

PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT
Riparian Habitat Mitigation Plan (RHMP) Submittal Checklist for Single-Lot Development

Applicability: Pursuant to Chapter 16.30.050.A of the Pima County Floodplain and Erosion Hazard Management Ordinance No. 2010-FC5 (Ordinance), if an applicant demonstrates to the satisfaction of the District that alteration of regulated riparian habitat (RRH) cannot reasonably be avoided, a Riparian Habitat Mitigation Plan (RHMP) shall be submitted to the District for approval when more than 1/3 acre (14,520 square feet) of RRH is disturbed (16.30.040).

Additionally, if the 1/3 acre (14,520 square feet) disturbance lies within either an Important Riparian Area (IRA) or Hydroriparian/Mesoriparian (Class H) habitat, and exceeds 5% of the total RRH on the property, the RHMP will require Pima County Board of Supervisors (Board) approval (16.30.050.B).

Plan Review Timeframes: When required, a RHMP shall be submitted with the FPUP application and reviewed concurrently with review of the FPUP. If Board approval is required, please account for the additional time needed for final approval, which averages 3-4 weeks (please note that review timeframes stated above do not apply to the Board approval process.) The schedule for Board regular session meetings as well as the Clerk of the Board (COB) deadline for submittal of agenda items may be viewed at: <http://www.pima.gov/cob/schedule.htm>. The RHMP must be submitted to the District for review and approval 10 working days prior to the COB deadline.

Submittal Requirements: The RHMP shall be prepared in accordance with 16.30.050.C and follow the requirements outlined in the *Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines* (Guidelines), which can be viewed at: <http://rfcd.pima.gov/wrd/riparian/guidelines/pdfs/onsite-guidelines.pdf>

Avoidance Justification (16.30.040.A.1):

- If the property contains developable areas outside of the RRH, but improvements are encroaching into RRH, evidence that no reasonably practicable alternative exists to the proposed impacts and evidence that the impact has been minimized to the maximum extent practicable will be requested at the time of RHMP submittal. The applicant shall provide justification regarding why habitat could not be avoided (TECH-024). Examples of why habitat could not be avoided include site constraints, such as steep slopes which are regulated under the Zoning Code, allowance for legal use of the property requiring encroachment into riparian areas or public health and safety considerations such as traffic control (driveway access relative to major roadways) and fire safety zones. Preserving views, cost of construction and similar factors are NOT sufficient justification for not avoiding disturbance of RRH.

RHMP Checklist: This checklist serves as a list of general requirements for the RHMP as outlined in the Guidelines:

- The mitigation planting plan must be provided on 11" x 17" paper or larger – Two copies are required.
- The plan must be drawn at a measurable, standard engineering scale of 1" = 100' or larger.
- The plan must show scale and north arrow.
- Label the plan "Riparian Habitat Mitigation Plan".
- Indicate the parcel ID number, parcel address, property owner name, and FPUP number on the plan.
- Show the site specific limits of the RRH (Guidelines, Section 3, pg. 42). Show each riparian habitat classification type on the plan and provide a legend that describes each line type. Use the following line type and legend descriptions:

| <u>Line Type Description</u> | <u>Legend Description</u> |
|---|--|
| IRA/H, XA-D | Important Riparian Areas (with underlying class...)* |
| H | Class H habitat* |
| XA, XB, XC, XD | Xeroriparian Class (A, B, C, or D) habitat* |
| * add (rectified or field verified) as applicable | |

- Existing site topography (1 or 2 foot contour interval), if available (Guidelines, Section 3, pg. 44).
- Proposed finished grades within the mitigated area. Finished grades shall be depicted by contours (1 or 2 foot contour interval) or by another method that clearly depicts the finished grades and slope conditions (Guidelines, Section 3, pg. 44).
- Limits of disturbance and/or grading limits for all existing and proposed improvements including utilities, driveways, and septic systems. If your local fire district requires the creation of defensible space around the structure, extend the grading limits to show the additional area of disturbance. As part of the submittal, provide documentation of the defensible space requirement from the local fire district. Any part of this area of disturbance that extends beyond the area of disturbance for the existing/proposed improvements can be subtracted from the total disturbance calculation (Guidelines, Section 3, pg. 43).
- Most recent available aerial photograph. The preferred method of meeting this requirement is to use an aerial photograph as a base for your plan. Aerial photographs may be available at our office located at 97 E. Congress Street, 3rd floor or through the Pima County MapGuide website: <http://gis.pima.gov/maps/>. Aerial photographs are also available from the private sector (Guidelines, Section 3, pg. 43).

- Delineate the mitigation area (Guidelines, Section 3, pg. 44). The mitigation area shall be shown either as a general location on the RHMP or as a detailed planting plan which indicates locations of individual trees and shrubs. If the mitigation area is shown as a general location, provide a table with the number of trees and shrubs per area, or depict the number of trees and shrubs per area directly on the RHMP exhibit. When using plant replacement quantities outlined in the Guidelines, the mitigation area shall be a minimum of 70% the size of the area disturbed (Guidelines, Section 2). For example, if you will be disturbing 1 acre of Xeroriparian habitat, the actual size of the mitigation area must be at least 0.70 acres. Alternatively, if an onsite vegetation survey has been performed (Guidelines, Appendices F and G), use planting densities determined by the survey and mitigate the area at a 1:1 ratio (1 acre of disturbance = 1 acre of mitigation), unless it can be demonstrated that a smaller area will support the required plant density. If the applicant demonstrates the full mitigation requirement cannot be completed onsite, a combination of onsite and offsite mitigation will be allowed. For offsite mitigation options, see the *Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County*, which can be viewed at: <http://rfcd.pima.gov/wrd/riparian/guidelines/pdfs/offsite-guidelines.pdf>.

When locating the mitigation area, consider the following:

- Locate your mitigation area where there is potential to enhance existing habitat or create new habitat with an equivalent biological value to habitat removed from the site.
- Once irrigation is removed, the chosen location must sustain riparian vegetation over the long-term by accounting for existing plant densities and available water.
- When locating individual trees and shrubs within the mitigation area, space plants according to their mature canopy width.
- Planting within existing undisturbed riparian habitat is not allowed unless it can be demonstrated that enhancement will increase the value of the habitat and be sustainable long-term.
- If restoring degraded riparian habitat is not possible, mitigation shall be located in an area that receive sufficient water to facilitate growth and maintain healthy habitat (i.e., drainage swales, low-lying areas, water harvesting basins, etc.).
- The mitigation area shall be one continuous area in a density that creates habitat, as the site allows.
- Mitigation areas shall be located away from improved areas, to prevent the desire to maintain the natural area as part of the landscaping adjacent to improvements.

Mitigation plantings shall be installed per the approved planting methods outlined in the Guidelines (Guidelines, Section 2, pg. 33).

Provide the following note on the RHMP, *“Mitigation area(s) to be left in a natural state. No disturbance shall occur within the mitigation area(s) without RFCD review and approval. Such disturbance includes but is not limited to secondary impacts such as the presence of livestock, fencing, intensive landscaping, outdoor play areas, etc.”*

- Calculations and quantities for disturbance and mitigation (Guidelines, Section 3, pg. 45). Calculations shall include the following:
1. Total area of RRH on the project site, by class of habitat
 2. Area of disturbed RRH, by class of habitat
 3. Percent of total mapped RRH disturbed (provide for Class H or IRA habitat only)
 4. Area of mitigation, by class of habitat (area of disturbance x mitigation ratio; 1:1 for Xeroriparian Class A-D and 1.5:1 for Class H and IRA)
 5. Minimum required mitigation area (area of mitigation x 0.7 or 1), by class of habitat, and
 6. Actual mitigation area, by class of habitat (provide if different than minimum mitigation area)
 7. Plant Quantities (i.e., number of trees/acre and shrubs/acre)

Disturbance and mitigation calculations shall be in acres, to the nearest hundredth (ex., 0.33 acres).

Plant quantities shall be calculated using plant densities obtained from either the Guidelines (Section 2) or through an onsite plant survey (Guidelines, Appendices F and G), multiplied by the area of mitigation.

- Plant schedule (Guidelines, Section 3, pg. 44). Provide a plant schedule that identifies plant species, quantities and sizes at the time of installation. The plant schedule shall list a minimum of 3 tree species, no more than 75% of any one species and 5 shrub species, no more than 35% of any one species. Tree and shrub size and species shall be selected in accordance with Guideline requirements (Guidelines, Section 2 and Appendix B). This requirement may be modified upon submittal of an onsite plant survey performed by a qualified professional (Guidelines, Appendices F and G).
- Seeding requirement (Guidelines, Section 3, pg. 44). Mitigation area shall be seeded with a minimum of 12 species from the approved plant list (Guidelines, Appendix B, B-3 and B-4). Seeding methods include; hydroseeding, drill seeding with crimped straw mulch or broadcast seeding and raking into seedbed with straw or other approved mulch. Provide a list of plant species used in the seed mix on the RHMP, and add the following note, *“Mitigated area will be (insert method of seed placement) with a minimum of 12 species from the approved ([Class H or Xeroriparian], select one) plant list found in Appendix B of the “Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines.” If plant species listed on the mitigation plan are unavailable, replacements species from the approved plant list may be selected based upon availability. Of the 12 species, 4 shall be shrubs, 4 shall be annuals/perennials/vines, and 4 shall be grasses.”* The property owner is encouraged to consult with a seed vendor prior to selecting plant species for the seed mix. If plant species and/or seeding rates change after approval of the RHMP, the property owner shall provide information regarding changes to the original RHMP with the first monitoring plan submittal (“as-built” RHMP) (Guidelines, Section 3, pg. 46).
- Method of irrigation (Guidelines, Section 2, pg. 34, Section 3, pg. 44, and Appendix C, C-6, C-10). Irrigation methods may include an automatic system such as drip or a manual method such as hand watering. The method must demonstrate that adequate irrigation will be

provided to the new plants during the establishment period. The use of water harvesting methods is encouraged as a supplement to irrigation. A note shall be placed on the RHMP that identifies the type of irrigation method chosen.

- Plant establishment (Guidelines, Section 3, pg. 47 and Appendix C, C-10). Native plants are well adapted to annual rainfall amounts in the Tucson Basin and can typically survive without supplemental irrigation, once established. To create a successful mitigation area, initial plant establishment is essential. Once a healthy root system is established (one to three years for most plant species, but possibly longer depending on the species or when establishing plants within areas of shallow groundwater), plants shall be “weaned” from supplemental irrigation. The intent is to adjust the irrigation schedule until plants can survive on natural rainfall. This can be accomplished by decreasing the frequency of irrigation each year. While decreasing supplemental irrigation, monitor plant health, especially during the summer or times of drought, when plants may require additional irrigation. Establishment of the mitigation area will be considered successful when 80% of the plants are living and actively growing (without significant die back or loss) after one year without supplemental irrigation. Provide the following note on the RHMP: *“Once plants have established (approximately 1 to 3 years after installation), supplemental irrigation will be decreased in accordance with Appendix C of the Guidelines.”*
- Identify construction methods that protect riparian habitat to be left unaltered on the RHMP (Guidelines, Section 3, pg. 42).
- Place the basic statement of maintenance on the RHMP as outlined in Section 2 of the Guidelines, “Required Maintenance” (Guidelines, Section 2, pg. 35).
- Identify the growing season mitigation will be implemented by placing the following note on the RHMP, *“Riparian Habitat Mitigation plan implementation shall be completed by the first growing season following completion of construction, which is projected to be (select one season) March-May, 20XX/July-September, 20XX/September-November, 20XX.”* (Guidelines, Section 3, pg. 42)
- Monitoring success of the mitigation area(s) (Guidelines, Section 3, pg. 44 and 46-48). Mitigation area(s) shall be maintained and monitored following implementation of the RHMP to ensure 80% of the plants are living and actively growing without supplemental irrigation or significant die-back at the end of five years. Mitigation areas will be monitored by establishing photo monitoring points where photographs will be taken annually to monitor success of the mitigation area over time. The location of points will be chosen to capture the entire mitigation planting area(s). A minimum of one photograph per monitoring point is required. If the mitigation planting area cannot be captured by one photograph, several points shall be used. Depict photo monitoring points on the RHMP as a close-ended arrow, to show the location and direction of photographs. Provide the following note on the RHMP: *“A monitoring plan, in accordance with the monitoring schedule outlined in Section 3 of the Guidelines, will be submitted over a five year period following implementation of the riparian habitat mitigation plan (RHMP). Any changes from the approved RHMP shall be noted on the monitoring plan submittal.”* Submittals shall be labeled “Annual Monitoring Report for FPUP No. XX-XXX” and sent to the following address: Pima County Regional Flood Control District, ATTN: Floodplain Management, 201 North Stone Ave, 9th floor, Tucson, AZ 85701. **Note address for sending monitoring plan submittals on the RHMP.** The individual or entity responsible for implementation and monitoring of the mitigation area shall provide an “as-built” RHMP with the first monitoring plan submittal (see monitoring report submittal requirements in Section 3 of the Guidelines).

Compliance: It is the responsibility of the permittee to ensure that trees and shrubs received from the nursery are the correct plant species as noted on the RHMP (i.e., plants native to Pima County). The most common problem encountered is the substitution of non-native and/or hybrid mesquites for native mesquites. Arizona has only 3 native species of mesquite. Those species include: Velvet mesquite (*Prosopis velutina*), Screwbean mesquite (*Prosopis pubescens*) and Western Honey mesquite (*Prosopis glandulosa Torr. Var. torreyana*). The western honey mesquite has not been included on the approved plant list, since it is typically found outside of Pima County. The predominant species within Pima County is velvet mesquite. It is important that whoever installs the plants verify with the nursery, both prior to purchase and prior to installation, species nativity and conformance with the species listed on the RHMP. If, upon inspection by the District, the plants installed are found to be non-native (exotic) species, the permittee shall, at their expense, plant adequate native species to satisfy the requirements of the RHMP. A statement requiring verification of plant species nativity prior to installation will be a condition of the FPUP, to be agreed to and initialed by the permittee at the time of FPUP issuance.

Resources:

Chapter 16.30 of the Floodplain and Erosion Hazard Management Ordinance No. 2010-FC5
<http://www.pima.gov/cob/code/>

Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines and Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County
<http://rfcd.pima.gov/rules/index.cfm>

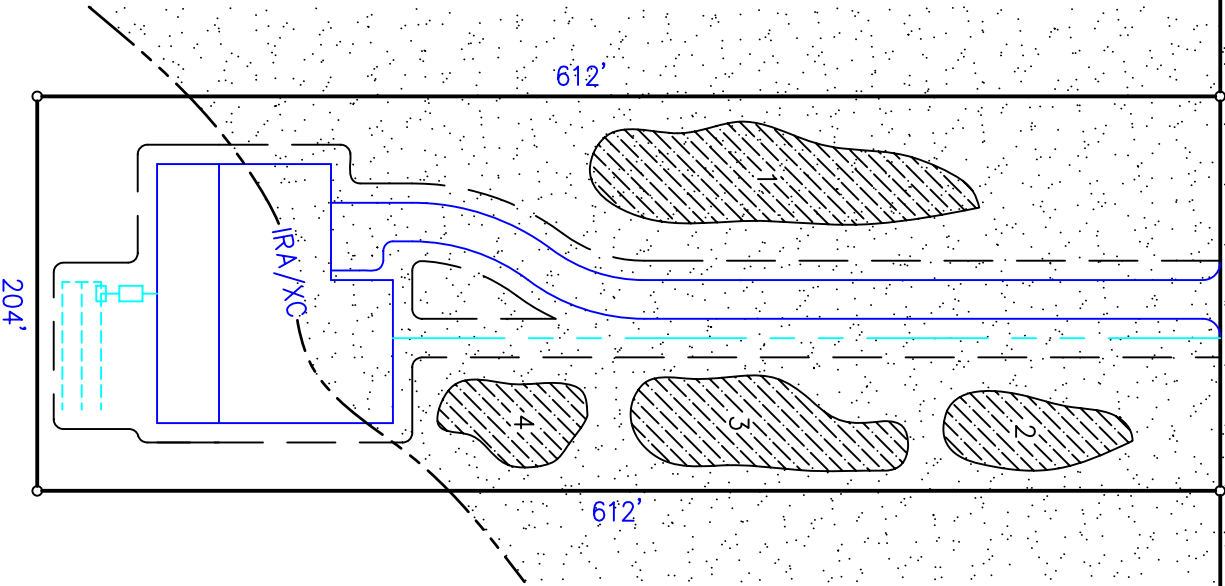
Technical Policies and Procedures and Administrative Procedures
<http://rfcd.pima.gov/rules/index.cfm>

Pima County Mapguide to view Regulated Riparian Habitat
<http://gis.pima.gov/maps/>

Chapter 18.07.080 of the Zoning Code for information on modified development standards
<http://www.pima.gov/cob/code/>

MAPLE DRIVE

204'



PLANT SCHEDULE

| TREES | QTY | SIZE |
|-----------------------|-----|--------|
| IRONWOOD | 5 | 15 GAL |
| OLNEYA TESOTA | 4 | 5 GAL |
| VELVET MESQUITE | 5 | 15 GAL |
| PROSOPIS VELUTINA | 4 | 5 GAL |
| BLUE PALO VERDE | 5 | 15 GAL |
| CERCIDIUM FLORIDUM | 5 | 5 GAL |
| SHRUBS | | |
| OREOSOTE | 6 | 5 GAL |
| LARREA TRIDENTATA | 6 | 1 GAL |
| DESERT HACKBERRY | 6 | 5 GAL |
| CELTIS PALUDA | 6 | 1 GAL |
| BRITTLEBUSH | 6 | 5 GAL |
| ENCELIA FARINOSA | 6 | 1 GAL |
| JOJOBA | 6 | 5 GAL |
| SIMMONDISIA CHINENSIS | 6 | 1 GAL |
| TRIANGLE-LEAF BURSAGE | 7 | 5 GAL |
| AMBROSIA DELTOIDEA | 7 | 1 GAL |



CALCULATIONS

THIS SITE CONTAINS IMPORTANT RIPARIAN AREA WITH UNDERLYING CLASS C XERORIPARIAN HABITAT
 TOTAL REGULATED RIPARIAN HABITAT ON-SITE = 2.20 ACRES
 AREA OF DISTURBED REGULATED RIPARIAN HABITAT = 0.413 ACRES
 AREA OF MITIGATION = 0.413 ACRES X 1.5 = 0.620 ACRES
 TOTAL # OF TREES REQUIRED = 45 X 0.620 ACRES = 28 TREES
 TOTAL # OF SHRUBS REQUIRED = 100 X 0.620 ACRES = 62 SHRUBS

MITIGATION AREAS

| AREA | TREES | SHRUBS |
|--------|----------|-----------|
| AREA 1 | 10 TREES | 20 SHRUBS |
| AREA 2 | 6 TREES | 14 SHRUBS |
| AREA 3 | 6 TREES | 14 SHRUBS |
| AREA 4 | 6 TREES | 14 SHRUBS |

APPROVED SEED MIX SHALL INCLUDE:

- ARISTIDA PURPUREA- PURPLE THREE-AWN
- ASTER TANACETIFOLIUS- PURPLE ASTER
- BAILEYA MULTIRADIATA- DESERT MARGOLD
- DISCHLOSTEMMA PULCHELLUM- BLUE DICKS
- ERICAMERIA LAGRIFOLOA- TURPENTINE BUSH
- ERIGONIUM FASCICULATUM- FLAT TOP BUCKWHEAT
- HYPTIS EMORI- DESERT LAVENDER
- LEPTOCHLOA DUBIA- GREEN SPRANGLETOP
- LYCIUM SPP.- WOLFBERRY
- LARREA TRIDENTATA- CREOSOTE
- NOLINA MICROCARPA- BEARGRASS
- PARTHENIUM INCANUM- MARIOLA
- PENSTEMON PARRYI- PENSTEMON
- SPHAERALCEA AMBIGUA- GLOBEMALLOW
- SPOROBOLUS CRYPTANDRUS- SAND DROPSEED

LEGEND

- Important Riparian Area with Underlying Class C Xeroriparian Habitat
- IRA/XC
- Mitigation Area
- Riparian Limit
- Grading Limit
- Utility
- Project Boundary

GENERAL NOTES

- MITIGATED AREA WILL BE HYDROSEEDED WITH A MINIMUM OF 12 SPECIES FROM THE APPROVED XERORIPARIAN PLANT LIST FOUND IN APPENDIX A OF THE "REGULATED RIPARIAN HABITAT MITIGATION STANDARDS AND IMPLEMENTATION GUIDELINES." IF PLANT SPECIES LISTED ON THE MITIGATION PLAN ARE UNAVAILABLE, REPLACEMENT SPECIES FROM THE APPROVED PLANT LIST MAY BE SELECTED BASED UPON AVAILABILITY. OF THE 12 SPECIES, 4 SHALL BE SHRUBS, 4 SHALL BE ANNUALS/PERENNIALS/VINES, AND 4 SHALL BE GRASSES.
- MITIGATION PLANTINGS TO BE IRRIGATED USING AN AUTOMATIC DRIP IRRIGATION SYSTEM.
- MITIGATION PLAN IMPLEMENTATION SHALL BE COMPLETED BY THE FIRST GROWING SEASON FOLLOWING COMPLETION OF CONSTRUCTION, WHICH IS PROJECTED TO BE MARCH-MAY, 20XX.
- A MONITORING PLAN, IN ACCORDANCE WITH THE GUIDELINES, WILL BE SUBMITTED ANNUALLY FOR A PERIOD OF FIVE (5) YEARS FOLLOWING IMPLEMENTATION OF THE MITIGATION PLAN. ANY CHANGES FROM THE APPROVED MITIGATION PLAN SHALL BE NOTED ON THE MONITORING PLAN SUBMITTAL.
 MONITORING PLAN SHALL BE SUBMITTED TO THE RFCO AT:
 PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT
 ATTN: WATER RESOURCES DIVISION STAFF
 97 E. CONGRESS ST., 2ND FLOOR
 TUCSON, ARIZONA 85701
- THE PROJECT OWNER, AND/OR THE OWNERS SUCCESSORS, AGREE TO PRESERVE AND PROTECT THE MITIGATION AREA FOR THE DURATION OF THE PROJECT. FURTHER, THE PROJECT OWNER AND/OR SUCCESSORS AGREE TO ACTIVELY MAINTAIN THE MITIGATED AREA FOR A PERIOD OF NOT LESS THAN FIVE (5) YEARS. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO, THE REGULAR OPERATION OF THE IRRIGATION SYSTEM, THE REPLACEMENT OF DEAD TREES AND SHRUBS, AND THE REMOVAL OF NOXIOUS AND/OR INVASIVE PLANT SPECIES.
- MITIGATION AREAS(S) TO BE LEFT IN A NATURAL STATE. NO DISTURBANCE SHALL OCCUR WITHIN THE MITIGATION AREAS(S) WITHOUT RFCO REVIEW AND APPROVAL. SUCH DISTURBANCE INCLUDES BUT IS NOT LIMITED TO SECONDARY IMPACTS SUCH AS THE PRESENCE OF LIVESTOCK, FENCING, INTENSIVE LANDSCAPING, OUTDOOR PLAY AREAS, ETC.

RIPARIAN HABITAT MITIGATION PLAN

PROPERTY OWNER: JOE SMITH
 PROPERTY ADDRESS: 200 W. MAPLE DRIVE
 PARCEL TAX CODE NO. 123-45-6780
 PUP NO. XX-XXXXP