted waterward slope.¶
¶

(h) Boating materials, equipment, and accessories stored on the Levee crown shall be no closer than thirty (30) feet from the waterside Levee shoulder.
(i) Boating facilities shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) The standards for construction or modification of bridges within an Adopted Plan of Flood Control are as follows:

(1) Embankment Materials placed as backfill within the Levee Section or near bridge supports within the Floodway shall be placed and compacted in conformance with section 120(a) of this division.

(2) Driven piles shall not be placed in the Levee Right of Way or in a blanket layer on the landside or waterside of the Levee that is important for Levee underseepage performance. A geotechnical investigation will normally be required by the Board for making this determination.

(3) Driven piles shall be installed in a manner such that the driving energy does not cause cracking of the Levee. The Levee condition shall be documented before and after pile driving operations to verify cracking has not developed. All cracks that develop from the construction shall be repaired by the Permittee and the repairs are subject to Board approval.

(4) Cast-in-place piles, piers, and bents may be installed within and outside of the Levee Section and Projected Levee Section and shall meet the following criteria:

(A) The piles, piers, and bents shall be designed by a California registered civil engineer.

(B) Piles, piers, and bents that penetrate the Levee Section and Projected Levee Section shall be avoided to the extent practical.

(C) Piles, piers, and bents that penetrate the Levee Section, Projected Levee Section, or blanket layer important for Levee underseepage performance shall be predrilled and cast in place to the bottom of the upper impermeable layer of the foundation and can be driven down from this elevation. Any cracks in the Levee due to bridge construction shall be excavated and the Levee embankment repaired to its original design grade and dimensions.

(5) Bridge piers and bents within the Floodway shall be constructed in the general direction of Stream flow.

(6) Bridge piers and bents placed within a Floodway to support a widened portion of an existing bridge shall be constructed in line with existing bents and piers.

(7) Erosion control may be required on the channel banks or Levee slopes upstream and downstream of a proposed bridge.

(8) Drainage from a bridge or highway shall not be discharged onto a Levee Section or streambank.

(9) Plans showing all construction facilities (such as temporary staging, coffer dams, and falsework) which will remain in a Floodway during Flood Season, shall be submitted to the Board for approval prior to installation of these facilities.

(10) All temporary construction facilities (such as staging, coffer dams, and falsework) shall be designed to prevent bank erosion and, during the Flood Season, to withstand potential hydraulic and debris loading while maintaining maximum channel capacity. The applicant may be required to demonstrate that the temporary construction facilities are structurally adequate and neither the temporary construction facilities nor the bridge itself will create any significant hydraulic impacts. The Board may require a high water safety plan identifying responsible Parties, notification procedures, available equipment, emergency protocols, and planned actions in the event of high water.

(11) Stockpiled material, temporary buildings, construction equipment, and road detours that may obstruct Stream flows shall be removed from Floodways prior to the Flood Season.

(12) Clearance requirements for the bottom member (soffit) of a bridge shall comply with the following:

Deleted: (a) The standards for construction or modification of bridges within an adopted plan of flood control are as follows:¶
(1) Any excavation within the levee section or near bridge supports within the floodway must be backfilled in four– (4) inch to six– (6) inch layers with approved material. The levee section must be compacted to a relative compaction of not less than ninety (90) percent per ASTM D1557–91, dated 1991, which is incorporated by reference and above optimum moisture content. Compaction within the floodway must be to the density of the adjacent undisturbed material.¶
(2) Compaction tests by a certified soils laboratory may be required to verify compaction.¶
(3) Bridge piers and bents within the floodway must be constructed parallel to the direction of streamflow.¶
(4) Bridge piers and bents placed within a floodway to support a widened portion of an existing bridge must be constructed in line with existing bents and piers.¶
(5) Erosion control may be required on the channel banks or levee slopes upstream and downstream of a proposed bridge.¶
(6) Drainage from a bridge or highway may not be discharged onto a levee section or streambank.¶
(7) Plans showing all construction facilities (such as temporary staging, coffer dams, and falsework) which will remain in a floodway during flood season, must be submitted to the board for approval prior to installation of these facilities.¶
(8) All construction facilities (such as temporary staging, coffer dams, and falsework) must be designed to prevent bank erosion during normal flows and to maintain maximum channel capacity during the flood season.¶
(9) Stockpiled material, temporary buildings, construction equipment, and detours that obstruct streamflows must be removed from floodways prior to the flood season.¶
(10)(A) The bottom members (soffit) of a proposed bridge must be at least three (3) feet above the design flood plane. The required clearance may be reduced to two (2) feet on minor streams at sites where significant amounts of stream debris are unlikely.¶
(B) When an existing bridge being widened does not meet the clearance requirement above the design flood plane, the bottom structural members of the added section may be no lower than the bottom structural members of the existing bridge, except as may be caused by the extension of existing sloped structural members.¶
(C) When the clearance requirement above design flood plane would result in bridge approach ramp fill in the floodway, the clearance requirement may be reduced to the extent that reasonably balances clearance and fill that would obstruct flow, so as to maintain maximum channel capacity.¶
(11)A) Vehicular access from the roadway to the levee crown may be required at each end of a bridge.¶
(B) Vehicular access from the levee crown to the floodway and/or the landside levee toe beneath the bridge may be required. Ramps may slope upstream as necessary to provide the access required by this subdivision.¶
(12) Approved gates must be installed at right angles across the levee crown at all points of access to the levee from each end of a bridge.¶
(13) Any bridge abandoned or being dismantled must be completely removed, and must be disposed of outside the limits of the levee section and floodway.¶
(14) Pilings, piers, bents, and abutments of bridges being dismantled must be removed to at least one (1) foot below the natural ground line and at least three (3) feet below the bottom of the low water channel.¶
(15) Any bridge that is damaged to the extent that it may impair the channel or floodway capacity must be repaired or removed prior to the next flood season.¶
(16) Replacement railroad bridges must have the soffit members no lower than those of the replaced bridge, but are not required to have a specified amount of clearance above the design flood plane.¶
(17) Bridge replacements and new bridges shall be built at an elevation so that there is no depression in the crown of the l ... [24]

(A) The bottom members (soffit) of a proposed bridge on a Leveed Stream shall be no lower than the Crest Elevation of the adjacent Levee and at least three (3) feet above the DWSE, whichever is higher. If the bridge spans Levees of unequal Crest Elevation, the lower of the two (2) Crest Elevations may be used.

(B) The required clearance may be reduced by the Board to two (2) feet above the DWSE at sites on Streams that meet all of the following requirements:

(i) The Stream is small;

(ii) The Stream does not have a Levee;

(iii) The Stream is not part of the State Plan of Flood Control;

(iv) Flooding from the Stream would not enter an Urban Criteria Area; and

(v) Significant amounts of Stream debris are demonstrated to be unlikely.

(C) When an existing bridge being widened does not meet the clearance requirement above the DWSE, the bottom structural members of the added section may be no lower than the bottom structural members of the existing bridge, except as may be caused by the extension of existing sloped structural members. The Board may require a high water safety plan identifying responsible Parties, notification procedures, available equipment, and emergency protocols for prompt removal and disposal of debris from the bridge during high water.

(D) When the clearance requirement above DWSE would result in bridge approach ramp fill in the Floodway, the clearance requirement may be reduced to the extent that reasonably balances clearance and fill that would obstruct flow, so as to maintain maximum channel capacity. The Board may require a high water safety plan identifying responsible Parties, notification procedures, available equipment, and emergency protocols for prompt removal and disposal of debris from the bridge during high water.

(E) For arched bridges the clearance area above the DWSE shall be, at a minimum, equal to the area of clearance if the bridge had a horizontal soffit extending from the abutment three (3) feet above the DWSE. A hydraulic study is required to demonstrate to the Board's satisfaction that with reasonable debris loading on the bridge members lower than three (3) feet above the DWSE the hydraulic impact would not be significant. The Board may require a high water safety plan identifying responsible Parties, notification procedures, available equipment, and emergency protocols for prompt removal and disposal of debris from the bridge during high water.

(F) Replacement railroad bridges shall have the soffit members no lower than those of the replaced bridge, but are not required to have a specified amount of clearance above the DWSE. The Board may require a high water safety plan identifying responsible Parties, notification procedures, available equipment, and emergency protocols for prompt removal and disposal of debris from the bridge during high water.

(13) Vehicular access along the Levee crown at the bridge and/or beneath the bridge for inspection and maintenance shall comply with the following requirements:

(A) Vehicular access from the roadway to the Levee crown may be required at each end of a bridge.

(B) Vehicular and equipment clearance beneath the bridge soffit shall be provided as needed by the Local Maintaining Agency for operation, maintenance, repair, replacement, and rehabilitation of the Levee crown, typically between ten (10) feet and sixteen (16) feet, if the bridge roadway is not constructed directly on the Levee crown.

(C) Vehicular access from the Levee crown to the Floodway and/or the landside Levee Toe beneath the bridge may be required. Ramps may slope upstream as necessary to provide the access required by this subdivision.

(14) Gates meeting the standards in section 126 of this division shall be installed at right angles across the Levee crown at all points of access to the Levee from each end of a bridge that is a public roadway open to vehicular traffic unless the Levee crown roadway is also a public roadway open to vehicular traffic.

(15) Any bridge abandoned or being dismantled shall be completely removed, and shall be disposed of outside the limits of the Levee Right of Way and Floodway. Seepage and slope stability analyses may be required to ensure the removal of the bridge will not be detrimental to the safety of the adjoining Levee or streambank.

(16) Pilings, piers, bents, and abutments of bridges being dismantled shall be removed to at least one (1) foot below the natural ground line and at least three (3) feet below the thalweg of the mean Low Water Channel.

(17) Any bridge that is damaged to the extent that it may impair the channel or Floodway capacity shall be repaired or removed prior to the next Flood Season.

(18) With the exception of replacement railroad bridges, bridge replacements and new bridges shall be built at an elevation so that there is no depression in the crown of the Levee.

(19) The bridge shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(b) The standards for construction or modification of Low Water Crossings within an Adopted Plan of Flood Control are as follows:

(1) Low Water Crossings shall comply with all standards for bridges described in section 128 (a) above, with the exception of subparagraph 12.

(2) Low Water Crossings have no requirement for clearance above the DWSE but shall be designed and constructed to avoid impeding flood flows.

(3) Visible markers shall be provided to alert traffic in the event the crossing is submerged.

(c) The standards for maintenance of bridges within an Adopted Plan of Flood Control are as follows:

(1) The area in and around a bridge site shall be kept clear to maintain the design flow capacity.

(2) Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and be disposed of outside the limits of the Floodway prior to the Flood Season.

(3) Continuous maintenance access shall be provided both upstream and downstream from all bridges.

(4) Any accumulation of debris during high flows shall be immediately removed from a bridge site and disposed of outside the Floodway.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) Water wells and any appurtenant structures shall be located outside of the Levee Right of Way and a minimum distance of sixty (60) feet from the waterside Levee Toe, landside Levee Toe, Seepage Berm toe, Stability Berm toe, or landward extent of the flood control project feature.
(b) A Board Permit is required for water wells within the Floodway and within one hundred (100) feet of the landside Levee Toe, Seepage Berm toe, Stability Berm toe, or landward extent of the flood control project feature, subject to the following requirements:
(1) The well shall be evaluated and confirmed by a California registered civil engineer as not impacting integrity of the Levee.
(2) Use of the existing Levee Right of Way for installation or maintenance of the well is not allowed unless specifically authorized in writing by the Board.
(3) Filter pack material shall be a product of a commercial sand and gravel supplier, properly sized and graded for the surrounding soil and well screen to prevent particle infiltration, and composed of clean, round, hard, water worn siliceous material.
(4) Well screen shall be extra heavy duty wire-wound stainless steel (type 304 or equivalent).
(5) Steel casing shall be new copper bearing carbon steel, typically containing about 0.20% copper.
(c) A Board Permit may be required for water wells installed within three hundred (300) feet of the landside Levee Toe, Seepage Berm toe, Stability Berm toe, or landward extent of the flood control project feature. In general, a Board Permit is not required for water wells beyond one hundred (100) feet from the landside Levee Toe, Seepage Berm toe, Stability Berm toe, or landward extent of the flood control project feature if a written notice is provided to the Board at least two (2) weeks before installation commences and the requirements of section 129(b)(3) through (b)(5) of this division are met.
(d) Oil wells, gas wells, and any appurtenant structures shall be located a minimum distance of thirty five (35) feet from a Levee Toe, Seepage Berm toe, Stability Berm toe, or landward extent of the flood control project feature.
(e) Access roads and foundation pads within a Floodway are normally limited to an elevation of three (3) feet above the natural ground and shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.
(f) Structures and fencing at well sites within the Floodway are not allowed without approved hydraulic studies demonstrating that the proposed structure or fence would not impair the Floodway. New fences shall be in compliance with section 126(b). The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact, and shall include any impact from access roads and foundation pads. The Board may deny a Permit if the hydraulic impact is deemed significant.
(g) Stockpiled excavated material and equipment shall be removed from the Floodway prior to Flood Season.
(h) Permits for wells require that a survey monument and a permanent bench mark shall be installed at the waterside Levee Toe (or for a Stream without a Levee, the Floodway boundary), as near to the well site as practical, to serve as a vertical control to monitor subsidence.
(i) A survey shall be performed for the well by the Permittee every year until the well is properly abandoned. The surveys shall be provided to the Board within sixty (60) days. If local subsidence that exceeds regional subsidence is detected, the Permittee shall determine the cause of the local subsidence, with assistance provided by the Board. If the Board determines that the well is causing or contributing to the local subsidence, the Board may require the Permittee to reduce or terminate

Deleted: (a) Water wells and any appurtenant structures must be located a minimum distance of ten (10) feet from a levee toe.¶
(b) Oil wells, gas wells, and any appurtenant structures must be located a minimum distance of thirty–five (35) feet from a levee toe.¶
(c) Access roads, foundation pads, and stockpiled excavated material within a floodway are normally limited to an elevation of three (3) feet above the natural ground. However, if it is determined by the board that such facilities constructed to the normal elevation would have an adverse effect on the flood– carrying capacity of the floodway, the allowable elevation shall be lower.¶
(d) Structures and fencing at well sites within the floodway are not permitted without approved hydraulic studies demonstrating that the proposed structure or fence would not impair the floodway.¶
(e) Permits for water wells require that a survey monument and a permanent bench mark must be installed at the waterside levee toe, as near to the well site as practical, to serve as a vertical control to monitor subsidence.¶

well production. If the Board requires permanent termination of well production, the Permittee shall abandon the well pursuant to requirements of the local government well abandonment standards and procedures. Documentation of well abandonment shall be provided to the Board.
(j) Any unused wells in the Floodway shall be abandoned by the Permittee upon Board approval and pursuant to requirements of local government well abandonment standards and procedures. Documentation of well abandonment shall be provided to the Board.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) Patrol Roads shall meet the following criteria:

(1) Patrol Roads on Levee crowns shall be surfaced with a minimum of four (4) inches of compacted Class 2 aggregate base (Caltrans Spec. 26-1.02A), or equivalent. Additional aggregated base thickness may be required to match the thickness at adjacent Levee Sections or to address historic rutting problems.

(2) Aggregate base surfacing for Patrol Roads on Levee crowns shall be compacted to a minimum one hundred (100) percent of Standard Proctor dry density according to ASTM D698 or ninety five (95) percent of Modified Proctor dry density according to ASTM D1557, or equivalent. Moisture control limits are to be within minus one (-1) percent to plus three (+3) percent of optimum and zero (0) percent to plus four (+4) percent of optimum for ASTM D698 and ASTM D1557, respectively, or equivalent. Alternatively, the Permittee may opt to provide relative compaction sufficient to withstand a load of sixty-eight thousand (68,000) pounds from two consecutive sets of tandem axles without significant rutting during periods of seasonal precipitation.

(3) The top twelve (12) inches of subgrade supporting the aggregate base on Levee crown Patrol Roads shall be compacted to the same relative compaction standard as the aggregate base surfacing.

(4) Field density testing by an Approved Soils Testing Laboratory shall be required to confirm the minimum relative compaction.

(5) Any gravel added on top of the aggregate base for Levee crown roadways shall be rolled until it provides a firm and unyielding surface for vehicle travel.

(6) Paved Patrol Roads shall meet the design requirements for paved bicycle trails as per section 132 of this division.

(7) Patrol Road surfacing shall meet the following additional requirements:

(A) Where the Levee crown width is less than sixteen (16) feet, the minimum surfacing width shall be ten (10) feet with a smoothly tapered transition to the edge of the Levee shoulder.

(B) Where the Levee crown width is sixteen (16) feet or more, the minimum surfacing width shall be twelve (12) feet with a two (2) foot wide taper at each edge of the surfacing.

(C) Patrol Road surfacing on a Levee crown shall be sloped a minimum of two (2) percent.

(D) Whenever possible the minimum surfaced width should allow two vehicles to pass side by side.

(8) Landside Levee Toe Patrol Roads may not be constructed by cutting into the landside Levee slope to provide access.

(9) Any Patrol Road which has been excavated or damaged shall be restored to its original condition.

(b) Access Ramps are of two common types, head-on or side approach, and shall meet the following criteria:

(1) Access Ramps shall be constructed of approved imported material.

(2) The surfacing for all Access Ramps shall be the same as for Patrol Roads on Levee crowns. Subdivisions (a)(1) through (a)(5) of this section also apply to Access Ramps.

(3) Any excavation made in a Levee Section to key the Access Ramp into the Levee shall be backfilled in maximum six (6) inch layers with approved material and compacted to a relative compaction as per section 120(a) of this division. The Access Ramp is to be constructed without cutting into the Levee except as required for keying the fill into the Levee.

Deleted: (a) The following definitions apply to this section:¶
(1) Access Ramps – "Access Ramps" mean those ramps that provide access to the levee crown from adjacent property and roads.¶
(2) Patrol Roads – "Patrol Roads" means those roads that provide vehicular access along levee crowns and flood channels for inspection, maintenance, and flood fighting.¶
(b) Patrol roads must meet the following criteria:¶
(1) Patrol roads must be surfaced with a minimum of four (4) inches of compacted, class 2 aggregate base (Caltrans Spec. 26–1.02A, July 1992) which is incorporated by reference, or equivalent.¶
(2) Patrol road surfacing material must be compacted to a relative compaction of not less than ninety (90) percent per ASTM D1557–91, dated 1991, which is incorporated by reference with moisture content sufficient to obtain the required compaction .¶
(3) Compaction tests by a certified oils aboratory may be required to verify compaction.¶
(4) Paved patrol roads must meet the design requirements for paved bicycle trails, section 132.¶
(5) Levee crown surfacing must meet the following additional requirements:¶
(A) Where the crown width is less than sixteen (16) feet, the minimum surfacing width must be ten (10) feet with a smoothly tapered transition to the edge of the levee shoulder.¶
(B) Where the crown width is sixteen (16) feet or more, the minimum surfacing width must be twelve (12) feet with a two (2) foot–wide taper at each edge of the surfacing.¶
(C) The crown roadway must be sloped a minimum of two– (2) percent.¶
(6) Any patrol road which has been excavated or damaged must be restored to its original condition.¶
(c) Access ramps are of two common types, head–on or side approach, and must meet the following criteria:¶
(1) Access ramps must be constructed of approved imported material.¶
(2) The surfacing for all access ramps must be the same as for patrol roads. Subdivisions (b)(1), (b)(2) and (b)(3) of this section also apply to access ramps.¶
(3) Any excavation made in a levee section to key the ramp to the levee must be backfilled in four– (4) to six– (6) inch layers with approved material and compacted to a relative compaction of not less than ninety (90) percent per ASTM D1557–91, dated 1991, and above optimum moisture content.¶
(4) Compaction tests by a certified oils aboratory may be required to verify compaction.¶
(5) All access ramps must be constructed in such a manner so as to direct all surface drainage away from the levee section.¶
(6) Approved gates must be installed across access ramps at locations where vehicular access by the public is possible.¶
(7) Side approach ramps must be used on the waterside levee slope.¶
(8) Side approach ramps on the waterward slope of the levee must slope downstream.¶
(9) Typical plans for each type of approach ramp with restrictions and requirements are shown on Figures 8.08 and 8.09.¶
Note:¶
Authority cited: Section 8571, Water Code¶
¶
Reference:¶
Sections 8608 and 8710, Water Code¶
¶
History:¶
1. New section and figures 8.08 and 8.09 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).¶
¶

(4) Field density testing by an Approved Soils Testing Laboratory shall be required to confirm the minimum relative compaction of Levee embankment subgrades and/or Access Ramps.
(5) All Access Ramps shall be constructed in such a manner so as to direct all surface drainage away from the Levee Section.
(6) All Access Ramps shall be constructed with a grade that is no more than ten (10) percent. Waterside Access Ramps shall be constructed with a grade that is no less than five (5) percent.
(7) Approved gates pursuant to section 126 of this division shall be installed across Levee Access Ramps at locations where vehicular access by the public is possible.
(8) Side approach ramps shall be used on the waterside Levee slope.
(9) Side approach ramps on the waterside slope of the Levee shall slope downstream.
(10) Side approach ramps on the waterside slope of the Levee shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact.
(11) Typical plans for each type of Access Ramp with restrictions and requirements are shown on Figures 8.07 and 8.08.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608 and 8710, Water Code

History:

1. New section and figures 8.07 and 8.08 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) The following definitions apply to this section:

(1) Oversize Levee. "Oversize Levee" means a Levee which encompasses the minimum Oversized Levee cross-section which has a width of thirty (30) feet at design Freeboard elevation and Standard Levee Slopes. (See Figure 8.09.)

(2) Standard Size Levee. "Standard Size Levee" means a Levee which does not meet the requirements for an Oversize Levee.

(3) Standard Levee Slopes. "Standard Levee Slopes" means the landside Levee slope is two (2) horizontal feet to one (1) vertical foot and the waterside Levee slope is three (3) horizontal feet to one (1) vertical foot.

(b) Suitable vegetation, if properly maintained, is allowed within an Adopted Plan of Flood Control.

(c) Vegetation must not interfere with the integrity of the Adopted Plan of Flood Control, or interfere with maintenance, inspection, and flood fight procedures.

(d) With the exception of naturally occurring vegetation which the owner of the underlying land has no responsibility to maintain, any vegetation which negatively impacts the structural integrity of the Adopted Plan of Flood Control, interferes with the successful execution, functioning, maintenance or operation of the Adopted Plan of Flood Control, must be removed by the owner. If the owner does not remove such vegetation upon request, the Board reserves the right to have the vegetation removed at the owner's expense.

(e) Tables 8.3 through 8.6 indicate common types of vegetation considered suitable and unsuitable for planting on Levees. Other types of vegetation, not listed in Tables 8.3 through 8.6, may be approved if determined to be similar to listed suitable species or not detrimental to the integrity, operation, or maintenance of the Adopted Plan of Flood Control.

(f) Vegetation and vegetation maintenance standards for Levees are as follows:

(1) Vegetation is not allowed on the Levee crown roadway. Only properly maintained grasses or suitable ground covers are allowed on other portions of the Levee crown.

(2) Vegetation growing on Levee slopes but infringing onto the Levee crown must be trimmed or sprayed to prevent interference with flood fight, maintenance, or inspection activities.

(3) Tree branches extending above the Levee crown or above the area within the Levee Right of Way, must be pruned to maintain a minimum of twelve (12) feet vertical clearance above the Levee crown and above the area within the Levee Right of Way.

(4) Tree branches above Levee slopes must be pruned and maintained so that the distance from the Levee slope to the lowest branches, measured normal to the Levee slope, is a minimum of five (5) feet.

(5) Trees are not allowed on the crown or slopes of a Standard Size Levee or within the Levee Right of Way. Planted trees must be set back a sufficient distance from the Levee Toe to conform with the requirements of subdivision (f)(3) of this section throughout the life of the tree.

(6) Trees are allowed on Oversize Levee slopes according to the following additional criteria:

(A) Trees considered suitable and unsuitable for Oversize Levees are listed in Tables 8.3 and 8.4 respectively.

(B) Trees which will exceed fifty (50) feet in height when mature are not allowed.

(C) Trees are allowed on the waterside Levee slope of Oversize Levees up to a point five (5) vertical feet below the DWSE.

(D) Trees that, in the judgment of the Board, threaten to disturb Revetment on Levee slopes or interfere with maintenance must be removed.

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(E) Fruit and nut trees are not allowed.

(7) Trees, vines, bushes, shrubs, or any other form of woody or herbaceous vegetation that grow in a dense form and prevent visual inspection of the Levee slope and Levee Toe, produce fruit or nuts that attract burrowing rodents, or are thorny and could interfere with flood fight efforts, are not allowed on the Levee or within the Levee Right of Way.

(8) Sod, grasses, perennial flowers, and other nonwoody ground covers are allowed on Levee slopes and within the Levee Right of Way if the height of the vegetation does not exceed twelve (12) inches. Ground covers considered suitable and unsuitable on Levee slopes and within the Levee Right of Way are listed in Tables 8.5 and 8.6, respectively. In areas where vehicular access is maintained along the Levee Toe, ground covers are generally not allowed. For ground covers with specific maintenance requirements (see Table 8.5):

(A) The Permittee is responsible for maintaining the ground cover at a height less than one (1) foot;

(B) The Local Maintaining Agency reserves the right to mow the groundcover without prior notification if the height exceeds one (1) foot;

(C) Any irrigation system for the ground cover must be designed to not interfere with mowing; and

(D) Ground covers that are required by this subdivision to be mowed are generally allowed only on the upper twenty (20) feet of Levee slope.

(9) Thick-stemmed, extremely dense or woody ground covers are not allowed on Levee slopes or within the Levee Right of Way.

(10) Flower gardens where the height of the vegetation does not exceed twelve (12) inches, and which are compatible with flood fight procedures, maintenance, and inspection programs are allowed within the Levee Right of Way.

(g) Vegetation and vegetation maintenance standards for Floodways and bypasses are as follows:

(1) Vegetation is allowed within Revetment on Stream banks unless, in the judgment of the Board, it becomes a threat to the integrity of the Revetment.

(2) Invasive or difficult-to-control vegetation, whether naturally occurring or planted, that impedes or misdirects flood flows is not allowed to remain on a berm or within the Floodway or bypass.

(3) The Board may require clearing and/or pruning of trees and shrubs planted within Floodways in order to minimize Obstruction of flood flows.

(4) Trees and brush that have been cut down must be burned or removed from the Floodway prior to the Flood Season.

(h) Orchards are not allowed within bypasses but may be planted within other Floodways in accordance with the following criteria:

(1) If an orchard is abandoned, all trees must be removed and burned or disposed of outside the Floodway prior to Flood Season.

(2) Trees or brush cut prior to planting an orchard must be removed and burned or disposed of outside the Floodway prior to Flood Season.

(3) Orchard cuttings and any debris that may accumulate in the orchard during the Flood Season must be removed from the Floodway, or must be disposed of in such a manner as to leave no floatable debris within the Floodway. Cuttings and other debris must regularly be burned or removed and disposed of outside the Floodway throughout pruning activities so as to leave no floatable debris within the Floodway.

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(4) Dead trees, stumps, prunings, or other agricultural debris may not be placed on the Levee Section or within the Levee Right of Way.

(5) Tree rows must be parallel to the direction of the overbank flow and may not direct the flow toward the Levee.

(6) The spacing between rows must be a minimum of sixteen (16) feet perpendicular to the overbank flow of the Stream. The row spacing must be increased if, in the judgment of the Board, additional space is necessary for the passage of flood flows.

(i) Vegetable gardens are not allowed on the Levee slope. Vegetable gardens may be allowed within the Levee Right of Way where they will not interfere with maintenance and inspection and meet the following conditions:

(1) No large bushy plants such as corn, tomatoes, grapes and peas are within the Levee Right of Way;

(2) There is not a maintenance access road along the Levee Toe;

(3) The adjacent Levee slope is not sprayed with herbicide by the Local Maintaining Agency; and

(4) The Levee is not experiencing burrowing rodent activity. If there is burrowing rodent activity in the immediate vicinity, the vegetable garden Permittee shall control the rodents to the satisfaction of the Board or remove the garden.

(j) Irrigation of vegetation on Levee slopes must conform to the following criteria:

(1) Permanently installed irrigation systems are allowed on both Levee slopes of Oversize Levees and on the landside slope of Standard Size Levees.

(2) Surface low pressure drip irrigation systems may be used on either the landside or waterside Levee slope.

(3) Any water applied to vegetation on the Levee slope by any means must be controlled to prevent erosion of the Levee slope.

(4) Ditches may not be dug in the Levee Section, within the Levee Right of Way, or within the projected Levee Section for irrigation or drainage.

(5) Watering basins around trees must be limited to a maximum depth of twelve (12) inches.

(6) Permanently installed irrigation pipes may be buried but may be no deeper than eight (8) inches into the Levee slope.

(7) A readily accessible shutoff or control valve is required in the supply line of all irrigation systems, consistent with the requirements of section 123(d)(6), and clearly identified for Levee maintenance or flood fight personnel.

(k) The Board may Permit, with appropriate conditions, existing nonconforming vegetation after considering a number of factors, including but not limited to:

(1) Age of vegetation;
(2) Type of vegetation;
(3) Location of vegetation;
(4) Size of vegetation;
(5) Physical condition of vegetation;
(6) Whether the vegetation was planted or is naturally occurring;
(7) Condition of the Adopted Plan of Flood Control;
(8) Environmental value of the vegetation; and
(9) Ability to inspect and maintain the Levee around the vegetation.

(l) Trees removed from the Levee and from within ten (10) feet of the Levee shall have all roots larger than one and one-half (1-1/2) inches in diameter removed for a distance of at least three (3)

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Deleted: (8) Pipes supplying water to permanently installed sprinkler heads must be of approved material such as galvanized iron, schedule 40 polyvinyl chloride (PVC), class L copper, or equivalent. Aluminum pipe is not permitted.¶ … [68]
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feet from the tree trunk at ground level and the hole filled with impervious soil compacted in four (4) to six (6) inch lifts. Compaction within the Levee Section shall be a relative compaction of not less than ninety (90) percent, per ASTM D1557-91, dated 1991, which is incorporated by reference. Outside of the Levee Section, the soil shall be compacted to at least the density of adjacent undisturbed material.

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Table 8.2
Partial List of Trees *Suitable* for Oversize Levees

Alder, white	*Alnus rhombifolia*
Box Elder	*Acer negundo*
California pepper tree (male only)	*Schinus molle*
Carob tree (male only)	*Ceratonia siliqua*
China-berry	*Melia azedarach*
Chinese pistache	*Pistacia chinensis*
Coast beefwood	*Casuarina stricta*
Common catalpa	*Catalpa bignonioides*
Crape myrtle	*Lagerstroemia indica*
Dogwood, giant	*Cornus controversa*
Dogwood, Western	*Cornus nuttallii*
Fremont cottonwood (male only)	*Populus fremontii*
Goldenrain tree	*Koelreuteria paniculata*
Hackberry, Chinese	*Ce/tis sinenis*
Hackberry, common	*Celtis occidentalis*
Hackberry, European	*Celtis australis*
Maidenhair tree (male only)	*Gingko biloba*
Mayten tree	*Maytenus boaria*
Montezuma cypress	*Taxodium mucrontum*
Oak	*Ouercus spp.* *
Pagoda tree	*Sophora japonica*
Redbud, western	*Cercis occidentalis*
Redbud, eastern	*Cercis canadensis*
Sawleaf zelkova	*Zelkova serrata*
Silk tree	*Albiziajulibrissin*
Strawberry tree	*Arbutus unedo* or *Arbutus "marina"*
Tallow tree	*Sapium sebiferum*
Tupelo	*Nyssa sylvatica*

Table 8.3
Partial List of Trees *Unsuitable* on Levees

Acacia. Bailev	*Acacia bailevana*
Acacia, kangaroo thorn	*Acacia armata*
Almond	*Prunus dulcis*
Apple, crabapple	*Malus spp.* *
Apricot	*Prunus armeniaca*
Ash, Arizona	*Fraxinus velutina*
Ash, flowering	*Fraxinus ornus*
Ash Modesto	*Fraxinum velutina "Modesto"*
Blue gum	*Eucalyptus globulus*
Cedar**	*Cedrus spp.* *
Cherrv	*Prunus ayium*
Chinesejujube	*Zizyphusjujube*
Chinese wingnut	*Pterocarya stenoptera*
Citrus	*Citrus spp.* *
Coast redwood	*Sequoia sempervirens*
Colorado spruce	*Picea pungens*
Cypress**	*Cupressus spp.* *
Date palm	*Phoenix spp.* *
Elm	*Ulmus spp.* *
Fan palm	*Washingtonia spp.* *
Fig	*Ficus carica*
Fir**	*Abies spp.* *
Giant sequoia	*Sequoiadendron giganteum*
Grape	*Vitis spp.* *
Hawthorn	*Crataegus spp.* *
Incense cedar**	*Calocedrus decurrens*
Locust	*Robinia spp.* *
Loquat	*Eriobotrya spp.* *
Olive	*Olea europaea*
Osage orange	*Maclurapomifera*
Peach and nectarine	*Prunus perica*
Pecan	*Carya illinoinensis*
Persimmon	*Diospyros spp.* *
Pine**	*Pinus spp.* *
Plum and prune	*Prunus domestica, salicina*
Pomegranate	*Punica granatum*
Quince	*Cydonia oblonga*
Russian olive	*Elaegnus augustifolia*
Salt Cedar	*Tamarisk gallica*
Tree of heaven	*Allanthus alt1ss1ma*
Walnut	*Juglans spp.* *

*spp. = species
**Conifers whose normal mature height is 50 feet or less may be considered desirable under maintenance conditions that (1) protect the tree from drought, and (2) will assure proper pruning of the lower branches.

Table 8.4
Partial List of Ground Covers *Suitable* on Levees

Aaron's Beard***	*Hypericum calvcinum*
Alvssum	*Alvssum snn.* *
Basket-of-gold	*Aurinia saxatile*
Bermuda Grass	*Cynodon dactylon "tifgreen"* *Cynodon dactylon "coastal"* *Cynodon dactylon "Tufcote"*
Blue-eved grass	*Sisvrinchium bellum*
California Poppy	*Eschscholzia californica*
Cape weed	*Arctotheca calendula*
Creeping wild rye***	*Elymus triticoides*
English lvv, miniature***	*Hedera helix, hahni*
Garden lippia	*Phyla nodiflora* *Lippia nodiflora*
Gazania, trailing***	*Gazania spp.* *
Green carpet	*Herniaria glabra*
Lupine, dwarf	*Lupinus bicolor*
Mexican evening primrose***	*Oenothera berlandieri*
Palestine orchardgrass	*Dactylis glomerotoa* *"Palestine"*
Salt grass	*Distichlis spicata*
Spring Cinquefoil	*Potentilla tabernaemontanii*
Stonecrop	*Sedum spp.* *
Trailing African daisy	*Osteospermumfruticosum*
Verbena	*Verbena peruviana*
Yellow-eyed grass	*Sisyrinchium californicum*

*spp. = species
**These species have specific requirements for being cut back or other- wise maintained on a regular basis depending on the species.

Table 8.5
Partial List of Ground Covers and Miscellaneous
Species *Unsuitable* on Levees

Bamboo	*Bambusa spp.* *
Blackberry/Raspberry	*Rubus spp.* *
Broom	*Cytisus spp.* *
Cactus	*Cactaceae spp.* *
Century Plant	*Agave americana*
False Bamboo, Common Reed	*Phragmites communis*
Freeway Iceplant	*Carpobrotus spp.* *
Grape	*Vitus spp.* *
Honeysuckle	*Lonicera spp.* *
Horsetail	*Equisetum hyemale*
Ice Plant, Rosea	*Drosanthemum floribundum*
Ice Plant, trailing	*Lampranthus, spectabulis*
Ivy Algerian	*Hedera canariensis*
Ivy, Persian	*Hedera colchica*
Ivy, English except miniature or dwarf varieties	*Hederal helix*
Pampas grass	*Cortaderia selloana*
Periwinkle	*Vinca spp.* *
Perla Grass	*Phalaris tuberosa* var. *hirtiglumis*
Rose	*Rosa spp.* *

*spp. = species

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section, figure 8.09 and tables 8.2 through 8.5 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

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(a) It is the Board's policy to allow the construction of paved and unpaved bicycle trails by public agencies on Levees and within Floodways under the Board's jurisdiction, provided that the flood control purpose of the Levees and Floodways remains primary. Bicycle trails shall meet the following general conditions:

(1) Where feasible, the bicycle trail shall be located off of the Levee.

(2) Repair or replacement of the bicycle trail that is damaged during an emergency flood fight procedure, routine maintenance, or any required improvement activity within an Adopted Plan of Flood Control shall be made by, and at the sole expense of, the Permittee or in accordance with an agreement for maintenance between the Permittee and a public agency.

(3) The Board and the Local Maintaining Agency retain the right to temporarily close the bicycle trail for improvement, maintenance, or emergency flood fight activities.

(4) Bicycle trails within an Adopted Plan of Flood Control shall be maintained to a level safe for bicycle traffic and acceptable to the Local Maintaining Agency and the Department.

(5) The Permittee shall defend, hold harmless, and indemnify the State of California and the Local Maintaining Agency, and each of their boards, elected officials, officers, employees, and agents against all damages and claims of liability of whatever nature which arise from the use of the Levee as a bicycle trail.

(b) Bicycle trails on a Levee Section are allowed under the following conditions:

(1) The Permittee shall submit proposed use restrictions for the bicycle trail, and a plan for enforcement of the restrictions satisfactory to the Board, prior to commencing construction. The restrictions, at a minimum, shall confine public access to the trail and to designated adjacent areas only, and shall prohibit equestrian and motorized vehicle traffic, except as may be necessary for maintenance, restriction enforcement, and providing for public safety.

(2) The Permittee shall agree to bear the cost of any repairs to a flood control project facility that are made necessary by the presence or use of the bicycle trail.

(3) Paved bicycle trails constructed on the Levee crown shall have a minimum pavement width of twelve (12) feet and a minimum shoulder width of one (1) foot on each side of the pavement. The outer edges of the finished pavement may be no higher than the adjacent shoulders and the cross-section shall be shaped and trimmed to produce a smooth transition from pavement to shoulder.

(4) Paved bicycle trails on the Levee crown shall be designed to withstand a load of sixty-eight thousand (68,000) pounds from two consecutive sets of tandem axles. Soil tests may be required to determine design of the trail.

(5) The structural section of paved bicycle trails shall consist of a minimum of six (6) inches of compacted aggregate base beneath two (2) inches of asphalt concrete pavement, or equivalent, on a subgrade compacted pursuant to section 120(a) of this division. Field density testing by an Approved Soils Testing Laboratory will be required to confirm the minimum relative compaction of the subgrade.

(6) The aggregate base shall extend beyond the pavement to allow drainage.

(7) The bicycle trail and all bicycle Access Ramps shall be sloped to drain away from the Levee crown.

(8) Bicycle Access Ramps on Levee slopes shall conform to the criteria set forth for Access Ramps as per section 130 of this division.

(9) The bicycle trail may not be cut into the Levee Section but may be placed on fill along the Levee slope provided it will not interfere with maintenance.

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Deleted: (1) The permittee shall defend, hold harmless, and indemnify the State of California and the local maintaining agency, and each of their boards, elected officials, officers, employees, and agents against all damages and claims of liability of whatever nature which arise from the use of the levee as a bicycle trail.¶

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(10) The Permittee shall maintain the bicycle trail or provide evidence of agreement with a public agency to provide maintenance.

(11) The Permittee may be required to prevent unauthorized vehicular access to bicycle trails by installing gates or physical barriers such as K-rail, which shall be removable to allow access for maintenance, inspection, and emergency vehicles. If gates are used as vehicular access barriers they will be secured by locks. Keys shall be provided to the Local Maintaining Agency, Department, Board, and USACE.

(12) The Permittee shall install permanent safety signs at all bicycle access points and at periodic intervals along the trail containing such language as "Levee Maintenance Road", or "Watch for Patrolling Vehicles".

(13) The Permittee shall install permanent signs at all bicycle access points to control unauthorized use of bicycle trails.

(14) Sign posts shall not penetrate the Levee by more than twelve (12) inches unless encased in concrete cast in place against firm undisturbed earth.

(c) Bicycle trails within a Leveed Floodway are allowed under the following conditions:

(1) The Permittee shall submit proposed use restrictions for the bicycle trail and a plan for enforcement of such restrictions satisfactory to the Board, prior to commencing construction. The restrictions, at a minimum, shall confine public access to the trail and to designated adjacent areas only, and shall prohibit equestrian and motorized vehicle traffic, except as may be necessary for maintenance, restriction enforcement, and providing for public safety.

(2) The Permittee shall agree to bear the cost of any repairs to a flood control project facility that is made necessary by the presence or use of the bicycle trail.

(3) Bicycle trails shall be constructed as near to natural ground level as possible.

(4) The Permittee shall maintain the bicycle trail or provide evidence of an agreement with a public agency to provide maintenance.

(5) The Permittee is required to prevent unauthorized vehicular access to bicycle trails by physical barriers, which shall be removable to allow access for maintenance, inspection, and emergency vehicles. Vehicular access barriers will be secured by locks. At the time locks are installed, keys shall be provided to the Board, Department, USACE and the Local Maintaining Agency.

(6) The Permittee shall install permanent signs at all bicycle access points to control unauthorized use of bicycle trails.

(d) The bicycle trail shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(e) Whenever possible the Permittee shall consider privacy concerns of adjacent landowners and incorporate features into the trail design to mitigate these concerns.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

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1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

These supplemental standards apply only to the construction, reconstruction, improvement, or repair of Dwellings and associated improvements on the left bank Waterside Berm and waterward Levee slope of the Sacramento River between Levee miles 0.00 and 18.60, Unit 1, Reclamation District 1000. These standards supplement and, where in conflict with, supersede the standards in sections 111 through 137. While these standards are not specifically for commercial construction, in general, the principles in this section will also apply to commercial construction. For the purpose of administering these standards uniformly between Levee miles 0.00 and 18.60 of Unit 1, this area is considered to be an Urban Criteria Area.

(a) The definition for "Garden Highway Levee" applies to this section. "Garden Highway Levee" means the Levee on which the Garden Highway is located along the Sacramento River between Levee miles 0.00 and 18.60, Unit 1, Reclamation District 1000.

(b) The owner or Permittee must maintain the waterside slope of the Garden Highway Levee and the utilized area within the Floodway of the Sacramento River in the manner required by Reclamation District 1000 or any other agency responsible for maintenance.

(c) The area between the Garden Highway and the riverbank may be filled, provided the fill does not extend more than one hundred fifty (150) feet waterward from the centerline of the Garden Highway. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(d) Within the area located between the Garden Highway and a point sixty-five (65) feet waterward from the centerline of the Garden Highway, the following conditions apply:

(1) Where the area is less than one (1) foot above the DWSE, driveways and ramps may be constructed at any orientation to the Levee.

(2) Where the area is less than one (1) foot above the DWSE, fences, walls and similar structures parallel to the Garden Highway Levee must be an open type and constructed to provide for the unobstructed visual inspection of the Garden Highway Levee slope and Levee Toe from the Garden Highway.

(3) Where the entire area is at least one (1) foot above the DWSE, no restrictions apply to fences, walls, and similar structures.

(4) Fences, walls, and similar structures shall be designed to meet the requirements of Reclamation District 1000, and these requirements shall be incorporated into Board Permits when applicable.

(5) Elevated walkways and driveways are without elevation restrictions.

(e) Within the area beginning at a point sixty-five (65) feet waterward from the centerline of the Garden Highway, and extending waterward a maximum of one hundred and fifty (150) feet from the centerline of the Garden Highway, the following conditions apply:

(1) Securely anchored fences and structures are allowed.

(2) Dwellings are allowed, if the lowest finished floor level is at least two (2) feet above the DWSE.

(3) The lowest finished floor level of any addition to an existing Dwelling shall be at least two (2) feet above the DWSE.

(4) Dwellings and appurtenant structures are allowed if placed no closer than fourteen (14) feet from the top of the riverbank, provided the riverbank is revetted to Board Standards.

(5) Dwellings and appurtenant structures are not allowed within thirty (30) feet of the top of an unrevetted riverbank.

(6) The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

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(f) Within the area beginning at a point one hundred and fifty (150) feet waterward from the centerline of the Garden Highway and extending waterward to the top of riverbank, the following conditions apply:

(1) New Dwellings and fences are not allowed.

(2) Securely anchored structures that do not protrude above natural ground level may be allowed.

(3) Additions may be made to existing Dwellings if the addition extends no farther into the Floodway than the original Dwelling.

(4) The lowest finished floor level of any addition to an existing Dwelling shall be at least two (2) feet above the DWSE.

(g) Materials or equipment stored within the Floodway must be securely anchored or removed prior to the Flood Season.

(h) Downed trees or brush and other floatable material of any kind are not allowed to remain within the Floodway during the Flood Season.

(j) The Board Permit approving the construction, reconstruction, improvement, or repair of a Dwelling shall run with the land, pursuant to a recorded document executed pursuant to section 16(f). Upon transfer of title of the land, the land owner relinquishing title is responsible to provide written notification to the Board of the title transfer and the new land owner's name and address.

Note:

Authority cited: Section 8571, Water Code.

Reference:

Sections 8370, 8608 and 8710, Water Code.

History:

1. New section filed 9-30-96; operative 10-30-96 (Register 96, No. 40).

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These standards are for construction, reconstruction, improvement, and repair of Dwellings and structures within the Yuba River Floodway between Daguerre Point Dam and the confluence with the Feather River. These standards supplement and, where in conflict with, supersede the standards in sections 111 through 139 of this division.

(a) The lower Yuba River flood channel is divided into Areas A, B, and C, as delineated on Figure 8.10.

(1) Area A is the flow area required to carry one hundred fifty thousand (150,000) cubic feet per second (cfs).

(2) Area A and B combined is the flow area required to carry two hundred thirty five thousand (235,000) cfs.

(3) Area C is the remainder of the Floodway within the Adopted Plan of Flood Control.

(b) A map identifying the exact locations of Areas A, B, and C, entitled "1995 Designated Floodway, Yuba River" is incorporated by reference into this division. The full-size map is available for inspection at the Board's office in Sacramento.

(c) New Dwellings, new Dwellings for Seasonal Occupancy, new Buildings are not allowed in Area A.

(d) New Dwellings, new Dwellings for Seasonal Occupancy, new Buildings, and Mobilehomes may be allowed in substantial areas of shallow flooding (water depths not to exceed one (1) foot in a 100-year flood) in Area B if they satisfy the requirements of subdivision (f) of this section and section 113(d) of this division.

(e) Area C is considered a "Zone B" as provided in section 113 of this division. Encroachments in Area C shall conform to the Board Standards, and in addition, meet the following requirements:

(1) The DWSE for construction of new Dwellings and new Dwellings for Seasonal Occupancy shall correspond to the two hundred thirty five thousand (235,000) cfs flow line or 100-year flood elevation outside of Urban Criteria Areas, and the 200-year flood elevation in Urban Criteria Areas, whichever is higher.

(2) New Dwellings are not allowed in Area C unless a safe evacuation route, satisfactory to the Board, is available for the Dwelling's residents.

(3) Roads that would be used to evacuate residents shall be constructed to at least the one hundred fifty thousand (150,000) cfs flow line elevation, 100-year flood elevation, or at natural ground elevation, whichever is highest and may not unreasonably obstruct flood flows.

(4) The Board may require the owner of a Dwelling, pursuant to section 16 of this division, to execute an agreement in which the owner agrees to evacuate all residents and guests upon order of an authorized government official when flooding is forecasted for the area.

(f) The Board Permit approving the construction, reconstruction, improvement, or repair of a Dwelling or Dwelling for Seasonal Occupancy shall run with the land, pursuant to a recorded document executed pursuant to section 16(f). Upon transfer of title of the land, the land owner relinquishing title is responsible to provide written notification to the Board of the title transfer and the new land owner's name and address.

Note:

Authority cited: Section 8571, Water Code

Reference:

Deleted: These standards are for dwellings and structures within the Yuba River floodway between Daguerre Point Dam and the confluence with the Feather River. These standards supplement and, where in conflict with, supersede the standards in sections 111 through 137.¶
(a) The following definition applies to this section:¶
(1) Permanent Dwelling – "Permanent Dwelling" means a dwelling that may be occupied throughout the year.¶
(b) The lower Yuba River flood channel is divided into Areas A, B, and C, as delineated on Figure 8.11. Area A is the flow area required to carry one hundred fifty thousand (150,000) cubic feet per second (cfs). Area A and Area B combined is the flow area required to carry two hundred thirty–five thousand (235,000) cfs. Area C is the remainder of the floodway within the flood control project levees. A map identifying the exact locations of Areas A, B and C, entitled "1995 Designated Floodway, Yuba River" is incorporated by reference into this regulation. The full–size map is available for inspection at the office of the board in Sacramento.¶
(c) Encroachments in Area A must conform to the general standards of this title, except that new dwellings for seasonal occupancy (as defined in section 113) and structures are not permitted.¶
(d) Encroachments in Area B must conform to the general standards of this title except that dwellings, structures, and mobile homes may be permitted in substantial areas of shallow flooding (water depth one (1) foot or less in a hundred–year flood) if they satisfy the requirements of subdivision (e) of this section and the requirements of section 113(d).¶
(e) Area C is considered a "zone B" as provided in section 113. Encroachments in Area C must conform to the general standards of this division, and in addition, meet the following requirements:¶
(1) The design flood plane for construction of permanent dwellings must correspond to the two hundred thirty–five thousand (235,000) cfs flow line or 100–year flood elevation, whichever is higher.¶
(2) New permanent dwellings are not permitted in Area C unless a safe evacuation route, satisfactory to the board, is available for the dwelling's residents.¶
(3) Roads that would be used to evacuate residents must be constructed to at least the one hundred fifty thousand (150,000 cfs flow line elevation, 100–year flood elevation, or at natural ground elevation, whichever is highest and may not unreasonably obstruct floodflows.¶
(4) The board may require the owner of a dwelling, pursuant to section 16, to execute an agreement in which the owner agrees to evacuate all residents and guests upon order of an authorized government official when flooding is forecasted for the area.¶

Sections 8608, 8609, and 8710, Water Code

History:

1. New section and figure 8.10 filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

Deleted: 11

(a) These supplemental standards apply to the Butte Basin, as delineated on Figure 8.11 and partitioned into designated Areas B, C, D, E, and Reclamation District 1004. These standards supplement and, where in conflict with, supersede the standards in sections 111 through 137 of this division. The basin's boundaries are as follows:

(1) The basin's west boundary is the Sacramento River east bank SPFC Levee, and above the Ord Ferry area where there is no SPFC Levee, the boundary is the Sacramento River Designated Floodway adopted November 29, 1988,

(2) The east boundary is based on the wetted area of the 1970 flood,

(3) The north boundary is the Sacramento River Designated Floodway in the proximity of Murphy Slough and Golden State Island, and

(4) The south boundary is the Sacramento River between the city of Colusa and the Butte Slough outfall gates, a section of the Butte Slough Levee in both Colusa and Sutter Counties, and Pass Road in Sutter County.

(5) A map identifying the locations of the above-named areas is incorporated by reference into this division. A large printed map is available for inspection at the Board's Sacramento office, and is also available online from the Board website.

(b) Approval from the Board is required for any Proposed Work that could reduce or impede flood flows, or would reclaim any of the floodplain within Butte Basin.

(1) Proposed Work in Reclamation District 1004 is not regulated by the Board.

(2) These supplemental standards do not apply to that portion of Area E located north of the Butte-Sutter County line and its extension westward into Colusa County, and situated adjacent to the Sacramento River SPFC Levee where the natural ground level is higher than the 100-year flood elevation.

(3) Except where the activity would potentially affect an Adopted Plan of Flood Control, the standards within sections 116, 122, 123, 124, 126, 127, 129, 130, 131, 132, 137, and 139 of this division do not apply to that portion of Area E located south of the Butte-Sutter County line and its extension westward into Colusa County.

(4) The Proposed Work shall not cause a significant increase in Stream stage or velocities during Flood Season. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(c) Approval from the Board is not required for crop checks less than thirty-six (36) inches in height above the natural ground level. In Areas B, C and D, all crop checks shall be removed prior to Flood Season, unless they comply with the requirements of subdivisions (e), (f), and (g), respectively.

(d) Except where the activity would potentially affect an Adopted Plan of Flood Control, approval from the Board is not required for land leveling or grading, or for drainage and irrigation improvements in Areas C, D, and E that have a localized impact only and comply with subdivisions (f), (g), and (h) of this section.

(e) Within Area B, approval from the Board is not required for any Proposed Work that is less than eighteen (18) inches in height above the natural ground level. However, any Proposed Work within a slough or swale must be approved by the Board. Area B extends southerly from Butte Basin's northerly boundary to a line located one thousand (1,000) feet southeasterly and lying parallel to the Parrott Grant line.

(f) Within Area C, approval from the Board is not required for any Proposed Work less than thirty-six (36) inches in height above the natural ground level, and having a maximum elevation less than

Deleted: The standards apply to Butte Basin, as delineated on Figure 8.12 and partitioned into designated Areas B, C, D, E, and Reclamation District 1004. The basin's west boundary is the Sacramento River east bank project levee, and above the Ord Ferry area where there is no project levee, the boundary is the designated floodway of the Sacramento River adopted November 29, 1988. The east boundary is based on the wetted area of the 1970 flood. The north boundary is the Sacramento River designated floodway in the proximity of Murphy Slough and Golden State Island, and the south boundary is the Sacramento River between the city of Colusa and the Butte Slough outfall gates, a section of the Butte Slough levee in both Colusa and Sutter Counties, and Pass Road in Sutter County. These standards supplement and, where in conflict with, supersede the standards in section 111 through section 137.¶
(a) Approval from the board is required for any encroachment that could reduce or impede floodflows, or would reclaim any of the floodplain within Butte Basin.¶
(1) Encroachments in Reclamation District 1004 are not regulated by the board.¶
(2) The supplemental standards do not apply to that portion of Area E located north of the Butte-Sutter County line and its extension westward into Colusa County, and situated adjacent to the Sacramento River project levee where the natural ground level is higher than the 100-year flood elevation.¶
(3) Except where the activity would potentially affect a project levee or other project feature, the standards within sections 116, 122, 123, 124, 126, 127, 129, 130, 131, 132, and 137 do not apply to that portion of Area E located south of the Butte-Sutter County line and its extension westward into Colusa County.¶
(b) Approval from the board is not required for crop checks less than thirty-six (36) inches in height. In Areas B, C and D, all crop checks must be removed prior to flood season, unless they comply with the requirements of subdivisions (d), (e), and (f), respectively.¶
(c) Except where the activity would potentially affect a project levee or other project feature, approval from the board is not required for land leveling or grading, or for drainage and irrigation improvements in Areas C, D, and E that have a localized impact only and comply with subdivisions (e), (f), and (g) of this section.¶
(d) Within Area B, approval from the board is not required for any encroachment that is less than eighteen (18) inches in height above the natural ground level. However, any proposed encroachment within a slough or swale must be approved by the board. Area B extends southerly from Butte Basin's northerly boundary to a line located one thousand (1,000) feet southeasterly and lying parallel to the Parrott Grant line.¶
(e) Within Area C, approval from the board is not required for any encroachment less than thirty-six (36) inches in height above the natural ground level, and having a crest elevation less than seventy and one tenth (70.1) feet (NGVD). Area C is the area enclosed within a three- (3) mile radius measured from the center of Moulton Weir and limited by the southeasterly extensions of the north and south training levee alignments to the three- (3) mile arc.¶
(f) Within Area D, approval from the board is not required for any encroachment less than thirty-six (36) inches in height above the natural ground level and having a crest elevation less than fifty-four and nine tenths (54.9) feet (NGVD). Area D encompasses the Colusa Weir together with its outflow channel enclosed by training levees, and an overflow area extending to Butte Creek.¶
(g) Within Area E, approval from the board is not required for any encroachment less than thirty-six (36) inches in height above the natural ground level. The northern boundary of Area E is a line located one thousand (1,000) feet southeasterly of the south Parrott Grant line, and the southern boundary is formed by the Sacramento River between the city of Colusa and the Butte Slough outfall gates, a section of the Butte Slough levee in both Colusa and Sutter Counties, and Pass Road in Sutter County.¶
(h) Within that portion of Area E located south of Gridley Road, new and existing recreational structures, including caretaker, security, and dwellings for seasonal occupancy (as defined in section 113) may be permitted provided the finished floor ... [90]

seventy two and five tenths (72.5) feet (NAVD88). Area C is the area enclosed within a three (3) mile radius measured from the center of Moulton Weir and limited by the southeasterly extensions of the north and south training Levee alignments to the three (3) mile arc.

(g) Within Area D, approval from the Board is not required for any Proposed Work less than thirty-six (36) inches in height above the natural ground level and having a maximum elevation less than fifty-seven and three tenths (57.3) feet (NAVD88). Area D encompasses the Colusa Weir together with its outflow channel enclosed by training Levees, and an overflow area extending to Butte Creek.

(h) Within Area E, approval from the Board is not required for any Proposed Work less than thirty-six (36) inches in height above the natural ground level. The northern boundary of Area E is a line located one thousand (1,000) feet southeasterly of the south Parrott Grant line, and the southern boundary is formed by the Sacramento River between the city of Colusa and the Butte Slough outfall gates, a section of the Butte Slough Levee in both Colusa and Sutter Counties, and Pass Road in Sutter County.

(i) Within that portion of Area E located south of Gridley Road, new and existing recreational structures, including Dwellings for Seasonal Occupancy, may be allowed provided the lowest finished floor level of the structure is at least two (2) feet above the DWSE.

(j) The Board Permit approving the construction, reconstruction, improvement, or repair of a Dwelling for Seasonal Occupancy in Area E shall run with the land, pursuant to a recorded document executed pursuant to section 16(f). Upon transfer of title of the land, the land owner relinquishing title is responsible to provide written notification to the Board of the title transfer and the new land owner's name and address.

Note:

Authority cited: Section 8571, Water Code.

Reference:

Sections 8608, 8609 and 8710, Water Code.

History:

1. New section and figure 8.11 filed 9-30-96; operative 10-30-96 (Register 96, No. 40).

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It is the Board's policy to regulate by Permit or other action agricultural land use and the development of suitable wetlands within the Yolo Bypass and Sutter Bypass. The supplemental standards protect the flood control functions of the Yolo and Sutter Bypasses, safeguard existing agricultural land use, and control the development of proposed wetlands.

(a) Final detailed plans for all Proposed Work involving construction, grading and planting shall be submitted to and approved by the Board prior to the start of work.

(b) A detailed operation and maintenance plan shall be submitted to and approved by the Board prior to the start of work.

(c) A profile of the existing Levee crown roadway and Access Ramps that will be utilized for access to and from the construction area shall be submitted to the Board prior to the start of work.

(d) Any damage to the Levee crown roadway or Access Ramps attributable to the construction or maintenance of croplands or wetlands shall be promptly repaired by the Permittee.

(e) The planting of vegetation or the impoundment of water is not allowed within one thousand (1,000) feet of the Fremont Weir structure.

(f) The planting of vegetation or the impoundment of water shall not be allowed in any area unless a hydraulic analysis demonstrates no adverse hydraulic impact. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(g) Irrigated and non-irrigated pastures and croplands are allowed without Permit from the Board when consistent with the Board's Flowage Easements.

(h) The planting of vegetation is generally allowed for the development of native marsh, riparian vegetation, and wetlands.

(i) Rooted vegetation and aquatic beds of floating (non-rooted) or submerged vegetation are generally allowed to be established in ponded water.

(j) The depth of ponded water shall be controlled to prevent the growth of unauthorized vegetation that could adversely affect the operation of an Adopted Plan of Flood Control.

(k) No permanent Berms or dikes are allowed above natural ground elevation without a detailed hydraulic analysis except where otherwise expressly provided for in reservations contained in easement deeds to the Sacramento and San Joaquin Drainage District.

(l) Required maintenance may include removal, clearing, thinning, and pruning of all vegetation directly or indirectly resulting from the Permitted Work.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

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The following standards are to be used as a guide in preparing applications to the Board for miscellaneous Encroachments. Not all possible miscellaneous Encroachments, the number being unlimited, are listed. Those listed are typically the type proposed by residents along or within an Adopted Plan of Flood Control and those necessary because of federal or State statutes, regulations, and policies.

(a) Tanks used for storage of water or other liquids and water retention basins shall not be installed within the Levee Right of Way, or the Projected Levee Section and within twenty-five (25) feet of the Levee Toes. Tanks storing less than five thousand (5,000) gallons can be stored within the Projected Levee Section and within twenty-five (25) feet of the Levee Toes, provided the tanks are outside of the Levee Right of Way.

(b) The bottom of landside storage tanks and water retention basins shall be located above a 10h:1v slope projected downward from the landside Levee Toe, Seepage Berm toe, or Stability Berm toe unless a geotechnical analysis demonstrates that the storage tank or water retention basin will not adversely impact the integrity of the Levee.

(c) For any storage tank or water retention basin with its bottom more than two (2) feet below ground and within four hundred (400) feet landward of the Levee Right of Way, the Board may require a geotechnical analysis with appropriate seepage modeling to demonstrate that the storage tank or water retention basin does not result in a configuration whereby the Levee and/or Seepage Berm or Stability Berm does not meet design criteria or an existing seepage problem is worsened. The modeling shall assume the storage tank or water retention basin is empty unless adequate assurances of a fluid level in the storage tank or water retention basin are provided to the Board. The geotechnical analysis shall include subsurface investigation and laboratory testing to characterize the foundation of the storage tank or water retention basin and the nearby Levee or flood control project feature. The geotechnical analysis shall include slope stability, Levee underseepage, and uplift analyses. The geotechnical analysis shall consider aquifer and blanket layer conditions and potential for piping. The modeling shall use the DWSE and, in Urban Criteria Areas, the modeling shall also use Stream stage at the Hydraulic Top of Levee. The Board may waive this geotechnical analysis requirement for a temporary storage tank or water retention basin or for a minor, shallow storage tank or water retention basin that, in the judgment of the Board, poses no risk to the integrity of the Levee.

(d) In Urban Criteria Areas, the seepage modeling shall include evaluation of performance for the Stream stage at the Hydraulic Top of Levee and comply with Levee underseepage requirements of the Urban Levee Design Criteria.

(e) Steps for access on Levee slopes shall conform to the following criteria:

(1) Steps shall be constructed of material resistant to deterioration. Acceptable materials include, but are not limited to, concrete, masonry, stone, iron, and steel.

(2) Steps constructed on the waterside Levee slope shall be properly anchored to prevent movement during high water.

(3) Excavation in the Levee slope for construction of steps may not exceed twelve (12) inches in depth.

(4) Steps shall be flush with the Levee slope.

(5) Handrails are not allowed on steps if they interfere with Levee maintenance unless they are required by law.

(6) Handrails, where allowed on waterside Levee slopes, shall be removable, or debris shall be removed prior to Flood Season and after each flood event.

Deleted: The following standards are to be used as a guide in making application to the board for miscellaneous encroachments. Not all possible miscellaneous encroachments, the number being unlimited, are listed. Those listed are typically the type proposed by residents within an adopted plan of flood control, and those necessary because of governmental requirements.¶
(a) Tanks used for storage of water or other liquids are not permitted within a levee section or within ten (10) feet of the levee toe. If placed within the floodway, or if placed in the projected levee section and within twenty–five (25) feet of the levee toe, a permit is required.¶
(b) Landside water retention basins must be located outside of the projected levee section and a minimum distance of twenty– five (25) feet from the levee toe plus any additional distance that may be determined to be required to control seepage.¶
(c) Steps for access on levee slopes must conform to the following criteria:¶
(1) Steps must be constructed of material resistant to deterioration. Acceptable materials include, but are not limited to, concrete, masonry, stone, pressure treated lumber, iron, and steel.¶
(2) Steps constructed on the waterward levee slope must be properly anchored to prevent movement during high water.¶
(3) Excavation in the levee slope made for the construction of steps may not exceed twelve (12) inches in depth.¶
(4) Steps must be constructed flush with the levee slope.¶
(5) Handrails are not permitted on steps if they interfere with levee maintenance unless they are required by law.¶
(6) Handrails, where permitted on waterward levee slopes, shall be designed to give way when subjected to debris loading.¶
(7) The permittee is responsible for the maintenance of steps and handrails.¶
(8) Revetment on a levee slope or streambank that is destroyed or disturbed during the construction of steps must be restored to its original condition by the permittee.¶
(d) Horizontal (elevated) access ways, with or without handrails, are permitted above the landside and waterward slopes of the levee if they do not interfere with levee maintenance and conform to the following criteria:¶
(1) Horizontal access ways may not exceed four (4) feet in width unless the levee slope immediately beneath the access way is revetted to board standards.¶
(2) The bottom of the stringers of horizontal access ways above the waterward levee slope must be a minimum of three (3) feet above the design flood plane elevation.¶
(3) Handrails on access ways may not extend onto the levee crown.¶
(4) On a levee where the crown is less than fourteen (14) feet in width, handrails must be a minimum of seven (7) feet from the centerline of the levee.¶
(5) Access way supports, or piers, must be constructed so as to minimize the possibility of trapping and accumulating floating debris.¶
(6) Revetment on a levee slope or streambank that is destroyed or disturbed during the construction of a walkway must be restored to its original condition by the permittee.¶
(7) Maintenance of an access way and the adjacent levee slope is the responsibility of the permittee, and any erosion of the levee slope must be promptly repaired.¶
(e) Mailboxes, when required by the U.S. Postal Service, are permitted on a levee section and must be placed at the extreme outer edge of the levee crown. If the levee crown is less than fourteen (14) feet in width, the mailbox must be a minimum of seven (7) feet from the centerline of the levee.¶
(f) Traffic control signs, directional or informational signs, and signs providing for public safety are permitted on a levee slope or on the edge of a levee crown.¶
(g) Bus shelters are permitted on a levee section where sufficient area is available for safe operation of vehicles, and the bus shelter is at least seven (7) feet from the centerline of the levee.¶
(h) Livestock grazing on levee slopes shall be controlled to prevent overgrazing and the development of livestock trails.¶ ... [91]

(7) Revetment on a Levee slope or streambank that is destroyed or disturbed during the construction of steps shall be restored to its original condition by the Permittee.

(f) Horizontal (elevated) access walkways, with or without handrails, may be allowed above the landside and waterside slopes of the Levee if they do not interfere with Levee maintenance and conform to the following criteria:

(1) Horizontal access walkways may not exceed four (4) feet in width unless the walkway is see-through and the waterside Levee slope immediately beneath the walkway has Revetment that meets standards in section 121 of this division.

(2) The bottom elevation of the stringers of horizontal access walkways above the waterside Levee slope shall be a minimum of three (3) feet above the DWSE.

(3) Handrails on access walkways may not extend onto the Levee crown.

(4) On a Levee where the crown is less than fourteen (14) feet in width, handrails shall be a minimum of seven (7) feet from the centerline of the Levee.

(5) Access walkway supports, or piers, shall be constructed so as to minimize the possibility of trapping and accumulating floating debris; accumulated debris shall be promptly removed by the Permittee and disposed outside of the Floodway and Levee Right of Way.

(6) Revetment on a Levee slope or streambank that is destroyed or disturbed during the construction of a walkway shall be restored to its original condition by the Permittee.

(7) Maintenance of an access walkway and the adjacent Levee Slope is the responsibility of the Permittee, and any erosion of the Levee Slope shall be promptly repaired.

(g) Mailboxes, when required by the U.S. Postal Service, are allowed on a Levee Section and shall be placed at the extreme outer edge of the Levee crown. If the Levee crown is less than fourteen (14) feet in width, the mailbox shall be a minimum of seven (7) feet from the centerline of the Levee. The maximum depth of burial into the Levee is twelve (12) inches unless encased in concrete cast in place against firm undisturbed earth.

(h) Traffic control signs, directional or informational signs, and signs providing for public safety are allowed on a Levee slope or on the edge of a Levee crown. The maximum depth of burial into the Levee is twelve (12) inches unless encased in concrete cast in place against firm undisturbed earth.

(i) Bus shelters are allowed on a Levee crown, near the shoulder, where sufficient space is available for safe operation of vehicles and the shelter is set back at least ten (10) feet from the levee centerline, provided the shelter will not interfere with Levee maintenance, inspection, or flood fighting. The maximum depth of burial into the Levee is twelve (12) inches unless encased in concrete cast in place against firm undisturbed earths.

(j) Livestock grazing within the Levee Right of Way may be allowed if the following requirements are met:

(1) Grazing on Levee slopes shall not be allowed during the Flood Season or periods of prolonged rain without written approval by the Chief Engineer.

(2) Grazing shall be controlled to prevent overgrazing and the development of livestock trails on Levee slopes.

(3) No structures, sheds, or troughs are allowed in the Levee Right of Way.

(4) No livestock shall be corralled or penned on the Levee Section.

(5) Grazing shall be discontinued if it causes excessive damage to the Levee.

(k) The storage of materials or equipment, unless securely anchored, downed trees or brush, and floatable material of any kind are not allowed within a Floodway during the Flood Season.

(l) Structures and the storage of material or equipment are not allowed on Levee slopes.

(m) Normally no materials or equipment may be placed on the Levee crown, however, materials or equipment may be temporarily placed on the Levee crown during construction if they do not prevent inspection and maintenance of the Levee, obstruct flood fight procedures, and the following additional requirements are met:

(1) There is adequate Levee crown width to provide a minimum of twenty (20) feet of unobstructed clearance for two-way vehicular traffic.

(2) Where a public road or highway is on the Levee crown, the design width of the roadway including the roadway shoulders shall remain clear.

(3) Materials or equipment stored on the Levee crown shall be no closer than fourteen (14) feet from the landside Levee shoulder.

(4) Materials or equipment stored on the Levee crown shall be no closer than fourteen (14) feet from the waterside Levee shoulder provided the waterside Levee slope has Revetment that meets the standards of section 121 of this division.

(5) Materials or equipment stored on the Levee crown shall be no closer than thirty (30) feet from the waterside Levee shoulder if the waterside Levee slope is not protected from erosion by Revetment meeting the standards in section 121 of this division.

(n) Seismic surveys near a Levee or within a Floodway shall meet the following criteria:

(1) Horizontal shear energy sources may not be used on any Levee Section or within fifty (50) feet of the Levee Toe. In areas having soils especially susceptible to damage, a more stringent control may be required.

(2) Energy charges for surveys shall be a minimum distance of two hundred (200) feet from the Levee Toe.

(3) Energy charges for surveys shall not exceed one (1) pound of charge per one hundred (100) feet of distance from the Levee Toe.

(4) Electrical cables used in seismic surveys may not interfere with periodic inspections and maintenance of flood control facilities or with flood fighting.

(o) Miscellaneous Encroachments that would remain in the Floodway during the Flood Season shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

Note:

Authority cited: Section 8571, Water Code

Reference:

Sections 8608, 8609 and 8710, Water Code

History:

1. New section filed 9–30–96; operative 10–30–96 (Register 96, No. 40).

(a) The Board may identify the limits of an Adopted Plan of Flood Control, SPFC Facilities, Non-SPFC Facilities, other Permitted Work, and Encroachments for purposes of establishing the area of the Board's jurisdiction that it actively regulates when:

(1) The point of intersection of the Levee slope and natural ground cannot readily be determined, therefore, the existing Levee Toe cannot otherwise be defined.

(2) Features or facilities are proposed to be added that may interfere with the integrity or proper functioning of an Adopted Plan of Flood Control.

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Note:

Authority cited: Section 8571, Water Code.

Reference:

Sections 8608, 8609 and 8710, Water Code.

History:

1. New section filed 12–1–2009; operative 12–31–2009 (Register 2009, No. 49).

(a) The following definitions apply to this section:

(1) "Adjacent to a Levee" means the bottom of the Pool or Existing Pool is located below a 10h:1v slope projected downward from a landside Levee Toe, Seepage Berm toe, Stability Berm toe, or landward extent of the flood control project feature.

(2) "Existing Pool" means a Pool already constructed with or without a Permit from the Board.

(3) "Pool" means a permanent structure excavated any shape in the ground more than two (2) feet deep, designed for holding water used for bathing or swimming, including but not limited to swimming pools, Jacuzzis, hot tubs, and similar structures whether full or empty. The term "permanent" means the structure remains in place during part or all of the Flood Season.

(b) General: Pools and Existing Pools near the landside Levee Toe or Adjacent to a Levee could have adverse impacts on the stability of the Levee or flood control project feature during high water events, leading to structural damage or failure of the Levee or flood control project feature.

(1) New Pools shall not be constructed and Existing Pools shall not be enlarged within the Levee Right of Way.

(2) New Pools shall not be constructed Adjacent to a Levee unless a geotechnical analysis demonstrates that the Pool will not adversely impact the integrity of the Levee and a Permit is issued by the Board.

(3) Any modification, alteration, addition, or similar activity involving an Existing Pool that is Adjacent to a Levee may at the Board's discretion trigger an engineering evaluation pursuant to section 139(c) of this division and/or issuance of a Permit with conditions. In general, modifications of an Existing Pool that are no deeper or closer to the Levee than the Existing Pool's configuration would not require an engineering evaluation if the Existing Pool has not been uplifted or damaged by Levee underseepage or allowed migration of soil from the area between the Existing Pool and the Levee.

(4) In exceptional circumstances, the Board may require an engineering evaluation pursuant to section 139(c) of this division for any new Pool to be constructed, and for any Existing Pool to be enlarged, within four hundred (400) feet landward of the Levee Right of Way or Adjacent to a Levee. The evaluation shall be submitted to the Board for approval and shall be the basis for determining whether a Board Permit is required. Such exceptional circumstances may apply when there is engineering evidence that the new Pool or Existing Pool to be enlarged may create or significantly aggravate piping of soil from the vicinity of the Levee.

(5) Based on an engineering evaluation provided pursuant to section 139(b)(4) of this division, a Board Permit may be required for any new Pool to be constructed or installed, and for any Existing Pool to be enlarged, within four hundred (400) feet landward of the Levee Right of Way that could uplift, crack from uplift force, or promote piping during high water if the Pool is empty; otherwise a Permit is not required for constructing a new Pool, or enlarging an Existing Pool, that is not Adjacent to a Levee.

(6) Existing Pools Adjacent to a Levee in an Adopted Plan of Flood Control shall comply with article 6, section 108 (Existing Encroachments) of this division.

(c) Engineering evaluations for new Pools to be constructed and Existing Pools to be enlarged within four hundred (400) feet landward of the Levee Right of Way, or Adjacent to a Levee in an Adopted Plan of Flood Control shall comply with the following requirements:

(1) The engineering evaluation shall include subsurface investigation and laboratory testing to characterize the foundation of the Pool or Existing Pool and the nearby Levee or flood control project feature. The evaluation shall include slope stability, Levee underseepage, and Pool uplift analyses for full Pool and empty Pool conditions. The evaluation shall consider aquifer

and blanket layer conditions and potential for piping. The evaluation shall use the DWSE and, in Urban Criteria Areas, the evaluation shall also use Stream stage at the Hydraulic Top of Levee. The Board may waive this engineering evaluation requirement for a small, shallow New Pool or Existing Pool that, in the judgment of the Board, poses no risk to the integrity of the Levee.

(2) The engineering evaluation shall also evaluate the structural adequacy of the Pool to avoid cracking by uplift forces during high water.

(3) The engineering evaluation shall be performed by a California registered civil engineer.

(4) The engineering evaluation shall provide satisfactory evidence to the Board that the Pool or Existing Pool will not adversely impact the integrity of the Levee or flood control project feature; otherwise the Board will not grant a Permit for the Pool or Existing Pool.

(5) The Board Permit shall require the owner of the Pool or Existing Pool to maintain the Pool or Existing Pool full of water during Flood Season.

(6) The Board Permit shall require conditions associated with access, inspection, and enforcement to ensure that the Pool or Existing Pool is full of water during Flood Season.

(d) New Pools to be constructed and Existing Pools to be enlarged within a Floodway shall comply with the following requirements:

(1) In a Leveed Floodway, a Pool or Existing Pool within three hundred (300) feet of the waterside Levee Toe shall be evaluated by a California registered civil engineer. The engineering evaluation shall include subsurface investigation and laboratory testing to characterize the foundation of the Pool or Existing Pool and the nearby Levee or flood control project feature.

(2) A Pool or Existing Pool and appurtenances shall not cause a significant increase in Stream stage or velocities. The Hydraulic Impact Evaluation Procedure shall apply for evaluating any hydraulic impact. The Board may deny a Permit if the hydraulic impact is deemed significant.

(e) The Board Permit approving a Pool or Existing Pool shall run with the land, pursuant to a document executed pursuant to section 16(f) of this division. Upon transfer of title of the land, the land owner relinquishing title is responsible to provide written notification to the Board of the title transfer and the new land owner's name and address.

(f) Additional Permit conditions may be required by the Board for ensuring a Pool or Existing Pool does not adversely impact the Adopted Plan of Flood Control.

Note:

Authority cited: Section 8571, Water Code.

Reference:

Sections 8608, 8609 and 8710, Water Code.

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