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NB

**ENERGY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

NB/T 10333-2019

Replacing DL/T 5134-2001

Code for design of on-site roads for hydropower projects

水电工程场内交通道路设计规范

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Foreword

This document was issued on 30 December 2019 by the National Energy Administration of the PRC and takes effect on 1 July 2020.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 27.140, Chinese classification P59.

It replaces DL/T 5134-2001, which is superseded.

NB/T 10333-2019 is an energy industry standard of the People's Republic of China, issued by the National Energy Administration on 2019-12-30 and implemented from 2020-07-01. It supersedes DL/T 5134-2001.

In accordance with the requirements of the Notice of the National Energy Administration on Issuing the First Batch of Energy Sector Standard Formulation (Revision) Plans for 2009 (Guo Neng Ke Ji [2009] No. 163) and the Notice of the National Energy Administration on Issuing the Second Batch of Energy Sector Standard Formulation (Revision) Plans for 2012 (Guo Neng Ke Ji [2012] No. 326), the drafting group revised this code after extensive investigation and research, careful summarization of practical experience, reference to relevant national standards and wide solicitation of opinions.

The main technical contents of this code are: on-site road planning; route; subgrade and pavement; bridge and culvert; tunnel; safety facilities, environmental protection and soil and water conservation.

Main revision: the terms have been added.

Main revision: provisions on the design of the route, subgrade and pavement, bridge and culvert, tunnel, safety facilities, environmental protection and soil and water conservation have been added.

Main revision: Appendix A, on the combination of action effects of special checking loads, has been added.

Main revision: the former provisions on basic design data and on external access transport have been deleted.

Main revision: the former Appendix A to Appendix D have been deleted.

This code is under the administration of the National Energy Administration. China Renewable Energy Engineering Institute proposed it and is responsible for its routine management, and the Nengyuan Hangye Shuidian Kance Sheji Biaozhunhua Jishu Weiyuanhui (energy industry standardization technical committee for hydropower survey and design) is responsible for the interpretation of its specific technical contents.

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1 Scope

NB/T 10333-2019 is the Chinese design code for the on-site roads of hydropower projects, replacing DL/T 5134-2001. The internal road network of a large dam site carries more tonnage than most public highways ever will: fleets of heavy dump trucks moving fill and aggregate, concrete trucks running between batching plant and placement, and transport vehicles carrying turbine runners, transformers and gate leaves weighing hundreds of tonnes - on steep valley sides, often through tunnels, for a decade of construction. The code sets the general provisions and defined terms, then the planning of the network: the division into main and secondary roads, the classification of roads by traffic and by the heaviest vehicle, and the clearance gauges. It covers route selection and alignment design, with horizontal and vertical geometry tabulated by road class and the limits for switchbacks and long steep grades. Subgrade design follows, with cuts, fills and retaining structures on steep slopes and their drainage, then pavement design for heavy haulage. Bridges, including those designed for special heavy transport loads, and road tunnels with their lining, ventilation and lighting have their own chapters. Traffic safety facilities, environmental protection and the conversion of construction roads to permanent use close the code.

1.0.1 This code is formulated with a view to standardizing the design of on-site roads for hydropower projects.

1.0.2 This code is applicable to the design of on-site roads for hydropower projects.

1.0.3 On-site roads for hydropower projects shall be planned in an overall manner and arranged reasonably so as to meet the traffic and transport needs of hydropower project construction and operation. Road design shall be safe and fit for purpose, technically advanced and economically reasonable, and shall comply with the requirements of environmental protection, soil and water conservation, and energy saving and consumption reduction.

1.0.4 In addition to this code, the design of on-site roads for hydropower projects shall also comply with the current relevant national standards.

2 Terms

2.0.1 on-site road: road built for the construction and the operation management of a hydropower project, which connects the headworks structures with the main construction work areas, material sources, spoil disposal areas and production and living areas inside the project area, and which carries the construction transport inside the project area and the transport for the operation management of the power station.

2.0.2 on-site major road: on-site road connecting the main headworks structures of a hydropower project with the main construction work areas, material sources, spoil disposal areas and production and living areas.

2.0.3 on-site minor road: on-site road connecting the major roads with the construction work faces.

2.0.4 vehicle line load: vehicle load formed by the main vehicle types used for transport during the construction period of a hydropower project, arranged in a specified pattern.

3 On-site road planning

3.1.1 The planning of on-site roads shall reasonably arrange the roads serving structure construction, material sources, spoil disposal areas, main auxiliary construction facilities, production and living areas, etc., according to the requirements that the headworks layout, the general construction layout and the overall construction schedule of the hydropower project place on on-site transport, and shall make reasonable use of existing roads.

3.1.2 The planning of on-site roads shall meet the transport requirements for heavy and oversize items such as electromechanical equipment, metal structures and construction machinery, and shall be reasonably connected with the external access transport.

3.1.3 On-site roads combined with local traffic shall also comply with the relevant requirements for local highways.

3.1.4 On-site roads may be divided into on-site major roads and on-site minor roads according to their task, function, transport volume and other conditions.

3.2.1 On-site major roads shall be planned in an overall manner, arranged and reasonably connected according to the general construction layout and the construction scheme. According to their function, on-site major roads may be divided into material source haul roads, haul roads for spoil disposal areas and temporary stockpile areas, dam access roads, powerhouse access roads, connecting roads for production and living areas, and connecting roads for other main structures and main construction work areas, etc.