404 Permit Training Workshop
State Projects with Mitigation

Joan Lindley, MLA, ASLA
Environmental Project Manager
State Projects with 404 Permits Requiring Mitigation

• Permit Requiring Mitigation
  – We need documented proof of our attempts for Avoidance and Minimization
  – Nationwide with Mitigation
    • Does not require Public Comments
  – Individual Permit, usually has Mitigation
    • Public Comment Period (30 Days) is required, this allows private citizens and State (DEQ) and Federal Agencies to comment on the Proposed Mitigation Plan
    • We try to avoid these types of Mitigation Projects as much as possible
Types of Impacts Requiring Mitigation

- Aquatic Resources - In-Kind Rehabilitation
- Aquatic Resources Enhancement
- Aquatic Resources Preservation, (10:1 or Higher)
  - Sufficient to replace lost aquatic resource
  FUNCTIONS
- Riparian Zone
- Stream Relocation and Channel Re-Alignment
What Conditions Increase Mitigation Ratios

- Increased distance between impact site and mitigation site
- High biological diversity at impact site
- Physical or structural complexity of the impact site
- Ecological uniqueness of the impact site
- Length of time necessary to achieve functional maturity at the mitigation site
- Mitigation site in different watershed than impact site
- Mitigation site in different ecoregion than impact site
- Increased lag time between impacts and completion of mitigation activities
- Herbivory, predation, surrounding land use, etc......
- Inconsistent source of hydrology for mitigation site
- Pre-existing easements, utilities
- Significant soil amendments or replacement
- Reliance on enhancement or creation as opposed to restoration
- Reliance on preservation
- Use of out-of-kind mitigation for impacts
  - Aquatic Resources Sites are based on Acres
  - Streams Impacts are based on Linear Feet and Acres
What is a HUC?

- HUC is a Hydrological Unit Code, a sequence of numbers or letters that identify a hydrological feature like a river, river reach, lake or area such as a drainage basin (watershed).
- Region has 2 digits
- Subregion has 4 digits
- Basin has 6 digits
- Subbasin has 8 digits
- Watershed has 10 digits
- Subwatershed has 12 digits
Design Engineer’s Role and Responsibilities for Avoidance and Minimization

• Design Engineer Role
  – Aware of Possible Wetland/Stream Impacts during Project Initiation Site Visit from Recon Data, best place to start thinking about existing site conditions and discuss Avoidance and Minimization. Add to Project Initiation Report because 2 yrs from now when we need the Avoidance and Minimization statement we may not remember or there have been changes in staff.
  – At 30% PIH, Potential Jurisdictional Waters and Wetlands Evaluation has been completed the EPD PM will notify PIH attendees of possible impacts to Aquatic Resources within the NEPA Footprint and discuss design strategies for Avoidance and Minimization.
  – At R/W & UT Meeting, the EPD PM will remind meeting attendees of possible impacts to Aquatic Resources and discuss design strategies for Avoidance and Minimization.
Continued Design Engineer’s Role and Responsibilities for Avoidance and Minimization

• Design Engineer Role
  – A meeting will be set to discuss the construction impacts to the Aquatic Resources, this meeting will include the Division Engineer, Design Engineers, EPD PM, EPD 404 Permit Liaison and the Corps Regulatory Transportation Manager.
  – At this meeting a decision will be made for On-Site or Off-Site Mitigation
  – A Round Robin will be sent around for Signatures.
Round Robin
Distribution List

DATE: July 3, 2012
TO: Distribution List in the Document
FROM: Environmental Programs Division Engineer
SUBJECT: DRAFT Mitigation Measures

TIME SENSITIVE MATERIAL – PLEASE FORWARD TO THE NEXT PERSON WITHIN 3 WORKING DAYS OF RECEIPT. DUE BACK IN ENVIRONMENTAL PROGRAMS DIVISION BY: July 27, 2012

Project Management Division – Division 2

Field Division Engineer – Division 2

Construction Engineer

Roadway Design Division

Bridge Design Division

Chief of Right-of-Way

Director of Engineering
Round Robin
Proposed Mitigation Measures

DATE: July 3, 2012
TO: Distribution List in the Document
FROM: Environmental Programs Division Engineer
SUBJECT: Round Robin for Proposed Mitigation Measures

Project No.: SSP.139C(05)SS
County: Latimer/Leflore
Job Piece No.: 21735(04)
Highway No.: State Highway 1
Description: Bridge and Approaches on SH 1 over 2 Rock Creeks approximately 16 miles west of Leflore C/L and 0.16 miles east of the Latimer C/L
Division: FIELD DIVISION 1
Let Date: May 2013 (May be moved to emergency project July 2012)

Project Background: The proposed project involves construction of a new two-lane facility on an offset of the existing SH-1 alignment. Two new bridges will be constructed over Rock Creek. In accordance with the Clean Water Act (CWA) and the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, a jurisdictional waterbody identification and delineation was completed by PES&J in January 2010 and further refined by Enercon. Enercon is developing the proposed mitigation requirements based upon the impacted stream and wetland resources identified in the report, and with guidance from the USACE.

Reason for Mitigation: The purpose of this wetland mitigation proposal is to satisfy ODOT CWA Section 404 Permit requirements by developing a mitigation design that will maintain the chemical, physical and biological functions of aquatic resources that will be impacted as a result of construction of this project. The goal is to develop a mitigation design that is more representative of the impacted waters’ natural conditions. The proposed project is 0.965 miles long and involves direct impacts to approximately 1.26 acres of wetlands and 228 linear feet of stream. As a result, this construction project will require an Individual Permit and mitigation of impacts to the affected resources. This process will take 6 to 12 months.

Mitigation Measures: The mitigation measures proposed focus on the 1.26 acres of wetlands and 228 linear feet of stream that will be impacted by the project. The mitigation strategy proposed is based upon a reasonable expectation of what the USACE is likely to accept. It is possible the USACE may require more or different mitigation actions for this project. This process will take approximately 6 months from time of submittal to USACE.

Mitigation Strategy: Since the proposed project is on an offset alignment, wetlands mitigation will be completed by creating 4.13 acres of forested wetlands within the existing R/W where the existing road lies. The creation of the 4.13 acres will include construction of a ditch a water
Round Robin
Proposed
Mitigation
Measures

control structure to provide hydrology, critical area plantings over excavated areas, and reforestation plantings to include 1,270 trees including 3-gallon size and bare root trees and shrubs. Installation and maintenance of the proposed mitigation project will be conducted by outside contractors in a separate project let by ODOT through Procurement after the completion of the new bridge construction. Upon successful establishment of the mitigation project, long-term management of the site will be ODOT’s responsibility. The property is already owned by ODOT, so no R/W costs will be associated with this project. The cost of mitigation is approximately $60,000 which does not include monitoring.

If you have any questions regarding the mitigation proposal, please contact ODOT 404 Permits/Mitigation Engineer, Kristi Wiegl at 403-522-0734.

The draft mitigation proposal has been presented to USACE for their approval as part of the CWA Section 404 Permit application and is currently under review. Should any comments dictate a change in the current concept, a revision package will be submitted to the USACE.

This document should be returned to Environmental Programs Division no later than: (July 17, 2012). Please forward it to the next person on the list within three days of receipt.
Round Robin
Proposed Mitigation Measures

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If you have any questions regarding the mitigation proposal, please contact ODOT 404 Permits/Mitigation Engineer, Kristi Weigl at 403-322-0734.

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Off-Site Mitigation

• Off-site Mitigation Projects
  – Nationwide Permit and Individual Permit
• Main Advantage is the Mitigation Site in not in ODOT Right-of-Way
• Mitigation Banks
  – Corps preferred method - purchase credits from banks but currently there is only one established bank in Oklahoma. Several entities are in the process of creating Mitigation Banks but this is a long and complicated process.
• Off-site Mitigation Projects are difficult. We must have a willing seller with property suitable for the type of mitigation improvements required by the Corps.
• It may take years to find and purchase the appropriate site, example Powers Property, started searching for property in 2009
• Currently we are partnering with The Nature Conservancy
  – Oka` Yanahli Preserve in Pontotoc County
Off-Site Mitigation

• Off-site Mitigation requires the Division to pay for the property/easement, implementation, maintenance and monitoring.

• If for some reason the project fails the Division will have to pay for any design modifications and re-planting.

• Design Engineers Role and Responsibilities in Off-Mitigation –Avoidance and Minimization, 404 Permit Application, funding Off-Site Project.
Examples of Off–Site Mitigation Projects

• Excel Mitigation Bank, only for project in the Deep Fork 8 HUC, purchase credits, no stream credits available
• Oka` Yanahli Preserve approximately 490 acres
• Mayes County, currently using a 134 acre site for 3 projects in Division 8
• Powers Property in Division 2 for impacts to a Bog
Conceptual Off-Site Mitigation
Partnering with The Nature Conservancy

Disclaimer: Stream assessment by David Bidelspach (Stantec) and restoration design work is not complete. This is a draft.
On –Site Mitigation

• On-site Mitigation Projects
  – Both Nationwide and Individual Permit
• May save some time, if we don’t need additional ROW
• May need to coordinate efforts with the Acquisition Branch and UT if we need additional ROW for the Mitigation Project. Need to start early in Right-of-Way process.
• Main Disadvantage - the Mitigation Site cannot be altered by removing wetland/riparian vegetation, no channel changes, no construction activities, etc...... into perpetuity. This includes routine ODOT Maintenance. This is the reason for fencing the Mitigation Project area.
Engineers Role and Responsibilities for On-Site Mitigation

• Designer Engineer Role
  – After the Round Robin is signed EPD or a Consultant will begin gathering detailed information to develop the Mitigation Plan

• There are 2 ways to approach On-Site Mitigation

  1. The rough construction of the wetland and or stream can be included in the ODOT Construction Project. The vegetation installation, maintenance and monitoring would then be on a separate contract, through Purchasing and EPD would manage this separate contract.
     1. Advantages are working closely with the Design Engineer to include the Mitigation Project on ODOT Construction Plans
     2. Advantage reduces cost of Constructing Mitigation Project.
     3. Disadvantages working closely with the Design Engineer to include the Mitigation Project on ODOT Construction Plans
     4. Requires working closely with the Division and Resident Engineer. EPD will need to be included in Pre-Construction and Pre-Bid Conferences. Notified when Construction of Mitigation Project starts and when completed so a landscape contractor can begin installing the next phase of the Mitigation Project.

  1. The second method is to design, construct, install plant material, maintain and monitor under separate contract.
     1. Advantages do not have to work closely with Design Engineer to include the Mitigation Project on ODOT Construction Plans.
     2. Disadvantage will more than likely significantly increase the cost of constructing the Mitigation Project.
Engineers Role and Responsibilities for On-Site Mitigation

– Coordinate with Maintenance Division, remember the Mitigation Site cannot be altered unless approved by the Corps.

– Monitoring Period, varies per Mitigation Project type. The monitoring period comes to a close if the project was successful and we have satisfied all aspects of the Mitigation Plan we submitted.

– If during the monitoring period there are problems resulting in design failures. We modify where necessary and continue to monitor until the Corps signs off.
On-Site Mitigation

Examples
Osage County, US-60
On-Site Stream Mitigation

Conceptual Section Drawing
Osage County, US-60
On-Site Stream Mitigation
Osage County, US-60
On-Site Stream Mitigation
Osage County, US-60
On-Site Stream Mitigation

In consultation with the Oklahoma Department of Transportation, the Texas-Northern Lizard Conservation Model and the National Audubon Society, a species of greatest conservation need will be relocated from the site. The project will be reviewed in accordance with the Department of Transportation's environmental policies and procedures.

On-Site Stream Mitigation

**Environmental Mitigation Notes**

This project shall be constructed without closing the existing road to local and through traffic. See standard specifications for maintenance of local and through traffic.

On-Site Stream Mitigation

**General Construction Notes**

This project shall be constructed without closing the existing section. Any needed changes to the traffic control plan shall be made in accordance with the standard specifications for maintenance of local and through traffic.

**Vegetative Mitigation**

Vegetative mitigation shall be provided in accordance with the "Vegetative Mitigation Schedule" and the "Vegetative Mitigation Plan" which is provided in accordance with the "Vegetative Mitigation Plan" and the "Vegetative Mitigation Schedule".

**Surfacing Mitigation**

Surfacing mitigation shall be provided in accordance with the "Surfacing Mitigation Schedule" and the "Surfacing Mitigation Plan" which is provided in accordance with the "Surfacing Mitigation Plan" and the "Surfacing Mitigation Schedule".

**Environmental Mitigation**

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**Surface Water Mitigation**

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**Traffic Mitigation**

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**Residential Mitigation**

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**On-Site Stream Mitigation**

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**Resource Mitigation**

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**Vegetative Mitigation Schedule**

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Osage County, US-60
On-Site Stream Mitigation
Osage County, US-60
On-Site Stream Mitigation

HARVEST SPOIL SEED BANK (TOPSOIL) PRIOR TO CONSTRUCTION ACTIVITY

AT STA. 1081+00 – 1082+00 THE TOPSOIL SHALL BE EXCAVATED 15' EITHER SIDE OF THE EXISTING CHANNEL, FROM 20' SOUTH OF THE EXISTING BRIDGE STRUCTURE, EXTENDING NORTH APPROXIMATELY 50' TO A DEPTH OF 1'-0'.

A FEW LARGE NATURAL BOULDERS AND ROCKS SHALL BE EXCAVATED AND RELOCATED THE STREAMBANK MODIFICATION SITE.

STOCKPILE THE HARVESTED SPOIL SEED BANK AND LARGE BOULDERS INTO 2 SEPARATE STOCKPILES LOCATED JUST SOUTH OF THE NORTH RIGHT-OF-WAY FENCE NEAR THE STREAM.

STREAMBANK MODIFICATION

THE STREAMBANK MODIFICATION SITE AT STA. 1185+00 WILL BE RECONTOURED PER ROADWAY PLANS. THE NEW FINISH GRADE ELEVATION NEXT TO THE STREAM SHALL BE A MAXIMUM OF 1' ABOVE THE TYPICAL FLOW ELEVATION OF THE STREAM. STREAM BENCHES WILL BE CREATED PER THE PLANS WITH THE TOTAL AREA NOT BE LESS THAN 0.25 ACRES. SPREAD THE HARVESTED SPOIL SEED BANK EVENLY OVER THE NEWLY CREATED STREAM BENCH UP TO THE SODDED AREA.

SEEDING

OVERSEED THIS AREA WITH WINTER WHEAT (70 LBS PER ACRE) IF CONSTRUCTION IS COMPLETED IN THE FALL OR WINTER MONTHS OR GERMAN MILLET (20 LBS PER ACRE) IF THE CONSTRUCTION IS COMPLETED IN THE SPRING OR SUMMER MONTHS.

NATIVE BOULDERS AND ROCKS

PLACE THE NATIVE BOULDERS AND ROCK NEAR THE STREAM EDGE.

FENCING

THE AREA WILL BE FENCE PER PLANS.
Woodward County, SH-15 over Turkey/Bull Creek
On-Site Stream & Wetland Mitigation
Woodward County, SH-15
On-Site Stream & Wetland Mitigation
Woodward County, SH-15
On-Site Stream & Wetland Mitigation
LeFlore County, US-59 over Cedar Creek
LeFlore County, US-59 over Cedar Creek
Latimer/LeFlore County, SH-1
On-Site Wetland Mitigation

GENERAL CONSTRUCTION NOTES

The project shall be constructed efficiently clearing the roadway and minor earthwork, with a focus on minimizing environmental impacts. The contractor shall ensure that all temporary structures are promptly removed and that the area is restored to its original condition.

The contractor shall maintain all temporary structures, such as bridges, guardrails, and utility crossings, to ensure they are safe and do not pose any hazards to the public.

The contractor shall ensure that all construction materials are properly disposed of and that the site is left in a clean and cleared condition.

ENVIRONMENTAL MITIGATION NOTES

During construction, the project area and the following areas must be kept clear of debris and vegetation to prevent potential environmental impacts:

- Woodland areas
- Wetland areas
- Stream and ditch areas
- Riparian areas

Roadway Pay Quantity Notes

- The costs for the roadway pay quantities shall be calculated based on the estimated quantities provided in the plan.
- The quantities are subject to adjustment based on the actual work performed.
- The contractor shall be reimbursed for materials and labor used in the construction.

Roadway Pay Quantities

The following table provides the pay quantities for the roadway:

<table>
<thead>
<tr>
<th>Description</th>
<th>Pay Notes</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

State Roadway Design

The state roadway design shall be in accordance with the latest state design standards and guidelines.

The state roadway design shall be reviewed and approved by the appropriate state agency.

The state roadway design shall incorporate all necessary safety features, including but not limited to:

- Medians
- Crosswalks
- Signals
- Streetlights

The state roadway design shall be submitted to the appropriate state agency for review and approval.

The state roadway design shall be constructed in accordance with the approved design.

The state roadway design shall be inspected by the appropriate state agency to ensure compliance with the approved design.

The state roadway design shall be maintained in good condition and repaired as necessary.

The state roadway design shall be subject to periodic review and updates as necessary.

The state roadway design shall be designed to accommodate future growth and development.

The state roadway design shall be maintained in accordance with the local government's policies and guidelines.

The state roadway design shall be designed to be environmentally sustainable.
Latimer/LeFlore County, SH-1
On-Site Wetland Mitigation
Latimer/LeFlore County, SH-1
On-Site Wetland Mitigation
Latimer/LeFlore County, SH-1
On-Site Wetland Mitigation
Latimer/LeFlore County, SH-1
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Latimer/LeFlore County, SH-1
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Latimer/LeFlore County, SH-1
On-Site Wetland Mitigation

Notes from Pre-Construction Meeting
Okmulgee County, SH-16
On-Site Stream Mitigation

SEE SHEET A-1 FOR LEGEND
Okmulgee County, SH-16
On-Site Stream Mitigation
Okmulgee County, SH-16
On-Site Stream Mitigation

Landscape Legend:
- Water Oak
- Southern Red Oak
- Red Maple
- Chinkapin Oak
- Persimmon
- Loblolly Pine
- Black Cherry
- Rusty Blackhaw
- Bermuda Grass Sod
- Gravel
- Mulch
- Sand Plum

Site A Plan View

SITE "A" PLANTING PLAN

Tiger Creek Mitigation

Site "A" Planting Plan

Map No. 10821003

Okmulgee County

Okmulgee County, SH-16
On-Site Stream Mitigation
Okmulgee County, SH-16
On-Site Stream Mitigation

Landscape Legend:
- Water Oak
- Red Maple
- Chinkapin Oak
- Roughleaf Dogwood
- Persimmon
- Sand Plum
- Lobolly Pine
- Mulch
- Black Cherry
- Sumac
- Rusty Blackhaw
- Bermuda Grass Sod
- Native Seed
- Organic Mulch
- Bermuda Sod

SITE "B" and "C" PLAN VIEW

 orientable: North is at the top, South is at the bottom, and East is to the right.
### Okmulgee County, SH-16
### On-Site Stream Mitigation

#### Planting Details

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Common Name</th>
<th>Latin Name</th>
<th>Seeding Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Red Maple</td>
<td>Acer rubrum</td>
<td>600 seeds/bag</td>
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<tr>
<td></td>
<td>Persimmon</td>
<td>Diospyros</td>
<td>600 seeds/bag</td>
</tr>
<tr>
<td></td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
<td>600 seeds/bag</td>
</tr>
<tr>
<td></td>
<td>Black Cherry</td>
<td>Prunus serotina</td>
<td>600 seeds/bag</td>
</tr>
<tr>
<td></td>
<td>Coastal Red Oak</td>
<td>Quercus phellos</td>
<td>600 seeds/bag</td>
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<tr>
<td>Shrubs</td>
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<td></td>
<td>Essentially</td>
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#### Notes
- All plant material and seed to be harvested, propagated or grown in Oklahoma, Kansas, Arkansas, or Texas.
Case Studies

- Grant County, SH-11
Case Studies

- Grant County, SH-81