KCS 11 40 35 : 2019

Drainage during Construction

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국토교통부

Foreword

- This standard was organized and integrated as the code by comparing and reviewing duplicate or contradictory content within the existing construction standards (design standards, standard specifications) due to the transition of the construction standards code system.

- This standard is established by integrating and organizing the parts that are related to reinforced concrete culverts in each standard based on the existing Road Construction Standard Specifications. The history of the standards are as follows:

Construction Standard	Main Content	Enacted or Revised (Year.Month)
Road Construction Standard Specifications	• Established by the Korean Society of Civil Engineers commissioned by the Ministry of Construction	Enacted (1967.12)
Road Construction Standard Specifications	• The specifications were improved and revised to become general specifications of overall road work by reviewing the related existing specifications and guidelines that were used and being developed.	Revised (1985.12)
Road Construction Standard Specifications	• The specifications were improved and revised to be better specifications by advancing and complying with the currently used specifications and guidelines, along with the introduction of new theories	Revised (1990.05)
Road Construction Standard Specifications	• The specifications were revised to enhance the international competitiveness and to promote quality improvements of road works by reorganizing the system to cope with the openness of the construction market as a result of the launch of the World Trade Organization (WTO)..	Revised (1996.07)
Road Construction Standard Specifications	• The specifications were re-organized to establish a system of national standards and to reflect the revision of contents and other standards, such as the Korean Industrial Standard (KS) and the Standard Specification of Concrete according to the Construction Standard Organization Guideline, and to improved and revise standards to address the problems.	Revised (2003.11)

Construction Standard	Main Content	Enacted or Revised (Year.Month)
Road Construction Standard Specifications	• The specifications were revised to improve the problems produced during the road construction and to induce reliable constructions through consistency with other standards such as the KS, Standard Specification of Concretes , and Standard Specifications of Tunnels, ensuring the prevention of shoddy and faulty construction thorough quality control.	Revised (2009.03)
Road Construction Standard Specifications	• The specifications were revised to reflect the recommendations from the Central Construction Technology Deliberation Committee and changed the standard specifications, specialized specifications, and design drawings.	Revised (2015.09)
Road Construction Standard Specifications	• Partial, revision including overview, forest and tree protection materials, and general construction works.	Revised (2016.05)
KCS 11 40 35 : 2016	• Integrated and organized to accommodate the code system due to the transition to the code system of construction standards.	Enacted (2016.06)
KCS 11 40 35 : 2018	• Modified to satisfy the Korean Industrial Standards and Construction Standards.	Revised (2018.07)
KCS 11 40 35 : 2019	• Modified to satisfy the Korean Industrial Standards and Construction Standards.	Revised (2019.11)

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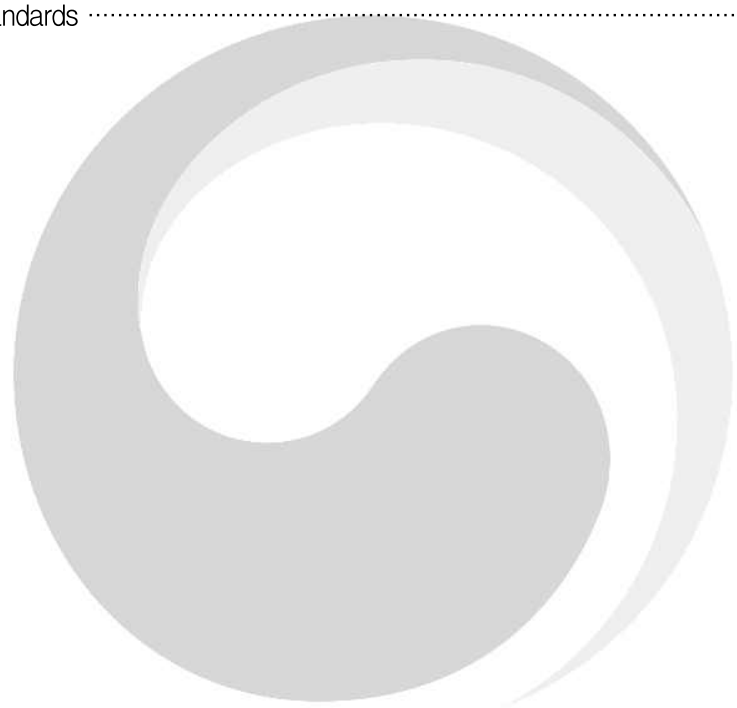

1. Generals

1.1 Scope of Application

(1) This standard is applied to temporary facility constructions and water drain constructions inside cofferdams conducted during excavation work for structure foundations and banking work.

1.2 Reference standards

1.2.1 Related laws

No contents.

1.2.2 Related standards

- KCS 10 10 10 Public administration requirements

1.3 Submission documents

(1) The requirements and procedure of document submission follow the corresponding requirements in KCS 10 10 10.

2. Materials

No contents.

3. Construction

3.1 Construction standards

(1) Embankment waterstop

① The contractor shall pay attention to drainage during banking work to prevent water stagnation on the surface, external inflow water on the inside of the banking section shall be drained.

② When daily work is complete or suspended, the banking compaction surface shall be finished and compacted with the transverse gradient above 4% to facilitate drainage.

③ If works shall be initiated immediately after the stoppage of rain, the construction surface shall be covered with vinyl in advance prior to rainfall thereby preventing the infiltration of rainwater.

④ The runoff surface water due to rainfall or water generated from the soil cut may scour or collapse the banking slope. Thus, temporary drainage facilities shall be installed at the edge of the banking section, and temporary longitudinal drain openings (road waterway) are made using straw bags, burlap bags, or vinyl at the banking longitudinal drain openings (road

waterway) specified in the design drawings or appropriate places that are suitable for runoff to the outside.

(2) Cofferdam waterstop

① The contractor shall install a cofferdam if the aquifer is encountered during excavation work. The sheet pile shall be driven 1m deeper than the foundation bottom, and a measure shall be taken to prevent water leakage.

② The inner dimension of the cofferdam shall have a margin width required for the installation and inspection of the formwork.

③ The contractor shall be careful not to have a rapid water level rise, damage of fresh concrete, or weakening of the foundation due to scouring.

④ Wooden materials such as support post shall not be left inside concrete in the lower structure.

(3) A construction plan document shall be submitted for water drainage work and construction starts after acquiring the approval from the construction supervisor.

① The water drain work inside the cofferdam shall be conducted to not lose concrete materials.

② The water drain work shall continue not only during concrete placement work, but also for at least 24 hours after the concrete placement.

③ A puddle shall be excavated at a suitable location to facilitate water drainage