GOVERNMENT OF DUBAI

Trakhees

Guidelines – Dewatering

Issued by: Inspection Department – Operations Section

1.0 Dewatering

Dewatering is the removal of water from solid material or soil by wet classification, centrifugation, filtration or similar solid-liquid separation processes. Removing or draining water from a riverbed, construction site, caisson or mine shaft by pumping or evaporation. This is often done during the site development phase of a major construction project due to a high water table. Usually involves the use of dewatering pumps. Methods of dewatering include: Well Point, Deep Well and Eductor systems.

Dewatering equipment dewaters sludge generated by ceramic manufacturing, porcelain and enamel fabrication, metal plating and finishing, chemical processing, steel mills, paint and paint processes, pharmaceutical manufacturing, meat and food processing, grease and septic haulers and numerous other applications.

2.0 Well Point Dewatering

Under certain conditions, a WellPoint system often proves not only to be an effective means of dewatering, but also an economical one. WellPoint systems are particularly effective in stratified soils or where draw down must be achieved close to bedrock. Features and advantages of WellPoint systems include:

a. Ground water control near ground surface to a dept of up to twenty (20) feet;

b. The ability to dewater/stabilize fine to silty soil conditions;

c. More effective dewatering when clay conditions are present at or near invert; and

d. The ability to install dewatering systems where access with drill rigs is impossible.

3.0 Deep Well Dewatering

This system is beneficial for dewatering to depths at which suction lift limitations prevent the use of well point pumps. Deep wells also offer the ability to control large volumes of water. Other features and advantages of deep wells and the deep well system include:

a. Installation of twenty (20) feet to one hundred (100) feet deep wells;

b. Installation of wells far enough from the excavation so as not to be obstructive;

دائرة التخطيط والتطوير - تراخيص ، ص.ب 2001 ، دبي، إ.ع.م
Dept of Planning & Development - Trakhees, PO. Box, 2001
Dubai - U.A.E
T. +971 (4) 3636 888 هاتف
F. +971 (4) 3636 860 فاكس
Customer.Relationship@trk.pcfc.ae
www.Trakhees.ae
PCFC

c. Ability to penetrate strata impervious to the jetting method of well point systems; and

d. Under proper soil conditions, deep well allow for drainage of large areas.

4.0 Trench Tile Dewatering

This system is beneficial for dewatering to depths at which suction lift limitations prevent the use of well point pumps. Deep wells also offer the ability to control large volumes of water. Other features and advantages of deep wells and the deep well system include:

a. Installation of twenty (20) feet to one hundred (100) feet deep wells;

b. Installation of wells far enough from the excavation so as not to be obstructive;

c. Ability to penetrate strata impervious to the jetting method of well point systems; and

d. Under proper soil conditions, deep well allow for drainage of large areas.

5.0 Groundwater Discharge to the Environment

5.1 Prevention of Adverse Environmental Impacts

a. Discharge of groundwater to the environment, arising from construction site dewatering operations, should not result in any of the following adverse impacts:

- Loss of amenity or significant threat to the beneficial use of receiving waters;
- Harm to native vegetation or animals inhabiting the discharge areas;
- Local flooding, soil erosion and destabilization of structures or services;
- Sediment buildup in drains, waterways or wetlands; and
- Nuisance odors and other hazards that may impact on local communities.

b. All fuel generated equipments used for drilling and dewatering activities must be placed in a secured and bunded area to prevent potential contamination of any land and water bodies.

c. The operation of all dewatering equipments must not pose noise nuisance to near by receptor.

d. Appropriate abandonment procedure must be immediately emplaced after site dewatering works.

e. An accepted notification or No Objection Certificate (NOC) for drilling works must be obtained from related (government and non-government) institutions to ensure clearance from any existing underground facilities.

5.2 Discharge to the Terrestrial Environment

Contractors undertaking groundwater dewatering on inland projects will be required to satisfy the following requirements:

a. Contractors that need to temporarily dispose of groundwater to any offsite locations during construction works on inland projects must submit a completed Groundwater Discharge Permit Application Form to Trakhees prior to the establishment of an open environment discharge point;

b. Groundwater discharge applications must include a laboratory analytical report for an untreated dewatering water sample that is collected during a short-term, recent pumping trial of the proposed dewatering area. The sample must be tested for the suite of water quality parameters. Should the groundwater exhibit a color or strong odor then it may be necessary to analyze a representative sample for additional contaminant parameters. In such cases contractors must seek advise from Trakhees as to which additional analytical parameters to include in the laboratory water quality testing regime;

c. Contractors must implement measures to prevent dewatering discharge to enter protected wetland areas. It is the duty of the contractor to determine through consultation with Trakhees, whether any protected wetland areas are at risk from dewatering operations;

d. Contractors must also implement drainage control measures to prevent dewatering waters from entering poorly defined watercourses, which have the potential to cause flooding of adjoining land and vegetation;

e. Contractors must also ensure that dewatering discharge arrangements are controlled so as not to cause soil erosion or sediment accumulation problems;

f. Wherever possible and subject to the above constraints, contractors are encouraged to explore the following dewatering disposal options:

- On-site Recycling

  In cases where the groundwater quality is suitable for reuse (e.g. for dust control, cooling water systems, wash-down water, or for watering of soft landscape areas). Contractors must confirm that the water quality is acceptable for the intended reuse by firstly contacting Trakhees.

- Groundwater Recharge

In cases where the appropriate conditions are present, including:

⇒ Dewatering water quality complies with relevant indicative water quality criteria;

⇒ There is sufficient area and aquifer storage capacity to recharge without risk to existing vegetation, wetlands, structures or services;

⇒ Measures are taken to prevent entrained fine sediments from clogging the recharge area;

⇒ Recharge will not degrade soil or water resource quality; and

⇒ Recharge will not result in local flooding or adverse land surface impacts.

- Off-site Recycling

  Dewatering water may be provided to a neighboring site for specific use, however this is dependent on:

  ⇒ Water quality complying with relevant, published criteria for the intended water use;

  ⇒ Water is provided under a written agreement between the owners of the two sites; and

  ⇒ Approvals are obtained from the relevant authorities, which have jurisdiction for the sites.

- Water Storage

  This is acceptable where the storage is maintained onsite, in a low seepage rate pond for evaporative disposal.

Other options may be considered subject to site conditions. Proposal should be forwarded to Trakhees for assessment and approval.

g. Where discharge waters may contain significant suspended solid or variable water quality, contractors must install and operate a settling basin / balance tank to remove sediments from the water before discharge.

Note: The type of receiving body of water (e.g., harbour, open sea, etc.) shall be used as to what Water Quality Standards to be referred in comparison of the results of laboratory analysis.