Understanding the SWPPP

Construction Activity Requirements

Erosion Prevention Practices Part IV B

Sediment Control Practices Part IV C

Dewatering and Basin Draining Practices Part IV D

Pollution Prevention Management Part IV F

Inspections and Maintenance Part IV E
Structure Dewatering & Basin Draining Practices

**SWPPP:**

Dewatering or basin draining activities of turbid or sediment laden water will be discharged to a temporary or permanent sedimentation basin or treated with the appropriate BMP prior to entering the surface water.

Energy dissipation will be provided at all discharge points.

Dewatering or basin draining activities will not cause nuisance conditions, erosion in receiving channels or on downslope properties, or adversely impact wetlands.
1. Structure Dewatering (footings, trenches, basements, coffers, etc.)
   - Mechanical systems – pumps
     - Inlet filtration
     - Sediment recovery
     - Discharge scour protection

2. Basin Draining (sediment traps, basins, ponds)
   - Mechanical systems, or
   - Gravity systems – weirs, slotted risers, floating skimmers, filter rock, geotextiles, etc.
Goals and Maintenance

- Dewater program goal within 48 to 72 hours to prepare for next rain (basins) or,
  - Keep structure dewatered for successful staging of work
- Water Conservation Practices (reuse of water): dust control, turf establishment, equipment wash-off systems
- Sediment basin/trap cleanout program (typically when ½ full)
Monitoring Protocols

How Dirty is Dirty?

- Any discharge causing a “nuisance condition.”

Rule of thumb*:
- A discharge within 50 NTUs of the receiving water will not cause a nuisance condition

*Not a regulatory standard. Local regulations may have stricter definition.
Structure Dewatering Methods

- **Method 1**
  - Pumping directed into a temporary sedimentation basin, overflow protection by rock or superduty silt fence system

- **Method 2**
  - Chitosan sock installed in a pump hose section, which shall be directed into a temporary sedimentation basin with outflow protection

- **Method 3**
  - Pump head placed into a barrel with holes and with filter rock

- **Method 4**
  - Pump head or gravity inlet installed on a floating head skimmer

- **Method 5**
  - Pump into a plastic lined dumpster, chitosan treated, floating head discharge

- **Method 6**
  - Sand media particulate filter with inline chitosan sock

- **Method 7**
  - Alternative method designed by an engineer

Jesse Carlson, Bonestroo Rosene Anderlik/Dwayne Stenlund, Mn/DOT
Method 1: Permanent or Temporary Sediment Basin

- Pumping directed into a temporary sedimentation basin, overflow protection by rock or superduty silt fence system
- Hose shall be placed to prevent bottom scour
Structure Dewatering Practices

- Safety should be job 1.
Structure Dewatering Practices

**Method 2: Inline chitosan sock**

- Sediment laden (dirty) water passes over chitosan in the pump line
- Discharged to a temporary sedimentation area
- Repeat until required water clarity is achieved
Structure Dewatering Practices
Dewatering Bag
Structure Dewatering Practices
Temporary Geotextile Sediment Trap
Structure Dewatering Practices
Structure Dewatering Practices

Method 3: Filter Rock Dewatering

- Pump head placed into a barrel with holes and filter rock
- If water is still too dirty; use in-line chitosan sock or discharge to other dewatering BMP
Structure Dewatering Practices

Filter Rock Inlet Detail

1" - 2" DIAMETER CLEAN ROCK.
ROCK IS TO BE PLACED 2 INCHES
ABOVE HIGHEST SLIT IN BARREL.

MUST DISCHARGE WATER TO
AN APPROPRIATE LOCATION
SUCH AS A SMALL SETTLING
BASIN. DO NOT DISCHARGE
TO AN EXISTING SURFACE
WATER.

DEWATERING DEVICE SHOULD BE PLACED
AT THE LOW POINT OF THE AREA TO DRAIN

55 GALLON BARREL
8" DIAMETER PERFORATED PIPE
ROPE ATTACHED TO FLOCULANT LOG
1/8" - 1/4" X 12" SLITS
CUT INTO LOWER
HALF OF BARREL
TRASH PUMP
FLOCULANT SOCK
EXISTING GROUND

IN FLOW FROM TRASH PUMP
ALTERNATIVE TO PLACING FLOCULANT SOCK IN BARREL

SECURE FLOCULANT LOG
TO INSIDE OF PIPE.

TOP VIEW

MUST DISCHARGE WATER TO
AN APPROPRIATE LOCATION
AS NOTED ABOVE

5.5"
Structure Dewatering Practices

Slotted Pipe Pump Inlet
Structure Dewatering Practices

**Method 4: Floating Skimmer**

- Better water quality on the surface of dewatering areas
- May require additional BMPs if desired water quality is not met
Structure Dewatering Practices
Structure Dewatering Practices

Floating pump to water truck
Structure Dewatering Practices

Pumping Stormwater Excess
Structure Dewatering Practices

Dust control
Structure Dewatering Practices

Method 5: Plastic Lined Dumpster

- Pumped into dumpster, flocculated with chitosan, and pumped out with floating head
- Settle until desired water quality is achieved

Chitosan sock in pipe
Dewatering Dumpster Treatment Train

Typical Flocculant Housing Unit:

- **Flow from Membrane Pump Discharge Hose**
- **6" to 12" Diameter Pipe**
- **2" PVC Perforated Pipe" w/ No Sock**
- **Section Flocculant Disk to Coupler Connect by Hose**
- **Cascade System**
- **Trash Pump/ Floating Submersible Pump @ 5 HP**
- **Flock Pipe**
- **Top View**
- **Dewatering Device**
- **Safety Rake**
- **Handle to Attach Rope**
- **Trash Dumpster Bldg. Vacs 100' X 80' X 40'**

Notes:
- **Cascading in Queue System**
- **Hold Discharged Water in Intermediate Storage Tanks Before Discharge to Another Existing Storage Tank**
- **This Drawing is Provisional for Conceptual Purposes Only. Individual Design and Installation of Housing Units Are Site Specific.**
- **For Information Only. Field for As-Lump Sun**

Informational Dewatering Data

Miscellaneous Details

- **Drawn by:**
- **Checked by:**
- **Certified by:**
- **Lic. No.:**
- **Date:**
- **State Proj. No.:**
- **C.T.L.:**
- **She:**
- **Sheet No.:**
Structure Dewatering Practices
Engineered Dewatering Dumpster
Structure Dewatering Practices
Hose inlet with flocculent sock
Slash mulch outlet filter media
Clean discharge
Structure Dewatering Practices

Method 6: Sand Media Particulate Filter with Inline Chitosan Sock

Pictured unit 70-90 GPM
From 1000+ NTUs to 10 NTUs
Structure Dewatering Practices

Method 7. Alternative (Engineer Approved) Methods

- Geotextile liner
- Rock pad
- Rock check
- Sediment Trap
- Safety fence
- Floc socks
Structure Dewatering Practices

Linear Sediment Trap System
Structure Dewatering Practices

Exhausted Linear Sediment Trap
Structure Dewatering Practices
Temporary Compost Filter Trap
Structure Dewatering Practices

20 32 50 110 178 345 412
Basin Draining Practices

- Gravity Dewatering
  - Floating skimmers
  - Slotted risers
  - Filter Weirs

- Treatment Train Approach
  - Multiple BMP’s integrated to clean stormwater discharge
Floating Skimmer Detail

METHOD 1

METHOD 2

NOTES:

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Drainage Skimmer

67 cu. yd./acre

2:1

2:1

4'

1'

5.0' Max.
Treatment Train Treatment
Slotted riser

Figure 4.27 – Sediment Pond Riser Detail
Structure Dewatering & Basin Draining Practices

- Energy dissipation/preventing scour
- Plastic

Dwayne Stenlund, CPESC, MNDOT
Plywood
Geotextile/rock
Existing vegetation
Riprap
Exercise
Dewatering BMPs

What dewatering or basin draining activities typically occurs on site?

What BMPs could be used and where could the treated water be discharged?

Permanent or temporary sediment basin
Inline chitosan sock
Rock barrel method
Floating skimmer
Plastic lined dumpster
Geotextile dewatering bag
Exercise
Dewatering BMPs
Permanent or temporary sediment basin
Inline chitosan sock
Rock barrel method
Floating skimmer
Plastic lined dumpster
Geotextile dewatering bag

Who should be contacted about changing the erosion control, sediment control or dewatering practices plan?