
**United States
Department of
Agriculture**

**Natural Resources
Conservation
Service**

**Engineering
Field
Handbook**

**Montana
Supplement**

Chapter 53

Engineering Worksheets

Chapter 53, Engineering Worksheets, lists current engineering worksheets and forms and provides a master copy of selected worksheets that can be photocopied.

Chapter 53

Engineering Worksheets

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650.5300 Introduction

(a) Purpose and Scope

This section contains a current listing and master copies of most engineering worksheets which might be used in a field office.

(b) Background

There has been no good way for personnel working in a field office to know what engineering worksheets are available and to obtain rarely used worksheets. This section of the Engineering Field Handbook is intended to make it easy to find needed worksheets.

650.5301 How to Use Engineering Worksheets/Forms

Only frequently used worksheets will be reproduced and stocked. The rest will exist as masters in this manual and may be reproduced on a copy machine when needed.

650.5302 National Engineering Forms

The following is a list of National ENG Forms which might be used by the field office. These forms should be located in your regular field office filing system (i.e., SCS- and/or NRCS-ADS-##, SCS- and/or NRCS-CPA-##, **SCS- and/or NRCS-ENG-##**).

SCS ENG 5	Notification of Utility Location (postcard)	9/89
SCS ENG 6	Utility Checklist	2/85
SCS ENG 21	Engineer Stickon Title Block	4" x 2-3/4" 7/76
SCS ENG 21A	Engineer Stickon Title Block	5-1/2" x 3-1/2" 7/76
SCS ENG 28	Engineering Field Notes (Title page)	5/75
SCS ENG 29	Engineering Notes (Continuation page)	2/80
NRCS ENG 59	Report on Concrete Test Specimens	7/95
SCS ENG 312	Data Sheet--Plan Cross Section	21" x 30" 10/71

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SCS ENG 313	Plan Sheet, Tracing W/8 x 8 Grid, 21" x 30", W/Title	8/72
SCS ENG 313A	Plan Sheet, Tracing, Plain 10-1/2" x 15", W/Title	8/75
SCS ENG 313B	Plan Sheet, Tracing W/10 x 10 Grid, 21" x 30", W/Title	10/75
SCS ENG 313C	Plan Sheet, Tracing, Plain, 21" x 30", W/Title	6/75
SCS ENG 315	Cross Section, Tracing W/10 x 10 Grid, 21" x 30", W/Title	6/75
SCS ENG 315A	Cross Section, Tracing W/10 x 10 Grid, 10-1/2 x 15", W/Title	6/81
SCS ENG 316	Profile Sheet, Tracing, 21" x 30", W/Title	6/75
SCS ENG 316A	Profile Sheet, Tracing, 10-1/2" x 15", W/Title	1/76
SCS ENG 317	1/2 Plan, 1/2 Prof. Sheet, Tracing, 21 x 30", W/Title	3/81
SCS ENG 317A	1/2 Plan, 1/2 Prof. Sheet, Tracing, 10-1/2" x 15", W/Title	1/76
SCS ENG 318	2/3 Plan, 1/3 Prof. Sheet, Tracing, 21" x 30", W/Title	7/72
NRCS ENG 322	Cylinder Infiltrometer Test Data	7/95
NRCS ENG 342	Earthfill Computations (Center Height Method)	7/95
SCS ENG 352	Materials Testing Report, Compaction & Penetration	2/80
SCS ENG 353	Materials Testing Report, Soil Classification	2/80
SCS ENG 359	Worksheet for Compaction and Penetration Data	2/80
SCS ENG 522	Computation Sheet--Tracing Paper 4 x 4 Grid	3/69
SCS ENG 522A	Computation Sheet, Bond, 4 x 4 Grid	2/80
SCS ENG 523	Computation Sheet, Tracing Paper 5 x 5 Grid	8/69
SCS ENG 523A	Computation Sheet, Bond, 5 x 5 Grid	6/69
SCS ENG 528	Earthwork Computation Sheet, 14" x 10-1/2"	2/80
NRCS ENG 529	Earthwork Computation Sheet, 8" x 10-12"	7/95
SCS ENG 530A	Bulk Sand Density Determination and Calibration	2/80
NRCS ENG 530B	Inplace Moisture-Density Determination: Sand Cone Method (Specified Fraction Control)	7/95
NRCS ENG 530C	Inplace Moisture-Density Determination: Sand Cone Method (Mass Density Control)	7/95

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- NRCS ENG 530D Inplace Moisture-Density Determination: Rubber Balloon Method (Fine-Grained Soils--Less than 5% + No. 4 Sieve) 7/95
- SCS ENG 531 Moisture Content Determination--Summary 2/80
- SCS ENG 533 Log of Test Holes 2/85
- SCS ENG 534 Soil Sample List--Soil and Foundation Investigation 8/72
- SCS ENG 535 Sieve Analysis 3/86
- SCS ENG 538 Soils Investigation Pond Site 5/86
- SCS ENG 542 Materials Testing Report - Visual Soil Classification 2/80
- NRCS ENG 544 Daily Concrete Batching Record 7/95
- NRCS ENG 548 Summary of Construction Quantities and Costs 7/95

650.5303 Montana Engineering Worksheets

The following is a list of Montana ENG worksheets which can be found on our NRCS web site below:

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/mt/technical/engineering/?cid=nrcs144p2_056937

MT-ADS-1	Check List for Federal Construction Contracts (4 pages) 10/01
MT-ENG-2A,B	Irrigation Planning Worksheet (2 pages each) 12/02
MT-ENG-3	Earthwork Computation Sheet (1 page) 12/02
MT-ENG-6	Contractor Documentation (1 page) 12/02
MT-ENG-7	Construction Specification Cover Sheet (1 page) 2/11
MT-ENG-7A	Special Provisions (1 page) 9/00
MT-ENG-7D	Well Decommissioning Specifications Cover Sheet 2/2016
MT-ENG-7W	Well Installation Cover Sheet 2/2016
MT-ENG-8	Construction Inspection Report (2 pages) 12/02
MT-ENG-9	Plane Surface Design (Field and Design Data Entry) (2 pages) 12/02
MT-ENG-10	Plane Surface Design (Job and Field Description) (1 page) 12/02
MT-CPA-14	Conservation Planner Job Certification Matrix (1 page) 4/06
MT-CPA-15E	Montana Individual Engineering Practices (11 pages) 7/11
MT-ENG-20	Stockwater Pipeline Resource Inventory Worksheet (1 page) 12/02
MT-ENG-21A	Automatic Pressure Stockwater Pipeline Hydraulic Computation Worksheet (2 pages) 12/02
MT-ENG-21B	Manual or Timer Operated Stockwater Pipeline Pumped Segment Hydraulic Computation Worksheet (2 pages) 12/02
MT-ENG-21C	Gravity Stockwater Pipeline Hydraulic Computation Worksheet (2 pages) 12/02
MT-ENG-21D	Lateral Stockwater Pipeline Hydraulic Computation Worksheet (2 pages) 12/02
MT-ENG-123	Field Sheet: Grassed Waterways (2 pages) 12/02
MT-ENG-124	Dugout (2 pages) 12/02
MT-ENG-140B	Peak Run-off Computation Worksheet (EFM, Ch. 2 Procedure) (1 page) 12/02
MT-ENG-174	Field Hydraulic Conductivity Test (2 pages) 12/02
MT-ENG-180	Job Plan Spring Development (1 page) 12/02
MT-ENG-200	Coating Design Sheet for Buried Steel Pipelines (1 page) 12/02
MT-ENG-201	Anode Design Sheet for Buried Steel Pipelines (2 pages) 12/02
MT-ENG-211	Unified Soils Classification Sheet (1 page) 12/02
MT-ENG-213	System Design, Periodic Move Sprinkler (7 pages) 12/02
MT-ENG-214	System Design or Check, Pivot Sprinkler (4 pages) 12/02
MT-ENG-215	Trickle Irrigation System Design Worksheet (2 pages) 12/02
MT-ENG-217	Moisture Balance Irrigation Scheduling Worksheet (3 pages) 12/02
MT-ENG-218	Pan Evaporation Using Washtub Under Sprinklers Worksheet (2 pages) 12/02
MT-ENG-221	Irrigation System Economic Analysis Worksheet (3 pages) 12/02
MT-ENG-227	Soil/Water Holding Worksheet (1 page) 12/02
MT-ENG-230	Gated Pipe Design Worksheet (2 pages) 12/02
MT-ENG-231	Hydraulic and Energy Grade Line Calculation Worksheet (2 pages) 12/02
MT-ENG-245	Pump System Detailed Evaluation Pump System Worksheet (5 pages) 12/02
MT-ENG-246	Montana Dam Safety Inspection Report Worksheet (7 pages) 6/01
MT-ENG-247	Operation and Maintenance Inspection Report Worksheet (3 pages) 6/01
MT-ENG-248	Application for Operation Permit for High-Hazard Dam (2 pages) 1/02
MT-ENG-249	Inspections Requirements for Operation Permit Renewal (1 page) 1/02
MT-ENG-250A	Irrigation Water Management (Surface Irrigation) (2 pages) 1/02
MT-ENG-250B	Irrigation Water Management (Sprinkler Irrigation) (2 pages) 1/02

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MT-ENG-251	Landowner's Responsibility for Constructed Conservation Systems with USDA Assistance (2 pages) 3/04
MT-ENG-252A	Ag. Waste Systems Planning Guide (6 pages) 8/05
MT-ENG-252B	Nutrient Management – Waste Utilization Data Compilation Worksheet (7 pgs) 8/05
MT-ENG-253	Montana Water Rights Considerations Regarding Changes to Irrigation Systems and All Other Funded Water Developments (3 pages) 6/08
MT-ENG-316	Catastrophic Animal Mortality Response Plan (7 pages) 4/11
MT-ENG-351-b	Well Decommissioning Worksheet (1 page) 2/16
MT-ENG-351-c	Flowing Well Decommissioning Worksheet (1 page) 2/16
MT-ENG-353	Monitoring Well Worksheet (1 page) 2/16
MT-ENG-449	Irrigation Water Management Certification Sheet (2 pages) 8/16
MT-ENG-50501b	Technical Service Provider (TSP) Reference Documentation and Performance Requirements (11 pages) 8/04
MT-ENG-533	Pumping Plant Certification of Installation 12/07
MT-ENG-642-c	Stockwater Well Report Request Worksheet (1 page) 2/16
MT-ENG-642-d	Flowing Water Well Rehabilitation Worksheet (1 page) 2/16

Refer to the NEH, Part 652, National Irrigation Guide, Chapter 15, Resource Planning and Evaluation Tools and Worksheets website: <http://directives.sc.egov.usda.gov/> (select Handbooks, Section 210, then Part 652) that has replaced these Montana Worksheets: MT-ENG-220, Irrigation System Inventory Worksheet dated 4/93; MT-ENG-240, Surface System Detailed Evaluation Graded Border Worksheet dated 4/93; MT-ENG-243, Sprinkler System Detailed Evaluation Lateral Move Sprinklers Worksheet dated 4/93; and MT-ENG-244, Sprinkler System Detailed Evaluation Pivot System Worksheet. A hard copy of these replacements is located in the National Irrigation Guide, Chapter 15, pages 15-9 through 15-14; 15-29 to 15-42; pages 15-73 to 15-80; and pages 15-81 to 15-88.

Chapter 53

Engineering Worksheets

MASTERS

650.5302 National Engineering Forms

FILING INSTRUCTIONS:

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MASTERS

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