

Major Revisions in January 2022 Edition of the HRSD  
Design and Construction Standards

Section	Title	Revision Summary
1	Introduction	<p>New paragraph added under C. Project Delivery Methods:</p> <p>These Design and Construction Standards were first developed when the traditional Design-Bid-Build project delivery was the recognized means of accomplishing HRSD’s capital program. Although HRSD has adopted forms of alternate or collaborative project delivery, these Standards still are primarily to provide FIRMS guidance on preparation of Bid Documents for Design-Bid-Build project delivery and to provide expectations for the FIRM throughout the life of these delivered projects. Sections of these Standards may be appropriate for Design-Build (DB) project delivery and Construction Management (CM) project delivery with permission from the responsible HRSD Project Manager. FIRMS must exercise caution when using these Standards and providing or referencing these Standards for DB project delivery to properly balance between prescriptive, performance, and preference elements.</p>
4	Monthly Project Status Reporting	<p>Revised paragraphs under both B and C as follows:</p> <p>For Capital Projects – submit via HRSD’s Enterprise Project Management (Unifier) system.</p> <p>For Non-Capital Projects – submit via HRSD’s Enterprise Resource Planning (ERP) system.</p>
5	Capital Project Cost, Schedule and Risk Reporting	<p>Revised language under A. Introduction to clarify HRSD’s interpretation of how AACE OPCC estimates at various development levels to be used for capital projects.</p>
6	Drawings, Record Drawings and Valve Guides	<p>Revised language under A. Introduction:</p> <p>The FIRM must submit an electronic copy of the final record drawings in .DWG and .PDF at the final project completion stage.</p>

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6	Drawings, Record Drawings and Valve Guides	Revised language under B.5.f:  For pipeline projects, at the conformed stage, the FIRM shall provide to HRSD a single AutoCAD file (.DWG) containing the proposed HRSD infrastructure (also referred to as a “seamless file the .DWG file must capture the proposed HRSD infrastructure at its true State Plane Coordinates (as specified herein).
6	Drawings, Record Drawings and Valve Guides	Revised requirement under C.1.j:  No individual file should exceed 20MB.
8	PER, Design, and Construction Submittal Requirements	Attachment A – the following new requirements have been incorporated: <ul style="list-style-type: none"> <li>• 50% Design BIM (Vertical Projects)</li> <li>• 90% Design Drawings</li> <li>• 100% Design Drawings</li> <li>• Conformed Documents</li> <li>• Final Record Drawings</li> </ul>
10	Flood Elevation Requirements	Paragraph F was added as follows:  HRSD is developing further climate change guidance. Please contact Engineering Planning and Analysis Division for additional interpretation of the flood elevations by sending in a request to the <b>ModelingRequest@hrsd.com</b> email with a project description and location map.
11	Public Participation Program	Additional forms and templates have been incorporated as attachments to this section.
14	Coordination of Preconstruction Phase Items	This section has been updated in its entirety with new requirements.
15	Preparation of and Format for Construction Addenda	This section has been updated in its entirety with new requirements.

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18	Expectations for Construction Administration and Construction Inspection	<p>The following new expectations have been incorporated: E. General Procedures</p> <p>For Virginia Clean Water Revolving Loan Fund (VCWRLF) projects, FIRM to review and approve Contractor submittals related to the American Iron &amp; Steel requirement as well as maintain documents, certifications and tracking system for VDEQ audits if requested.</p> <p>For Virginia Clean Water Revolving Loan Fund (VCWRLF) projects, FIRM to review, approve, and retain documents related to the Contractor’s compliance with the Davis Bacon wage classification requirements and submit wage certifications from Contractor’s payment requests to VDEQ.</p>
24	Pipelines and Appurtenances	<p>The following new language is included under paragraph C.1.n.v.</p> <p>In the case of existing unrestrained pipe at tie-in locations, on a case-by-case basis the design team shall carefully consider the application of thrust restraint to the unrestrained pipe.</p>
31	Treatment Plant	<p>The following new paragraph has been incorporated under A.1.c:</p> <p>Side Stream Treatment: The processes which treat liquid recycles from the solids handling process to reduce nutrient or inhibitory compound loading at the head of the plant</p>
31	Treatment Plant	<p>The following new paragraph has been incorporated under E.6:</p> <p>Submit equipment removal plan for all major process equipment at 60% and 100% submittal stages.</p>

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31	Treatment Plant	The following new paragraph has been incorporated under H.1.c:  <ul style="list-style-type: none"> <li>ix. Attach tracer wire to pipe and install buried utility warning tape approximately 18 inches above pipelines.</li> <li>x. Tubing runs shall be continuous between manholes.</li> </ul>
31	Treatment Plant	The following new sentence has been incorporated under H.7.b:  Provide a tank vent to an appropriate discharge point. One option for the discharge location of this vent is the odor control scrubber system duct.
31	Treatment Plant	The following new paragraph has been incorporated under I.12:  Locate drain valves for ease of access, maintenance, and replacement. Avoid buried valves where possible.
31	Treatment Plant	The following new sentence has been incorporated under M.1.a:  Backflow preventer is required when potable water is used.
31	Treatment Plant	The following new sentence has been incorporated under M.3:  Select material of construction considering specific installation environment conditions.
31	Treatment Plant	The following sentence has been removed from Paragraph P.1.b.  Limit the first stage maximum influent H <sub>2</sub> S concentration to 75 ppm.
31	Treatment Plant	The following sentence has been removed from Paragraph P.2.b.iii.  Sulfide Levels – Provide for a maximum sulfide concentration of 75 ppm at any point in the scrubber ductwork or scrubber influent so as to:

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31	Treatment Plant	The following sentence has been removed from Paragraph R.2.i.  Scum pump must not be hard piped to allow for easy removal during maintenance.
31	Treatment Plant	The following sentence has been removed from Paragraph U.2.  Scum is highly corrosive to carbon steel. PVC or HDPE is preferred.
31	Treatment Plant	The following sentence has been incorporated into first paragraph of V.2.  The addition of septage or FOG receiving may be based on beneficial use of these products in the treatment process, or by lack of other receiving options within a reasonable transport distance.
31	Treatment Plant	The following sentence has been incorporated into third paragraph of V.2.  Provide sloped bottom and center collection point to allow for complete emptying.
31	Treatment Plant	The following sentence has been incorporated into Paragraph AA.1:  Select pipe material taking into consideration the soil conditions and corrosivity. Provide pipe protection as appropriate.
31	Treatment Plant	The following sentence has been incorporated into Paragraph CC.1:  The FIRM shall populate template provided by HRSD for review and acceptance.
32	Electrical and Instrumentation	This section has been revised and added to extensively, therefore a careful and comprehensive review of this section is warranted by users of these standards and requirements. HRSD is aware of formatting issues in this section that will be corrected in a future publication of these standards.

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32	Electrical and Instrumentation	<p>Significant revisions to this section include the following:</p> <ul style="list-style-type: none"> <li>• New SCADA information and flowchart for Pump Stations in Exhibit L.</li> <li>• Duct bank updated information for Pump Stations in Exhibit J.</li> <li>• Short circuit, coordination, and arc flash study expectations - SKM Power Study Specification expanded upon for Pump Stations and Treatment Plants in Exhibit A.</li> <li>• Harmonic Filters (active and passive) for Pump Stations and Treatment Plants revisions in Exhibit C.</li> <li>• Load Bank Test Boxes for Pump Stations has been revised regarding ESL Power (Triple Switch) in Exhibit B.</li> <li>• Electrical rooms with small footprint for Pump Stations and Treatment Plants added language “The size of the electrical gear is based on the ampacity of the bus within. Typically, electrical rooms are designed to accommodate equipment layout without future considerations for growth, therefore electrical buildings should be sized adequately to accommodate where wall space is needed for future equipment.”</li> <li>• Regarding Dominion Energy, secure voltage (1-ph or 3-ph), rout, and easements during PER phase for Pump Stations and Treatment Plants. Additional information in Exhibit K.</li> <li>• Electrical rooms regarding HVAC for Pump Stations and Treatment Plants – Electrical rooms should be conditioned to increase the life of sensitive electrical and electronic equipment. Thermostat should be set up to 80 F to control condensation/moisture. Also include a hydrogen sulfide (H2S) removal system if needed.</li> <li>• Pump Station sites without generator – provide battery charger and batteries to maintain reliability.</li> <li>• Emergency generators for Pump Stations and Treatments Plants – updated standards with new Veeder Root Model TLS 300/350 to TLS 450 for underground storage tank monitoring.</li> </ul>

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32	Electrical and Instrumentation	<p>Significant revisions to this section include the following:</p> <ul style="list-style-type: none"> <li>• Updated remote operator sections for Pump Stations and Treatment Plants – Exhibits M and N added.</li> <li>• Updated lighting sections to include LED only and remove non-LED technologies for Pump Stations and Treatment Plants.</li> <li>• Added Ashcroft to Red Valve pressure seals with Viton boot for Pump Stations and Treatment Plants.</li> <li>• Limitorque valve actuators added for Pump Stations and Treatment Plants.</li> </ul>
35	Standards for Capital Improvement Projects that Involve Construction Dewatering Activities	Contact information has been updated in Paragraph E for VDEQ.
36	Standard Details	<p>Revisions and additions incorporated for the following listed Standard Details:</p> <ul style="list-style-type: none"> <li>• Detail 328 updated for American Iron and Steel Requirements</li> <li>• Detail 330 updated for American Iron and Steel Requirements</li> <li>• Detail 351 updated for American Iron and Steel Requirements</li> <li>• Detail 646 A/B has been deleted.</li> </ul>
37	Suggested Division 1 Items	Numerous deletions from the table in Paragraph B have been made that were no longer applicable.
38	Front End Documents	<p>The following revision has been incorporated in Paragraph B.2:</p> <p>Forward to Project Manager for review then forward to HRSD’s Contract Specialist for final typing.</p>
38	Front End Documents	<p>The following revision has been incorporated in Paragraph B.3:</p> <p>Verify the project title, CIP Project Number (if applicable) and the date (month and year) on the drawings and technical specifications. The date (month and year) appears on the specification cover.</p>

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38	Front End Documents	The following revision has been incorporated in Paragraph B.6.a:  If unit prices apply, provide a bid summary sheet and verify unit of measurements match in the bid summary, Opinion of Probable Construction Cost, and Measurement and Payments technical specifications section.
38	Front End Documents	The list of front-end documents in Paragraph C has been updated and incorporated.
38	Front End Documents	The following revision has been incorporated in Paragraph D.1.g:  Work with HRSD’s Project Manager if VCWRLF and/or WIFIA program requirements should be included.
38	Front End Documents	The following revision has been incorporated in Paragraph D.1.i:  HRSD usually advertises on Monday using HRSD’s Website, HRSD’s Enterprise Resource Planning (ERP) system, and Virginia’s eProcurement Marketplace (eVA) system.
38	Front End Documents	The following revision has been incorporated in Paragraph D.2.a:  Work with HRSD’s Project Manager if VCWRLF and/or WIFIA program requirements should be included.
38	Front End Documents	The following revision has been incorporated in Paragraph D.2.j:  Article 27 – Work with HRSD’s Project Manager if VCWRLF and/or WIFIA program requirements should be included.



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38	Front End Documents	The following revision has been incorporated in Paragraph D.3.h and D.3.i:  h. Paragraph 7.01.A.7– List number of Drawings and Project title. i. Paragraph 7.01.A.11– List other exhibits to this Agreement, if needed.
38	Front End Documents	The following previous sentence under Paragraph D.4 has been deleted:  Paragraph 2.02 - No longer needed, standard will now be 4 copies.
38	Front End Documents	The following previous sentence under Paragraph D.4.i has been deleted:  No longer needed, updated standard to have it as Engineer.
38	Front End Documents	Attachment A – EJDC Document Sections:  An updated version of the EJDC has been incorporated.
40	Master Specification Sections	Specification 01040 – Coordination:  Paragraph 1.5 has been revised to direct the Contractor to use HRSD’s Unifier Enterprise Project Management System in lieu of HRSD’s Enterprise Resource Planning (ERP) System for financial related matters.
40	Master Specification Sections	Specification 01060 – Special Conditions:  Reference to use of HRSD’s Enterprise Resource Planning (ERP) System has been removed from this document.
40	Master Specification Sections	Specification 01340 – Submittals: Revision to Paragraph 1.2.C.2.o. as follows.  Virginia Clean Water Revolving Loan Fund (VCWRLF) American Iron & Steel (AIS) certification <i>{if applicable}</i>

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40	Master Specification Sections	<p>Specification 01340 – Submittals:</p> <p>New Paragraph 1.4.F as follows.</p> <p>American Iron &amp; Steel (AIS) Required Submittals under the VCWRLF Program <i>[where applicable]</i></p> <p>For all Virginia Clean Water Revolving Loan Fund projects, and in accordance with the American Iron and Steel requirement, except otherwise specified, all iron and steel products including but not limited to manhole frame and covers, valve box frame and covers, miscellaneous steel items such as fasteners, nuts, bolts and washers to be permanently incorporated in the work shall be domestically produced in the United States of America. Therefore, "domestically produced" means all manufacturing processes must occur in the United States of America. Manufacturing processes are defined as any process which alters or modifies the chemical content, physical size or shape or final finish of iron or steel material such as rolling, extruding, bending, machining, fabrication, grinding, drilling, finishing, or coating whereby a raw material or a reduced iron ore material is transformed into a steel or iron item that differs from the original material. For the purposes of satisfying this requirement "coating" is defined as the application of epoxy, galvanizing, painting or any other such process that protects or enhances the value of the material.</p>
40	Master Specification Sections	<p>Specification 03700 – Concrete Rebuild</p> <p>Revisions have been incorporated into Paragraph 1.4 Reference Standards.</p>
40	Master Specification Sections	<p>Specification 03700 – Concrete Rebuild</p> <p>The following revision has been incorporated into Paragraph 1.5.J.</p> <p>Welding Specialist: A Certified Welding Inspector (CWI) as per the AWS D1.1/D1.1M:2020.</p>
40	Master Specification Sections	<p>Specification 03700 – Concrete Rebuild</p> <p>The following previous sentence under Paragraph 1.6.B.8.a.2) has been removed.</p> <p>If chemical analysis and carbon equivalent of reinforcing bars is not known, use pre-heat temperature of 300 to 500 degrees F and E7018 electrodes.</p>

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40	Master Specification Sections	<p>Specification 03700 – Concrete Rebuild</p> <p>Paragraph 1.7.H.3.a. has been revised as follows.</p> <p>Six 3-inch diameter by 6-inch-long cylinders, or Six 4-inch diameter by 8-inch-long cylinders should the coarse aggregate size exceed 3/4 inches will be made and cured in accordance with ASTM C31. The number of required sets shall be in accordance with the Table 1 of this Specification.</p>