MODIFICATION - NUMBER ONE

of the

AGREEMENT

CONCERNING IN-LIEU MITIGATION FEES BETWEEN:

U.S. ARMY CORPS OF ENGINEERS

&

KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES

2011
LRL-2010-325

I. INTRODUCTION

A. This document shall constitute the instrument (Instrument) that governs the in-lieu fee mitigation program (Mitigation Program) sponsored by the Kentucky Department of Fish & Wildlife Resources (KDFWR). KDFWR will be referred to as "Sponsor" throughout the Instrument. Specific background information for the Mitigation Program is provided in Appendix A.

The Instrument is a modification of the agreement (Agreement) entitled "Agreement Concerning In Lieu Mitigation Fees Between KDFWR and the U.S. Army Corps of Engineers" signed October 18, 2002. The Agreement and the Instrument establish the Mitigation Program for the Sponsor for purposes of meeting requirements of the Mitigation Rule (Mitigation Rule) set forth in 33 C.F.R. Part §332. The Instrument is an agreement between the Sponsor and the U.S. Army Corps of Engineers Districts of Louisville, Nashville, Memphis and Huntington (Corps).

B. Because the Instrument is a modification of an existing agreement, it is important to maintain continuity and assurances for existing projects funded under the Agreement while transitioning to the Instrument. The Instrument shall apply to all funds collected and all projects approved on or after the effective date of the Instrument. Projects previously approved for design under the Agreement that are approved for full project funding (construction and post construction) by the Interagency Review Team (IRT) prior to the effective date of the Instrument shall be completed under the terms of the Agreement. If any of the projects approved under the Agreement are terminated then the remaining funds shall become unobligated, reimbursed to the Service Area Fund, and managed in accordance with the Instrument. Any project funds remaining upon completion and closure of projects approved under the Agreement shall be reimbursed to the Service Area Fund and managed in accordance with the Instrument.

Transition from the Agreement to this Instrument will require conversion of unobligated funds collected under the Agreement. All unobligated in-lieu fee funds, except accrued interest, collected under the Agreement shall be converted to the appropriate mitigation unit by dividing the total unobligated funds by the fee schedule using full cost accounting. All transitioned funds will become governed by the Instrument for implementation of mitigation projects. The number of mitigation units resulting from this conversion will be debited from the total number of initial Advance Credits allotted in each Service Area. This conversion shall be subject to review and approval by Corps. Refer to Appendix B for accounting and fee schedule information.

II. PURPOSE

A.

The fundamental objectives of the Instrument are to establish procedures for compensatory mitigation for losses to waters of the United States (WOUS) authorized by DA permits pursuant to Section 404 of the Clean Water Act (33 USC 1344) and Section 10 of the River and Harbors Act of 1899 (33 U.S.C. 401, 403). The Corps shall have the final authority for approval of mitigation

activities performed under the Instrument. The definitions listed in 33 C.F.R. §332.2 shall apply.

B. The Sponsor desires to restore (rehabilitate, re-establish), enhance, establish, and preserve aquatic resources in Kentucky for the benefit of its citizens. The Sponsor is authorized to receive, hold, and account for assets for the purpose of compensatory mitigation. Further documentation regarding the Sponsor's authorization is provided in the Appendix A.

C. This Instrument provides the Sponsor with authorization to provide mitigation credits to Department of Army (DA) permittees to be used as compensatory mitigation for DA Permits, upon approval by the District Engineer (Corps), or the Corps's official representative, at the Corps District with jurisdiction over the permitted activity. Approval shall be in the form of a DA permit. The Sponsor does not have the written or implied authority to approve DA permits.

III. PROGRAM OPERATION

A. INTERAGENCY REVIEW TEAM

The Interagency Review Team (IRT) consists of representatives from the Corps, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (USEPA), and Kentucky Division of Water (KDOW). The Corps is the chair of the IRT. USFWS, USEPA and KDOW are the IRT members. The IRT shall replace the Mitigation Review Team (MRT) previously established in the Agreement.

1. Corps of Engineers:

The Corps, as the chair of the IRT, is responsible for consulting with members of the IRT in accordance with the requirements of 33 CFR §332.8, providing oversight of the Mitigation Programs, and ensuring compliance with Section 404 of the Clean Water Act (CWA) and Section 10 of the River and Harbors act of 1899 (RHA).

There are four Corps Districts covered by this Instrument—Louisville, Nashville, Memphis and Huntington Districts. Louisville District is the lead District and is responsible under this Instrument for communicating with the Sponsor and coordinating with the IRT on issues related to the Instrument that are not specific to an individual compensatory mitigation project. The District with jurisdiction over an individual compensatory mitigation project is responsible for communicating with the Sponsor and coordinating with the IRT on issues related to those projects.

2. IRT Members:

The IRT Members are responsible for advising the Corps in assessing monitoring reports, recommending remedial or adaptive management measures, and providing input on credit releases, credit release schedules, and instrument modifications. The procedures for IRT Member review and comment set forth in 33 CFR §332.8 shall apply.

B. CREDITS

1. Allocation of Advance Credits

The number of Advance Credits allocated under this Instrument and the basis for determining that number are provided in Appendix C with the Compensation Planning Framework (CPF) of each Service Area. The number of Advance Credits available to the Sponsor at any given time to sell or transfer to permittees is equal to the number of Advance Credits allocated in Appendix C minus any Advance Credits that have been sold or provided to satisfy DA permittee compensatory mitigation requirements but not yet fulfilled.

2. Credit Sales

The Sponsor may, but is not obligated to sell mitigation credits. The Sponsor agrees that mitigation credits sold will be solely for the purposes of compensatory mitigation required for DA permits. Once purchased, mitigation credits may not be re-funded, re-sold or transferred to other entities except with the approval of the Corps. Mitigation Credit ledgers shall be updated within 30 days of approved releases or sales and annually.

The Sponsor may sell or transfer mitigation credits to DA permittees to be used as compensatory mitigation for DA Permits, upon approval by the Corps. The approval will be in the form of a DA permit.

The Corps shall provide the Sponsor with sufficient information to account for impacts and the required mitigation for each DA permit in which a permittee is approved to purchase mitigation credits from the Sponsor. The documentation should include the following:

i. Corps District and project manager
ii. Corps I.D. and date of authorization
iii. Water Quality Certification (WQC) number and date of issuance, if available
iv. Project name
v. Permittee information (name, address, phone number)
vi. county
vii. Project Coordinates (Latitude and Longitude), in decimal degrees
viii. Service Area
ix. Linear feet or acres of impacted WOUS

x. The number of functional or other mitigation units required of the Sponsor to compensate for the impacts, including temporal loss and/or cumulative impacts
xi. Functional or other mitigation units lost, if available
xii. Type of waters impacted (stream flow regime or wetland classification)
xiii. Other information as determined by the Corps

In cases where the Corps allows permittees to purchase mitigation credits over time for a single DA permit (phased payments), the Corps must provide, in addition to the above documentation, a schedule for each individual mitigation credit purchase and the amount of mitigation credits to be purchased in each installment payment.

3. Credit Cost

The Sponsor shall determine the cost of compensatory mitigation credits in accordance with 33 C.F.R. §332.8(o)(5)(ii).

The Sponsor will set fees to reflect the expected costs associated with the mitigation, based on "full cost accounting" and include, as appropriate: land or easement acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, remediation or adaptive management activities, administrative costs, contingencies (including construction and real estate expenses), long term management and protection, financial assurances, or other costs. The Sponsor may adjust fees as necessary and the fee adjustments will not constitute a modification of the Instrument.

The annual report provided by the Sponsor will include a breakdown of the fees and fee modifications and any anticipated changes in fee structure.

4. Fulfillment and Reallocation

Mitigation credits will be identified as Advance Credits or Released Credits. Advance Credits are made available before mitigation projects have been implemented. Released Credits are generated from mitigation projects when performance measures and milestones have been achieved. Credits will be accounted for by Service Area.

As Released Credits are produced, they will be used to fulfill any Advance Credits that have already been provided within the service area before any remaining Released Credits can be sold or transferred to permittees. Once previously provided Advanced Credits have been fulfilled, an equal number of Advance Credits will be re-allocated to the Sponsor for sale or transfer to fulfill new mitigation requirements consistent with the Instrument. The number of Advance Credits available to the Sponsor at any given time to sell or transfer to permittees in a given service area is equal to the number of Advance Credits

specified in the Instrument minus any that have already been provided but not yet released.

C. COMPENSATORY MITIGATION PROJECT CREDITS

1. Determination of Credits

Mitigation credits for individual mitigation projects will be determined as part of the compensatory mitigation project approval and credit release process. Mitigation credits will be determined in accordance with 33 C.F.R. §332.8(o). In order to receive mitigation credits all projects must have a Corps approved Project Mitigation Plan.

2. Schedule for Credit Release

Released Credits shall be tied to milestones and performance measures. Mitigation sites, other than preservation projects (or preservation with buffer enhancement), shall be subject to the following mitigation credit release schedule:

- 15% mitigation credit release after receipt of the signed and recorded conservation easement or other approved long term site protection instrument and an approved 404 authorization.
- 5% additional mitigation credit release (20% cumulative) upon written acceptance from the Corps of the "As Built" Report.
- 60% credit release divided equally (80% cumulative) over the monitoring period upon documentation that Performance Standards has been met.
- 20% additional mitigation credit release (100 % cumulative) upon proof that final Performance Standards are met. Final credit release is contingent upon final accounting of mitigation credits and written release from compliance monitoring from the Corps in consultation with the IRT.

In the case of preservation, 100% of the mitigation credits will be released upon the following: approval of the Project Mitigation Plan, purchase of the property, and filing of permanent protection instrument (i.e. conservation easement(s), deed restriction(s), or other legal protection). In situations where property is not purchased, 100% of mitigation credits will be released upon approval of the Project Mitigation Plan and filing the permanent protection instruments. For all preservation projects the permanent protection method must be approved by the Corps.

Deviations from these release schedules may be approved by the Corps on a case-by-case basis after consultation with the IRT and shall be included in the approved Project Mitigation Plan for the compensatory

mitigation project. Approval of deviations from the above release schedule shall be based on past and current performance, specific site characteristics or factors that would affect risk, or other considerations as determined by the Corps.

3. Credit Release

The Sponsor shall submit documentation to the Corps demonstrating that the relevant milestones have been achieved and request release of the mitigation credits. The release of mitigation credits for a compensatory mitigation site must be approved by the Corps. The Corps will follow the procedures set forth in 33 CFR 332.8(o)(9) in making the determination on whether to approve a mitigation credit release.

D. CREDIT ACCOUNTING AND REPORTING

The Sponsor shall establish and maintain an annual report ledger in accordance with 33 CFR 332.8(i)(3) & (q)(1) and individual ledgers that track the production and debit of Advanced and Released Credits for each compensatory mitigation project. Credit ledgers and annual reports shall be provided to the Corps and IRT by February 28 of each year for the previous calendar year. The Corps may consider granting an extension of this deadline upon request by the Sponsor.

E. COMPENSATORY MITIGATION PROJECTS

1. Compensatory Project Mitigation Plan

The Sponsor must submit a Project Mitigation Plan for each compensatory mitigation project to the Corps. The Project Mitigation Plan must include the information required in 332.8(j) and shall reference the CPF.

2. General Considerations

The general considerations for compensatory mitigation set forth in 33 CFR §332.3 shall be taken into consideration in evaluating compensatory mitigation projects submitted by the Sponsor to the Corps for approval.

Plans or projects with a primary purpose of improving or creating water supply, flood control or sanitary projects (sewer installation or improvements, straight pipe removal, septic system removal or installation, etc), or other water related improvements that do not involve aquatic habitat enhancement, rehabilitation, establishment, re-establishment, or preservation are not acceptable forms of out-of-kind mitigation and shall not be considered an acceptable type of compensatory mitigation under this Instrument.

3. Approval

The Corps must approve all compensatory mitigation projects as modifications to this Instrument. Individual compensatory mitigation

projects will be reviewed and approved in accordance with 33 CFR 332.8. Projects requiring Section 404 and/or Section 10 authorization will be approved following the Letter of Permission "New Mitigation Projects Associated with Approved Compensatory Mitigation Banking and In-lieu Fee Instruments" (LRL-2010-323). Mitigation projects involving preservation and not requiring Section 404 and/or Section 10 authorization will be reviewed and approved following 33 C.F.R. §332.8 (g)(2). A list of approved projects will be provided in Appendix D. The list will be updated as each new project is approved and provided in the annual report.

4. Implementation

The Sponsor is responsible for the implementation, long-term management, and any required remediation of compensatory mitigation projects, even if those activities are conducted by other parties except in instances where the Sponsor is purchasing mitigation credits from a Corps approved mitigation bank in accordance with Section III(F)(3) of this Instrument. In those cases, these responsibilities will be transferred to the mitigation bank with appropriate documentation.

5. Monitoring

The Sponsor is responsible for monitoring compensatory mitigation projects. The Sponsor shall monitor the compensatory mitigation projects in accordance with the approved Project Mitigation Plan for each project. The Sponsor will provide annual monitoring reports on each compensatory mitigation project to the Corps and IRT unless otherwise specified in the project's approved Project Mitigation Plan. The Sponsor remains responsible for monitoring each compensatory mitigation project until the Sponsor receives written notification of release from monitoring from the Corps.

F. ACCEPTANCE OF COMPENSATORY MITIGATION RESPONSIBILITIES

1. The Sponsor agrees to assume responsibility for the mitigation requirements of DA permittees for which mitigation credits are purchased from the Sponsor as compensatory mitigation under a DA permit. The DA permittee shall retain responsibility for providing the compensatory mitigation until the Corps has received the appropriate documentation that confirms the Sponsor has accepted the mitigation responsibilities and received payment.

2. The Sponsor shall provide the Corps with documentation confirming the Sponsor has accepted responsibility for providing the required compensatory mitigation for a DA permit. This documentation will consist of a letter to the DA permittee, signed by the Sponsor, identifying the permit number (Corps ID) and stating the number and type of mitigation credits that have been secured from the Sponsor. The Sponsor shall not be obligated to accept mitigation payments without the documentation the Corps is required to provide under Section III.B.2 of

this Instrument. The Sponsor shall retain the right to refuse any mitigation credit sales.

3. The Sponsor may purchase mitigation credits from a Corps' approved mitigation bank if the purchase is approved by the Corps, in consultation with the IRT, or is required by the Corps in accordance with Section III (H)(1). In these cases, the instrument(s) governing the mitigation bank shall apply, including the transfer of mitigation liability from the permittee (i.e. Sponsor) to the bank once the mitigation credits have been purchased.

G. COMPENSATION PLANNING FRAMEWORK

1. The CPF for the Mitigation Program is attached as Appendix C. The CPF will be used to select, secure, and implement specific compensatory mitigation projects. The CPF describes the geographic service area(s) for the Mitigation Program and how they were selected.

2. Modification of the CPF is considered a significant modification to the Instrument and will be made following the procedures in 33 CFR 332.8(d).

H. TIMING OF COMPENSATORY MITIGATION PROJECTS

1. In general, implementation of compensatory mitigation projects will occur after sufficient funds are available in a Service Area to undertake a project. Permanent protection and initial physical or biological improvements shall begin by the end of the third full growing season after the mitigation credit(s) are sold unless the Corps determines that more or less time is needed to plan and implement a project. The Corps shall have the authority to direct funds to alternative compensatory mitigation projects, including the purchase of mitigation credits from a Corps approved mitigation bank, if the Sponsor does not provide mitigation within three growing seasons after the first Advance Credit is sold in a Service Area unless the Corps determines that more or less time is needed.

2. The Sponsor may identify, design, and/or implement mitigation in advance of impacts.

3. The timing of mitigation projects may be affected by IRT consultation, procurement procedures, permitting, compliance with other environmental regulations, and other factors.

IV. PERMANENT PROTECTION

A. Compensatory mitigation sites will be protected by acquiring a permanent conservation easement from private landowners, purchasing property with appropriate deed restrictions, locating project sites on public land that are protected through management plans, deed restrictions, or Memorandums of

Agreement, or protection through ownership interest by qualified conservation organizations, institutions, or agencies, unless otherwise approved by the Corps in consultation with the IRT.

B. The Corps is responsible for the review and approval of the site protection methods and the language in site protection instruments.

C. In general, the Sponsor shall not implement mitigation on sites where oil, gas, mineral rights, timber rights, or other landuse rights are severed from fee ownership and where such rights could threaten the long term success of compensatory mitigation, unless approved by the Corps. Rights that are severed from fee ownership will generally be considered to threaten the long term success of a mitigation site unless such rights are subordinated, or made subject to the site protection instrument(s).

D. Lands purchased with in-lieu fee monies, including uplands, shall be protected in their natural or restored state to ensure project sustainability. Passive recreation such as hunting, fishing, wildlife viewing, hiking, or other passive uses shall be allowed. The following restrictions shall apply to all new properties purchased in fee title:

1. Non-passive uses, such as timber harvesting, motorized recreational or all-terrain vehicle (ATV) use, horses or horseback riding, shall be prohibited.
2. Land disturbance activities, including utility lines, roadways, or mineral extraction shall not be allowed unless approved in writing by the Corps in consultation with the IRT.
3. Any deviation in these restrictions including any capital improvement, wildlife management activities, or other actions must be approved by the Corps on a case-by-case basis or be part of a long-term management plan approved by the Corps in consultation with the IRT.

Projects implemented on lands or properties where non-passive uses exist will be reviewed and may be approved by the Corps on a case-by-case basis.

V. PERIODIC REVIEWS

There will be an annual review of project sites at dates agreeable to the Corps and the Sponsor. The Sponsor will coordinate annual review dates with the Corps, in consultation with the IRT. Program and account reviews and reporting are discussed in Appendix B to this Instrument.

VI. FINANCIAL ASSURANCES

A. The Sponsor will provide financial assurances for compensatory mitigation projects. The amount of the financial assurances has been determined in

accordance with 33 CFR 332.2(n)(2). The specific financial assurances that will be used are described in Appendix B.

B. The Mitigation Program is funded at a rate that is established and based on the actual and forecasted costs of conducting mitigation projects based on current requirements of the Corps. Funds collected from the sales of mitigation credits are deposited and maintained in restricted accounts. Approved mitigation projects are further protected by the contractual agreements for individual projects, and accrued interest, or other management accounts. The Mitigation Program shall reserve a minimum amount of funds within the account(s) and/or in a separate account as financial assurance for remedial actions, long term maintenance of projects, and/or other activities that enhance or further protect mitigation projects.

VII. MODIFICATION OF THE INSTRUMENT

A. Modification of the Instrument shall follow the procedures set forth in 33 C.F.R. §332.8(g).

B. For purposes of this Instrument modifications in the allocation of Advance Credits and approval of preservation projects are generally considered not to be significant and may warrant application of the streamlined review process.

C. Appendices will be reviewed annually. Changes to the Appendices are modifications subject to the procedures of 33 CFR §332.8(g), unless specifically identified otherwise. The CPF, attached as Appendix C, utilizes various sources of external information/data in its mitigation approach and prioritization. These sources of information/data are expected to be updated or modified over time by the external entities responsible for maintaining these sources of information. The Sponsor's use of updated or modified information from these external sources in the application of its CPF is not considered a modification of the CPF or this Instrument.

VIII. DEFAULT, SUSPENSION, AND TERMINATION

A. If the Corps determines that the Mitigation Program is not meeting performance standards or complying with the terms of the Instrument, appropriate action will be taken. Such actions may include, but are not limited to: suspending Sponsor mitigation credit sales, decreasing the allocation of Advance Credits, adaptive management actions, suspending approval of new mitigation projects, directing funds to alternative mitigation, terminating the Instrument, or other actions as approved by the Corps.

B. Termination:

1. Either the Corps or Sponsor may terminate this Instrument. Termination procedures shall be commenced upon 60 days written notice of either party's intent to terminate the Instrument.

2. Termination procedures are as follows:

   i. The Sponsor shall provide an accounting of all monies.
   ii. The Sponsor shall complete all existing contracts for projects approved by the Corps under the Instrument and expenses incurred on behalf of these projects.
   iii. Unencumbered funds shall be payable as directed by the Corps.

3. Upon termination, should Mitigation monies remain in the Mitigation Fund, the Corps shall direct the Sponsor to transfer the funds to another entity for implementation of stream and wetland mitigation projects and may include funds necessary for long-term management.

IX. CONFLICT OF INTEREST

An IRT agency shall be recused from participating in IRT activities associated with projects in which they have a direct or indirect role in funding, contracting, implementation, or other financial involvement.

X. FORCE MAJEURE

A. Responsibility for Repair and Remediation

Projects shall be designed to be self-sustaining to the maximum extent possible.

The Sponsor shall be responsible for repair and remediation of compensatory mitigation projects except under the following circumstances:

1. A project is released from monitoring by the Corps; and
2. Damages to the compensatory mitigation project are the result of an Act of God.

B. Definition of Act of God

For purposes of this Instrument, an "Act of God" shall mean a natural hazard that has a significant impact on the environment and that is beyond the Sponsor's control. Natural hazards shall include, but not be limited to, floods, tornados, hurricanes, earthquakes and fires.

C. Burden of Proof

The Corps, in consultation with the IRT, will determine whether a Force Majeure event has occurred. The Sponsor shall bear the burden of demonstrating to the satisfaction of the Corps:

1. The natural hazard was caused by circumstances beyond the control of the Sponsor, and/or any entity controlled by the Sponsor, including its contractors and consultants;

2. That neither the Sponsor, nor any entity controlled by the Sponsor, including its contractors and consultants, could have reasonably foreseen and prevented such an event or damages from such event; and

3. The damage was caused by the natural hazard.

XI. POINTS OF CONTACT

The points of contact for written communication among the parties are as follows or as otherwise specified in the future by written notice to all parties:

Corps of Engineers
U. S. Army Corps of Engineers
Chief, Regulatory Branch (currently James M. Townsend)
Operations Division
Louisville District Corps of Engineers
P.O. Box 59
Louisville, Kentucky 40201
Phone (502) 315-6675
Fax (502) 315-6677
e-mail: james.m.townsend@usace.army.mil

U.S. Army Corps of Engineers
Chief, Regulatory Branch (currently Ginger Mullins)
CELRH-OR-F
502 Eighth Street
Huntington, WV 25701
Phone: (304) 399-6900
Fax: (304) 399-5085

U.S. Army Corps of Engineers
Chief, Regulatory Branch (currently Tim Flinn)
167 North Main Street, Room B-202
Memphis, TN 38103-1894
Phone: (901) 544-3471
Fax: (901) 544-0211

U.S. Army Corps of Engineers
Chief, Regulatory Branch (currently Ron Gatlin)
CELRN-OR-F
3701 Bell Road
Nashville, TN 37214
Phone: (615) 369-7500
Fax: (615) 369-7501

Sponsor

Kentucky Department of Fish and Wildlife Resources
Mr. Mike Hardin, Assistant Director, Division of Fisheries
Grants, Environmental, & Habitat Restoration Branch
1 Sportsman`s Lane
Frankfort, Kentucky 40601
Phone (502) 564-7109 ext 4466
Fax (502) 564-3178
e-mail: mike.hardin@ky.gov

Kentucky Department of Fish and Wildlife Resources
Mr. Benjy Kinman, Deputy Commissioner
1 Sportsman's Lane
Frankfort, Kentucky 40601
Phone (502) 564-7109 ext 4466
Fax (502) 564-3178
e-mail: benjy.kinman@ky.gov

IRT Members

Kentucky Division of Water
Ms. Sandy Gruzesky, Director
200 Fair Oaks
Frankfort, KY 40601

US EPA
Wetlands, Coastal, & Oceans Branch
Chief of Mining Section
Mr. Duncan Powell
61 Forsyth Street, SW
Atlanta, GA 30303

U.S. Fish & Wildlife Service
Kentucky ES Field Office
Mr. Lee Andrews, Field Supervisor
J C Watts Federal Building - Room 265
330 West Broadway
Frankfort, KY 40601

XII. EFFECTIVE DATE:

This agreement shall become effective when signed by the Louisville, Nashville, Huntington and Memphis Districts of the U.S. Army Corps of Engineers and the Sponsor. IRT members are invited to sign this Instrument as an indication of their agreement to the terms of the Instrument. IRT members may choose to sign the Instrument. The Instrument will not be negated if an IRT member chooses not to sign. The Corps retains the final authority for approval of the Instrument.

CORPS OF ENGINEERS & SPONSOR SIGNATURES

12-1-2011

James M. Townsend
Chief, Regulatory Branch
Louisville District

Date

Ronald E. Gatlin
Chief, Regulatory Branch
Nashville District

Date

Tim Flinn
Chief, Regulatory Branch
Memphis District

Date

Ginger Mullins
Chief, Regulatory Branch
Huntington District

Date

10/11/11

Dr. Jonathan Gassett
Commissioner
Kentucky Department Fish and Wildlife Resources

Date

DEC - 8 2011

CORPS OF ENGINEERS & SPONSOR SIGNATURES

12-1-2011

James M. Townsend
Chief, Regulatory Branch
Louisville District

Date

Ronald E. Gatlin
Chief, Regulatory Branch
Nashville District

Date

Tim Flinn
Chief, Regulatory Branch
Memphis District

Date

12-2-11

Ginger Mullins
Chief, Regulatory Branch
Huntington District

Date

10/11/11

Dr. Jonathan Gassett
Commissioner
Kentucky Department Fish and Wildlife Resources

Date

DEC 12 2011

CORPS OF ENGINEERS & SPONSOR SIGNATURES

12-1-2011

James M. Townsend
Chief, Regulatory Branch
Louisville District

Date

Ronald E. Gatlin
Chief, Regulatory Branch
Nashville District

Date

5 DEC 2011

Gregg Williams
Acting Chief, Regulatory Branch
Memphis District

Date

Ginger Mullins
Chief, Regulatory Branch
Huntington District

Date

10/11/11

Dr. Jonathan Gassett
Commissioner
Kentucky Department Fish and Wildlife Resources

Date

CORPS OF ENGINEERS & SPONSOR SIGNATURES

12-1-2011

James M. Townsend
Chief, Regulatory Branch
Louisville District

Date

12-6-2011

Ronald E. Gatlin
Chief, Regulatory Branch
Nashville District

Date

Tim Flinn
Chief, Regulatory Branch
Memphis District

Date

Ginger Mullins
Chief, Regulatory Branch
Huntington District

Date

10/11/11

Dr. Jonathan Gassett
Commissioner
Kentucky Department Fish and Wildlife Resources

Date

IRT SIGNATURES

Virgil Lee Andrews 12/20/11

Virgil Lee Andrews, Jr. Date
Field Supervisor
United States Fish & Wildlife Service-Kentucky Field Office

Duncan Powell Date
Chief of Mining Section
Wetlands, Coastal, & Oceans Branch
United States Environmental Protection Agency-Region IV

Sandy Gruzesky Date
Director
Kentucky Division of Water

IRT SIGNATURES

Virgil Lee Andrews, Jr. Date
Field Supervisor
United States Fish & Wildlife Service-Kentucky Field Office

Duncan Powell Date
Chief of Mining Section
Wetlands, Coastal, & Oceans Branch
United States Environmental Protection Agency-Region IV

Barbara J Scott 12-28-2011
for
Sandy Gruzesky Date
Director
Kentucky Division of Water

KDFWR APPENDICES

APPENDIX A-KDFWR: "KDFWR IN-LIEU FEE PROGRAM BACKGROUND"

APPENDIX B-KDFWR: "KDFWR FINANCIAL ACCOUNTING"

APPENDIX C-KDFWR: "KDFWR COMPENSATION PLANNING FRAMEWORK"

APPENDIX D: "LIST OF APPROVED COMPENSATORY MITIGATION PROJECTS"

APPENDIX A-KDFWR: KDFWR IN-LIEU FEE PROGRAM BACKGROUND

The Instrument recognizes that the Kentucky Wetland and Stream Mitigation Trust Fund (Mitigation Fund), established by Kentucky Revised Statute (KRS 150.255), authorizes KDFWR to establish wetland and stream compensatory mitigation banks, projects and to receive in-lieu mitigation fees for the Commonwealth s wetlands or streams that may be damaged or destroyed by any project. The Mitigation Fund is deemed a trust and is available solely for the purposes and benefits of the Kentucky wetland and stream mitigation projects. KDFWR agrees to treat funds and any interest accruing to the funds received for the Mitigation Program as Restricted Funds solely for the purposes of compensatory mitigation pursuant to the Clean Water Act and as specified in the Instrument.

APPENDIX B-KDFWR: KDFWR FINANCIAL ACCOUNTS, MITIGATION CREDITING, ASSURANCES AND REPORTING

B.1.0 FINANCIAL ACCOUNTS, FEE SCHEDULE, & REPORTING

B.1.1 The Mitigation Fund

All mitigation payments shall be deposited in the state treasury of the Commonwealth of Kentucky in a restricted fund account authorized by Kentucky Revised Statute 150.255. The Mitigation Fund is deemed a trust and KDFWR fund account that is to be used solely for the purposes and benefits of Kentucky wetland and stream mitigation projects. All monies that may be generated from the sale or disposal of property, equipment, materials, or other items purchased using in-lieu fee funds shall be reimbursed and deposited to the Mitigation Fund for the sole use and benefit of the Mitigation Program and shall not be diverted for other uses. The Mitigation Fund will be used for in-lieu fee mitigation activities, including: land acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, remediation and adaptive management activities, long term management, administration, or other costs necessary to complete mitigation projects. The costs will be set at an amount sufficient to fund all costs associated with operation of the Mitigation Program and implementation of mitigation projects.

Interest and earnings shall remain in the Mitigation Fund for use solely by and for the purposes of the Mitigation Program and providing compensatory mitigation for DA permits. Monies in the Mitigation Fund shall not be diverted for other uses or mixed with other funding sources.

The following activities shall be tracked or accounted for separately in the Mitigation Fund:

a. Administration
b. Service Areas (in-lieu fee project funds)
c. Reserve

B.1.2 Administrative Funds

The credit costs include an amount to fund the administration of the Mitigation Program. A portion of each credit sold will be separated and tracked in an "Administrative Fund". Administrative functions include tasks completed by KDFWR staff, state staff, or professional services, for identifying, planning, and operation of the Mitigation Program. Operation of the program may include other aspects necessary to complete mitigation projects such as design, monitoring, management, easement enforcement, legal actions, or other activity. A minimum of ten percent (10%) up to a maximum of twenty (20%) of each credit sold plus an equal amount of any interest accruing on the Mitigation Fund shall be used to fund the administrative tasks. Revenues and expenditures for administrative costs shall be tracked separately. It is anticipated that administrative costs will vary over time. Therefore, changes in cost per credit will reflect adjustments in administrative fees.

B.1.3 Service Area Funds

Funds to implement in-lieu fee compensatory mitigation projects shall be deposited into the Mitigation Fund and tracked by Service Area. These funds will be used to implement compensatory mitigation projects including locating and identifying, planning, design, construction, permanent protection, land acquisition, purchase of easements or other protective measures, mitigation monitoring, contingency, long-term management, and/or other activities. The Service Areas are listed below and discussed in detail in Appendix C:

a. Big Sandy River Area
b. Upper Licking River Area
c. Lower Licking River
d. Upper Kentucky River Area
e. Lower Kentucky River Area
f. Salt River Area
g. Green River Area
h. Upper Cumberland River Area
i. Lower Cumberland River Area
j. Jackson Purchase Area (*includes Tennessee River basin westward to the Mississippi River*)

B.1.4 Reserve Funds

A "Reserve" will be established in the Mitigation Fund. The Reserve will be maintained by interest that has accrued to the Mitigation Fund and from a percentage for contingency of each credit sold.

The Reserve shall be used for contingency actions, long-term management, permanent protection activities, additional mitigation, or other actions associated with compensatory mitigation projects whether completed under the terms of the Agreement or Instrument. The use of these funds shall be subject to the approval and direction of the Corps in consultation with the Sponsor except for minor actions that do not require a permit, such as long-term management actions, fence repair, and other activities. All activities shall be reported to the Corps. The Reserve shall be tracked separately from the Service Area Funds and Administrative Funds.

The Reserve shall begin with funds existing in the Mitigation Program equal to the amount of interest that has accrued since inception. New funds will be added to the Reserve from a percentage of each credit sale and from interest as it accrues.

A three million dollar ($3,000,000) limit shall remain in the Reserve. Should use of these funds be required, additional accruing interest shall be used to restore the three million dollar ($3,000,000) limit. This limit may be adjusted with approval of the Corps and will not constitute a modification of the Instrument.

Funds in excess of the three million dollar limit will be used to fund specific compensatory mitigation projects. Mitigation credits generated from compensatory mitigation projects funded from the Reserve may be used to compensate for shortfalls in mitigation credits for the Mitigation Program or may used to provide compensatory mitigation for Corps permits in advance of impacts.

Released Credits generated by compensatory mitigation projects funded from the Reserve may be sold to DA permittees subject to approval by the Corps. Funds from the sale of Released Credits generated by the Reserve shall be deposited back into the Reserve. Temporal or cumulative additions to mitigation requirements may not apply to Released Credits generated and sold in advance of impacts.

Separate financial reports and mitigation credit ledgers shall be used for actions funded by the Reserve but shall follow the requirements of the Instrument. The financial report and any account reporting for the Reserve shall be provided to the Corps annually.

B.2.0 FEE SCHEDULE

The fee schedule for mitigation credit sales is based upon the cost of current and projected representative projects plus requirements included in the Instrument. The fee will be rounded up to the nearest five dollars. The fee will be based on the expected costs which include:

- Administration
- Legal fees
- Land costs
- Design/Planning
- Construction (includes labor, planting)
- Monitoring
- Adaptive Management (during project)
- Contingency funding
- Long Term Management
- Other unidentified costs

The fees will be determined for each Service Area. The description and information on each Service Area is provided in Appendix C. The fees shall be subject to change as determined by the Sponsor. Changes in fees shall not constitute a modification of the Instrument.

There are currently two methods used to determine mitigation units. Stream units (debits and credits) are determined in the Eastern Kentucky Coalfield physiographic region of Kentucky using the Eastern Kentucky Stream Assessment Protocol (EKSAP). The EKSAP is applied to the following service areas: the Upper Kentucky River Area, Upper Licking River Area, Big Sandy River Area, and Upper Cumberland River Area.

The Kentucky Assessment Protocol (KAP) is used to determine mitigation units for streams in the remaining areas of Kentucky. The KAP is applied to streams in the following Service Areas: the Lower Licking River Area, Lower Kentucky River Area, Salt River Area, Green River Area, Lower Cumberland River Area, and the Jackson Purchase Area

Mitigation units for wetlands, regardless of the location within Kentucky, are determined using the KAP

A new method for assessing stream units, based on the hydrogeomorphic (HGM) approach (Functional Assessment of High-Gradient Ephemeral and Intermittent Headwater Streams), was recently published by the Corps. This method may be used in the future to determine stream units within the Eastern Kentucky Coalfield physiographic region. The HGM method would be applicable to Service Areas in the EKSAP.

The Corps will determine the appropriate method for assessing stream and wetland units. In the absence of a functional method or other approach, linear feet or acres may be used to determine mitigation units. Because mitigation units and methodology may change over time, and because the changes will be determined by the Corps, implementation of these changes by the Sponsor will not constitute a modification of the agreement.

The initial fee schedule will be as follows:

- $610 per mitigation unit (or $260 per linear foot) in EKSAP Service Areas for streams
- $215 per mitigation unit (or $220 per linear foot) in KAP Service Areas for streams
- $30,000 per mitigation unit in KAP for wetlands in all Service Areas

B.3.0 FINANCIAL ASSURANCES

Financial assurances will be provided through individual compensatory mitigation projects and program operations. These will include:

a. project related financial assurances (insurance, bonds, warranties, and a minimum percent of each project set aside for adaptive management)
b. long-term financial assurances (non-wasting endowment for long-term management/maintenance and funds for lapses in mitigation credits)
c. programmatic financial assurances (percent of each credit sales/contingency, past performance)

Mitigation credit costs shall be sufficient to fund the financial assurances listed above.

Based on past performance of the Sponsor, it is anticipated that the financial assurances provided above will be sufficient to address reasonably foreseeable problems that might arise with compensatory mitigation projects including project failures and remediation. Up to a three million dollar ($3,000,000) limit shall remain in the Reserve for any remedial actions not fully covered by the above assurances (see B.1.4 "Reserve").

Any financial assurances differing from those discussed above shall be approved by the Corps in consultation with the Sponsor.

B.4.0 TRANSITION & REPORTING

B.4.1 Transition

Because the Instrument is a modification of an existing agreement, it is important to maintain continuity and assurances for existing projects funded under the Agreement while transitioning to the Instrument.

The Instrument shall apply to all funds collected and all projects approved on or after the effective date of the Instrument. The Instrument shall apply to all interest that has accrued to the fund since inception.

The Agreement will remain in effect for all mitigation projects approved for full project funding (construction and post construction) under the Agreement prior to the effective date of the Instrument. Any project funds remaining upon completion and closure of the projects approved under the Agreement shall be reimbursed to the Service Area Fund and shall be subject to the terms of the Instrument.

Transition from the Agreement to this Instrument will require conversion of unobligated funds collected under the Agreement. All unobligated in-lieu fee funds, except accrued interest, collected under the Agreement shall be converted to the appropriate mitigation unit by dividing the total unobligated funds by the fee schedule using full cost accounting. All transitioned funds will become governed by the Instrument for implementation of mitigation projects. The number of mitigation units resulting from this conversion will be debited from the total number of initial Advance Credits allotted in each Service Area. This conversion shall be subject to review and approval by Corps.

B.4.2 Annual Reports

The Sponsor will submit project monitoring reports to the Corps and IRT annually for each project in the monitoring phase. Project status will be provided in the annual report for all projects that have completed the monitoring phase.

The Sponsor will submit Annual Program Reports to the Corps and IRT by February 28th for the previous calendar year. Annual Program Reports will include the following:

1. Full accounting of mitigation activities by date and Service Area showing beginning and ending balances with the following information:
    - Advance Credits
    - Released Credits
    - Credit purchases
    - Reserve activity including credit generation
    - Permit and date information
2. Income received
3. All disbursements
4. A list of all permits for which in-lieu fee payments were accepted with Corps permit number
5. Estimated fee adjustments
6. Adaptive management recommendations

7. Summary of project status by Service Area
8. Other information as deemed necessary by the Corps

B.4.3 Financial Reporting

All books, accounts, reports, files, and other records pertaining to the Mitigation Program shall be retained and made available at reasonable times for inspection by the Corps. The sponsor shall conduct independent financial reviews of the Mitigation Program. The frequency of review, reporting standards, and record keeping shall be consistent with Commonwealth of Kentucky standards and requirements.

APPENDIX C-KDFWR: KDFWR COMPENSATION PLANNING FRAMEWORK (CPF)

C.1.0 CPF Applicability, Coverage, and Overview

This appendix constitutes the CPF and shall serve as the guide for mitigation in each Service Area. Appendix C will be referenced in future Project Mitigation Plans.

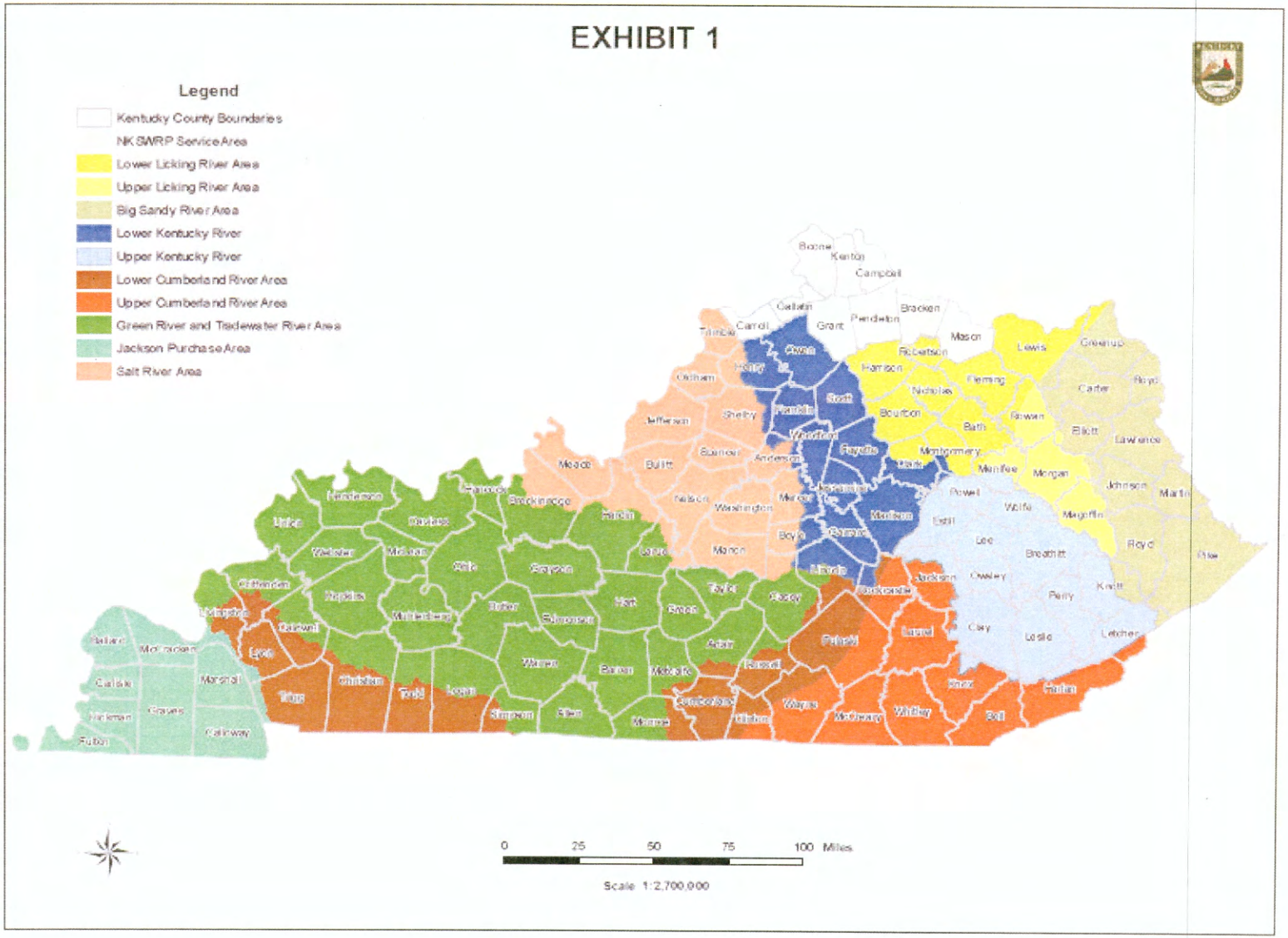
C.2.0 Service Areas

The following Service Areas will be used to account for mitigation credits and debits. A map of the Service Area boundaries is presented in Exhibit 1.

1. Big Sandy River Area
2. Upper Licking River Area
3. Lower Licking River Area
4. Upper Kentucky River Area
5. Lower Kentucky River Area
6. Salt River Area
7. Green River Area (includes Green and Tradewater)
8. Upper Cumberland River Area
9. Lower Cumberland River Area
10. Jackson Purchase Area (*includes Tennessee River basin westward to the Mississippi River*)

Ohio River tributaries will be combined with the nearest Service Area based on the dominant 8-digit HUC drainage and similar Level III Ecoregion or along the Eastern Kentucky Coalfield physiographic region in eastern Kentucky.

EXHIBIT 1


Legend
Kentucky County Boundaries
NKSWRP Service Area
Lower Licking River Area
Upper Licking River Area
Big Sandy River Area
Lower Kentucky River
Upper Kentucky River
Lower Cumberland River Area
Upper Cumberland River Area
Green River and Tradewater River Area
Jackson Purchase Area
Salt River Area
0 25 50 75 100 Miles
Scale 1:2,700,000

C.3.0 EXISTING INFORMATION AND MITIGATION RULE COMPONENTS

The Rule identifies the following elements that are required to be addressed in the CPF:

1. Threats to aquatic resources
2. Current conditions in each Service Area
3. Historic resource loss
4. How in-lieu fee mitigation will address resource loss and needs
5. Resource goals and objectives
6. Prioritization strategy
7. Explanation of preservation objectives
8. Description of private and public stakeholder involvement
9. Long term protection strategy
10. Periodic evaluation and reporting

C.4.0 STATEWIDE THREATS & CURRENT CONDITIONS

C.4.1 Streams

The leading source of impairment to Kentucky's waterways is sedimentation/siltation (Kentucky Energy and Environment Cabinet, Division of Water, KYEEC-DOW, 2008). This impairment generally results from physical habitat conditions and alterations, such as channelization, loss of riparian habitat, streambank modifications/destabilization, site clearance for development, dredging, and habitat modification.

C.4.2 Wetlands

Most of the wetland area in Kentucky has been drained or converted to other landuses. Approximately 6.1% (1.56 million acres) of Kentucky's total land area is estimated to have been wetlands (KSWCC, 1982). Approximately 324,000 acres of wetlands remain in the Commonwealth. This represents a decline of approximately 80%. The Green River basin has approximately 88,000 acres of wetlands; the largest concentration of remaining wetland area in the Commonwealth (The Kentucky Environmental Commission, 1995; KDOW, 2008). Recent data on the gains and losses of Kentucky's wetlands is poorly documented. However, Dahl (1990) reported wetland occurrence in the 1980's to be approximately one to five percent of Kentucky's total land area. Dahl (2006) reported a net gain in wetland area (220,000 acres) nationally between 1998-2004. However, ponds were included as wetlands and there was no qualification as to wetland type. This report attributed 61 % of wetland loss between 1998-2004 to urban expansion and rural development.

C.5.0 Historic Resource Loss

Parola, et al. (2007) provided a synthesis of historic land use and effects on wetlands and streams for the Bluegrass Bioregion and other areas of Kentucky. This overview generally describes historical resource impacts statewide. In this synthesis, impacts to wetlands and streams were associated with significant clearing of forests, construction of mill dams, channel alterations, and draining of wetlands. Clearing of land and burning was used as a means to assist in developing land for agriculture. By the 1850's more than 80% of the Bluegrass Bioregion was in farms, 59% of which was classified as improved (under cultivation). By the 1930's, over 585,000 acres statewide had been included in regional drainage projects resulting in more than 1,200 miles of

ditches and conversion of wetlands to agriculture. Many stream channels were moved from the center of the valley to valley walls at hillsides. The resulting disconnecting of stream channels from groundwater sources impacted riparian and stream areas. These impacts resulted in excessive sedimentation into valleys filling stream channels. Channel incision through post settlement alluvium and channel straightening exacerbated channel incision. Some larger streams in the Bluegrass have experienced several cycles of floodplain alteration and channel modification.

Many of the regional drainage projects were federal (U.S. Department of Agriculture, "USDA") or state sponsored programs. These projects established local watershed districts which established fees/taxes, easements, funding for engineering design, construction, and maintenance of projects, and governance over a local watershed. Many of these projects had eminent domain powers and implemented easements that are still in effect. Many of these remain operational today including East Fork Clarks River near Murray, KY, Obion Creek in Hickman County, Highland Creek and Canoe Creek in Henderson County, Meadow Creek in Wayne County, Cypress Creek in Marshall County, Flat Creek in Hopkins County, and numerous others. These projects significantly altered natural streams and wetlands and the associated hydrologic regimes.

Numerous other federal projects significantly altered Kentucky rivers, streams, and wetlands. Examples include numerous U.S. Army Corps of Engineers reservoirs, flood control and drainage projects, and USDA sponsored projects such as small flood control reservoirs or drainage of wetlands. Lock and dam construction significantly changed rivers or sections of rivers across Kentucky: Ohio River, Kentucky River, Green River, Barren River, Licking River, Tennessee River, Cumberland River, and Big Sandy River. Numerous other dams on small streams exist across Kentucky but not all are documented.

Approximately 6.1% (1.56 million acres) of Kentucky's total land area is estimated to have been wetlands (KSWCC, 1982). Approximately 324,000 acres of wetlands remain in the Commonwealth. This represents a decline of approximately 80%.

Additional discussion of historic resource losses will be presented in each Service Area discussion.

C.6.0 How Mitigation Addresses Resource Losses and Needs

Mitigation projects under the 404 program, including in-lieu fee mitigation and mitigation banks, address the leading causes and sources of impairment in Kentucky by compensating for the permanent physical loss of aquatic habitat and addressing sediment non-point source pollution generated within the stream channel. Mitigation projects are aimed at reducing sediment pollution through the implementation of stream bank stabilization (using native plantings), bio-engineering and natural channel design techniques. Mitigation is selectively prioritized to enhance, rehabilitate, establish, re-establish and preserve streams, wetlands and other WOUS, riparian areas, and associated aquatic resources. Native species are utilized in these projects.

Mitigation projects address the cumulative loss of aquatic resources by replacing lost streams, wetlands, and/or aquatic functions. The Instrument incorporates a prioritization strategy and approach that considers important watershed factors to strategically locate mitigation sites.

C.7.0 Resource Goals & Objectives

C.7.1 General Approach

The ultimate goal of compensatory mitigation site selection shall be to improve the quality and quantity of aquatic resources through strategic selection of sites, compensation for permanent losses of aquatic habitat, preserving unique aquatic resources in exceptional circumstances, and long-term protection and sustainability of the mitigation sites.

The resource goal will be met by the site specific considerations, information contained in Project Mitigation Plans, and/or data or information from the following:

1. Kentucky Division of Water's (KDOW) 305(b) reports and 303(d) list
2. Corps' Special Area Management Plans (SAMPs)
3. Other watershed or ecosystem restoration plans or data
4. U.S. Fish & Wildlife Service plans, reports, or studies
5. KDFWR's watershed based Comprehensive Wildlife Conservation Strategy (CWCS; KDFWR, 2005, or most recent version) and other reports
6. U.S. Department of Agriculture (USDA) programs including targeted watersheds in the Mississippi River Basin Initiative
7. U.S. Geological Survey (USGS) studies and data
8. Local watershed management plans or initiatives
9. Other public sources of information

C.7.2 Site Selection Limitations

Site selection will be based on conditions that favor the success of mitigation projects. In general, sites with conditions that hinder success of mitigation projects will not be selected. Examples of site conditions that would likely hinder success of mitigation projects include:

1. Chronic water quality problems/impairments that could suppress survival of a diverse, native community of aquatic organisms (such as low dissolved oxygen concentrations, high nutrient levels, high salinity, high levels of metals, pH, etc.) that would not be addressed by the mitigation project or other projects in the watershed.
2. Hydrological conditions (such as duration, high frequency and timing of maximum discharge or loss of groundwater contributions) that would suppress survival of a diverse, native community of aquatic organisms and/or scour, destabilize, dry or otherwise degrade aquatic habitat for those organisms.
3. Sites where the mineral/oil/gas rights and surface rights are separated and are likely to or could potentially interfere with the mitigation project. Sites downstream from such areas will also be avoided unless reasonable assurances are provided that future anticipated impacts from extraction would not affect the mitigation project.
4. Sites with multiple utility line or roadway easements, unless the easements would not affect or degrade the mitigation site success and if moving the utility is feasible and practicable.

C.8.0 Prioritization Strategy

C.8.1 Statewide Project Prioritization

The two statewide priorities for project prioritization across all Service Areas are (1) mitigation of physical impacts to aquatic habitat, and (2) proximity to existing mitigation projects and/or public or conservation lands. This will include purchase of lands to do restoration and conservation.

Selecting projects in close proximity to existing or completed projects and other protected areas will increase the aquatic functional benefits generated by increasing the percentage of the watershed that is supporting designated uses. This also increases the overall amount of aquatic resources protected from future physical impacts while contributing to the sustainability of each individual project.

C.8.2 General Project Considerations

To enhance the sustainability of aquatic resources functions, selection of individual mitigation sites will generally include consideration of landscape position and resource type, the types and location of compensatory mitigation projects, the habitat requirements of important species, habitat loss, and/or conversion trends. To achieve the desired aquatic function over time in a changing landscape, project selection will include the following considerations:

- Compensation for the physical loss of aquatic habitat
- Adjacent to or within other protected lands
- Adds to or compliments protected natural lands
- Likelihood of success
- Offers long-term protection and project sustainability
- Located in high quality waters
- Addresses threats to state or federally listed rare, threatened, or endangered aquatic or wetland species
- Supports regional conservation initiatives
- High compensation value
- Compliments other conservation efforts or leverages other funding for watershed improvements
- Preserves streams or wetlands and associated habitat that have exceptional quality
- Ability to address multiple functions and services, such as improvement of fish & wildlife habitat, support for rare species, water quality improvement, and recreation or education values

C.8.3 Mitigation Approach, Justification, and Planning

KDOW data, information, and reports will be used to help plan and identify mitigation projects. The KDOW conducts on-going assessments of the status and condition of Kentucky streams and waters. The reports are based on actual field data collection and probabilistic assessments, are submitted in fulfillment of Section 305(b) of the Clean Water Act, and are periodically updated. The KDOW maintains the 303(d) list which is

an updated list of waters that are impaired. The causes and sources of those impairments are identified by stream name, segment, and hydrologic unit(s).

In addition to these two sources of information, KDOW maintains an updated list of high quality waters which fall under the general category of "Special Use Waters". Special Use Waters are those waters that have exceptionally high water quality, harbor federally threatened or endangered species of aquatic organisms, provide cold water aquatic habitat, exhibit exceptionally high water quality for the state or ecoregion/physiographic region, or have important biological resources (401 KAR 5:026 and 5:030).

KDFWR's watershed based CWCS (KDFWR, 2005) will be used to guide mitigation planning and project selection. The aquatic portions of this plan provide a watershed based framework for conservation. The CWCS is a statewide assessment that identified Kentucky Species with the Greatest Conservation Need (SGCN), threats to these species, and conservation actions needed. This plan includes state and federally listed aquatic or wetland species. It was widely reviewed by the scientific community as well as practitioners for accuracy and application. Presently, KDFWR employs biologists and funds projects to continually evaluate, research, and monitor the status and habitat needs of species in the CWCS. The CWCS is periodically updated based on this on-going research and new data or information. The aquatic analysis in the CWCS was based on hydrologic unit codes (HUCs) at the 8, 11, and 14 digit watershed scales. The assessment ranks watersheds based on the number, richness, and threat rankings of aquatic species (fish and lamprey group and mussel group) which have been determined by species experts to have the greatest conservation need in the state. The aquatic assessment provides a watershed level ranking of HUC's which can be prioritized directly by richness (number of SGCN in a HUC) or by overlapping occurrences of aquatic species groups. Species identified as having the greatest conservation need include federally listed threatened and endangered aquatic or wetland species. Wetland habitats were included in the CWCS but were not included with aquatic groups and have not been refined to a level of detail that would provide specific watershed rankings.

C.9.0 Preservation Objectives

Preservation will be used when it meets requirements set forth in 33 CFR Part 332.3 (h). In general, the objective of preservation mitigation projects will be to permanently protect high quality and/or exceptional waters and waters that may contribute significantly to conservation needs in a Service Area and/or that benefit existing mitigation projects. Additional preservation objectives are discussed in the Service Area sections.

C.10.0 Private and Public Stakeholder Involvement

KDFWR will work with private landowners, trust agencies, state and federal agencies, non-government conservation organizations, local governments, universities, and public land agencies to meet the objectives of the Instrument. Individual projects will be implemented on private and public lands. Where appropriate, projects will be coordinated with other private or public interests to leverage benefits to aquatic resources. KDFWR will participate in public outreach activities to educate the public regarding the mitigation program and to seek local involvement in identifying mitigation projects.

C.11.0 Long Term Protection, Periodic Evaluation and Reporting

All compensatory mitigation sites will have long term protection mechanisms. Typical protections will include permanent protection instrument(s) such as conservation easements, management plans on public lands that offer protections, deed restrictions, or other methods employed by the Sponsor as approved by the Corps. Project Compliance Reports will be submitted for active projects as specified in each Project Mitigation Plan. All projects will be inspected annually for compliance with permanent protection requirements to address long term protection goals.

Periodic evaluation and reporting strategy has been addressed in the main body of the Instrument and Appendix B. Annual Program Reports will be submitted to the Corps with accounting and mitigation information related to the Instrument and compensatory mitigation projects.

C.12.0 Advance Credit Determination

The Mitigation Rule specifies that the Mitigation Program may make Advance Credits available as determined by the Corps in consultation with the IRT based on the CPF, and past performance. Advance Credits may be sold to satisfy mitigation for DA permits. The balance of Advance Credits will be drawn down as they are sold. The Mitigation Program must identify and complete mitigation projects funded by the sale of Advance Credits. Initial physical and biological improvements must be completed by the third full growing season after the sale of Advance Credits unless more time is allowed by the Corps. Mitigation projects will generate Released Credits upon meeting performance measures during the monitoring period. These Released Credits will be allocated back to the balance of Advance Credits which will then be available for sale.

Advance Credits for streams were determined by multiplying the amount of current mitigation credit sales by the three year delivery requirement and adding the mitigation credit releases that would occur within this three year delivery rate. The resulting number of mitigation credits was the basis for Advance Credits allocated for each Service Area, although current sales differ in each. This was done to allow the Mitigation Program flexibility in providing mitigation for the Kentucky Transportation Cabinet (KYTC), which is the primary user of in-lieu fee mitigation. KYTC priorities change often without advance notice resulting in shifting mitigation needs from one Service Area to another. In order to be able to meet KYTC mitigation needs, the Mitigation Program needs sufficiently high Advance Credits to provide mitigation during these changes. The Advance Credits for streams is set at 240,000 for each Service Area. The number of mitigation credits converted from the unobligated fund balance under the Agreement will be debited from the amount of Advance Credits by Service Area. The Instrument provides sufficient safeguards to control credit sales.

Advance Credits for wetlands were determined by considering the number of wetland mitigation credits sold in 2009 by the Mitigation Program, the amount of mitigation credits needed to implement mitigation, and the potential amount mitigation identified in public notices of permit applications in 2009. In order to identify and deliver wetland mitigation credits a sufficient number must be sold in order to secure a tract of land large enough to implement mitigation. Securing larger tracts of land allows the Sponsor to implement meaningful mitigation by avoiding issues that can occur with smaller tracts such as flooding adjacent property owners. Larger tracts of wetland mitigation allows for larger contiguous wetlands to be restored which helps increase many wetland functions, and produces an economy of scale. Therefore, the number of Advance

Wetland Credits was set in each Service Area to allow a minimum of a 100 acre tract of land to be purchased, although mitigation might be conducted on smaller tracts or through other real estate arrangements. Although wetland impacts typically differ among regions the need to secure larger tracts of land with a wetland mitigation site would be needed in any Service Area.

The following considerations were used to determine Advance Credit and are discussed in more detail in the CPF of each Service Area in this appendix..

1. Timing: The goal of making initial physical and biological improvements by the third full growing season after a credit is sold unless otherwise approved by the Corps.

2. Past Performance & Staffing Levels: The existing program has been successful in project identification and performance. The current delivery rate is approximately 3 years. Advance Credits were set to maintain the existing staffing levels required to maintain project identification and delivery.

3. Permit Applications, Credit Sales & Delivery Time: Advance Credits were based on current and predicted annual credit sales of the Mitigation Program and current estimated delivery time of 3 years. The Mitigation Program currently identifies compensatory mitigation project sites approximately 1 year after a credit is sold and typically begins the mitigation project within 3 years. This delivery rate is reliant on existing staffing levels and credit sales.

   Credit sales in 2009 were approximately 72,000 stream mitigation credits and 10 wetland mitigation credits, although credit methodology differed and some permit impact data was lacking. Public notices for 404 applications in 2009 indicated the possibility of large wetland impacts over 100 acres in western Kentucky.

4. Changes in Credit Methods: Current units of measure and credit determination methods differ among Service Areas. The Advance Credits were set at an amount to continue uninterrupted operation for the Mitigation Program in the event credit methods are changed.

5. KYTC Flexibility: KYTC is the dominant user of the Mitigation Program. Because KYTC project location priorities change over time Advance Credits were set at an amount that will allow the Mitigation Program to provide mitigation options if KYTC priorities change.

6. Performance Checks: The Mitigation Program has checks and balances in place including the ability of the Sponsor or the Corps to independently stop credit sales. The Sponsor will monitor credit sales quarterly and will coordinate with the Corps if the Sponsor's ability to delivery within three years is threatened.

C.13.0 BIG SANDY RIVER AREA

C.13.1 Big Sandy River Area Description

This Service Area corresponds to the KDOW's Big Sandy-Little Sandy-Tygart's Basin Management Unit (KDOW, 2008) that is within the Eastern Kentucky Coalfield physiographic region and includes the portion of the 8-digit HUC 05090201 that is within Lewis County. This Service Area includes all or portions of the following 8-digit HUCs:

- 05090103
- 05090104
- 05090201
- 05070201
- 05070202
- 05070203
- 05070204

The Big Sandy-Little Sandy-Tygart's Basin Management Unit used by the KDOW-DOW includes all or portions of 15 Kentucky counties listed below in the Eastern Kentucky Coalfield physiographic region. All or portions of these same 15 counties in Kentucky fall within the Big Sandy River Service Area. Lewis County is split with the a portion being included in the Lower Licking River Area and the section of Lewis County that is in the Eastern Kentucky Coalfield physiographic region being included with the Big Sandy Area.

The following 15 counties are within or partially within the Big Sandy River Area:

Boyd	Letcher
Carter	Lewis
Elliott	Magoffin
Floyd	Martin
Greenup	Morgan
Johnson	Rowan
Knott	Pike
Lawrence	

C.13.2 Resource Status (*historic impacts, current condition, and threats*):

In addition to the previous discussion of historical impacts in Kentucky waters, studies and reports from the KDFWR have provided information on the status and impacts to biological and stream resources in the Big Sandy River area in the mid 1900's (Clark, 1937, Clark, 1941; Kirkwood, 1957; Evenhuis, 1972 and 1973). These reports noted that sources of impacts included siltation, oil and brine, sewage, coal-related blackwater, acid mine drainage, and in some cases fish barriers created by roads. The causes of these impacts resulted from effluent from oil and brine discharges, coal mining, road construction and use of streams as roads, erosion, channelization and clearing/snagging, logging and sawmill practices, riparian zone removal, and cultivation. Additional impacts reported were related to industrial types of waste, sawdust, temperature pollution, channel dredging (in-stream sand removal).

The Big Sandy River and Little Sandy River Basin Status Report (KDOW, 2002) (http://www.watersheds.ky.gov/NR/rdonlyres/E39D7058-7818-477F-971E-

6E717FDE5DC1/0/BasinStatusReport.pdf) indicated that impacts include sedimentation, physical alteration of streams, bacteria from sewage, nutrient loading and algal blooms, various pollutants from mining, industrial, and urban wastewater, acid drainage.

More recently, KDOW (2008) reported that the Big Sandy River Basin has the second greatest percentage of streams not supporting aquatic life in the state (KDOW, 2008). In the Big Sandy River Basin, approximately 66% (435 miles) of the 644 miles assessed for aquatic life use were found to be impaired. In the Little Sandy River/Tygart's Basin, conditions were considerably better, with 37% of the assessed stream miles determined to be impaired or 63% (204 miles) of the 324 miles assessed for aquatic life use found to be fully supporting. The leading causes of impairment in the Big Sandy, Little Sandy and Tygart's River Basins are siltation, total dissolved solids, and habitat modifications (KY EPPC, 2004). Sources of impairments in the Big Sandy River Basin have been attributed to the intensive land use, which includes mining and other developments, while in the Little Sandy River/Tygart's Basin the primary source has been identified as agriculture.

Valley fills from mining and road construction are a significant threat in the Big Sandy River Area. Most of the existing in-lieu fees were paid to compensate for stream impacts resulting from coal mining and highway construction. Valley fills result in a direct loss of WOUS and may change hydrology including more frequent and higher runoff rates that stress downstream areas.

Special Use Waters in the Big Sandy Area are designated in parts of 13 streams in six counties (401 KAR 5:026 and 5:030). Some of the Special Use Waters, such as Laurel Creek and Big Caney Creek in Elliott Counties, were noted as being in good condition in older fisheries reports (Clark, 1937, Evenhuis, 1972).

There are ten 14 digit HUC watersheds in the Big Sandy River Area that have been identified as priorities in KDFWR's CWCS (KDFWR, 2005) and by KDOW as Special Use Waters or high quality waters in this Service Area. The specific areas include the following counties, streams, and 14 digit HUCs:

Carter County:

Little Fork of the Little Sandy River, HUC #05090104070350
Little Fork of the Little Sandy River, HUC #05090104070450

Elliott County:
Laurel Creek, HUC#05090104030050

Lawrence County
Blaine Creek, HUC#05070204020710
Blaine Creek, HUC#05070204020570

Lewis County:
Ohio River, HUC#05090201050120

Pike County:
Russell Fork
HUC #05070202030220
HUC #05070202030500
HUC #05070202030540

Floyd County:
Beaver Creek, HUC#05070203065050

C.13.3.0 Compensatory Mitigation Approach & Priorities

C.13.3.1 Prioritization

In addition to the statewide priorities, two major goals in the Big Sandy River Area are to build upon existing projects to maximize watershed benefits and preserve high quality streams and waters. KDFWR will use these goals as justification to expand existing mitigation projects in general and specifically around the few remaining high quality areas.

Mitigation projects in the Big Sandy Area will be prioritized as follows:

1) Proximity to existing projects
   a. New mitigation projects will be focused in areas that build upon and/or benefit existing mitigation projects. Selecting projects in close proximity to existing or completed projects and other protected areas will increase the aquatic functional benefits generated by increasing the percentage of the watershed that is supporting designated uses. This also increases the amount of aquatic resources protected from future physical impacts.

2) Preservation of high quality WOUS
   a. Preservation of high quality streams and wetlands will be a priority in this service due to the paucity of such waters and threats in the region. Special consideration will be given to high quality streams that are already in public ownership, adjacent to other mitigation projects, identified by KDOW as high quality waters, or harbor target species identified in KDFWR's CWCS (KDFWR, 2005).

3) Watershed based targets
   a. Proximity to waters associated with watersheds targeted for aquatic conservation in KDFWR's CWCS (KDFWR, 2005).
   b. Proximity to waters with federal threatened or endangered species, and special use waters (401 KAR 5:026 and 5:030).

4) Cost-effective mitigation
   a. Mitigation work will be focused on areas where with a large ecological lift for the least cost.

5) Impaired waters
   a. Proximity to streams or waters identified as impaired by KDOW where the mitigation project can address the causes of impairment.

The paucity of streams that fully support aquatic life in the Big Sandy River Area heightens the need to restore and preserve areas adjacent to high quality areas to augment existing aquatic "refuges" or "reserves". This is a conservation strategy that reduces effects of fragmentation, builds upon known resources, and through time may link aquatic communities with contiguous habitat. Preservation was made a priority due to the low number of documented high quality streams in the Service Area. Individual preservation projects remain subject to the approval of the Corps. Areas prioritized for preservation will include the Special Use Waters identified by the KDOW in water quality standards regulations 401 KAR 10:026 and 10:030, any additional streams recently identified that indicated exceptional water quality and aquatic fauna, and streams harboring aquatic species identified in KDFWR's CWCS (KDFWR, 2005).

C.13.3.2 Mitigation Approach

Sedimentation and channel alteration are common causes of stream impairment in the Big Sandy River Area. These impairments cause habitat loss and impact aquatic fauna. Mitigation projects will improve channel morphology and reduce sedimentation that often results from streambank erosion and channel alteration.

Projects to mitigate for these types of impacts will be identified in part by coordinating with the KDOW and their priority watershed efforts that rank impaired streams by severity, public and agency interest, and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the Sponsor. One positive aspect of a mitigation project in a priority water would be that if the mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Another potential source of projects that will be investigated in each Service Area is public lands. Enhancing and rehabilitating impaired streams on public land is highly desirable because these areas are accessible to and viewed by the public and easier to effect permanent protection.

Other causes of impairment are related to sewage, acid mine drainage, metals, or water chemistry problems that would threaten the success of mitigation projects. 404 mitigation projects do not usually address these impairments. In general, streams will not be considered for mitigation projects where problems such as acid mine drainage, high conductivity, chronic water quality problems, and projected or on-going land uses would threaten a mitigation project.

C.13.4 Service Area Credits:

The Big Sandy River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale. Wetlands impacts are not anticipated to be significant over most of this Service Area.

Advance Credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a

modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

C.14.0 UPPER & LOWER LICKING RIVER AREAS

C.14.1 Upper and Lower Licking River Area Description

This CPF covers two (2) Service Areas which roughly correspond to the Kentucky Division of Water's Licking River Basin Management Unit (KDOW, 2008). Refer to Exhibit 1 for a geographic reference of Service Area boundaries. The CPF combines these two Service Areas for purposes of planning and prioritization from a watershed perspective; however, mitigation credits and debits will be accounted according to the respective mitigation units that were generated unless otherwise specified by the Corps.

The Upper Licking River Area encompasses that portion of the Licking River basin within the Eastern Kentucky Coalfield Physiographic Region. Lewis County is split between the Lower Licking River Area and the Big Sandy Area. The remaining area of this river basin will comprise the Lower Licking River Area.

The two Service Areas have all or portions of five 8-digit HUCs:

- 05100101
- 05100102
- 05090201
- 05090203
- 05090103

The Licking River Basin Management Unit used by the Kentucky Division of Water includes all or portions of 26 counties in Kentucky in the Interior Plateau, Western Allegheny Plateau, and Central Appalachians Level III Ecoregions or the Eastern Kentucky Coalfield. All or portions of these same counties fall within the Upper and Lower Licking River Areas:

Bath	Gallatin	Montgomery
Boone	Grant	Morgan
Bourbon	Greenup	Nicholas
Bracken	Harrison	Pendleton
Campbell	Kenton	Powell
Carroll	Lewis	Robertson
Clark	Mason	Rowan
Elliott	Magoffin	Wolfe
Fleming	Menifee	

Mitigation within Boone, Bracken, Carroll, Campbell, Kenton, Grant, Gallatin, Mason, and Pendleton counties are not covered by the Mitigation Program.

C.14.2 Resource Status (historic impacts, current condition, and threats):

In addition to the previous discussion of historical impacts in Kentucky waters, studies and reports from the KDFWR have provided information on the status and impacts to biological and stream resources in the Licking Basin Management Unit in the mid to late 1900's (Brewer 1980, Jones 1970, Carter 1951, Tompkins and Peter 1952, Wild 1958). These reports noted the occurrence of fish passage barriers, as well as pollution from siltation, oil and brine, sewage, and acid mine drainage. These impacts resulted from stream bank alteration, channelization, failure to use cover crops, riparian zone removal, oil discharges, coal mining, coal washer facilities, and mill dams.

The 2006 Integrated Report to Congress on Water Quality (Environmental and Public Protection Cabinet, 2006) lists the most current water quality conditions within the Licking Basin Management Unit. The leading causes of impairment in the Licking River Basin are pathogens, siltation, and nutrients, and the leading source of impairment is agriculture (KDOW-DOW, 2006). Out of 757 river miles assessed for aquatic life use support, 367 miles (48%) are listed as not fully supporting.

Future threats to the Licking Basin Area include urban growth, road construction, channel alteration from agriculture, urbanization, road construction, logging and coal mining. The majority of in-lieu fees from the Licking River area have been generated from valley fills for road construction. Future mining in the upper portion of the basin will continue to be a potential threat.

Special Use Waters in the Licking Basin Area are designated in parts of 27 streams in 16 counties (401 KAR10:026 and10:030). Many of the Special Use Waters are located in the northern portion of the Daniel Boone National Forest in Rowan, Morgan, Bath, and Menifee counties. Some of the special use waters were noted as being in good condition in older fisheries reports (Carter 1951, Jones 1970): Blackwater Creek (Morgan County), Grassy Creek (Pendleton County), and Slate Creek (Montgomery and Bath Counties).

There are fifteen 14-digit HUC watersheds in the Licking Basin Area that have been identified in KDFWR's CWCS (KDFWR, 2005) as having the highest occurrence of aquatic SGCN. The specific areas include the following counties, streams, and 14 digit HUCs:

- Campbell County:
  - Ohio River and Licking River, HUC #05090201380110
  - Licking River, HUC #05100101270020

- Pendleton County
  - Licking River,
    - HUC #05100101230290
    - HUC #05100101230190
    - HUC #05100101230170
    - HUC #05100101230160
    - HUC #05100101230150
  - South Fork Licking River, HUC #05100102040440

- Nicholas and Fleming Counties
  - Licking River, HUC #05100101180250
  - Licking River, HUC #05100101180100

- Bath and Fleming Counties

- Licking River, HUC #05100101120110
- Licking River, HUC #05100101120070
- Licking River, HUC #05100101120150

- Morgan County
  - Licking River, HUC #05100101040180

- Magoffin County
  - Licking River, HUC #05100101010330

C.14.3.0 Compensatory Mitigation Approach & Priorities

C.14.3.1 Prioritization for the Lower Licking River Area

In addition to the statewide priorities, mitigation projects in the Lower Licking River Area will be prioritized as follows:

1) Proximity to Licking River
   a. Due to the large number of conservation areas being listed for the lower reaches of the Licking River proper, the major goal in the Lower Licking River Area will be to restore and enhance degraded tributaries to the Licking River. Mitigation projects in the Lower Licking River Area will give special consideration to:
      - Degraded direct tributaries and adjacent wetlands of the Licking River.
      - WOUS impaired by siltation and habitat alteration from poor land use practices, agriculture, road construction, or logging practices.
      - WOUS within public lands, including state lands, KDFWR Wildlife Management Areas, U.S. Forest Service lands, and others. These areas offer watershed protection increasing the likelihood of success and long term protection.

2) Comprehensive Wildlife Conservation Strategy
   a. The Licking River harbors several imperiled aquatic or wetland species, both state and federally listed. Priority will be given to projects that are associated with targeted aquatic species and HUCs identified in the CWCS. Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity helping to preclude the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

3) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or federally listed threatened, endangered) or streams recognized for special use and high species diversity.

4) Cost-effective mitigation
   a. Mitigation work will be focused on projects that:

- provide the largest ecological lift for the least cost
- compliment other habitat related projects in the river basin

5) Preservation of high quality WOUS
   a. Preservation of high quality streams and wetlands will be a priority in this service due to the paucity of such waters and threats in the region.
   b. Special consideration will be given to high quality streams that are adjacent to other mitigation projects.
   c. Existing high quality streams that will be considered for preservation opportunities include those in the following geographic areas:
      - Licking River and direct tribs from Bath County downstream to and including Pendleton County
      - Special Use Waters identified by the KYEEPC-DOW in water quality standards regulations 401 KAR 10:026 and 10:030 and additional streams recently identified that indicate exceptional water quality and aquatic fauna
      - HUC's that harbor or contribute to CWCS conservation areas and species (KDFWR, 2005)
      - HUC's that harbor or contribute to federally listed threatened or endangered aquatic or wetland species

6) Impaired waters
   a. Proximity to streams or waters identified as impaired by KDOW where the mitigation project can address the causes of impairment.

C.14.3.2 Prioritization for the Upper Licking River Area

In addition to the statewide priorities, mitigation projects in the Upper Licking River Area will be prioritized as follows:

1) Proximity to Public Lands
   a. WOUS impaired by siltation and habitat alteration from poor land use practices, mining, agricultural, road construction, logging practices, or legacy impacts that are within public lands. Public lands include state lands, KDFWR Wildlife Management Areas, U.S. Forest Service lands, and others. These areas offer watershed protection increasing the likelihood of success and long term protection.

2) Comprehensive Wildlife Conservation Strategy
   a. The Licking River harbors several imperiled aquatic or wetland species, both state and federally listed. Priority will be given to projects that are associated with targeted aquatic species and HUCs identified in KDFWR's CWCS (KDFWR 2005). Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity helping to preclude the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

3) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or federally listed threatened, endangered) or streams recognized for special use and high species diversity.

4) Impaired waters
   a. Proximity to streams or waters identified as impaired by KDOW where the mitigation project can address the causes of impairment.

5) Cost-effective mitigation
   a. Mitigation work will be focused on projects that:
      - provide a largest ecological lift for the least cost
      - compliment other habitat related projects in the river basin

6) Preservation of high quality WOUS
   a. Existing high quality streams that will be considered for preservation opportunities include those in the following geographic areas:
      - Streams adjacent to existing public lands.
      - Special Use Waters identified by the KYEEPC-DOW in water quality standards regulations 401 KAR 10:026 and 10:030 and additional streams recently identified that indicate exceptional water quality and aquatic fauna.
      - HUC`s that harbor or contribute to CWCS conservation areas and species (KDFWR, 2005).
      - HUC`s that harbor or contribute to federally listed threatened or endangered aquatic or wetland species.

C.14.3.3 Mitigation Approach

In addition to physical impacts, other causes of impairment in the Licking River basin are related to sewage, acid mine drainage, metals, or water chemistry problems that would threaten successful mitigation projects. Mitigation projects cannot solely address these impairments and could be negatively affected by them. In general, streams will not be considered for Mitigation projects where problems such as acid mine drainage, high conductivity, poor water quality, or where projected or on-going land uses that would threaten a mitigation project. However, if mitigation projects, in combination with other efforts would address these issues, then mitigation projects may be identified and undertaken as a part of an overall aquatic restoration effort.

Projects to mitigate for these physical impacts will be identified in part by coordinating with the KYEEPC-DOW and their priority watershed efforts that rank impaired streams by severity, public and agency interest, and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the Sponsor. One positive aspect of a mitigation project in priority waters would be that if the mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Mitigation in Licking River Basin will be in two (2) Service Areas:

- Upper Licking River, in the Eastern Kentucky Coalfield Physiographic Region
- Lower Licking River, in the remaining area of the river basin

C.14.4 Service Area Credits:

The Upper Licking River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale.

The Lower Licking River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale.

Advance credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

C.15.0 UPPER & LOWER KENTUCKY RIVER AREAS

C.15.1.0 Upper & Lower Kentucky River Area Description

This CPF covers two (2) Service Areas which roughly correspond to the Kentucky Division of Water's Kentucky River Basin Management Unit (KDOW, 2008). Refer to Exhibit 1 for a geographic reference of Service Area boundaries. The CPF combines these two Service Areas for purposes of planning and prioritization from a watershed perspective; however, mitigation credits and debits will be accounted according to the respective Service Area and the appropriate mitigation units unless otherwise specified by the Corps.

The Upper Kentucky River Area encompasses that portion of the Kentucky River basin within the Eastern Kentucky Coalfield Physiographic Region. The remaining area of this river basin will comprise the Lower Kentucky River Area.

This Service Area has five 8-digit HUCs:

- 05100201 (North Fork)
- 05100202 (Middle Fork)
- 05100203 (South Fork)
- 05100204 (Upper)
- 05100205 (Lower)

The Kentucky River Basin Management Unit used by the Kentucky Division of Water includes all or portions of 42 counties in Kentucky in the Interior Plateau (Inner Bluegrass, Outer Bluegrass, Knobs), Western Allegheny Plateau and Central Appalachians (which includes the Eastern Kentucky Coalfield physiographic region) Level III Ecoregions. Mitigation within Kenton, Owen, Grant, Gallatin, Boone, Carroll, and Campbell counties is managed primarily by Northern Kentucky University. All other counties in the Kentucky River Area are managed by KDFWR Wetland and Stream Mitigation Program. All or

portions of these same counties in Kentucky fall within the Upper and Lower Kentucky River Areas:

Anderson	Grant	Menifee
Bell	Harlan	Mercer
Boone	Henry	Montgomery
Boyle	Jackson	Morgan
Breathitt	Jessamine	Owen
Carroll	Kenton	Owsley
Clark	Knox	Perry
Clay	Knott	Powell
Casey	Laurel	Rockcastle
Estill	Lee	Scott
Fayette	Leslie	Shelby
Franklin	Letcher	Trimble
Gallatin	Lincoln	Wolfe
Garrard	Madison	Woodford

C.15.2.0 Resource Status (historic impacts, current condition, and threats):

The Kentucky River basin is one of several unique drainages in the southeastern U.S. Portions of the 7,000 square miles Kentucky River Area have been excluded from catastrophic geologic events including sea level rise and more recent glaciations. This, in addition to the presence of four physiographic provinces, has allowed a diverse flora and fauna to become established over a broad timescale.

Over the past 150 years, the Kentucky River Basin has been negatively impacted by coal mining, damming, wetland draining, stream straightening, gravel dredging, road construction, poorly designed culverts, and chemical pollution.

The 2006 Integrated Report to Congress on Water Quality (Environmental and Public Protection Cabinet, 2006) lists the most current water quality conditions within the Kentucky River Basin Management Unit. Out of 1836 river miles assessed for aquatic life use support, 782 (43%) miles are listed as not fully supporting. The leading causes of impairment in the Kentucky River Area are siltation, habitat alterations, pathogens, and total dissolved solids. The leading sources of impairment are loss of riparian habitat, municipal discharges, coal mining and grazing (KDOW, 2006).

Special Use Waters in the Kentucky River basin are designated in parts of 88 streams in 28 counties (401 KAR 10:026 and 10:030).

One of the most common forms of pollution to streams in the Kentucky River Area is siltation/sedimentation (KEPPC, 2008). This problem can be addressed in some streams with physical habitat restoration associated with Section 404 mitigation and can be prevented through aquatic habitat preservation.

In the Upper Kentucky, North Fork, South Fork, and Middle Forks, KDFWR receives fees for stream and wetland impacts primarily from the coal industry as well as Kentucky

Transportation Cabinet (KYTC). In the Lower Kentucky River basin, most impacts are from KYTC projects.

C.15.3.0 Compensatory Mitigation Approach & Priorities

C.15.3.1 Prioritization

In addition to the statewide priorities, mitigation projects in the Upper and Lower Kentucky River Areas will be prioritized as follows:

1) Comprehensive Wildlife Conservation Strategy
   a. Priority will be given to projects that contribute to aquatic species and target HUCs identified in KDFWR's CWCS (KDFWR, 2005). Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity helping to preclude the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

2) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or federally listed threatened, endangered) or streams recognized for special use and high species diversity.

3) Cost-effective mitigation
   a. Mitigation work will be focused on with a largest ecological lift for the least cost

4) Preservation of high quality WOUS
   a. Preservation of high quality streams and wetlands will be a priority in these Service Areas due to the paucity of such waters in the Upper Kentucky River Area and threats that exist in both the Upper & Lower Kentucky River Areas.
   b. Special consideration will be given to high quality streams that are already in public ownership or adjacent to other mitigation projects.
   c. Existing high quality streams that will be considered for preservation opportunities.

5) Impaired waters
   a. Proximity to streams or waters identified as impaired by KDOW where the mitigation project can address the causes of impairment.

C.15.3.2 Mitigation Approach

Projects to mitigate for these types of impacts will be identified in part by coordinating with the KDOW and their priority watershed efforts that rank impaired streams by severity, public and agency interest, and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the Mitigation Program. One positive aspect of a mitigation project in a priority water would be that if the

mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Another potential source of projects that will be investigated in each Service Area is public lands, including KDFWR Wildlife Management Areas and U.S. Army Corps of Engineers holdings around major reservoirs. Because these areas are accessible to and viewed by the public, enhancing and rehabilitating impaired streams on public land is highly desirable.

Mitigation in Kentucky River Basin will be in two (2) Service Areas:

- Upper Kentucky River in the Eastern Kentucky Coalfield Physiographic Region
- Lower Kentucky River, in the remaining area of the river basin.

C.15.4 Service Area Credits:

The Upper Kentucky River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale.

The Lower Kentucky River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale.

Advance credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

C.16.0 SALT RIVER AREA

C.16.1 Salt River Area Description:

This Service Area corresponds with the KDOW's Salt River Basin Management Unit (KDOW, 2008). This Service Area has four 8-digit HUCs:

05140104 (Blue-Sinking)
05140103 (Rolling Fork)
05140102 (Salt Fork)
05140101 (Silver/Little Kentucky)

The 8-digit HUC, #05140101, is included in the Salt River Basin although it drains directly into the Ohio River

All or portions of the following 18 counties in the Outer Bluegrass and Knobs physiographic regions of Kentucky fall within the Salt River Area:

Anderson	Henry	Nelson
Boyle	Jefferson	Oldham
Breckinridge	Larue	Shelby
Bullitt	Marion	Spencer
Casey	Meade	Trimble
Hardin	Mercer	Washington

C.16.2 Resource Status (historic impacts, current condition, and threats):

Over the past 150 years, the Salt River Basin has been negatively impacted by agricultural activities, damming, riparian impacts, wetland draining, stream straightening, gravel dredging, logging, poorly operating municipal and package treatment facilities of domestic wastewaters, and chemical and nutrient pollution from urban sources.

The 2006 Integrated Report to Congress on Water Quality (Environmental and Public Protection Cabinet, 2006) lists the most current water quality conditions within the Salt River Basin Management Unit. Out of 1071 river miles assessed for aquatic life use support, 406 miles (38%) are listed as impaired. The leading causes of impairment in the Salt River basin are pathogens, siltation, and nutrients. The leading sources of impairment are municipal point source discharges and urban runoff (KDOW, 2006).

Special use waters in the Salt River Basin Management Unit are designated in parts of 20 streams in 13 counties (401 KAR10:026 and 10:030).

One of the most common forms of pollution to streams in the Salt River Basin is siltation/sedimentation (Kentucky Environmental and Public Protection Cabinet, Division of Water, 2008). This problem can be addressed in some streams with physical habitat restoration associated with Section 404 mitigation and can be prevented through aquatic habitat preservation.

C.16.3.0 Compensatory Mitigation Approach & Priorities

C.16.3.1 Prioritization

In addition to the statewide priorities, mitigation projects in the Salt River Basin will be prioritized as follows:

1) Comprehensive Wildlife Conservation Strategy
   a. Priority will be given to projects that contribute to aquatic species and target HUCs identified in KDFWR's CWCS (KDFWR, 2005). Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity helping to preclude the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas

within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

2) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or federally listed threatened, endangered) or streams recognized for special use and high species diversity.

3) Cost-effective mitigation
   a. Mitigation work will be focused on projects with the largest ecological lift for the least cost

4) Preservation of high quality WOUS
   a. Preservation of high quality streams and wetlands will be a priority in these Service Areas due to the paucity of such waters and development threats from Louisville and anticipated threats in the basin.
   b. Special consideration will be given to high quality streams that are already in public ownership or adjacent to other mitigation projects.
   c. Existing high quality streams that will be considered for preservation opportunities.

5) Impaired waters
   a. Proximity to streams or waters identified as impaired by KDOW where the mitigation project can address the causes of impairment.

C.16.3.2 Mitigation Approach

Projects will be identified in part by coordinating with the Division of Water and using their priority watershed efforts that rank impaired streams by severity and public and agency interest and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the in-lieu program. One positive aspect of a mitigation project in a priority water would be that if the mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Another potential source of projects that will be investigated in each Service Area is public lands, including KDFWR Wildlife Management Areas and U.S. Army Corps of Engineers holdings around major reservoirs. Enhancing and rehabilitating impaired streams on public land is highly desirable because these areas generally have protected watershed and are accessible to and viewed by the public.

C.16.4 Service Area Credits:

The Salt River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale. Wetland occurrence in this Service Area is higher than many other areas of the state. However, other options for successful wetland mitigation were available for permit applicants and the number of Advance Credits was not increased.

Advance credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project

Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

C.17.0 GREEN RIVER AREA

C.17.1 Green River Area Description

The Green River Area corresponds to the Kentucky Division of Water's Green/Tradewater River Basin Management Unit (KDOW, 2008). It includes both the Green and Tradewater River basins. This Service Area has ten 8-digit HUCs:

05110001	05110006
05110002	05140201
05110003	05140202
05110004	05140203
05110005	05140205

The Green/Tradewater River Basin Management Unit used by the Kentucky Division of Water includes all or portions of 35 counties in Kentucky in the Interior Plateau and Interior River Valleys and Hills level III Ecoregions. These same counties fall within the Green River Service Area:

Adair	Green	Monroe
Allen	Hancock	Muhlenberg
Barren	Hardin	Ohio
Breckinridge	Hart	Pulaski
Butler	Hopkins	Russell
Caldwell	Henderson	Simpson
Casey	Larue	Taylor
Christian	Lincoln	Todd
Crittenden	Livingston	Union
Daviess	Logan	Warren
Edmonson	Mclean	Webster
Grayson	Metcalfe	

C.17.2 Resource Status (historic impacts, current condition, and threats):

In addition to the previous discussion of historical impacts in Kentucky waters, studies and reports from the Kentucky Dept. of Fish & Wildlife Resources have provided information on the status and impacts to biological and stream resources in the Green/Tradewater River Basin Management Unit. These reports noted pollution from siltation, oil and brine, acid mine drainage, and impoundments (Green 2001, Wild 1958).

The 2008 Integrated Report to Congress on Water Quality in Kentucky (Kentucky Environmental and Public Protection Cabinet, 2008) lists current water quality conditions within the Green/Tradewater River Basin Management Unit. Out of 1,870 river miles assessed for aquatic life use support in the Green River basin, 794 miles are listed as not

supporting or partially supporting aquatic life. The leading causes of impairment in the Green River basin are pathogens, siltation, and physical substrate habitat alteration. The leading sources of impairment are loss of riparian habitat and agriculture activities (KDOW, 2008).

Of 293 river miles assessed for aquatic life use support in the Tradewater River basin, 182 miles are listed as not supporting or partially supporting aquatic life. The leading causes of impairment in the Tradewater River basin are sedimentation/siltation, pathogens, and nutrients. The leading sources of impairment are habitat modifications and resource extraction. (KDOW, 2008).

Future threats to the Green/Tradewater River Basin Management Unit include channel and riparian zone alteration from agriculture as they account for 67% of pollutant causes. The majority of in-lieu fees from the Green River area have been generated from stream impacts from road construction and urbanization impacts.

Nine 8-digit HUCs were identified in KDFWR's CWCS (KDFWR 2005) for having the highest richness of imperiled mussel species. Among these nine HUCs, the upper Green River ranked the highest in the state. Ten 8-digit HUCs were identified as having the highest richness of imperiled fish and lamprey species across the state. For the fish and lamprey groups, the upper Green River ranked the second highest in the state.

The lower region of the Green River Area contains the most acreage of remaining wetland area in Kentucky, despite significant wetland losses in this region. Approximately, 80% of Kentucky's wetland acreage has been lost. The Green River basin has approximately 88,000 acres of wetlands remaining; the largest concentration of remaining wetland area in the Commonwealth (The Kentucky Environmental Commission, 1995; KDOW, 2008). U.S. Fish & Wildlife Service identified a proposed refuge on 23,000 acres of the lower Green River area known as Scuffletown Bottoms located between Henderson, KY and Evansville, IN. This area has been cleared and farmed for a number of years. To the west of Henderson, KY KDFWR owns a significant amount of public land, the Sloughs WMA, which is managed for wetlands. To the east of Henderson and adjacent to the proposed USFWS refuge in Scuffletown Bottoms, the Kentucky Division of Forestry owns a large tract of lands restored to bottomland hardwood wetlands. This area was targeted for waterfowl conservation as early as 1958 by the USFWS. It has been identified again by the North American Waterfowl Management Plan in 1989 as a high conservation priority for bottomland hardwood wetland restoration.

Special use waters in the Green/Tradewater River Basin Management Unit are designated in parts of 55 streams in 23 counties (401 KAR 5:026 and 5:030). The majority of special use waters are located in the upper portion (upstream of the Barren River confluence) of the Green River basin.

There are thirty-one 14 digit HUC watersheds in the Green/Tradewater River Basin Management Unit that have been identified in KDFWR's CWCS (KDFWR, 2005) as having the highest occurrence of aquatic species with the greatest conservation need. Potential mitigation projects in these areas will be targeted. The specific areas include the following streams and 14 digit HUCs:

- Barren River
    - HUC #05110002030550
    - HUC #05110002190040
    - HUC #05110002190080

    - HUC #05110002190100
    - HUC #05110002190120
    - HUC #05110002190140
    - HUC #05110002190150
- Caney Fork
    - HUC #05110002160100
- Green River
    - HUC #05110001050020
    - HUC #05110001050050
    - HUC #05110001050080
    - HUC #05110001050150
    - HUC #05110001050160
    - HUC #05110001050170
    - HUC #05110001050180
    - HUC #05110001130010
    - HUC #05110001130090
    - HUC #05110001130130
    - HUC #05110001140010
    - HUC #05110001220050
    - HUC #05110001220080
    - HUC #05110001290010
    - HUC #05110001290070
- Little Barren River
    - HUC #05110001110470
- Nolin River
    - HUC #05110001180240
    - HUC #05110001180260
- Reeves Creek
    - HUC #05110002190130
- Russell Creek
    - HUC #05110001070490
- Trammel Creek
    - HUC #05110002340050
    - HUC #05110002340090
- West Bays Fork
    - HUC #05110002200060

C.17.3.0 Compensatory Mitigation Approach & Priorities

C.17.3.1 Prioritization

In addition to statewide priorities, mitigation Projects in the Green River Area will be prioritized as follows:

1) Comprehensive Wildlife Conservation Strategy
    a. The Green River harbors several imperiled aquatic or wetland species, both state and federally listed. Priority will be given to projects that benefit imperiled species or targeted HUCs identified in KDFWR's CWCS (KDFWR 2005). Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity helping to preclude

the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

2) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or federally listed threatened, endangered) or streams recognized for special use and high species diversity.

3) Public lands and conservation targets
   a. Mitigation projects that are within existing public lands will be targeted.
   b. Mitigation projects that help achieve conservation goals or leverage other conservation projects will be targeted.

4) Cost-effective mitigation
   a. Mitigation work will be focused on projects that:
      - provide a largest ecological lift for the least cost
      - compliment other habitat related projects in the river basin

5) Preservation of high quality WOUS
   a. Special consideration will be given to high quality streams that are adjacent to other mitigation projects.
   b. Existing high quality streams that will be considered for preservation opportunities include those in the following geographic areas:
      - Special Use Waters identified by the KYEEPC-DOW in water quality standards regulations 401 KAR 10:026 and 10:030 and additional streams recently identified that indicate exceptional water quality and aquatic fauna
      - HUC's that harbor or contribute to CWCS conservation areas and species (KDFWR, 2005)
      - HUC's that harbor or contribute to federally listed threatened or endangered aquatic or wetland species.
      - WOUS identified on a case-by-case basis that have exceptional water quality, fauna, or other unique aquatic features.

C.17.3.2 Mitigation Approach

In general, streams will not be considered for mitigation projects where problems such as acid mine drainage, high conductivity, chronic water quality problems, and projected or on-going land uses would threaten success of the project.

Mitigation projects will be identified in part by coordinating with the Division of Water and their priority watershed efforts that rank impaired streams by severity, public and agency interest, and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the in-lieu program. One positive aspect of a mitigation project in a priority water would be that if the mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Another potential source of projects that will be investigated in each Service Area is public lands, including KDFWR Wildlife Management Areas and U.S. Army Corps of Engineers holdings around major reservoirs. Enhancing and rehabilitating impaired streams on public land is highly desirable because these areas generally have protected watershed and are accessible to and viewed by the public.

C.17.4 Service Area Credits:

The Green River Area will have 240,000 Advance Credits for streams and 200 Advance Credits for wetlands available for sale. The Advance Credits for wetlands were set higher in this Service Area because the occurrence of wetlands in the landscape is higher than most other areas of the state.

Advance Credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

C.18.0 UPPER & LOWER CUMBERLAND RIVER AREAS

C.18.1 Upper & Lower Cumberland Area Description

This CPF covers two (2) Service Areas encompassing the Cumberland River Basin. The Cumberland River basin is divided by two distinct geographic areas. The Service Areas will be divided into two Service Areas, the Upper Cumberland Area and the Lower Cumberland Area, based on this division. The Upper Cumberland River Area encompasses that portion of the Cumberland River within the Eastern Kentucky Coalfield. The remaining parts of the river basin will comprise the Lower Cumberland River Area.

The CPF combines these two Service Areas for purposes of planning and prioritization from a watershed perspective; however, mitigation credits and debits will be accounted according to the respective mitigation units that were generated unless otherwise specified by the Corps.

The aquatic fauna of the Cumberland River system is extremely important and unique on a global scale. In North America, the mussel fauna is composed of 297 taxa (Turgeon et al. 1988). The southeastern United States has 91% of the North American mussel fauna (Neves, et al. 1997). The Cumberland region has 37% of this fauna and is the primary center for North American freshwater mussel biodiversity (Ortman 1918, 1925). It is one of only six regional faunas on the continent (van der Schalie and van der Schalie 1950).

The following seven 8-digit HUC's occur in the Cumberland River basin:

Cumberland River Area 8-digit HUC's

05130101 (Upper Cumberland)
05130102 (Rockcastle River)
05130103 (Lake Cumberland)
05130104 (South Fork Cumberland)
05130105 (Obey River)

05130205 (Lower Cumberland)
05130206 (Red River)

The Cumberland River basin, while bordering Tennessee and Virginia, contains all or portions of the following 29 counties in Kentucky:

Adair	Livingston
Bell	Logan
Caldwell	Lyon
Casey	McCreary
Christian	Metcalfe
Clay	Monroe
Clinton	Pulaski
Crittenden	Rockcastle
Cumberland	Russell
Harlan	Simpson
Jackson	Todd
Knox	Trigg
Laurel	Wayne
Letcher	Whitley
Lincoln	

The Cumberland River Area includes 30,958 streams totaling 14,039 miles. Of these, 199 streams (194.3 miles) are currently listed on the 303(d) list (2004 KDOW GIS data). The Upper and Lower Cumberland River watersheds encompass drainage areas of 5,180 and 2,039 square miles within Kentucky, respectively. Many parts of the Upper Cumberland River Basin have been set aside and given special protection because of their natural qualities and scenic beauty. While these lands are managed for their long-term protection, many are open to the public. In addition to providing a refugia for rare species and unique ecological systems, these areas provide outstanding scenery and recreational opportunities (KDOW-DOW; Upper Cumberland River Basin Assessment Report, 2006).

C.18.2 Resource Status (*historic impacts, current condition, and threats*):

Since 1998, Kentucky has monitored surface waters using a five-year rotating watershed management approach in which each of the five major Basin Management Units (BMU's) receives intensive monitoring in sequential years over the five-year cycle (KDOW-Integrated Report, 2008). Geographically, KDOW combines the Lower Cumberland basin with the Lower Tennessee, Ohio, and Mississippi drainages (referring to it as the Four Rivers area).

In the Upper Cumberland River basin, 485 miles of the 1,320 miles assessed were impaired for aquatic life use; in the Lower Cumberland River basin, 217 miles of the 355 miles assessed for aquatic life use were impaired. (Kentucky Environmental and Public Protection Cabinet, 2008). The leading causes of impairment are siltation and pathogens. Sources in the Cumberland River Basin include mining, logging, hydromodification, agriculture, and other impacts such as urban runoff/ stormwater management, permitted wastewater, discharges, illegal straight-pipe discharges of domestic sewage, and off-highway vehicles.

Recent information has shown a significant increase in the number of 303(d) listed streams in recent years; however, this may be due to the increase in monitoring efforts rather than

increases in impacts. The most recent Integrated Report (Kentucky Environmental and Public Protection Cabinet, 2008) shows 22 miles and 865 acres of delisted waters in the Cumberland River basin. Sedimentation and channel alteration are common causes of stream impairment and habitat loss in the Cumberland River basin. These impairments cause habitat loss and impact aquatic fauna. Mitigation projects will improve channel morphology reduce the negative effects of sedimentation that often result from streambank erosion and channel alteration.

Special use waters in the lower Cumberland River Basin Management Unit are designated in parts of 11 streams in 7 counties and in the upper Cumberland River basin in 114 streams and 15 counties (401 KAR10:026 and 10:030).

KDFWR's CWCS (KDFWR 2005) ranks several 8-digit HUCs in the Cumberland River basin among the highest in the state based on the richness and ranking of imperiled aquatic species (mussels, fish and lampreys). Most of these are within the Upper Cumberland River Area or a small portion of the Lower Cumberland River Area in central/eastern Kentucky. The specific 8-digit HUCs and the highest ranking 14-digit HUCs within those include:

- HUC #05130101
  - HUC #05130101370270 (Bunches Creek)
  - HUC #05130101370250 (Bunches Creek)
  - HUC #05130101420010 (Laurel Creek)
  - HUC #05130101410110 (Marsh Creek)

- HUC #05130102
  - HUC #05130102050150 (Horselick Creek)
  - HUC #05130102030370 (Middle Fork Rockcastle River)

- HUC #05130103

- HUC #05130104
  - HUC #05130104250070 (South Fork)

- HUC #05130105

Numerous other 14-digit HUCs which rank slightly lower are located within the boundaries of the 8-digit HUCs presented above. The total area included in the mussel conservation areas accounts for 116,502 acres of watershed. Another focal point includes the Fish and Lamprey 14-digit HUC Conservation Area which encompasses 50,398 acres of watershed. Of the total acreage, 4,885 acres is located along the Marsh Creek Drainage which has been given high priority by KDFWR due to its high potential for recovery and resource protection. Aquatic SGCN and/or federally listed species targeted in these conservation areas include *Etheostoma sagitta*, *Alasmidonta atropurpurea*, and *Etheostoma bayleyi Alasmidonta marginata*, *Anadontoides denigratus*, *Etheostoma susanae, and Phoxinus cumberlandensis.*

The Lower Cumberland River Area does not rank out as high using the CWCS framework on an 8-digit HUC scale. The CWCS does identify some areas of the Lower Cumberland Area based on a lower ranking and at the 14-digit HUC scale. Based on a combination of mussel and fish and lamprey groups, the highest ranking 14-digit HUCs in this area include:

- HUC #05130205270010
- HUC #05130205240040

- HUC #05130205240030
- HUC #05130205140320
- HUC #05130205170010
- HUC #05130205200090
- HUC #05130205200040
- HUC #05130205200050
- HUC #05130205200010
- HUC #05130205180040
- HUC #05130206190020
- HUC #05130206160010
- HUC #05130206150110
- HUC #05130206090020
- HUC #05130206090010
- HUC #05130206140040
- HUC #05130206150080
- HUC #05130206150070
- HUC #05130206070010
- HUC #05130206080020
- HUC #05130206050010

C.18.3.0 Compensatory Mitigation Approach & Priorities

C.18.3.1 Prioritization

In addition to statewide mitigation priorities, mitigation projects in the Upper and Lower Cumberland River Areas will be prioritized as follows:

1) Comprehensive Wildlife Conservation Strategy
   a. The Cumberland River and its tributaries harbor several imperiled aquatic or wetland species, both state and federally listed. Priority will be given to projects that are within or influenced by targeted HUCs identified in KDFWR's CWCS KDFWR 2005) with preference given to the HUCs based on ranking. Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity helping to preclude the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

2) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or threatened, endangered) or streams recognized for special use and high species diversity.

3) Public lands
   a. Mitigation projects will be targeted within or adjacent to public lands, including state lands, KDFWR Wildlife Management Areas, U.S. Forest Service lands, and other areas. These areas offer watershed protection increasing the likelihood of success and long term protection.

4) Cost-effective mitigation
   a. Mitigation work will be focused on projects that:
      - provide the largest ecological lift for the least cost
      - compliment other habitat related projects in the river basin

5) Preservation of high quality WOUS
   a. Special consideration will be given to high quality streams that are adjacent to other mitigation projects.
   b. Existing high quality streams that will be considered for preservation opportunities include those in the following geographic areas:
      - Special Use Waters identified by the KYEEPC-DOW in water quality standards regulations 401 KAR 10:026 and 10:030 and additional streams recently identified that indicate exceptional water quality and aquatic fauna
      - HUC's that harbor or contribute to CWCS conservation areas and species (KDFWR, 2005)
      - HUC's that harbor or contribute to federally listed threatened or endangered aquatic or wetland species

C.18.3.2 Mitigation Approach

The objective of compensatory mitigation site selection in the Cumberland River Basin is to improve the quality and quantity of aquatic resources through strategic selection of sites, compensation for permanent losses, and preservation of unique aquatic resources in exceptional circumstances.

The CWCS indicated that the 8-digit HUCs 05130101 (Upper Cumberland), 05130102 (Rockcastle River), 05130103 (Buck Creek), 05130104 (South Fork of Cumberland) were priority conservation areas based on presence and ranking of aquatic SGCN.

Mitigation in Cumberland River Basin will be in two (2) Service Areas:
- Upper Cumberland River, in the eastern Kentucky Coalfield Physiographic Region
- Lower Cumberland River, in the remaining area of the river basin.

Mitigation projects will be identified in part by coordinating with the Division of Water and their priority watershed efforts that rank impaired streams by severity and public and agency interest and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the in-lieu program. One positive aspect of a mitigation project in a priority water would be that if the mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Another potential source of projects that will be investigated in each Service Area is public lands, including KDFWR Wildlife Management Areas and U.S. Army Corps of Engineers holdings around major reservoirs. Enhancing and rehabilitating impaired streams on public land is highly desirable because these areas generally have protected watershed and are accessible to and viewed by the public,

C.18.4 Service Area Credits:

The Upper Cumberland River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale.

The Lower Cumberland River Area will have 240,000 Advance Credits for streams and 100 Advance Credits for wetlands available for sale.

Advance credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

C.19.0 JACKSON PURCHASE AREA

C.19.1 Jackson Purchase Area Description

The Jackson Purchase Area encompasses three physiographic provinces: the Tennessee River Plain, Eastern Gulf Coastal Plain, and the Mississippi Alluvial Plain. These three regions are treated as one Service Area. The Jackson Purchase Area, borders Tennessee, Missouri, and Illinois, and contains all or portions of 11 counties in Kentucky.

The following 8-digit HUC's occur in the Jackson Purchase Area.

06040005 (Kentucky Lake. Kentucky, Tennessee)
06040006 (Lower Tennessee. Kentucky, Tennessee)
05140206 (Lower Ohio. Illinois, Kentucky)
08010100 (Lower Mississippi-Memphis. AR, KY, MS, MO, TN)
08010201 (Bayou De Chien-Mayfield. Kentucky, Tennessee)
08010202 (Obion. Kentucky, Tennessee)

All or portions of the following counties occur in the Jackson Purchase Area:

Ballard	Livingston
Calloway	Lyon
Carlisle	Marshall
Fulton	McCracken
Graves	Trigg
Hickman	

The Jackson Purchase Area has a drainage area of approximately 2,700 square miles within the Kentucky boundaries. Stream statistics for the Jackson Purchase Area include 7,306 miles of total stream length of which 72 are currently listed as 303(d) totaling 443.8 miles (KDOW Integrated Report, 2008).

Several areas of the Jackson Purchase Basin have been set aside and given special protection because of their natural qualities and scenic beauty. While these lands are managed for their long-term protection, many are open to the public. A major benefit to these areas is providing habitat or refugia for rare species and high quality ecological systems.

C.19.2 Resource Status (*historic impacts, current condition, and threats*):

Historic land use and stream alterations provided in the synthesis by Parola, et al. (2007) generally applies to the Jackson Purchase Area as well. In addition to this review, Parola, et. al. (2005) provided a review of stream condition and historic impacts for the Mississippi Embayment Physiographic Region which is within the Jackson Purchase Area. Conversion of woodlands and barrens into agricultural lands was extensive in this region. Meandering lowland streams were converted to straight channels to drain land for agricultural purposes. Stream channel incision, over-widening, and bank erosion continue to present problems related to sediment, and channel widening. This review estimated that cumulative effects of stream channelization have been significant leaving only a 25 mile section of Obion Creek unaltered.

Since 1998, Kentucky has monitored surface waters using a five-year rotating watershed management approach in which each of the five major Basin Management Units (BMU's) receives intensive monitoring in sequential years over the five-year cycle (KDOW-Integrated Report, 2008). KDOW refers to the Jackson Purchase area as the Four Rivers Area, which includes the Lower Tennessee, Lower Cumberland, Ohio, and Mississippi drainages, while the KY Wetland and Stream Mitigation Program's Jackson Purchase Area excludes the Lower Cumberland River basin.

A total of 656 miles of rivers and streams in KDFWR's Jackson Purchase area (which does not include the Lower Cumberland basin) were reported as not fully supporting aquatic life use in the most recent Integrated Report (Kentucky Environmental and Public Protection Cabinet, 2008). Of the 276 miles assessed in the Mississippi River basin, 218 miles either did not support or partially supported the use. In the Tennessee River basin, 295 miles were assessed, with 151 miles impaired for the use. Another 287 impaired stream miles (of 490 miles assessed) were found in minor tributaries to the Ohio River in this area.

The leading causes of impairment are siltation and pathogens (Kentucky Environmental and Public Protection Cabinet, 2008). Impacts to the Jackson Purchase Area are primarily from agriculture activities. While recent information has shown a significant increase in the number of 303(d) listed streams in recent years, this is most likely due to the increase in monitoring efforts rather than increases in impacts. Sedimentation and channel alteration are common causes of stream impairment and habitat loss in the Jackson Purchase Area. These impairments cause habitat loss and impact aquatic fauna. In-lieu fee mitigation projects will improve channel morphology reduce the negative effects of sedimentation that often result from streambank erosion and channel alteration.

Special use waters in the Jackson Purchase Basin Management Unit are designated in parts of 18 streams in 6 counties in the Tennessee River basin and in 8 streams and 3 counties in the Mississippi River basin (401 KAR 10:026 and 10:030). Reaches of the main stem Ohio River and Mississippi River are also designated as Outstanding State Resource Waters because of the presence of federally threatened mussel species, but these mainstem reaches are not included in the totals above.

KDFWR's CWCS (KDFWR 2005) and/or other sources of information indicate that all six of the 8-digit HUC's in the Jackson Purchase Area include some or all of the priority conservation areas based on presence of species of aquatic fauna with the greatest conservation need in the state: Terrapin Creek State Nature Preserve, Obion Creek Wildlife Management Area and State Nature Preserve which includes Murphy's Pond and Emerson-Letourneau Woods wetlands, Reelfoot National Wildlife Refuge, Three Ponds State Nature Preserve, Ballard Wildlife Management Area, and others. Special interest will be focusing specifically on the 8-digit HUC's 08010201 (Bayou de Chien-Mayfield), and 08010202 (Obion) which are given higher priority. Two such areas included are the Terrapin Creek drainage in Graves and Calloway Counties and the Bayou de Chien drainage in Graves, Hickman, and Fulton Counties.

C.19.3.0 Compensatory Mitigation Approach & Priorities

C.19.3.1 Prioritization

In addition to statewide priorities, mitigation projects in the Jackson Purchase Area will be prioritized as follows:

1) Public lands and high quality waters
   a. WOUS that have been physically impacted that are within public lands, including state lands, KDFWR Wildlife Management Areas, U.S. Forest Service lands, or other lands. These areas offer watershed protection increasing the likelihood of success and long term protection.
   b. WOUS that are connected or associated with high quality waters.

2) Preservation of high quality WOUS
   a. Preservation of high quality streams and wetlands will be a priority in this service due to the paucity of such waters and threats in the region. Extensive cumulative impacts have left very few unaltered stream channels and wetlands (Parola, et al. 2005).
   b. Special consideration will be given to high quality streams that are already in public ownership or adjacent to other mitigation projects.
   c. Existing high quality streams that will be considered for preservation opportunities include those in the following geographic areas:
      - Special Use Waters identified by the KYEEPC-DOW in water quality standards regulations 401 KAR 10:026 and 10:030 and additional streams recently identified that indicate exceptional water quality and aquatic fauna
      - HUC's that harbor or contribute to CWCS conservation areas and species (KDFWR, 2005)
      - HUC's that harbor or contribute to federally listed threatened or endangered aquatic or wetland species.

3) Comprehensive Wildlife Conservation Strategy
   a. The Jackson Purchase Area harbors several imperiled aquatic or wetland species, both state and federally listed. Priority will be given to projects that are within or influenced by targeted HUCs identified in the CWCS. Working in areas that improve conditions for federally listed aquatic or wetland species will promote endangered species recovery. Working in areas that benefit SGCN will help preserve or restore aquatic faunal diversity

helping to preclude the need for federally listing these species under the Endangered Species Act. These priority areas serve as indicators of remaining high quality areas within a watershed. Mitigation in these areas helps maintain aquatic ecosystem viability within a watershed.

4) Imperiled, unique species and Special Use Waters
   a. Priority will be given to projects that can improve habitat for endemic or imperiled aquatic or wetland species (state or federally listed threatened, endangered) or streams recognized for special use and high species diversity.

5) Cost-effective mitigation
   a. Mitigation work will be focused on projects that:
      - provide a largest ecological lift for the least cost
      - compliment other habitat related projects in the river basin

C.19.3.2 Mitigation Approach

The objective of compensatory mitigation site selection in the Jackson Purchase Area is to improve the quality and quantity of aquatic resources through strategic selection of sites, compensation for permanent losses, and preservation of unique aquatic resources in exceptional circumstances.

Mitigation projects will be identified by existing outreach efforts, coordination with other agencies including USFWS, KDOW, USDA, Corps, U.S. Forest Service, and KDFWR regional staff.

Mitigation projects will be identified in part by coordinating with the Division of Water and their priority watershed efforts that rank impaired streams by severity and public and agency interest and funding. KDFWR staff will communicate with watershed coordinators, and at times participate in the watershed meetings, to receive recommendations and offer input on realistic expectations from the in-lieu program. One positive aspect of a mitigation project in a priority water would be that if the mitigation addresses the source of the impairment, the stream could be removed from the 303(d) list without resources being expended on developing a TMDL.

Another potential source of projects that will be investigated in each Service Area is public lands, including KDFWR Wildlife Management Areas and U.S. Army Corps of Engineers holdings around major reservoirs. Enhancing and rehabilitating impaired streams on public land is highly desirable because these areas generally have protected watershed and are accessible to and viewed by the public.

C.19.4 Service Area Credits:

The Jackson Purchase Area will have 240,000 Advance Credits for streams and 200 Advance Credits for wetlands available for sale. The Advance Credits for wetlands were set higher in this Service Area because the occurrence of wetlands in the landscape is higher than most other areas of the state.

Advance Credits will be replaced as Mitigation Projects are approved and implemented, based on the credit release scheduled detailed in the Instrument or as detailed in the Project Mitigation Plan, if different from the Instrument. Should Advance Credit sales outpace Released Credits KDFWR will either cease the sale of Advance Credits or request a

modification, following the streamlined review process, to the Instrument to allow for release of additional Advance Credits.

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APPENDIX D: LIST OF APPROVED COMPENSATORY MITIGATION PROJECTS

Table of Corps Approved Mitigation Projects: KDFWR Mitigation Program						
PROJECT	COUNTY	SERVICE AREA	404 PERMIT ID.NO.	404 PERMIT APPROVAL DATE	401 WQC ID. NO.	401 WQC APPROVAL DATE