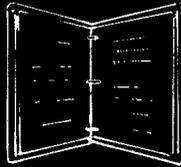


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**ENGINEERING
TECHNICAL
INFORMATION
SYSTEM**

FIELD NOTES • TECHNICAL REPORTS
DATA RETRIEVAL • MANAGEMENT
PROFESSIONAL DEVELOPMENT

VOLUME 8 NUMBER 10

Field  **Notes**

Index of Engineering and ED&T Reports

METRIC—Are You Ready?

Washington Office News



FOREST SERVICE

OCTOBER 1976

U.S. DEPARTMENT OF AGRICULTURE



ENGINEERING FIELD NOTES

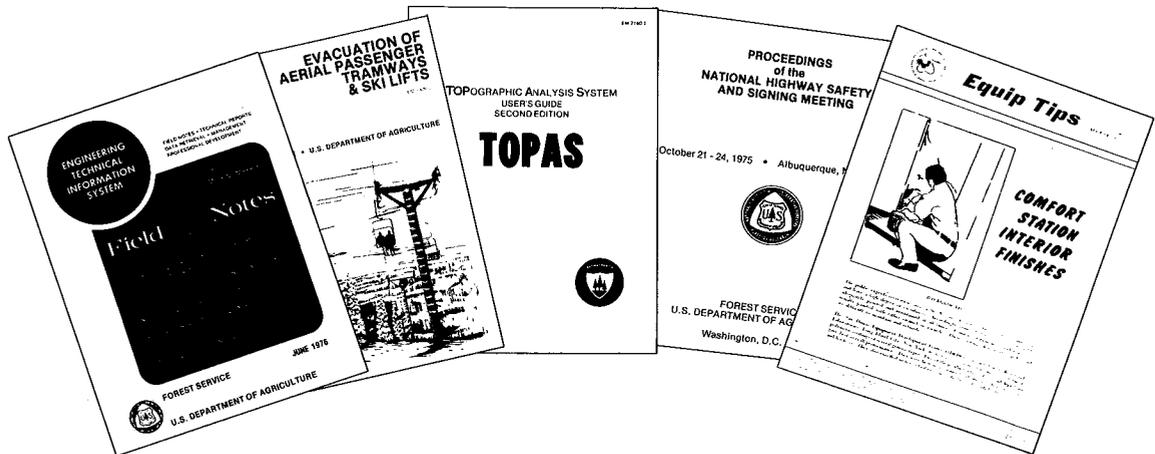
Volume 8 Number 10

Information contained in this publication has been developed for guidance of employees of the United States Department of Agriculture—Forest Service, its contractors, and its cooperating Federal and State agencies. The Department of Agriculture assumes no responsibility for the interpretation or use of this information by other than its own employees.

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The text in the publication represents the personal opinions of the respective author, and must not be construed as recommended or approved procedures, mandatory instructions, or policy, except by FSM references. Because of the type of material in the publication, all engineers and engineering technicians should read each issue; however, this publication is not intended exclusively for engineers.

**FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Washington, D.C. 20250**



INDEX OF ENGINEERING AND ED&T REPORTS

This index contains information on publications of the Engineering Staff in the field, in the Washington Office, and in the Equipment Development Centers.

The listing is arranged by the series of publications (Field Notes, Engineering Technical Reports, etc.), title, author, document number, and date of publication. It is not a comprehensive list, and previous compilations are cited with each group.

Copies of these publications are available to Forest Service personnel upon request, by writing or calling:

USDA - Forest Service
Engineering Staff -
Technical Information Center
Room 1208-RP-E
12th and Independence Ave., S.W.
Washington, D.C. 20250

Telephone: Area Code 703-235-1424

FIELD NOTES

NOVEMBER 1975--SEPTEMBER 1976

This publication is a monthly newsletter published to exchange engineering information and ideas of a technical or administrative nature among Forest Service personnel. It is distributed from the Washington Office directly to all Regional, Station, and Area Headquarters. If you are not now receiving a copy and would like one, ask your Office Manager or the Regional Information Coordinator to increase the number of copies sent to your office.

Articles published prior to November 1975 are listed in the Field Notes Vol. 7 No. 11, November 1975. Copies of back issues are available from the Washington Office.

RDS Handbook

Aerial Tramways, Ski Lifts, and Tows (EM-7320-1)

Evacuation of Aerial Tramways and Ski Lifts (EM-7320-2)

Weller, Charles R.; FN Vol. 7 No. 11, November 1975

Forest Workshop on Test Roads

Taylor, Heyward T.; FN Vol. 7 No. 11, November 1975

Geometronics Development Group

Strickland, Harold L.; FN Vol. 7 No. 11, November 1975

Protecting Steep Terrain During Excavation Operations

Best, John E.; FN Vol. 7 No. 12, December 1975

Delay Costs Involved in Alternatives Between One- and Two-Lane Standards

Sullivan, Robert M.; FN Vol. 7 No. 12, December 1975

Cost of Road Maintenance on the Mt. Hood National Forest

Pickett, Ted; Cisneros, Mike; Kurtti, Reuben; FN Vol. 7 No. 12, December 1975

Technical Information Center

Reference Service

Remote Sensing Information Center

PACFORNET

Strickland, Harold L.; FN Vol. 7 No. 12, December 1975

Disposition of FPC Licensed Project Facilities at Expiration
or Surrender of License

Weller, Charles R.; FN Vol. 7 No. 12, December 1975

Regional ED&T Board Meetings

Taylor, Heyward T.; FN Vol. 7 No. 12, December 1975

Computerized Cost Estimating Guide

Zeally, Ted; FN Vol. 8 No. 1, January 1976

Federal Water Pollution Control Act--Public Law 92-500

Taylor, Heyward T.; FN Vol. 8 No. 1, January 1976

Engineering Management--Program Workshop November 17-21, 1975

Strickland, Harold L.; FN Vol. 8 No. 1, January 1976

Federal Interagency Committee for Recreation--Waste Management
Research

Weller, Charles R.; FN Vol. 8 No. 1, January 1976

Computer to Aid in the Analysis and Design of Major Culverts

Mason, Neal L.; FN Vol. 8 No. 2, February 1976

Into Its Own: Modernization of the Field Design Procedure

Standing, Paul; FN Vol. 8 No. 2, February 1976

Forest Service Gets BRASS at FCCC

Taylor, Heyward T.; FN Vol. 8 No. 2, February 1976

Geometronics

Strickland, Harold L.; FN Vol. 8 No. 2, February 1976

Energy Conservation

Solar Energy

Weller, Charles R.; FN Vol. 8 No. 2, February 1976

Use of Backhoe in Road Construction

Lea, Bernard W.; FN Vol. 8 No. 3, March 1976

Solar-Powered Flush Toilet System

Kringler, Harry; Spooner, Neal; FN Vol. 8 No. 3, March 1976

Matching Automotive Engines and Drivelines by the Response
Method

Della-Moretta, Leonard; FN Vol. 8 No. 3, March 1976

San Dimas Slash Machine

Improving the Environment

Maintenance of Forest Roads

Taylor, Heyward T.; FN Vol. 8, No. 3, March 1976

Ground Fault Interrupters
Weller, Charles R.; FN Vol. 8 No. 3, March 1976

Special Mapping Center Activities
Strickland, Harold L.; FN Vol. 8 No. 3, March 1976

Surfacing Treated Decks with Bituminous Materials
Bruesch, Larry; Pelzner, Adrian; FN Vol. 8 No. 4, April 1976

Hierarchy of Transportation Planning
Schnelle, William F.; FN Vol. 8 No. 4, April 1976

Resistivity Method for Predicting the Service Life of
Corrugated Metal Pipe Culverts
Gallup, Robert M.; FN Vol. 8 No. 4, April 1976

ED&T Program Evaluation
Program Planning
Taylor, Heyward, T.; FN Vol. 8 No. 4, April 1976

Visitor Information Maps
Strickland, Harold L.; FN Vol. 8 No. 4, April 1976

Hydraulic Handtools for Road Maintenance
Gallup, Robert M.; FN Vol. 8 No. 5, May 1976

Equipment Replacement Decisions
Broadway, Ollie; FN Vol. 8 No. 5, May 1976

Research Needs for Low Volume Roads
Pelzner, Adrian; FN Vol. 8 No. 5, May 1976

Case Studies of Transportation Analysis Using Forest Service
Computer Models
Wilson, Dick; Nordengren, Dave; Cox, Wallace R.; Droege, Roy E.;
FN Vol. 8 No. 5, May 1976

Road Maintenance Management
Weller, Charles R.; FN Vol. 8 No. 5, May 1976

Equipment Engineers Work Conference
Strickland, Harold L.; FN Vol. 8 No. 5, May 1976

Low-Volume Roads--Revisited
Taylor, Heyward T.; FN Vol. 8 No. 5, May 1976

Constructing Post Tensioned Prestressed Concrete Bridges
Bell, John W.; FN Vol. 8 No. 6, June 1976

Environmental Effects of Off-Road Vehicles
Harrison, Rob; FN Vol. 8 No. 6, June 1976

Solar Energy and Greenhouses
Hyde, Jerry M.; FN Vol. 8 No. 6, June 1976

Polyester Resin Anchorage System--Prairie Portage Dam
Schulze, Gary B.; FN Vol. 8 No. 6, June 1976

Press-Lam Bridge Project
Guidelines for Determining Flood Flow Frequency
Weller, Charles R.; FN Vol. 8 No. 6, June 1976

ASTM Elects Pelzner
Publications & Reports Procedures
Taylor, Heyward T.; FN Vol. 8 No. 6, June 1976

Washington Office Tour of Duty
Strickland, Harold L.; FN Vol. 8 No. 6, June 1976

Silicon Photovoltaic Solar Cells
Hyde, Jerry M.; FN Vol. 8 No. 7, July 1976

Computer Programs for Hydraulic Analysis of Drainage Structures
Jones, Dick L.; FN Vol. 8 No. 7, July 1976

Automated Cartography System
Strickland, Harold L.; FN Vol. 8 No. 7, July 1976

Dam Safety Inspections
Weller, Charles R.; FN Vol. 8 No. 7, July 1976

Integrated Civil Engineering Systems' Coordinated Geometry
Program
Taylor, Heyward T.; FN Vol. 8 No. 7, July 1976

Design Alternatives for Low-Volume Forest Roads
Huskey, Russ; FN Vol. 8 No. 8, August 1976

Design Guide for Native Log Stringer Bridges
Analysis and Load Rating of Native Log Stringer Bridges
Muchmore, Frank W.; FN Vol. 8 No. 8, August 1976

Self-Study Course Books
Certification Examinations
JPR Book
Certification Symbols
Strickland, Harold L.; FN Vol. 8 No. 8, August 1976

Service Equipment Development & Test Program
Recreation Facilities Equipment
Fire and Aviation Management
Helicopter Night Operations
Taylor, Heyward T.; FN Vol. 8 No. 8 August 1976

National Sign Procurement Coordinator
Weller, Charles R.; FN Vol. 8 No. 8, August 1976

Flow Capacities of 12- and 24-Inch Rectangular Overside Drains
Gallup, Robert M.; Pickett, Ted L.; FN Vol. 8 No. 9,
September 1976

Region 5 Dedicates "Old" Sims Bridge
Turner, D.C.; FN Vol. 8 No. 9, September 1976

Red Mountain Creek Soil Bridge Collapse
Everitt, Martin C.; FN Vol. 8 No. 9, September 1976

Optimum Route Location (OPTLOC)
Taylor, Heyward T.; FN Vol. 8 No. 9, September 1976

Forest Highways
Strickland, Harold L.; Vol. 8 No. 9, September 1976

The Highway Safety Program
Weller, Charles R.; FN Vol. 8 No. 9, September 1976

ENGINEERING MANAGEMENT SERIES

The Engineering Management Series contains publications that serve a special purpose and reader, or that involve several disciplines which are applied to a specific problem.

Some of these publications have such interest for readers outside of the Forest Service and Department of Agriculture that requests for them exceed the number of copies initially printed. Available funds are insufficient to meet these additional demands. These particular items are submitted to the Superintendent of Documents of the Government Printing Office (GPO), who prints copies for the public. The cognizant engineering and publications staff advises GPO and other agencies and offices of planned publication whenever the interest of those agencies is likely. They may then order copies to be printed at the same time that GPO prints its stock.

Among the items listed below, those currently available through GPO are marked with an asterisk (*). Inquiries and orders from outside the Department of Agriculture for those items should cite the full title and identification number and should be addressed to:

Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

Those available from the Washington Office are marked number symbol (#) and can be ordered from:

USDA - Forest Service
Engineering Staff -
Technical Information Center
Room 1208-RP-E
12th and Independence Ave., S.W.
Washington, D.C. 20250

Those publications not marked (*) or (#) were distributed to the Regional Offices.

Aerial Tramways, Ski Lifts and Tows
Description and Terminology (EM 7230-1)*#
Dwyer, Charles F., June 1975

Smith River Highway Visual Analysis Study (EM 7700-3)*#
Kybutm, Eugene R.; and Karan S. Calhoon, September 1975

Evacuation of Aerial Passenger Tramways (EM 7320-2)*#
Dwyer, Charles F., September 1975

Proceedings of National Highway Safety & Signing Meeting
(EM 7770-1)
January 1976

Topographic Analysis System
TOPAS User's Guide (EM 7140-1)
January 1976

Engineering Certification Program Self-Study Book
Basic Mathematics (Revised) (EM 7110-1)#
April 1976

Evaluation of Digital Terrain Generated for a 1:24,000
Data Base During Orthophoto Production (EM 7140-2)
April 1976

Analysis of Computer Support System for Transportation
Planning and Operations (EM 7710-1)
May 1976

Engineering Field Tables (EM 7100-10)#
Fourth Edition
July 1976

EQUIPMENT DEVELOPMENT AND TEST REPORTS
AND EQUIP TIPS

JULY 1975--OCTOBER 1976

The Equipment Development and Test Reports (ED&T series) and Equip Tips are produced through the Forest Service Equipment Development Centers at San Dimas, California (SDEDC) and Missoula, Montana (MEDC).

These publications result from projects which are assigned to the Centers by the Chief, for the evaluation and development of equipment to meet the needs of forest land managers in the field.

Copies of these reports may be obtained from the Washington Office, or from one of the Centers at the addresses below. A comprehensive listing of material not included in this index is carried in *ED&T Program: Progress Report FY 1975/Plans FY 1976*, which is available from the Centers.

USDA - FOREST SERVICE
San Dimas Equipment Development
Center
444 E. Bonita Avenue
San Dimas, California 91773

USDA - FOREST SERVICE
Missoula Equipment Development
Center
Fort Missoula
Missoula, Montana 59801

Plastic Tops - Picnic Tables and Benches (Equip Tips 2300)
SDEDC, July 1975

Comfort Station Interior Finishes (Equip Tips 2300)
SDEDC, August 1975

Oil-Recirculating Waterless Toilet (Equip Tips 2300)
SDEDC, August 1975

Belt First Aid Kit (Equip Tips)
MEDC, September 1975

Firefighter Equipment Pack (Equip Tips)
MEDC, September 1975

Lighter Forest Fire Shelter (Equip Tips)
MEDC, September 1975

Two New Camp Fire Kits (Equip Tips)
MEDC, September 1975

Iodine Dispenser for Water Supply Disinfection (ED&T
Report 7400-1)
SDEC, January 1976

New Safety Fuse Igniter (Equip Tips)
MEDC, January 1976

Equipment-Mounted Air Filtering System (Equip Tips)
MEDC, February 1976

New Slide Insert for Physical Fitness Calculator (Equip Tips)
MEDC, June 1976

Traffic Surveillance Equipment Reports (Equip Tips)
MEDC, June 1976

Chemicals & Support Equipment to Reduce Friction in Hose Lays
(Equip Tips 5100)
SDEDC, July 1976

Development of the Forest Service Trail Traffic Counter
(ED&T 7700-10)
MEDC, September 1976

Clearing, Grubbing, and Disposing of Road Construction Slash
(ED&T Report 7700-11)
SDEDC, October 1976

METRIC--Are You Ready?

Reprinted from 'USDA' Newsletter Vol. 35 No. 17

It's about ready for you. After considering it for more than 100 years, the United States has adopted, and is starting to implement, this system of units for weights and measures now being used in all other major countries.

It is called the metric system, for easy identification, but the actual name is the International System of Units (abbreviated SI for Systeme International). It's a refinement of the original metric system.

What does SI mean for agriculture? Much the same as its meaning for the rest of the country--changes in most units of weights and measures to a much simpler form of calculation. Instead of the crazy-quilt system with its varying units that we now use--such as 12 inches to the foot, 3 feet to the yard, and 1,760 yards to the mile--we will shift to a more logical system that is based on units of 10, such as 100 centimeters in a meter and 1,000 meters in a kilometer. There won't be any more grains, ounces, pounds, short hundredweights, long hundredweights, short tons, and long tons--just grams, kilograms, and metric tons.

Liquid volume will be measured in milliliters and liters instead of ounces, pints, quarts, and gallons. Degrees of temperature will be measured on the Celsius scale instead of Fahrenheit. And many other changes will be necessary. (The accompanying table shows relationships of current language to metric system terms.)

Since our Nation has taken most of its 200 years to adopt the metric system, we may be well into our third century before it is fully applied. President Ford has signed legislation adopting the system, but has put implementation of it on a voluntary basis. Leadership of the conversion is to come from the private sector rather than from the Federal Government, and the Department of Agriculture is gearing up to cooperate in the process.

Various agricultural industries and agencies of USDA are already into the system to one degree or another. Some industries and agencies which deal frequently with other nations have been using metrics for years.

The Foreign Agricultural Service is the first USDA agency to adopt the metric system fully for all of its reports and other activities. The switchover to the new system was completed this July. Economic Research Service already has accepted the metric system measurements for use in its

Foreign Agricultural Trades of the United States beginning with the October 1976 issue. The Agricultural Research Service and the Forest Service have also made significant conversions. Most other agencies see no serious problem in converting to the metric system, and are prepared to do so when the industries they serve are ready.

One independent Government agency--The National Aeronautics and Space Administration--went metric when it was established in 1958. One reason was that the scientific sector with which it deals already had adopted the system. Other reasons were simplification, time saving, cost saving, and less chance of error.

Adoption of the metric system has been considered since the early days of our Republic. Congress made the system legal in the U.S. with legislation in 1886, but took no action toward implementation.

Since 1893, the metric system has been the official U.S. basic standard of weights and measures. In 1968, Congress passed an act authorizing a 3-year study to determine the impact of converting the metric system in this country. Finally in 1975, Congress passed Public Law 94-168 which President Ford signed in December and which declared a national policy of coordinating the increasing use of metrics in the U.S. That 1975 legislation also established the United States Metric Board to coordinate the voluntary conversion. Coordination between government agencies has been conducted for some time through the Metrication Subcommittee of the Interagency Committee on Standards Policy.

In the Department of Agriculture, coordination is being achieved through an informal committee of representatives appointed by agency administrators. Chairman of that committee, designated Departmental Metric Coordinator, is Robert A. Owen of the Foreign Agricultural Service, with Henry B. Fayans, FAS, as alternate coordinator.

Data Coordinator for the Department is Richard P. Small of the Statistical Reporting Service. Larry B. Marton of the Office of Communication is Information Coordinator, and Ralph E. Patterson of the Extension Service is Education Coordinator.

Overall guidelines are being developed to help agencies and employees coordinate governmental action so as to cause a minimum of confusion and hardship for the public during the transition. Materials also are being planned to assist in the training of employees in metric terms and to help the public understand the new system.

Employees in a few agencies are already well acquainted with the system. Others are studying it to become adept in using the language accurately. The USDA Graduate School is offering four courses and special counseling on metrics.

Dave Tackle, WO-Timber Management Research, was named Agency Metric Coordinator for the Forest Service.

(Mr. Tackle will be transferred to a new assignment shortly, and his replacement as FS Metric Coordinator will be named at that time.-Editor)

The Department has not yet issued a policy on metric conversion, but we can move ahead under the intent of the Act to encourage the changeover on a voluntary basis.

As a first step, the Forest Service has decided on the following course of action:

1. Adoption of the National Bureau of Standard's guidelines for use of the metric system as an interim Forest Service standard.
2. Uniform adoption of a dual system, by Stations, in their research publications.
3. Development of a policy statement on use of the metric system in research publications.
4. Appointment of a standing committee to coordinate metrication activities throughout the Forest Service and with the Department.

METRIC CONVERSION FACTORS

Approximate Conversions
to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

The image shows two rulers side-by-side for scale comparison. The top ruler is marked in inches, with major markings at 1, 2, 3, and 4 inches. The bottom ruler is marked in centimeters, with major markings at 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 centimeters. Both rulers have millimeter markings between the major units.

WASHINGTON OFFICE NEWS

CONSULTATION & STANDARDS

C.R. Weller
Assistant Director

*REVISION OF THE HIGH HAZARD CLAUSE
IN POWERLINE SPECIAL USE PERMITS*

The Forest Service and power company representatives have been discussing the present "high hazard" clause in special use permits and easements for powerlines.

The aim is to relieve the liability of power companies for damage caused by acts of war, acts of the U.S. Government, or acts of third parties not involving the facilities of the permittee. At this time, power companies are liable for all damage and fire suppression costs resulting directly or indirectly from the permittee's use and occupancy of the right-of-way.

SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES

The Federal Highway Administration (FHWA) is revising the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-74). An objective is to make the contents more usable by various agencies for construction of projects other than Forest highways.

The Forest Service may be able to use the new version (FP-74) directly in contracts for construction of Forest Development Roads. We and other Federal agencies (BLM, BIA, and NPS) will participate through representation on a specification committee.

SIGNS

Metrification of all measurements for signs will be instituted in the Manual for Uniform Traffic Control Devices (MUTCD) in their 1977 edition. This includes distance to be shown in kilometers as well as measurements applying to the signs themselves.

WO Engineering is on the committee for writing a section on recreation signs and symbols in the MUTCD. The first draft of this section is completed. This will also be included in the 1977 revision.

PERSONNEL CHANGES

Leon Lehr from Region 5 has been assigned to the WO Sanitary Engineering Staff.

OPERATIONS

Harold L. Strickland
Assistant Director

GEOMETRONICS SERVICE CENTER (GSC)

The process of bringing together some of the Geometronics activities started in July 1975 with the relocation of key staff to Salt Lake City, Utah. At that time, Director Sky Chamard, Assistant Directors Jim Dixon and Ross Snedeker, and Administrative Officer Brooks Watson began to make the final plans for putting the Center into operation. Now, the organizational structure for Phase I Operations is established, and staffing of the Center is underway.

The main thrust of the GSC Phase I is in the Primary and Secondary Base Series as identified in FSM 7142.18a and 7142.2. Deputy Chief Nelson's memorandum to the Regions of December 5, 1975, specifically outlines the work commitments to the Regions in Base Series work. The Center's responsibilities in Phase I Operations are as follows:

Primary Base Series will consist of modifying and updating maps to meet the standards, with intermediates that are obviously necessary in some areas. Formating will be the 7-1/2 minute quadrangle, and scales will be brought to 1:24,000 by photographic techniques (refer to 7142.18a, Acceptable Intermediate Editions). These intermediates are part of GSC work.

Secondary Base Series includes all work involved in the production of these map data separation plates. Contracting for the lithography work remains a Regional responsibility.

Base Series Orthophoto Plates will be the responsibility of the GSC. Regions having cooperative agreements with the United States Geological Survey (USGS) and existing contracts for orthophoto production will continue this activity. Future agreements and contracts for orthophotos in support of the Base Series will be coordinated through the GSC.

GSC's existing staff, consisting of 23 personnel, is located in temporary quarters pending construction of a new building. GSA awarded a contract in June for a building to house the GSC and the Agricultural Stabilization and Conservation Service's Aerial Photography Field Office. Construction started August 9, and the expected date of occupancy is January 1977.

Full staffing is planned to coincide with occupancy of the new building. Personnel to staff GSC are being relocated from the Regions and other agencies. Employees' interest in transferring to the Center has been most encouraging, and staffing should progress with a minimum of disruption of Regional Geometronics work.

The Orthophoto Unit has been in production, and personnel have been in training since June. Lower graded personnel are being trained in scribing and drafting techniques.

GSC's staff has worked with the USGS National Headquarters and with each USGS Mapping Center to develop cooperative programs. These efforts have been very encouraging, and it appears that USGS will accept and "trade off" revision work with Forest Service. We are completing this coordination, and expect to realize substantial savings in the cost of material that is usually purchased from the USGS.

Although progress has been slower in implementing the Center than planned a year ago, we are well on the way towards meeting production goals for FY 1977.

TECHNOLOGICAL IMPROVEMENTS

Heyward T. Taylor
Assistant Director

SAN DIMAS FOREST RESIDUES MACHINE COMPLETES FIELD TESTS

The San Dimas Equipment Development Center has completed field testing the breadboard model of their forest residues machine. This developmental tool for Timber Stand Improvement (TSI) thinning and simultaneous slash treatment successfully completed field tests this summer in the following areas:

FOREST	DISTRICT	TYPE OF WORK
Tahoe	Downeyville	<ol style="list-style-type: none"> 1. TSI thinning in ponderosa pine; 2.3 in dbh, 4500 stems per acre. 2. Logging slash, 102 tons/acre.
Plumas	Milford	<ol style="list-style-type: none"> 1. TSI thinning in Jeffrey pine; 4.7 in dbh, 1400 stems per acre. 2. Snowbrush removal.
Deschutes	Sisters	TSI slash treatment in ponderosa pine, 6 in dbh, 40 tons/acre.
Deschutes	Ft. Rock	Logging slash treatment in 2d cut lodgepole pine.

A contract was awarded to Raygo-Wagner Company of Portland, Oregon, for the construction of a heavy duty, pre-production prototype version of the reduction head, which will be powered by the existing test bed prime mover, a HydroAx 1000. Engineers at San Dimas plan to have the new machine operating on the Deschutes NF next Spring.

**INVITATION TO READERS OF
*FIELD NOTES***

Every reader is a potential author of an article for *Field Notes*. If you have a news item or short article you would like to share with Service engineers, we invite you to send it for publication in *Field Notes*.

Material submitted to the Washington Office for publication should be reviewed by the respective Regional Office to see that the information is current, timely, technically accurate, informative, and of interest to engineers Service-wide (FSM 7113). The length of material submitted may vary from several short sentences to several typewritten pages; however, short articles or news items are preferred. All material submitted to the Washington Office should be typed double-spaced; all illustrations should be original drawings or glossy black and white photos.

Field Notes is distributed from the Washington Office directly to all Regional, Station, and Area Headquarters, Forests, and Forest Service retirees. If you are not currently on the mailing list ask your Office Manager or the Regional Information Coordinator to increase the number of copies sent to your office. Copies of back issues are also available from the Washington Office.

Each Region has an Information Coordinator to whom field personnel should submit both questions and material for publication. The Coordinators are:

R-1	Bill McCabe	R-4	Ted Wood	R-9	Norbert Smith
R-2	(Vacant)	R-5	Jim McCoy	R-10	Frank Muchmore
R-3	Bill Strohschein	R-6	Kjell Bakke	WO	Al Colley
		R-8	Bob Bowers		

Coordinators should direct questions concerning format, editing, publishing dates, and other problems to:

USDA Forest Service
Engineering Staff, Rm. 1108 RP-E
Attn: Gordon L. Rome or Rita E. Wright
12th & Independence Ave., S.W.
Washington, D.C. 20250

Telephone: Area Code 703-235-8198