Mat Wars: The Sediment Source Awakens!
The Proactive vs. Reactive Approach to Managing your Sediment

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Overview of Potential Sediment Sources and Other Issues to be Discussed

- Sediment Tracking
- Construction Activities
- Drilling or Excavating
- Soil Compaction
- Improperly Sized Work Pads
- Splintered/Broken Mats
- Flooding
Sediment Source #1 – Sediment Tracking onto Mats
Sediment Tracking onto Mats – Proactive Approach

- Stone or Wood Chip Transition Pad
  - Prevents tracking onto mats (mud, sediment, etc.)
  - Filter fabric placed underneath to facilitate easy removal
Sediment Tracking onto Mats - Reactive Approach

- Sediment, when not properly contained, can fall through cracks of swamp mats and has to be hand removed from the wetland.
Sediment Tracking onto Mats – Reactive Approach

- Sweeping mats
  - By hand
  - Mechanical sweepers (e.g. skid steer attachment)
- Disposal of material/sediment off-site
- Hand removal of sediment from wetlands
  - Falls through cracks of swamp mats or
  - Enters wetland during rain/storm event
Vehicle access and construction activities can disturb soils and generate sediment.

Sediment could fall through the cracks of swamp mats if not properly contained or cleaned regularly.
Proactive Approach – Use other BMPs with Swamp Mats

- Filter Fabric Liners
- Fiber Rolls
- Silt Fence
- Hay/Straw Bales
- Other Sediment Controls
Proactive Approach – Filter Fabric Liners!

- Helps prevent sediment/stone/tracked dirt from falling through or off mats into wetlands or streams
- Fabric can be placed:
  - Under mats
  - Between mat layers
  - Along the edge of the mats
  - Under temporarily staged excavated/stockpiled materials
Proactive Approach – Filter Fabric Liners Cont’d
Proactive Approach –
Filter Fabric Liners Stream Crossings
Proactive Approach - Fiber Rolls

- Often used as a supplemental BMP
- Used at entrances to matted access
- Can be used along edges of mats in highly active/high sediment risk locations
- Consideration: Proper size and material
Proactive Approach - Bales

- The use of hay is often prohibited by local and state regulations
- Straw bales are good alternatives
- Proper installation required for maximized benefit
- Can be broken up and spread as stabilizing agent
Proactive Approach - Silt Fence

- Commonly used
- Requires frequent maintenance
- Trenching requirement results in greater disturbance than other BMPs
- One of the more effective BMPs for preventing sedimentation
Vehicle Access and Work Areas – Reactive Approach

- Waiting to install one or several of the BMPs mentioned previously until a need is identified
  - Not effective construction site management
  - Could result in discharges to wetlands or streams during rain events (*Non-Compliance!*)
  - Not cost effective
    - Even more sediment controls/BMPs to mitigate uncontrolled erosion and sedimentation
    - Potential increased level of effort required during restoration
Reactive Approach – Addressing Improperly Installed or Damaged BMPs
Sediment Source #3 – Drilling, Excavating, and Dewatering

- Drilling and excavating activities can create messy work areas really quickly!
Proactive Approach - Confining Sediment when Drilling and Excavating

- Filter Fabric
- Slurry/Spin-off Boxes
- Properly-Sized Dewatering Basins
Proactive Approach - Filter Fabric

- Use Filter Fabric
  - Under soil/sediment stockpiles
  - Used to cover sediment (or plastic)

Filter Fabric catching excess sediment
Proactive Approach - Slurry/ Spin-Off Boxes

- Metal
- Cardboard Containers with Plastic Liners
- Rigid plastic construction
- Height of the container and clearance for drill rig pose challenges
Proactive Approach –
Slurry/ Spin-off Boxes and BMP Combination
Proactive Approach - Properly Sized Filter Bags

- Improperly sized filter bags when dewatering can result in “blow-outs”
- These “blow-outs” could result in sediment entering wetlands
Reactive Approach – Sediment Clean Up and Restoration Efforts

- Discharges to Wetlands = Wetland Fill!
- Any sediment that enters wetlands or streams has to be hand removed *(i.e. with shovel and buckets)*
- Could result in non-compliance with permits and extensive clean up efforts
  - Additional time, effort, cost
  - Tarnished reputation with regulators and clients
Sediment Source #4 – Soil Compaction - “Mat Pumping”
Proactive Approach - Stringers

- Install a double layer of mats or use stringers to help prevent soil compaction.
Reactive Approach – Remove, Clean and Re-install Mats

- Once “mat pumping” or soil compaction occurs, swamp mats should be removed, cleaned, and a double layer or stringers will need to be installed.
- Resulting in additional time, effort, and costs.
- SAFETY!
Sediment Source #5 – Improperly Sized Work Pads

- Mats are not installed in Permitted/Approved Layouts or improperly sized for the proposed activities
- Result in ruts in wetlands - potentially wetland fill
Proactive Approach – Mats and Controls Installed in Proper Locations

- Make Sure Mats are Installed as shown in the Approved/Permitted Alignments and Locations
Reactive Approach – Wetland Restoration

- When mats are not installed as approved
  - Could result in undersized work areas leading to ruts and wetland fill
    - Permit Violations!
    - Any ruts or sediment that enters wetlands will have to be hand removed (i.e. with shovel and buckets)
    - Could result in project delays, greater level of effort, and additional costs
Other Issues– Splintered/Broken Mats
Proactive and Reactive Approaches

- **Proactive Approach:**
  - Avoid using old mats
  - Use care when installing mats to avoid splintering
  - Ensure mats are appropriately sized for equipment being used.

- **Reactive Approach:**
  - Clean-up splinters to prevent them from entering wetlands/streams
  - Replace old/broken mats
Other Issues- Flooded Work Site & Floating Mats
Proactive Approach – Evaluate Site Conditions in Work Area when Installing Mats

- When working in a floodplain, a potential flood event should be considered in the mat design.
- In this situation, more than a single layer of mats should have been installed to provide the appropriate height above the flood waters.
- Instead....
Solution – Reactive Approach
In Summary

- Being proactive results in:
  - Clean work areas and access
  - Less effort, time delays, and potentially less costs
  - Safer work areas
  - Helps ensure permit compliance and protection of adjacent wetlands and streams

- Of course, reactive responses are sometimes needed for the unexpected.
Thank you!