

IMPERIAL ROAD DESIGN MANUAL
REVISIONS JULY 2006

CHAPTER 1B

- Pages 1B-1, 1B-3, 1B-4, 1B-5 – Revised Principal Abbreviations.
- Pages 1B-17 & 1B-19 – Revised Plan Abbreviations.

CHAPTER 1C

- Page 1C-8 – Added Systems Operations Regions Map.

CHAPTER 1D

- Page 1D-1 - Revised reference to Chapter 2G and Replaced “Construction Division” with “Scheduling and Contracts Division”.

CHAPTER 1E

- Page 1E-2 – Deleted the following language: “The items that have an asterisk beside them indicate items to be reviewed to check the constructability adequacy of the plans” and Revised Quality Assurance Section to Quality Management, Assurance and Compliance (QMAC) Section.

CHAPTER 2A

- Page 2A-2 – Replaced “Resident Engineer” with “District Construction Engineer”.
- Page 2A-3 – Revised the reference from Section 2D-9 to Section 2E-6 - PREPARATION OF SUPPLEMENTAL SHEETS and Revised instructions regarding the assignment of “B” and “D” Structure Numbers.
- Page 2A-4 – Revised the reference from Section 2A-7 to Section 2A-1 – PROJECT INITIATION, Replaced “Resident Engineer” with “Residency Administrator” and Replaced “Director, Local Assistance Division” with “Local Assistance Division Director”.
- Page 2A-5 – Revised Items 3, 4 and 5 to Replace “Director, Local Assistance Division” with “Local Assistance Division Director”, Revised the language in Item 4 regarding Local Assistance Division, Revised the language in Item 6 to Replace the word “furnished” with “made available”, Revised Item 7 to Replace “Resident Engineer” with “Residency Administrator”, Revised the language in Item 8 to Add “NO PLAN” and “MINIMUM PLAN” PROJECTS and Revised the reference to Section 2B-1- GROUND SURVEYS.

- Page 2A-6 – Added language regarding BOARD APPROVAL for Location Hearings.
- Page 2A-11 – Added District Construction Engineer and Replaced “Resident Engineer” with “Residency Administrator”.
- Page 2A-12 – Revised the reference from Section 2B-2 to Section 2B-3- DETERMINATION OF ROADWAY DESIGN.
- Page 2A-13 - Replaced “Resident Engineer” with “Residency Administrator”.
- Page 2A-14 – Revised reference to Chapter 1D and Added language that Design Exceptions must be obtained “no later than Public Hearing Stage”.

CHAPTER 2B

- Page 2B-2 – Deleted instructions that Plans Sheets are plotted by the Aerial Survey Section or the Consultant assigned the Project and Added item (7) Approved LD-430 to the list of DATA RERQUIRED.
- Page 2B-4 – Revised reference to Section 2A-4.
- Page 2B-5 – Revised reference to Section 2B-1.
- Page 2B-6 – Revised reference to Section C-4.
- Page 2B-7 – Added District Construction Engineer and Replaced “Resident Engineer” with “Residency Administrator” and Revised reference from Section 2B-1 to Section 2A-1-PROJECT INITIATION and Revised to Add the word “Electronic”.
- Page 2B-8 – Revised Section from 2B-1 to Section 2G-2-SUMMARY SHEETS.
- Page 2B-12 – Deleted the following paragraph: “INCORPORATING CHANGES INTO PLANS.” It was duplicated on this page and Revised instructions regarding PREPARATION OF INSPECTION REPORT.
- Page 2B-13 – Replaced “Resident Engineer” with “Residency Administrator” and Deleted the following language: “A copy of the Field Inspection notification is to be sent to the Scheduling and Contracts Division by the Project Manager advising of the pending Field Inspection”.

CHAPTER 2C

- Page 2C-2 – Deleted the following language from REVIEW OF WORKLOAD: “Any changes should be initiated by submitting Form LD-322 to the Human Resource Manager” and Added the word “State” between “Assistant Location”.
- Page 2C-4 – Revised language in various locations.
- Page 2C-5 – Revised reference to Section 2A-5.
- Page 2C-6 – Revised the contact persons shown on the Plan and Profile Sheets and Deleted reference to Plan Equalities.
- Page 2C-7 – Revised language regarding Curve Data.
- Page 2C-8 – Added language regarding the Reference Block on Plan Sheets.
- Page 2C-9 – Deleted language regarding PLAN EQUALITIES.
- Page 2C-10 - Revised the Contact Persons to be shown on the Profile Sheets.
- Page 2C-11 - Deleted language regarding reference to “survey level book” and PROFILE EQUALITIES.
- Page 2C-12 – Revised reference to Sections 2A-6 and 2B-1, 2B-2 and Added the following language: “(available in Falcon)”.
- Page 2C-13 – Revised to Replace “Maintenance Division” with “Asset Management Division”, Revised reference from Section 2B-2 to Section 2B-3 – DETERMINATION OF ROADWAY DESIGN and Deleted “Mobility Management Division” from the Review of CAPACITY ANALYSIS.

CHAPTER 2D

- Page 2D-4 – Replaced “Consultant Services Section” with “Engineering Development and Project Management Section” and Replaced “Resident Engineers” with “Residency Administrator’s”.
- Page 2D-6 – Added the word “State” between “Assistant Location”.
- Page 2D-7 - Added the word “State” between “Assistant Location”, Deleted the following language: “Approvals for Secondary and Urban funded projects are the responsibility of the Programming Division” and Revised reference to Sections 2D-3 thru 2D-7, 2D-14 and Revised Section from 2D-12 to 2D-13.

- Page 2D-10 – Revised reference to Section 2B-3, Deleted “Mobility Management Division” from the Review of CAPACITY ANALYSIS and Revised the Contact Persons to be shown on the Plan and Profile Sheets.
- Page 2D-12 – Replaced existing SAMPLE PLAN SHEET.
- Page 2D-13 – Deleted existing SAMPLE PLAN SHEET and Replaced with SAMPLE DRAINAGE DESCRIPTION SHEET.
- Page 2D-14 – Deleted existing SAMPLE PLAN SHEET and left Sheet Intentionally Blank.
- Page 2D-16 – Revised language regarding Finished Grade Elevations shown on Profile Sheets.
- Page 2D-17 – Replaced existing SAMPLE PROFILE SHEET.
- Page 2D-18 – Deleted various language and Added the language “AASHTO minimum design” and “For additional instructions on Design Exceptions, See IIM-LD-227.”
- Page 2D-19 – Revised instructions regarding the PLOTTING CROSS SECTIONS to include the following: “Finished Grade Elevations are to be furnished on all cross sections at all Hinge Points, furnish the Existing & Proposed Right of Way on all Cross Sections”, Revised the locations where Cross Section Templates are to be furnished and Added instructions regarding Pavement Trenching and other various instructions.
- Page 2D-20 – Deleted section on Plotting Templates and included in section on Plotting Cross Sections on page 2D-19 and Revised language regarding Determining Areas and Quantities.
- Page 2D-21 – Revised language regarding Earthwork Quantities.
- Page 2D-23 – Added the word “State” in between “Assistant Location”.
- Page 2D-26 - Added the word “State” in between “Assistant Location”.
- Page 2D-27 – Revised instructions on when to request Bridge Situation Plans.
- Page 2D-29 – Revised reference to Section 2D-7.
- Page 2D-31 - Added the word “State” in between “Assistant Location”.
- Page 2D-32 – Deleted the word “Board” and Replaced with “Design” Approval.

- Page 2D-33 – Deleted the words “by the Board” from FHWA APPROVAL.

CHAPTER 2E

- Page 2E-3 – Revised reference to Section 2G-2.
- Page 2E-8 – Replaced the reference to the “CADD Directory” with “Engineering Services (eng-ser) directory in Falcon”, Added language that the Drainage descriptions should not be shown on the “Roadway” Profile Sheets and Added language that Minor Structural Excavation is Requested by the Roadway Designer.
- Page 2E-12 – Added reference to Chapter 15 (DDM1) of VDOT Drainage Manual.
- Page 2E-13 – Deleted reference to “Form U-9” from Local Assistants Division and replaced with “Form LD-430 (Initial Field Review and Scoping Report)”, Added reference to Appendix A in Item 7, clarified the instructions for use of St’d. CG-6 Curb and Gutter and Replaced “approved by Local Assistance Division” with “to be forwarded by Local Assistance Division to the State Location & Design Engineer for review and approval”.
- Page 2E-14 – Added instructions to furnish Curb Return Profiles along the face of curb on all curbs with 30’ radii and greater.
- Page 2E-16 – Revised reference to Section C-1.
- Page 2E-21 - Revised reference to Section A-2 and Replaced “Resident Engineer” with “Residency Administrator” and Added link to Appendix A, Section A-6 AIRPORT CLEARANCE REQUIREMENTS for Aircraft Operations Section.
- Page 2E-22 – Added instructions and a detail (Figure 2E-8.1) regarding Retaining Walls and instructions regarding Foundation data.
- Page 2E-23- Revised “Consultant Services Section” to “Engineering Development and Project Management Section”.
- Page 2E-24 – Added Retaining Wall Figure 2E-8.1.
- Page 2E-25 – Replaced “Resident Engineer” with “District Construction Engineer” and Deleted reference to IIM-LD-229 under Highway Construction Adjacent to Railway Tracks. This information is now located in Chapter 15 (DDM4) of the VDOT Drainage Manual.

- Page 2E-27 – Deleted reference to IIM-LD-130 under UNDERDRAINS. This information is now located in Chapter 15 (DDM5) of the VDOT Drainage Manual and Added the following instructions: “Underdrains (UD’s Only) are to be shown on all typical sections.”
- Page 2E-32 – Deleted drawing at bottom of page. Link is provided on this page (FIGURE C-3-1) to larger drawing.
- Page 2E-35 – Revised language to Replace “three sets of prints” with “Plans will be made available in Falcon by the designer for” and Added the word “State” in between “Assistant Location”.
- Page 2E-37 – Revised language to Replace “marked prints” with “electronic reference files”, Revised reference to Section 2E-13 and Deleted to following language: “When a utility easement is parallel to the proposed right of way line and is of a consistent width, it is not necessary for the marked prints to show pluses and distances. The designer shall show and/or calculate the appropriate break points”. It is the responsibility of Right of Way and Utilities Division to provide the designer this information.
- Page 2E-40 – Revised reference to Sample Metes and Bounds Sheet and Deleted the phone number of the Central Office R/W & Utilities Division’s Special Negotiations Section.
- Page 2E-49 - Revised the Contact Persons to be shown on the Supplemental Sheets.
- Page 2E-50 – Revised reference from “TC-5.01” to “TC-5.04” and Deleted language regarding Equalities.
- Page 2E-53 – Revised reference from Section 2D-10 to Figure 2E-11 thru 13.
- Page 2E-54 – Revised reference from Figure 2E-12 to 2E-16.
- Page 2E-58 – Deleted reference to projects being designed utilizing DRD.
- Page 2E-65– Added (FIGURE 2E-18.1) SAMPLE TYPICAL SECTION SHEET for Interchange Ramps, Shoulder Transitions and Service Roads.
- Page 2E-66 – Revised information to be furnished and shown on the Typical Section Sheet(s) and Added Pavement and Shoulder Transition Widths are to be shown at begin and end stations.
- Page 2E-66 & 67 - Revised the Contact Persons shown on the Typical Section Sheet(s).

- Page 2E-70 – Revised reference to Section 2E-6.
- Page 2E-71 – Deleted language regarding the Freedom of information Act requiring written request to obtaining a project cost estimate and/or specific unit cost of items in the estimate and Added the following: “All project cost estimate information is available, except that which is protected by the Code of Virginia”.
- Page 2E-76 - Added the word “State” in between “Assistant Location”.
- Page 2E-77 – Added language regarding holding Supplemental Field Inspections when projects have not been worked on (shelved) for 12 months or more.
- Page 2E-78 – Revised reference to Chapter 2G and Revised to Replaced “Engineering Services Section” with “Standards / Special Design Section”.
- Page 2E-79 – Revised reference from Chapter 2G to Chapter 2E-3 DETAILED PLAN DESIGN and Revised to Replaced “Engineering Services Section” with “Standards / Special Design Section”.

CHAPTER 2F

- Page 2F-7 – Added to list of items: PCES Estimate and Certification from District L&D Engineer, Deleted original and one yellow copy of LD-95 or LD-96 and Deleted the following language: “ This includes those rare occasions where a federally funded Secondary project will have a separate R/W project number for R/W acquisition or utility adjustments”.
- Page 2F-10 - Revised to Replace “Central Office District Coordination Section” with “Central Office Plan Coordination Section”.
- Page 2F-12 – Delete the following language: “Items that do not usually affect utilities are pavement designs, types of materials, etc.” and Revised to Replace “Revised prints” with “Electronic Files” for providing Environmental Division plan revisions.
- Page 2F-13 – Deleted the word “verbal” and Replaced with “via email”, Deleted the word “Verbal” and Replaced with “Email” and Revised instructions for submitting revised plan sheets and the revision data sheet when processing a plan revision to the Plan Coordination Section.

CHAPTER 2G

- Page 2G-3 – Added “and cross sections” to Sound Barrier Wall Requirements and Revised “Consultant Services Section” to “Engineering Development and Project Management Section”.

- Page 2G-4 – Revised reference to Section 2E-6.
- Page 2G-19 – Delete the following language: “If plans for bridges, signs, signals, utilities, landscaping, etc. are not available, their absence must be called to the attention of the Plan Coordination Section by the Project Manager”.
- Page 2G-20 – Revised instructions regarding making plan changes during the review of the plans by Scheduling and Contracts Division prior to Final Submission. Changes can only be made during this time with concurrence from Scheduling and Contracts Division.
- Page 2G-21 – Deleted the following language: “Each change to the estimate should be made in a different colored pencil and dated. Proper input forms with these changes for revising the estimate should be provided.”
- Page 2G-22 – Revised to Replace the word “insure” with “ensure”.
- Page 2G-27 – Revised language regarding Original Topography, Profiles and Property Rolls under ROUTE FILES AND CORRESPONDENCE and Added the following language: “All electronic correspondence or otherwise shall be stored in Falcon.”
- Page 2G-28 – Revised instruction regarding “As Built” plan assembly shall be sent to the State L&D Engineer electronically with a request that the project records be stored in Falcon.

APPENDIX A

- Page A-1 – Revised to Add the following language: “VDOT (L&D) has formally adopted AASHTO A Policy on Geometric Design of Highways and Streets, commonly referred to as the AASHTO “Green Book”, as the minimum design standards. Therefore, **all** design criteria must meet AASHTO minimum design standards.
- Page A-2 – Revised language regarding EXCEPTIONS.
- Page A-4 – Revised to Delete references to Desirable Values.
- Page A-5 (GS-1) – Revised FOOTNOTES (1), (2), and (5) regarding Truck Traffic less than 250 DDHV.
- Page A-6 (GS-2), A-7 (GS-3) & A-8 (GS-4) - Revised FOOTNOTE (1) regarding RRR Projects.
- Page A-13 – Revised references to AASHTO “Green Book” in FOOTNOTE (2).

- Page A-14 – Revised references to AASHTO “Green Book” in GENERAL NOTES and FOOTNOTES (1) and (2).
- Page A-15 – Revised to Add reference to 2004 AASHTO “Green Book”, Page 319.
- Page A-17 – Added reference to AASHTO Roadside Design Guide, Appendix A, for “A Cost Effective Selection Procedure” and Deleted reference to FIGURE A-2-3.
- Page A-18 - Deleted reference to FIGURE A-2-3 in FIGURE A-2-2.
- Page A-19 – This Page Intentionally Left Blank.
- Page A-20 – This Page Intentionally Left Blank.
- Page A-40 – Revised FIGURE A-3-3 and noted that the Source of the FIGURE came from the 1988 AASHTO Roadside Design Guide. The FIGURE shown in the AASHTO Roadside Design Guide errata August 2001-February 2003 is **incorrect**.
- Page A-46 – Revised to Add the word “New” under Ineligible Items of Work regarding RRR Projects.
- Page A-88 – Deleted the word “Desirable” from TABLE A-5-7.
- Page A-104 – Revised to Clarify General Procedures for “No Plan and Minimum Plan” Projects.
- Page A-105, 106 and 108 thru 110– Revised to Replace “Resident Engineer” with “District Construction Engineer” or “Project Manager” as appropriate.
- Page A-112 thru A-133 – Added SECTION A-8 – SEQUENCE OF CONSTRUCTION / MAINTENANCE OF TRAFFIC. Deleted this SECTION from Volume 2 – Metric.

APPENDIX B

- Page B-8 & B-9 – Revised to clarify the Minimum Ditch Width by Adding “(front slope)”.
- Page B-39 & 40 – Added reference to Appendix C for the Roundabout Approval Process and Added language regarding Required Information to be Submitted for Proposed Roundabouts.

APPENDIX C

- Page C-4 – Deleted the word “desirable” from instruction on minimum 50’ stoppage area.
- Page C-5 –Added information regarding Taper Rates for Computing the Length of Tapers for Left and Right Turn Lanes and noted the Source of Information.
- Page C-6 – Revised reference to 2004 AASHTO “Green Book”.
- Page C-7 –Deleted “40 percent” and Replaced with “30 percent” (Advancing Volumes) to agree with Table C-1-2 and noted the Source of Information.
- Page C-18 – Added the Source of Information for the Formulas when Determining Passing / Left Turn Taper Lengths.
- Page C-23 & 24 – Added instructions regarding the Roundabout Approval Process and the Required Information to be Submitted for Proposed Roundabouts.
- Page C-34 & 35 – Added information regarding Right Turn lanes and Added the following: “Note: FIGURE C-1-1 should also be used for Right Turn Storage and Taper Lengths. However, a capacity analysis should be performed for intersection and signalization requirements.”
- Page C-77 – Added District Construction Engineer and Replaced “Resident Engineer” with “Residency Administrator”.
- Page C-78 – Replaced “Mobility Management Division” with “Traffic Engineering Division” and Revised to Replace “Resident Engineer” with “District Construction Engineer”.