

# **Consumers Energy Company Environmental Services**

Margaret O'Connor

The logo for CMS Energy, featuring the text "CMS ENERGY" in a blue, sans-serif font, with a green swoosh underline that extends to the right.

# Today's Focus BMPs for Pipeline Construction in Wetlands



# Consumers Energy Company – Environmental Services





# Pipelines Go Cross County



# All Consumers Energy Pipeline Follow These Procedures.

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Federal Energy  
Regulatory  
Commission

Office of  
Energy Projects  
May 2013

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## WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

Washington, DC 20426

MAY 2013 VERSION

# Wetland Pipeline Construction Techniques

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- How a pipeline crosses a wetland depends upon the wetland type and the amount of water in it.
- Will the trench remain open when dug with a back hoe?
  - Open trench
  - Sheet piling
  - Horizontal Directional Drill (HDD)
    - Bores
- During and After Pictures

# Is this a before or after picture?





# Laying Timber Mats in a Wetland





# Silt fence along wetland mats



# Segregating Ditchline Topsoil





# Open Ditch in Wetland With Spoil Pile



# Pipeline Being Lowered





# Open Trench Pipeline Installation



# Placing of concrete weights





# Pipeline installed in Wetland 7



# Backfilling at Wetland W-8





# Pipe installed and trench is backfilled



# Sheet Piling Through Wetland

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- Open Water
- Trench will not hold open
- Expensive
- Takes Time to do it correctly

# Hardworking Environmental Crew





# Silt Fence and Barrier Fence In Place





# High Quality Wetland With Blandings Turtles



# David Mifsud and summer intern





# Wetland Mats and Sheet Piling









# Cement Coated Pipe In Wetlands



# Pipeline in Place With Pipe Weights





# Pipe installed and trench is backfilled





# Releasing Blandings Turtles

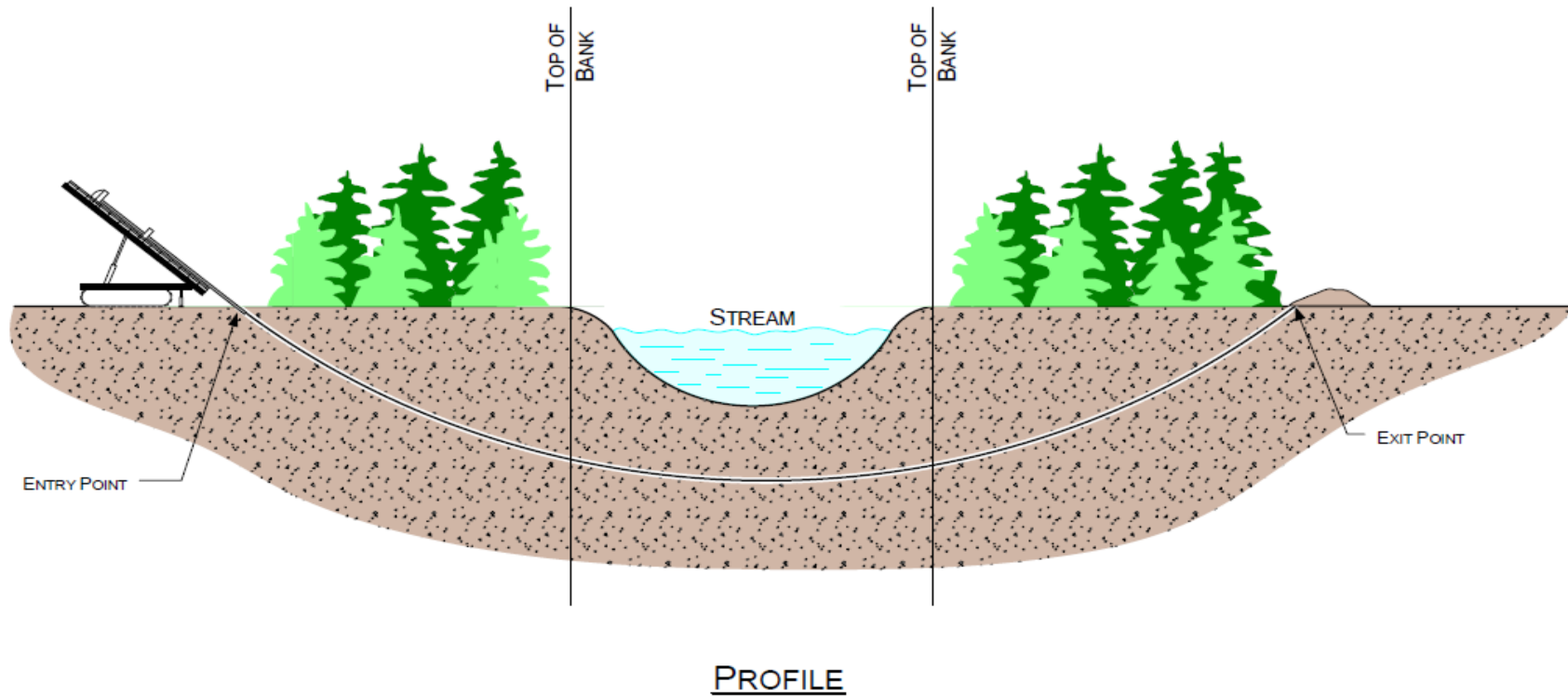


# Horizontal Directional Drills

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- The Good
- The Bad
- The Ugly

# Horizontal Directional Drill Profile



1. LAYDOWN LENGTH DEPENDS ON LENGTH OF PIPE STRING, WIDTH WILL BE 50' TO 75' DEPENDING ON SOILS AND OTHER FACTORS



# HDD River Crossing – Coldwater River

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# HDD Entry Site



# Drilling Stem Rig





# First Drill Stem at Exit Point



# 42-Inch Reaming Drill Bit





# Stem Ready to be Pulled Back





# Pipe Being Pulled Back



# Heave of Land Due To HDD





# Pipeline is 400 Feet Away





# Contained frac out in wetland



# Drilling Mud Release in Green's Lake Channel





# Release of Drilling mud at Green's Lake Channel





# Drilling Mud Leak on Bank Near Water



# Sandbag dam along top of east bank of channel





# Condo Frac Out and Clean Up





# Frac-out at North Crest Condos



# Isolated frac out points being vacuumed





# Drilling Mud Release





# Drilling Mud Release



# Drilling Mud in creek that township insisted be HDD





# Drilling Mud Release at Pond Edge



# Clean Up of Drilling Mud





# Drilling mud release along wetland



# Mud remaining in channel bottom





# Oh No!



# Exit Point of Coldwater HDD





# Pipeline Being Bored





# Railroad bore. Driving head





# Restored wetland





# Restored wetland





# Note Building on left side



August 5, 2010



June 13, 2011

Springfield Township – Pipe Route South of Shaffer Road

# During and After



October 13, 2010



June 13, 2011

Springfield Township – Wetland 6, East of Ormond Rd.



# City Gate in Back Ground



November 2, 2010



June 13, 2011

Springfield Township – Wetland 1, Hillsboro Rd.

# Restored wetland





# Pipeline Construction

