

## DEWATERING

(no.)  
CODE 813



(Source: Illinois Urban Manual Technical Committee)

### DEFINITION

The removal of water from construction sites.

### PURPOSE

The purposes of this practice are as follows:

1. To facilitate construction in areas with surface water or a high water table.
2. To prevent erosion and sediment transport.
3. To provide worksite safety.
4. To prevent pollution of groundwater or surface water.
5. To preserve downgradient natural resources and property.

### CONDITIONS WHERE PRACTICE APPLIES

The practice applies to any construction site (includes any onsite and offsite excavated areas), where the presence of water creates unsafe conditions, potential damage, or restricts construction operations.

Construction sites where water is present in any form, including intermittent runoff, streams, standing

water, ground water, or other bodies of water.

### CRITERIA

Dewatering shall consist of the removal of surface water and/or ground water by diverting and/or removing water from construction sites, within a watershed, as needed to perform the required construction in accordance with the specifications.

All outlets for dewatering discharges shall be stable and protected from erosion.

Diverting Surface Water – Cofferdams, channels, sumps, flumes, and temporary diversions shall be built and maintained, as needed.

Installation of cofferdams and sumps shall follow the requirements as outlined in practice standards [COFFERDAM 803](#) and [SUMP PIT 950](#).

Excess surface runoff shall be diverted from the construction area as outlined in the practice standards [TEMPORARY DIVERSION 955](#), [TEMPORARY SWALE 980](#), [DIVERSION 815](#), and [DIVERSION DIKE 820](#).

A permanent stream or other concentrated flow shall be diverted away from the construction area as

outlined in practice standard  
[TEMPORARY STREAM DIVERSION 976](#).

Removing Water – Drains, sumps, pumps, casings, well points and all other items required to dewater the site shall be furnished, installed and maintained.

Well points and deep wells shall be placed in intervals along the construction area as necessary to depress the groundwater table during construction. Monitor wells shall be installed where measurement of the effectiveness of the pumping is required. Well point and deep well dewatering shall be terminated as soon as practical.

In poorly drained soil areas, or where well dewatering is not practical, pumping directly from the construction trenches shall be allowed.

Erosion and Sediment Control – All dewatering activities shall be done in a manner that does not negatively impact the water quality of the water table or cause erosion or transport sediment or other pollutants.

Sediment removal shall be provided using the following practices or combination of practices depending on the sediment, dewatering method, location, and amount of dewatering:

Where sumps are used, they shall meet the requirements of [SUMP PIT 950](#). In addition, where space is available, [TEMPORARY SEDIMENT TRAPS 960](#) shall be used to detain water and remove sediment from pumping and diversion operations. Where there is limited space a [PORTABLE SEDIMENT TANK 895](#) shall be used to retain sediment from dewatering operations. [POLYACRYLAMIDE \(PAM\) FOR TURBIDITY REDUCTION AND SEDIMENT CONTROL 894](#) may also be used, as appropriate.

Where there is low, intermittent amounts of dewatering, pumps with filtration bags shall be used. Filtration bags shall be attached to pump discharges and surrounded with a secondary containment or on a stabilized area. Filter bags shall not be placed, whole or partially, within aquatic areas (wetlands, streams, etc.)

The material for the filtration bag shall meet the requirements of material specification [592 GEOTEXTILE](#), Table 2, Class I with a minimum tensile strength of 200 lbs. The filtration bag shall be sized per manufacturer recommendations and based on the size of the pump. The largest size pump to be used with a filtration bag shall be 4-inch diameter.

Removal of Dewatering Facilities - The temporary dewatering areas shall be removed after they have served their purpose. The dewatering areas shall be graded and stabilized with appropriate erosion control practices. The dewatering sites after removal shall not create any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.

## CONSIDERATIONS

Federal, state, county and/or local water quality requirements also need to be considered when choosing a dewatering method and may include a requirement for sampling and evaluating discharges for clarity.

Base the location, method of dewatering, and configuration on site conditions. The following items should be considered when selecting the proper dewatering method:

1. Amount of water to remove
2. Maintenance and operation required as a result of the construction operations

3. Length of time to complete the work
4. The space available in the work area
5. Ability to supervise pump operation

Evaluate function, need, velocity control, outlet stability, and site aesthetics. The location and capacity of temporary diversion and protective works should be based on the characteristics of the site, accessibility, and the potential damage during development.

Secondary containment should be considered when the damage that would occur is high if the dewatering method and sediment control measures were damaged or failed.

An analysis of the effects of dewatering a site should also be considered. For example, permanent dewatering of a site may cause subsidence of surface areas and cause settlement cracks in foundations, cracks in pavements and uneven settlement of structures. Also, temporary dewatering may create dry areas during construction but the effect of allowing water tables to rise after construction may result in excess pressure on basement walls causing cracks and excessive or constant sump pump cycling.

## PLANS AND SPECIFICATIONS

Plans and specifications for installing and building dewatering devices shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum include:

1. Approximate location and proposed type of dewatering method shown on plans.
2. Items of work as needed for dewatering.
3. Include the dewatering plan as part of the stormwater pollution

prevention plan (SWPPP) and/or the erosion and sediment control plan, detailing the location of dewatering activities, presence of aquatic areas, equipment, fuel storage, and discharge point.

4. Any total maximum daily load (TMDL) requirements for the receiving waters or turbidity standards should be stated on the plan set.
5. A brief narrative outlining a construction sequence for the dewatering operation should be included.
6. Drawing details as needed for proper installation of the various dewatering items.

All plans shall include installation, inspection, and maintenance schedules with the responsible party identified.

Methods of dewatering shall be constructed to meet the requirements of construction specification [REMOVAL OF WATER 11](#).

## OPERATION AND MAINTENANCE

The frequency of inspections shall depend on the dewatering method, amount of discharge, potential damage, and quality of the receiving bodies of water. The frequency of inspections and specific tasks shall be identified.

1. Inspections shall be conducted to ensure proper operation and compliance with any permits or water quality standards.
2. Accumulated sediment shall be removed from the flow area and temporary diversions shall be repaired, as required.
3. Outlet areas shall be checked and repairs shall be made in a timely manner, as needed.

4. Pump outlets shall be inspected for erosion, and sumps shall be inspected for accumulated sediment.
5. Dewatering bags shall be removed and replaced when half full of sediment or when the pump discharge has reduced to an impractical rate.
6. If the receiving area is showing any signs of cloudy water, erosion, or sediment accumulation, discharges shall be stopped immediately once safety and property damage concerns have been addressed.
7. Sediment shall be disposed in accordance with all applicable laws and regulations.

## **REFERENCES**

Maine Department of Environmental Protection, Bureau of Land and Water Quality. Maine Erosion and Sediment Control BMPs. G-3 Construction Dewatering. Augusta, ME. March 2003.

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