

GENERAL SPECIFICATIONS FOR IRRIGATION CONSTRUCTION

R01

CONTENTS

A. OBJECTIVE OF THE SPECIFICATION	1
B. GENERAL PROVISIONS	1
C. DOCUMENTS TO BE PREPARED BY THE CONTRACTOR	8

A. OBJECTIVE OF THE SPECIFICATION

This Specification has been prepared to determine the general provisions for projects involving Irrigation Construction.

B. GENERAL PROVISIONS

1. The cost of fulfilling the provisions included in this specification is deemed to be included in the bid unit prices unless otherwise stipulated in the contract and its annexes, no additional payment and/or amendment to the existing bid prices shall be requested.
2. Except for the passing prices, all kinds of charges, taxes, stamps, etc. to be paid to public institutions and organizations (General Directorate of Highways, General Directorate of Land Registry and Cadastre, TEDAŞ (Turkish Electricity Distribution Corporation), TEİAŞ (Turkish Electricity Transmission Corporation), BOTAŞ (Petroleum Pipeline Corporation), Provincial Special Administration, Municipalities, etc.) during the execution of the work shall be borne by the Contractor.
3. All expenses of any kind of tests to be carried out on site and in the manufacturer's facilities, as well as any expenses and costs that may arise in case of repetition of the tests, shall be borne by the Contractor.
4. Before commencement of work, the alignment shall be inspected by the Contractor and the aboveground and underground facilities (existing drinking water network, sewerage networks, telephone line, power transmission line, natural gas pipeline, petroleum pipeline, village road crossings, etc.) shall be identified. No damage shall be caused to the existing aboveground/underground lines and facilities belonging to other institutions and organizations during the execution of work. If the Contractor causes damage to the relevant infrastructure facilities aboveground and underground, the damaged and deteriorated facilities shall be repaired and restored in accordance with technical and hydraulic rules, and all kinds of losses and damages arising from the disruption of the infrastructure services of other Administrations shall be compensated.

5. In all kinds of works to be carried out within the scope of the work, all necessary measures to ensure occupational worker health and work safety in accordance with the legislation in force shall be taken by the Contractor, and the “General Directorate of State Hydraulic Works Regulation on Protective Security Measures for Hydraulic Structures” and the related Implementation Guide shall be complied with.
6. All kinds of works to be carried out within the scope of the work shall be performed in compliance with the relevant provisions included in all regulations enacted pursuant to the Environmental Law No. 2872 dated 09.08.1983.
7. In excavation and filling works, The Contractor shall dispose of any kind of excavated soil and construction and demolition waste considered under the “Regulation on the Control of Excavated Soil, Construction and Demolition Waste,” which entered into force upon being published in the Official Gazette dated 18.03.2004, by means of reduction at source, collection, temporary storage, transportation, recovery, evaluation and permanent storage methods, in compliance with the above-mentioned regulation and in such a way as not to cause harm to the environment. During the disposal of excavated soil and construction and demolition waste, the relevant legislation and the provisions set forth in the permits, approvals, and documents obtained in accordance with the legislation shall be observed.
8. All materials excavated shall be under the ownership of the Administration and at the disposal of the State. The Contractor shall separate, sort, and store these materials in the manner required by the Administration. Extracted mineral and any valuable or antique items unearthed shall also be deemed State property, and in case of such discovery, the Administration shall be informed immediately. Such materials shall be preserved by the Contractor.
9. In all works to be performed within any protected area, all necessary permits, licenses and other relevant documents to be obtained from all relevant public and private institutions, organizations, commissions, and boards shall be obtained by the Contractor. All historical artifacts and valuable cultural assets to be found during excavations, after the suspension of excavation and with the approval of the Construction Audit Engineer shall be promptly reported to the relevant public institution and organization, and valuable assets shall be delivered to the relevant institution.
10. In order to ensure safe working conditions in terms of life and property safety during all excavation works and trench forming, all necessary safety measures (shoring, sheet pile, reinforcement, dewatering, etc.) shall be taken by the Contractor.
11. Excess filling material excavated shall not be left on the trench (except for settlement

allowance) or on the route side (unless otherwise specified in the project). Unless permitted by the Administration, no operation and maintenance road larger than the project section shall be constructed using the excess filling material excavated. The excavated materials not suitable for use in fills shall be placed in the storage areas designated by the Administration. For storage areas, including those before the relevant public institutions and organizations, all procedures (application, license, operating certificate, emission report, EIA, GSM, all kinds of charges and expenses, appointment of technical supervisor, etc.) shall be carried out by the Contractor. However, in the storage areas to be designated by the Administration, expropriation or ownership allocation procedures shall be carried out by the Administration.

12. Commencement and completion plans and sections of the storage areas where the excavated material is dumped and the quarry areas from which filling material is obtained shall be submitted to the Administration. When deemed necessary by the Administration, the Contractor shall prepare a recovery and rehabilitation project for storage areas and quarries. The manufacturing required for this project shall be carried out by the Contractor.
13. Outside the material pits indicated in the Geotechnical Survey Report (in cases where the pits are insufficient or the material is found unsuitable, etc.), the Contractor may procure tuvenan, sand-gravel, crushed rock, stabilize and similar construction materials from material pits or suppliers deemed suitable by the Administration, provided that they comply with the specifications and standards required in the contract and annexes. In the production and/or procurement of raw materials, for the purpose of licensing and operating these material pits on behalf of the Administration in accordance with the “Mining Law Implementation Regulation,” “Mining Activities Permit Regulation” and other applicable legislation in force, all procedures required to be performed on behalf of the Administration (application, license, operating certificate, emission report, EIA, GSM, ownership permit, appointment of technical supervisor, etc.) shall be carried out by the Contractor. In raw material production, the procedures and principles set forth in the General Directorate of DSI Circular No. 2009/8 dated 03.04.2009 shall be complied with. The Contractor shall perform all these procedures under the direction and supervision of the Administration, and the Administration shall provide the necessary facilitation.
14. For initial access to the construction site, existing roads and facilities shall be used. For reaching the project site or for the supply of all kinds of materials to be included in the construction and manufacturing on site, the construction, maintenance and operation of all kind of necessary roads, temporary service roads and roads leading to material pits shall be carried out by the Contractor.

15. The Contractor shall establish the construction site facilities at the locations mutually agreed with the Administration. The Contractor shall establish offices for the Administration and the Contractor's supervision personnel, engineers, construction site meetings, etc., warehouses for equipment and materials, construction site testing facilities, construction site workshops, and other facilities to meet the construction site needs of the Contractor and subcontractors. The Contractor shall install an informative construction sign at the entrance of the construction site that complies with applicable regulations and standards.
16. During road crossing manufacturing, demolition, dismantling, and reconstruction shall not disrupt traffic flow; at the heads of roads or sidewalks, signs indicating whether the section is passable shall be placed, and where necessary barriers or watchman shall be provided; in urban and rural areas, illuminated signs shall be placed at these sections at night.
17. All construction materials required (cement, aggregate, water, reinforcement steel, steel profile, sheet, GRP, PE100, steel, etc. pipes and fittings to be used in the construction of hydraulic structures and not provided by the Administration, water control equipment and components and fittings, etc.) shall be supplied by the Contractor, provided that they comply with the specifications required in the contract, technical specifications and annexes.
18. For all pipes, electrical and mechanical parts, a TSE conformity certificate shall be required. Manufacturers producing these products shall have a Manufacturer Conformity Certificate obtained from DSİ in accordance with the current Circulars. The Contractor shall notify the Administration in advance of the factory from which it will supply the materials and the material specifications and shall not place an order without the approval of the Administration. After the factory tests deemed appropriate by the Administration, the materials shall be dispatched to the construction site. Materials found unsuitable in the factory tests to be carried out by the Administration shall not be accepted.
19. For PE100 pipes and fittings, if the test samples taken from the construction site according to the criteria specified in the specification are found appropriate in the test results carried out in DSİ laboratories or in an independent laboratory accredited for all tests required by the specification by TURKAK under TS EN ISO/IEC 17025 and deemed appropriate by the Administration, manufacturing shall be commenced. Materials found unsuitable in the tests shall not be accepted and shall be immediately removed from the construction site by the Contractor.
20. The Construction Audit Officer is authorized, when deemed necessary, to control or have controlled, at each stage of manufacturing, the quality of the materials used together with the quality of production. The samples necessarily taken during the manufacturing stage,

may be delivered to DSI Laboratories and/or to an accredited laboratory of another organization to be deemed appropriate by the Administration, and it may be required that they be subjected to the necessary inspections and tests to determine that they possess the features required in the technical specifications.

21. All kinds of laboratory equipment, materials, workmanship, energy cost, water, compressed air, etc. required for all tests and examinations needed to be carried out at the workplace shall be provided by the Contractor. For this purpose, provided that plumbing and outbuildings are available and in such a size and manner as to ensure the execution of laboratory services without any hitch, the Contractor shall allocate a suitable place within the construction site facilities. For this purpose, one laboratory building and office shall be constructed at the construction site, and one laboratory technician shall be assigned to the Administration's service.
22. The test and examination results for all kinds of materials shall be included in the Progress Payment reports.
23. Pipe installation shall be constructed together with its network from upstream to downstream in the order of priority to be given by the Administration. Thus, it shall be possible to put the completed sections into operation. The productions shall be carried out in accordance with the work program approved by the Administration.
24. During the course of the work, the energy (electricity, generator, etc.) needs required for the construction site shall be met by the Contractor. The Contractor shall provide communication facilities (telephone, radio, fax, internet connection, computer, etc.) sufficient to ensure the construction site's communication with the outside.
25. The water and drinking water required for the execution of the works shall be supplied by the Contractor. Drinking water shall be clean and hygienically safe and its quality shall not be affected by construction activities. Wastewater shall not be discharged into any watercourse without treatment. All kinds of measures related thereto shall be taken by the Contractor.
26. Work progress reports shall be prepared each month in accordance with the requests of the Administration and shall be delivered to the Administration in digital and printed form, including photographs. Each month, by marking the progress and current status of the works on the General Layout Plan in different colors, the Contractor shall take at least 20 photographs from the locations requested by the Construction Audit Engineer, assign to each photograph a number starting from 001 in a regularly increasing manner, and write on a white background in the lower right corner of the photograph the name of the line where the photograph was taken, the route kilometer, the name of the structure, and the date of

shooting. The photographs prepared shall be printed in color on glossy A4 paper of at least 160 g with two images per sheet and shall be submitted to the Administration together with the digital copy as an annex to the work progress report.

27. Photographs to be taken showing the pre-construction conditions of the construction sites and the stages during the execution of the work, video and camera recordings, problems encountered and solutions provided, etc. shall be compiled into an album, and additionally, a short film of not less than 5 minutes shall be prepared and submitted to the Administration before the provisional acceptance. If deemed unsuitable by the Administration, they shall be corrected as requested and resubmitted to the Administration as soon as possible, and following approval, the request for provisional acceptance shall be considered. If requested by the Administration, the model of the work shall be made by the Contractor in accordance with the current principles regarding model making and delivered to the place to be indicated by the Administration.
28. Concrete and/or reinforced concrete to be used in accordance with the criteria in the project and technical specifications shall be supplied by the Contractor from a ready-mixed concrete factory. In other cases approval shall be obtained from the Administration for concrete production. While determining the mix ratios of the materials (aggregate, cement, water, admixture, etc.) to be used in the manufacturing of concrete and/or reinforced concrete in accordance with the Technical Specifications, the approval of the Administration shall be obtained.
29. On both sides of all reinforced concrete structures visible from the operation and maintenance road, the structure name, number, line name, and kilometer information shall be written using a stencil with RAL 6026 color paint, with a letter and numeral height of 250 point.
30. In case the standards or specifications of the materials included in the construction and manufacturing during the course of the work change, the matter shall be evaluated within the framework of the contract conditions, and the new materials meeting the requirements of the project and technical specifications according to the new situation shall be used with the approval of the Administration.
31. For the operation of the irrigation facility as a whole, including the pumping system, pressure reducing valve and other important structural elements, an operation and maintenance instruction shall be prepared in the format requested by the Administration, in accordance with the “Irrigation Facilities Operation Instruction” annexed to the “Pre-Operation Commissioning Technical Specification for Irrigation Constructions,” the “Pressurized

Irrigation Operation Instruction,” and the “Operation and Maintenance Instruction for Structures of Piped Irrigation Network.”

32. In the construction of the irrigation network; due to reasons such as the parcel owners slowing down or preventing the work, not giving consent, delays in expropriation procedures, the route passing through protected areas, etc., and for any damage and loss that may occur due to these reasons, the Contractor shall not request additional payment or any change in the prices forming the basis of payment.
33. All procedures regarding delivery, deposit, guarantee, etc. of the materials to be delivered by the Administration to the construction contractor shall be carried out in accordance with the “Central Government Accounting Regulation” published in the Official Gazette dated 27.12.2014 and the “Movable Property Regulation” published in the Official Gazette dated 18.01.2007.
34. All mechanical equipment and metal parts in the hydraulic structures shall be painted in DSI green (RAL6026) in accordance with the relevant specification (“DSI Painting Works Technical Specification,” “General Technical Specification for Water Control Equipment,” etc.). The outer surfaces of the metal parts embedded in concrete shall be painted with epoxy prime colour with a dry film thickness of 20 microns.
35. During the construction period and after the completion of the work, along the pipelines in all closed irrigation systems, warning signs shall be placed every 500 m in accordance with the current regulations, indicating that vehicle passage is prohibited and agricultural activities cannot be carried out.
36. Before the final backfill is made in the pipe trench, along the line, parallel to the axis of the trench to be closed, a safety tape 200 mm wide and 40 microns thick, made of polyamide base, with a repeating expression “DİKKAT SU BORUSU” (CAUTION WATER PIPE) and DSI logo in 400 point on a white background, shall be placed.
37. In irrigation renovation constructions, each existing structure to be dismantled shall be recorded in the attachment book. The dismantled structures shall be presented in a table showing km, number and length information. The measured quantity shall be calculated in the attachment book. For productions not recorded in the attachment book in this way, no payment shall be made. Incomplete attachment books or those not in compliance with the current legislation of the Administration shall not be accepted.
38. In irrigation renovation constructions, if close to road or residential areas, protection curtains shall be built around the demolished structure or facility; if necessary, shoring, support and protective measures shall be taken.

39. In irrigation renovation constructions, the existing open canals in the irrigation area that are in operation but into which pipes will not be installed shall be arranged, filled, cleaned, etc., in a manner suitable for agricultural activities.
40. In irrigation renovation constructions, temporary structures such as energy dissipating valve/impact beam required for the continuity of irrigation shall be constructed by the Contractor.
41. In case automation is applied in irrigation systems; the Contractor shall deliver to the Administration in two sets on USB memory stick the pumping and irrigation system operation program, PLC/SCADA, etc. automation software together with source codes and licenses. This memory stick shall also include the user manual in Turkish, software flow chart, hardware requirements, data structure, data dictionary, and ladder diagram. The copyright and usage rights of the submitted documents and codes shall belong to DSİ.

C. DOCUMENTS TO BE PREPARED BY THE CONTRACTOR

1. During the period between the preparation of the project and the construction works, any revised project works that may be required due to new developments occurring in the irrigation area or additionally required, and construction projects, shall be prepared by the Contractor.
2. The projects to be prepared by the Contractor shall be carried out in accordance with the printed project criteria of the General Directorate of DSİ and the current general technical specifications announced at <https://www.dsi.gov.tr/Sayfa/Detay/740>, and by the project designer to be approved by the Administration.
3. In case a project revision is required; all kinds of geological survey, drilling and tests, together with their reports, which will serve as a basis for the construction projects, shall be carried out by the Contractor.
4. All documents, drawings, reports, technical information, etc. obtained during the end project and construction project stages shall be produced, archived and delivered in digital format by the Contractor, to the Administration in the format requested by the Administration in accordance with the applicable circulars for more effective use of Geographic Information Systems (GIS). In addition, during the project design, the location information (x, y, z), maps and map information of all structures aboveground and underground shall be delivered digitally to the Administration in compliance with the “Regulation on the Production of Large-Scale Maps and Map Information” and the “DSİ General Technical Specification for the Production of Maps and Map Information,” in a manner that will serve as a basis for the

GIS drawings.

5. At the end of the work, based on the final hydraulic solutions of the irrigation network to be put into operation and the dynamic pressures generated; a 1/25,000 scale (for operational purposes) pressure map showing in different colors the pressure zones of the areas where free flooding irrigation (medium pressure), drip irrigation and sprinkler irrigation can be applied shall be prepared and submitted to the approval of the Administration.
6. Plans, projects, reports and other documents prepared by the Contractor and submitted to DSI shall be the property of DSI. The Contractor shall not provide these documents to others nor make written or oral publications about them without the written permission of DSI.