Source Control BMPs for ESC SWPPP

Section 4

1

BMP REFERENCES IN MANUALS:

VOLUME II

CHAPTER 7

2

STORMWATER MANAGEMENT MANUALS:

SWMMWW

BMP C105:
Stabilized Construction Access

SWMMEW

BMP C105E:
Stabilized Construction Access

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13 ELEMENTS OF A SWPPP

1. MARK CLEARING LIMITS
2. ESTABLISH CONSTRUCTION ACCESS
3. CONTROL FLOW RATES
4. INSTALL SEDIMENT CONTROLS
5. STABILIZE SOILS
6. PROTECT SLOPES
7. PROTECT DRAIN INLETS
8. STABILIZE CHANNELS AND OUTLETS
9. CONTROL POLLUTANTS
10. CONTROL DEWATERING
11. MAINTAIN BMPS
12. MANAGE THE PROJECT
13. PROTECT LID BMPS

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BEST MANAGEMENT PRACTICES (BMPS)

<u>Definition</u>: Schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices, that when used individually or in combination, prevent or reduce the release of pollutants to waters of Washington State.

TYPES OF BMPS

- DESIGN
- PROCEDURAL
- PHYSICAL
  - SOURCE CONTROL
  - RUNOFF CONVEYANCE
  - TREATMENT

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CATEGORIES OF BMPS

<u>Design BMPs</u>

Pre-construction site planning and development to reduce erosion potential

<u>Procedural BMPs</u>

On-site handling methods and specific management

<u>Physical BMPs</u>

Erosion and Sediment Control

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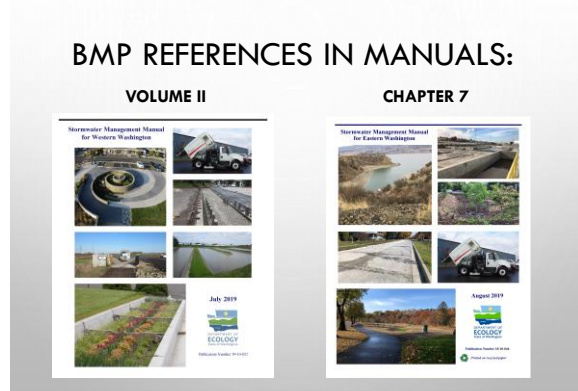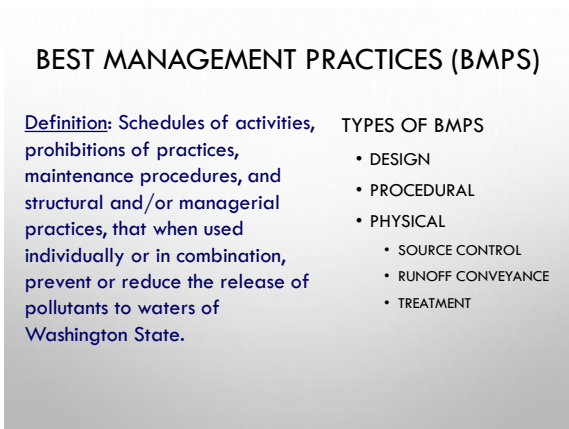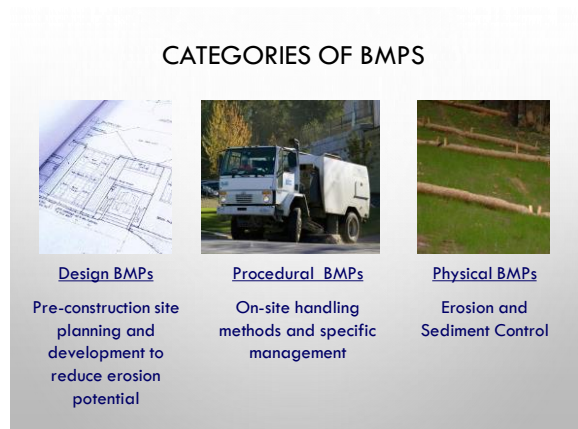## BMPS THAT SAVE YOU THE MOST MONEY!

DESIGN BMPS

- TAKE PLACE BEFORE ANY WORK IS DONE ON SITE
- ENGINEERS
  - CONTINGENCY SEDIMENT CONTROL PLAN
- SITE PLANS
  - MINIMIZE DISTURBANCE
  - VEGETATION CLEARING AND PRESERVATION
  - UTILIZE NATURAL CONTOURS
- KICK-OFF MEETINGS

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DESIGN BMPS

- MINIMIZE DISTURBANCE (FOOTPRINT) OF PROJECT.
- MAXIMIZE INTEGRATION OF EXISTING LAND CONTOURS.
- MINIMIZE LENGTH AND GRADIENT OF SLOPES.
- ACCOUNT FOR BOTH ONSITE AND OFFSITE STORMWATER DURING CONSTRUCTION.
- MINIMIZE DISCHARGE POINTS.

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GRADING AND EXCAVATION

GRADE TO YOUR ADVANTAGE

HYDROEXCAVATION

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PROCEDURAL BMPS

Should be incorporated early in planning phases and throughout construction

- TIME MAJOR SOIL DISTURBANCE FOR DRY SEASON
- COMPLETE PROJECT IN PHASES
- INTEGRATE EROSION CONTROL AND CONSTRUCTION SCHEDULES (THEY DON'T HAVE TO CONFLICT)

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PROCEDURAL BMPS

- PRE-CONSTRUCTION KICKOFF
- EDUCATION
- COMMON SENSE
  - DON'T MAKE A MESS!
    - PHASING AND TIMING
  - CLEAN UP AFTER YOURSELF!
    - SWEEPING
- COMMUNICATION

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SCHEDULING
SEASONAL AND WEEKLY ACTIVITY

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FOOTBALL ANALOGY

- PLAYBOOK = SWPPP

- STARTERS = EVERYDAY ONSITE STAFF

- SPECIAL TEAMS = CONTRACTED SERVICES AND VENDORS

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MATERIALS ON HAND

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DELIVERY, STORAGE & CONTAINMENT

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SECONDARY CONTAINMENT

NO SECONDARY CONTAINMENT

PROPER SECONDARY CONTAINMENT

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PAYMENT OF EROSION CONTROL

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DUST CONTROL

Uncontaminated or potable water used to control dust. Permittees must minimize the amount of dust control water used.

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CONCRETE HANDLING

20

COVERING CONTAINMENT

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CONCRETE WASHOUT

• S9.D.9.H (PAGE 34) – ASSURE THAT WASHOUT OF CONCRETE TRUCKS IS PERFORMED OFF-SITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCK DRUMS OR CONCRETE HANDLING EQUIPMENT ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. WASHOUT OF CONCRETE HANDLING EQUIPMENT MAY BE DISPOSED OF IN A DESIGNATED CONCRETE WASHOUT AREA OR IN A FORMED AREA AWAITING CONCRETE WHERE IT WILL NOT CONTAMINATE SURFACE OR GROUND WATER. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE SPILLAGE OR CONCRETE DISCHARGE DIRECTLY TO GROUNDWATER OR SURFACE WATERS OF THE STATE IS PROHIBITED. DO NOT WASH OUT TO FORMED AREAS AWAITING LID FACILITIES.

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SAWCUTTING AND SURFACE POLLUTION PREVENTION

Photos courtesy of Robert I. Carr, Ph.D., P.E.

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VACUUMING SLURRY

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PHYSICAL BMPS

- IMPLEMENTATION OF EROSION & SEDIMENT CONTROL PRACTICES TO THE SOIL
- MUST BE A SUPPLEMENT TO AND NOT A REPLACEMENT FOR DESIGN & PROCEDURAL BMPS.

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MAINTAIN BMPS

- EVERY BMP HAS A MAINTENANCE ELEMENT
- CONSIDER THE COST
- REMOVE ALL TEMPORARY BMPS AT TIME OF NOT UNLESS BIO/PHOTO DEGRADABLE

BMP $ =
- Purchase
- Installation
- Maintenance
- Disposal

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Seeding
Wattle
Straw Blanket
Sed Fence
Gravel Filter Berm
Straw Mulch
The Right Thing In The Right Place At The Right Time
What-Where-When?

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EROSION CONTROL VS. SEDIMENT CONTROL

Erosion Control – prevention or minimization of soil erosion — PRIMARY METHOD

Sediment Control – recapture eroded soil before it leaves the construction site. — BACKUP OR SECONDARY METHOD

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PHYSICAL BMPS

- SOURCE CONTROL
  - REDUCE EROSION
  - STABILIZE SOILS
  - SETTLE OUT SEDIMENTS
  - CREATE/MAINTAIN CONSTRUCTION SITE BOUNDARIES
  - MANAGE DISTURBED SOILS ON-SITE
- RUNOFF CONVEYANCE
  - CONTROL FLOW OF WATER ON-SITE
  - ALLOW SEDIMENTS TO SETTLE
  - MANAGE WATER LEAVING SITE
- TREATMENT
  - PASSIVE AND ACTIVE

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BMPS WORK TO...

- SOAK IT IN (MULCH & SEED)
- SPREAD IT AROUND (SHEET-FLOW)
- SLOW IT DOWN (ROUGHENED SURFACE & CHECK DAMS)
- SIFT IT OUT (PERIMETER BARRIERS)
- SETTLE IT OUT (TRAPS & BASINS)

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BMP or Element Name	Element #1 Preserve Vegetation/Mark Clearing Limits	Element #2 Establish Construction Access	Element #5 Stabilize Soils	Element #6 Protect Slopes	Element #9 Control Pollutants	Element #11 Maintain BMPs	Element #12 Manage the Project	Element #13 Protect Low Impact Development
BMP C101: Preserving Natural Vegetation	✓							
BMP C102: Buffer Zones	✓							✓
BMP C103: High Visibility Plastic or Metal Fence	✓							✓
BMP C105: Stabilized Construction Entrance / Exit		✓						
BMP C106: Wheel Wash		✓						
BMP C107: Construction Road/Parking Area Stabilization		✓						
BMP C120: Temporary and Permanent Seeding			✓	✓				
BMP C121: Mulching			✓					
BMP C122: Nets and Blankets			✓					
BMP C123: Plastic Covering			✓					
BMP C124: Sodding			✓					
BMP C125: Topsoiling / Composting			✓					

SOURCE CONTROL BMPS BY SWPPP ELEMENT

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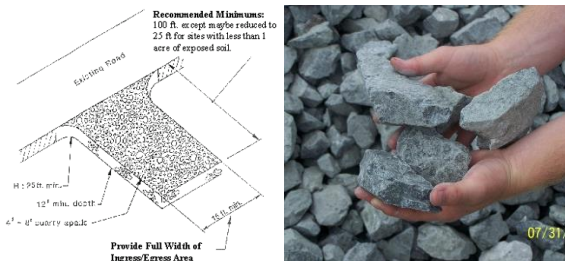

PRESERVING NATURAL VEGETATION

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BUFFER ZONES

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HIGH VISIBILITY PLASTIC OR METAL FENCE
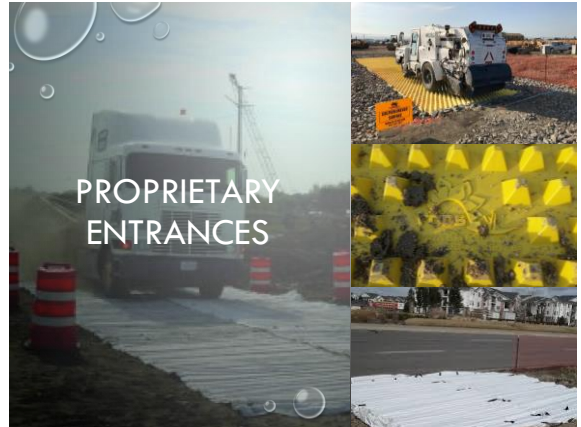
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STABILIZED CONSTRUCTION ENTRANCE

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STABILIZED CONSTRUCTION ENTRANCE – RUMBLE STRIP

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STABILIZED CONSTRUCTION ENTRANCE -WHEEL WASH

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PROPRIETARY ENTRANCES

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MUD MAT ENTRANCE

- *Instant* construction entrance
- Mats 8' x 15' at 90#
- Roll up
- Easy top clean
- Track pad for 'swampy' soil

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FODS ENTRANCE

- *INSTANT* CONSTRUCTION ENTRANCE
- PANELS 7' X 12' AT 430#
- EASILY TRANSPORTED
- VISIBLE YELLOW
- MADE IN THE USA
- REUSED AGAIN AND AGAIN
- 50,000LBS CRUSH RATING PER DIMPLE

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ROAD/PARKING AREA STABILIZATION

41

STABILIZE SOILS

UNSTABILIZED STORAGE AREA   STABILIZED STORAGE AREA

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QUICK BREAK

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