

CONFERENCE FOR DRAINAGE ENGINEERS

to be held at the

UNIVERSITY OF GUELPH

FRIDAY, NOVEMBER 7, 1969

Sponsored jointly by the School of Agricultural Engineering, University of Guelph and the Drainage Committee, Ontario Land Surveyors.

Chairman: Professor R. W. Irwin, P. Eng.

- 9:45 Evaluating Drainage Benefit --- Dr. W. S. Young, P.Ag., Department of Crop Science, University of Guelph.
Paper will stress drainage needs, crop-soil capability, increase in value due to drainage improvement, economic disadvantages of ditches, returns from drainage including economic and/or aesthetic values.
- 10:30 Tile Drainage Engineering --- R. E. Clayton, P.Eng., Ontario Department of Agriculture and Food, Ridgeway.
Paper will point out the need for adequate outlets based upon current practice and the use of county soil maps and the Ontario Drainage Guide.
- 11:15 Drainage Water - How much and how often --- Dr. W. T. Dickinson, P.Eng., School of Agricultural Engineering, University of Guelph.
Paper will present methods of estimating the volume and peak rates of surface water discharge to be expected in Ontario.
Discuss how drainage design may use different criteria.
- 1:30 Legal Design Constraints --- R. D. Steele, Q.C., M.A., L.L.B., Steele and Magee, Chatham.
Emphasis on Sections 3 and 8 of The Drainage Act and supporting case law to set forth the bounds within which an engineer must work.
- 2:15 Distributing the Cost --- H.H. Todgham, P.Eng., O.L.S.
Todgham and Case, Chatham.
Paper will, through examples, use criteria set forth in previous papers to estimate the cost and prepare an assessment which will fairly distribute the total cost over the area.
- 3:15 Getting the Work Done --- C.M. Armstrong, P.Eng., O.L.S.
C.G. Russell Armstrong Associates Ltd., Windsor
Paper will discuss the report, estimates, construction costs and methods, problems, inspection and contracts.
- 4:00 Panel of previous speakers to summarize the program.

FORWARD

Interest in land drainage has engaged the serious attention of many people in agriculture, industry, government and universities over the past two decades. It has only been in the last decade that extensive work has been undertaken outside of southwestern Ontario. This land improvement practice has been the forerunner of a developing corn industry. Much land remains to be improved and experienced personnel have been hard pressed to keep up with the demand. The Drainage Engineers' Conference was conceived to lay a foundation by which less experienced engineers could learn something of the benefits and techniques by which drainage work might proceed with the least difficulty.

The large attendance at the conference bears strong evidence of the concern held by many that criteria are needed in the field to do an acceptable job. As larger areas are brought into initial production, or changing agricultural practice on presently improved land demands better drainage, the economic connotation becomes stronger and more difficult to deal with justly. In other words, many of the easy jobs have been done, the difficult remain.

It is acknowledged that the University of Guelph in its role as host, owes much of the success of the Conference to the Drainage Committee of the Association of Ontario Land Surveyors whose officers have taken a leading part. It has been a particular pleasure to welcome His Honour Judge S. L. Clunis, Drainage Referee for Ontario, to the Conference. A special thanks is extended to the authors whose record contained herein should provide a well-appreciated contribution to the literature of the municipal drainage field.

Finally, a word of appreciation for the efforts of the staff of the University of Guelph who contributed much to the operation and the publishing of this proceedings.

University of Guelph,
Guelph, Ontario.
November 7, 1969.

R. W. Irwin, P. Eng.
Extension Co-ordinator,
School of Agricultural Engineering.

BIOGRAPHIES OF AUTHORS

W. S. Young - Graduated Ontario Agricultural College, 1949. Awarded Doctor of Philosophy degree from Cornell University, 1959. Specialist in Agronomy and Extension Education. Presently Extension Co-ordinator, Ontario Agricultural College, University of Guelph.

R. E. Clayton - Graduated University of Toronto, 1959. Presently with the Agricultural Engineering Extension Service of the Ontario Department of Agriculture and Food and is located at the Ridgetown College of Agricultural Technology.

W.T. Dickinson - Graduated University of Toronto 1962. Awarded Doctor of Philosophy degree from Colorado State University 1967. Teaching and research in hydrology and water management at the School of Agricultural Engineering, University of Guelph.

R. D. Steele - Graduated University of Western Ontario, 1928 and Osgoode Hall Law School 1931. Senior partner in the law firm of Steele and Magee, 36 Fourth Street, Chatham.

H.H. Todgham - Graduated University of Toronto 1945. Apprenticed for O.L.S. with C.G.R. Armstrong and practiced with G.A. McGubbin. Principal in the firm of Todgham and Case Lts., Consulting Civil Engineers, 151 Thames Street, Chatham.

C.M. Armstrong - Graduated University of Michigan, Ann Arbor, 1949. Apprenticed for O.L.S. with C.G.R. Armstrong. Principal in the firm of C.G. Russell Armstrong Associates Ltd. Bartlet Building, Windsor.

List of Persons in Attendance.

Ontario Department of Municipal Affairs.

Hon S.L. Clunis, Judge's Chambers, Court House, Windsor.
W.M. McLeod, Assistant to Director, Subsidies Branch, 801 Bay St., Toronto 5.
A. Hazell, Senior Subsidies Officer, Subsidies Branch, 801 Bay Street, Toronto 5.
Frank Smith, Drainage Officer, Subsidies Branch, 801 Bay Street, Toronto 5.
R. Kearns, Verification Officer, Subsidies Branch, 801 Bay St., Toronto 5.
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Ontario Department of Agriculture and Food.

K.A. Clarke, Vineland Station.
J.E. Brubaker, School of Ag. Engineering, Guelph.
G.E. Tobey, Brighton
H.E. Bellman, Walkerton
G.L. Calver, School of Ag. Engineering, Guelph.
V.I.D. Spencer, County Buildings, London.
H.E. Wright, School of Ag. Engineering, Guelph.
G.S. Moggach, Clinton.
R.E. Clayton, Ridgetown College of Agricultural Technology, Ridgetown.
R.G. Gregg, Newmarket.
J.H. Nodwell, Lindsay
M. Kirik, North Bay.
J.C. Abercrombie, Alliston.
E. Jensen, Petrolia, P.O. Box 730.
R.D. Kelly, Kemptville.
J.P. Myslik, Brampton.
F. Kains, Kitchener.
G. Penfold, Markdale.
R.H. Johnston, Kingston.
R. Stone, Essex.
M.J. Riddle, Brantford.
R.D. Daynard, Hamilton.
N. Bird, Box 398, Stratford.
V. Biliski, St. Thomas.
D.E. Present, Stirling.
N.B. Sinclair, 26 Thorncliffe Place, Ottawa 6.

Ontario Department of Highways.

A.B. McIlmoyle, Senior Solicitor, Downsview.
J. Harris, Bridge Hydrology Engineer, Downsview.
J. Ford, Special Projects Design Engineer, Downsview.
R. Jenkins, Senior Project Design Surveyor, Road Design, London.
W. Zonnenberg, Regional Road Design Engineer, Road Design, London.
H.R.B. McIntyre, Senior Project Design Engineer, Road Division, London.

Ontario Water Resources Commission.

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Introductory Remarks

H. D. Ayers, Director.

School of Agricultural Engineering

Good morning Gentlemen, it is my privilege to open the Drainage Conference and welcome you here on behalf of the organizers of the conference, and particularly on behalf of the University of Guelph which unfortunately is unable to have you on the campus today.

We are, however, very pleased to have a part in a conference of this type. One of the University's major commitments is in the area of wise resource use and management, and this is exemplified by not only the study programs, but through the research activities and the extension work carried out. A wide range of study programs is offered at undergraduate and post-graduate levels. The major one, of course, is that in Agriculture. In addition, degree programs in Landscape Architecture, and Resources Development are provided at the University of Guelph.

A number of extension activities such as this, go on as part of the University's program, and you may know of the Drainage Contractors' Conference that is held annually and sponsored jointly by the University and by Ontario Department of Agriculture and Food Extension fieldmen; A very close relationship that exists between our people and the fieldmen throughout. I think we should acknowledge particularly the encouragement and the assistance given in the organization of this program by the Drainage Committee of the Ontario Land Surveyors Association. I especially want to say to Professor Irwin, who has put a good deal of work into this, that we are very pleased to have his efforts go into organizing this Conference.

We now turn this Conference over to Professor Irwin who will introduce the speakers and be your Chairman for the day.

Professor Irwin:

Thank you very much, it is a pleasure for me to also welcome you here today. Sometimes success can be your undoing, we originally expected we would get fifty people, they tell me there's almost as many over in Guelph right now as there are here today. This is a poor situation and I apologise to you.

The proceedings of this conference are being taped. We have the papers delivered by the authors, and, later on in the year for each person who is registered today, a copy will be mailed. I don't wish to promise too much, but hopefully before Christmas you'll have the complete proceedings of this conference. With this in mind we should get along to the first program paper.