1991

Polander Lake and Islands

Cal R. Fremling
Winona State University


8 17'02


9 17'02

ESF 10

12 Oct 00

Scenic Aerials

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December 12, 1991

Colonel Richard W. Craig
District Engineer, St. Paul District
Corps of Engineers
180 Kellogg Boulevard East
Room 1421
St. Paul, MN 55101-1479

Dear Colonel Craig:

I have reviewed the Draft Project Report concerning the rehabilitation of Polander Lake (Pool 5A) and have some comments.

I note that no studies were made of benthos (except for clams). Will before and after studies be made of benthos?

I worry that the impacts of flooding of Garvin Brook have not been adequately dealt with. I toured Polander Lake after last summer's flood of Garvin Brook and was impressed with the great suspended sediment load and amount of debris entering the area. The proposed flow reduction structure (Figure 21) and islands will increase the trapping efficiency of Polander Lake, causing sedimentation to be more rapid. Flow reduction may also result in lowered dissolved oxygen levels at the mud-water interface and commensurate loss of benthos. The islands themselves will replace valuable habitat for benthos such as burrowing mayflies.

Several of my colleagues and I who were involved in the Weaver Project wonder if islands should be placed anywhere until their impacts have been measured at Weaver. I believe that the present monitoring being done at Weaver is inadequate.

I personally believe that the island creation done at Weaver was a gross overkill and went far beyond the small islands proposed in our study. Local sportsmen are irate about the Corps using Weaver as a dumping area for dredge spoil. They blame the Corps and us for the recent alarming loss of aquatic macrophytes. We bear the brunt of the criticism because we live here and were involved in the project, yet we have not been consulted about island construction or anything else at Weaver since 1978. I wish that our team had been consulted about island size and configuration. The Weaver islands are too large and steep-sided. Unless they are armored they will erode, destroying additional aquatic habitat. The sheer weight of the islands has caused rebound of adjacent sediments, further decreasing pool depth.

In their 1977 hydrological report to the U.S. Fish and Wildlife Service, Dr. D.B. Simons and Dr. Y.H. Chen recommended that a few (one to five) small islands be constructed after laboratory studies in environmental wind-water tunnels. They further suggested that the islands should be spaced 3,000 feet apart and that they be protected from wave action with riprap with a diameter of 1-2 feet laid on a filter.

I believe that the configuration and size of the present islands were predicated on the amount of dredge spoil that had to be gotten rid of. I doubt that their size and configuration was determined by laboratory studies.

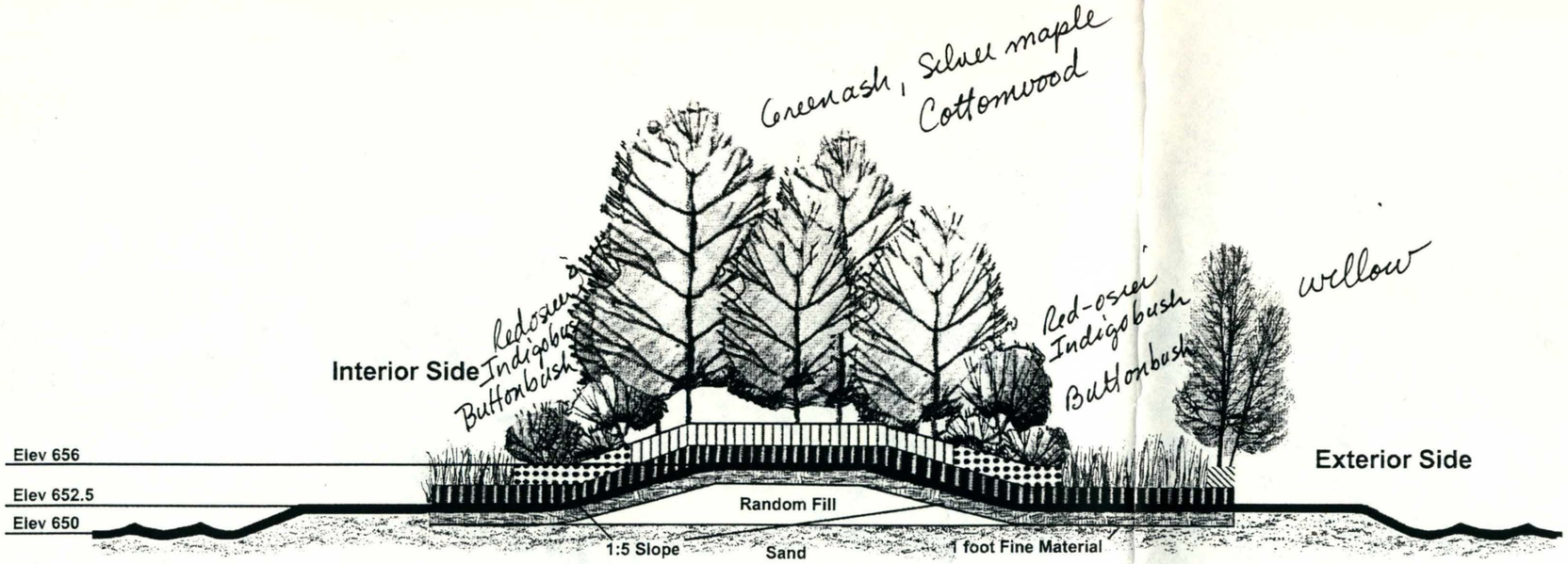
My colleagues and I are very familiar with the Polander Lake area. I have personally studied it, hunted it, and fished it for 32 years. I would have welcomed the opportunity to discuss it with your people in the early stages of the project.

Yours sincerely,

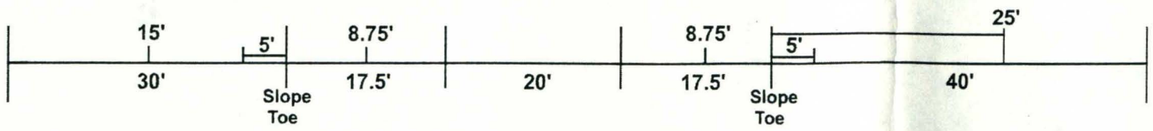
Calvin R. Fremling

Calvin R. Fremling
Professor Emeritus
Winona State University

jh
cc: Dennis Nielsen, Winona State University
Rory Vose, St. Mary's College
David McConville, St. Mary's College
Ray Faber, St. Mary's College



Cross Section P1 - Island 3



TREE/SHRUB KEY

- Willow Cuttings
- Shrub Group #3
- Tree Group #1
- Tree Group #2
- Shrub Group #4
- Shrub Group #5

GRASS KEY

- Seed Mix #1
- Seed Mix #2
- Seed Mix #3
- Beach Grass

REFERENCES: DWG. NO.:

PLANTING PLANS - - - - - - - - - - - - - - - - - 12/001-002
TYPICAL SECTION 9 - - - - - - - - - - - - - - - - 60/016

SYMBOL	DESCRIPTION	DATE	APPROVAL

US Army Corps of Engineers
St. Paul District

AE APPROVING OFFICIAL:

CONSTRUCTION DRAWINGS
POLANDER LAKE STAGE 2 - WILDS BEND EXCAVATION
ENVIRONMENTAL MANAGEMENT PROGRAM-CHANNEL MAINTENANCE
MISSISSIPPI RIVER POOL 5A WINONA CO., MINNESOTA
ISLAND CONSTRUCTION
CROSS SECTION P1
ISLAND 3

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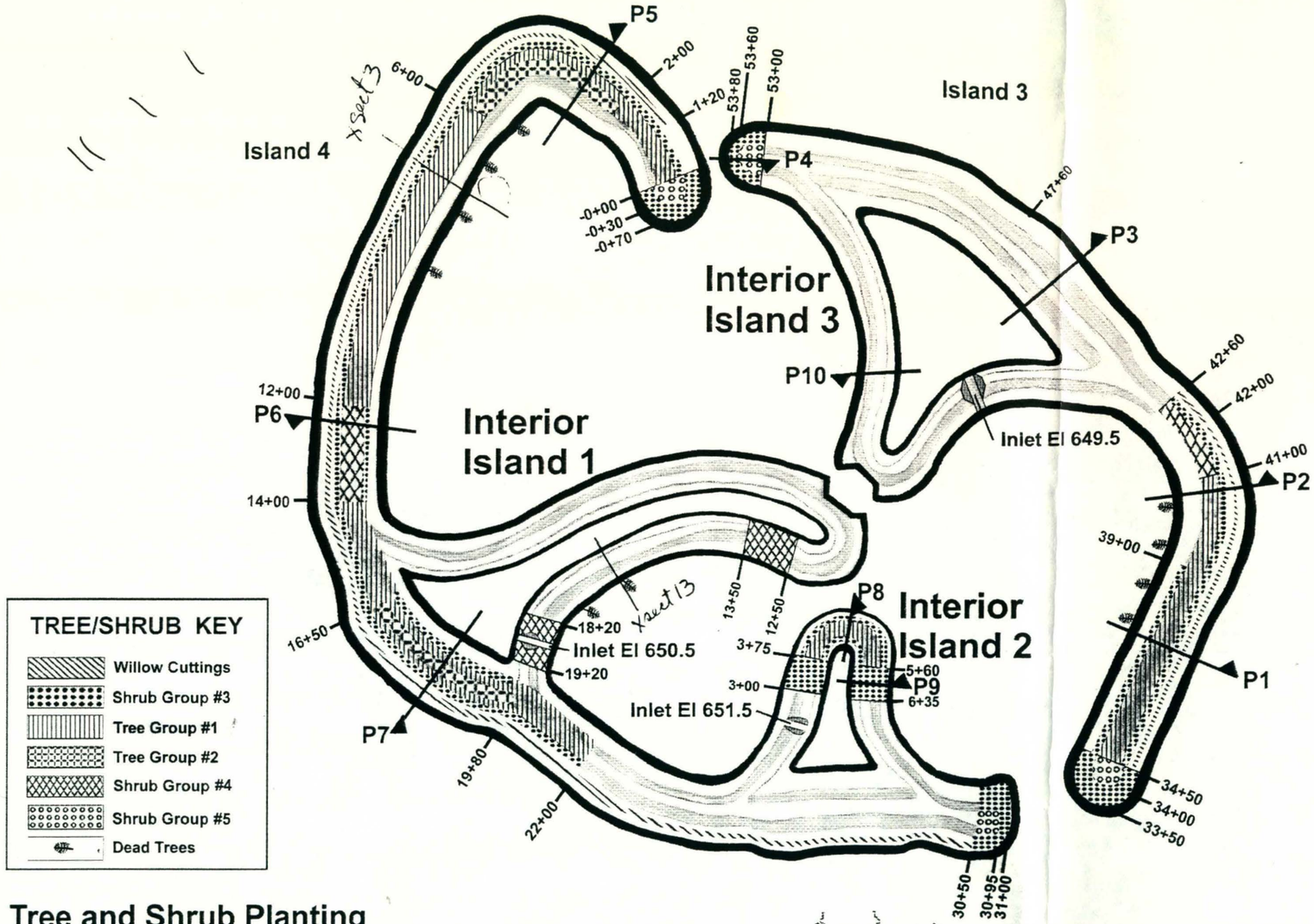
SHT 32 OF 39

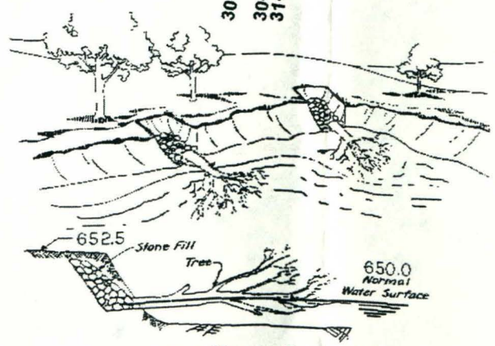


TREE/SHRUB KEY

- Willow Cuttings
- Shrub Group #3
- Tree Group #1
- Tree Group #2
- Shrub Group #4
- Shrub Group #5
- Dead Trees

Tree and Shrub Planting

Woody Plantings	Island 4	Island 3	Interior Island 1	Interior Island 2	Interior Island 3
Willow Cuttings	Sta. 1+20 to 30+45	Sta. 34+50 to 42+60	n.a.	n.a.	n.a.
Tree Group #1	Sta. 0+00 to 12+00 Sta. 14+00 to 22+00	Sta. 34+50 to 41+00	n.a.	Sta. 3+75 to 5+60	n.a.
Tree Group #2	Sta. 2+00 to 6+00 Sta. 16+50 to 19+80	n.a.	n.a.	n.a.	n.a.
Shrub Group #3	Sta. -0+70 t 22+00 Sta. 30+50 to 31+00	Sta. 33+50 to 42+60 Sta. 53+00 to 53+80	n.a.	Sta. 3+00 to 6+35	n.a.
Shrub Group #4	Sta. 12+00 to 14+00	Sta. 41+00 to 42+60	Sta. 12+50 to 13+50 Sta. 18+20 to 19+20*	n.a.	n.a.
Shrub Group #5	Sta. -0+30 to 0+00 Sta. 30+50 to 30+95	Sta. 34+00 to 34+50 Sta. 53+00 to 53+60	n.a.	n.a.	n.a.



Typical Section - Dead Trees

NOTE:
THE CONTRACTOR WILL PLACE 10 TREE TRUNKS ON THE INTERIOR OF THE ISLAND COMPLEX TO SERVE AS TURTLE AND WATERFOWL LOAFING SITES. THE LOCATIONS WILL BE DESIGNATED BY THE CONTRACTING OFFICER. THE TREE TRUNKS SHALL BE A MINIMUM LENGTH OF 25 FEET AND SHALL HAVE A MINIMUM DIAMETER OF 14 INCHES AT THE BUTT END. FIVE FEET OF THE BUTT END OF THE TREE SHALL BE EMBEDDED INTO THE ISLANDS BY EXCAVATING A HOLE INTO THE ISLAND DOWN TO ELEVATION 651.0 AND PLACING THE BUTT END OF THE TREE TRUNK INTO THE HOLE (WITH THE TREE IN AN APPROXIMATE HORIZONTAL POSITION). THE HOLE SHALL BE BACKFILLED WITH ROCK SIMILAR IN NATURE TO THE ROCK USED FOR THE ROCK GROINS.

Tree Group 1

Green ash, Silver maple, Cottonwood

Tree Group 2

Bur oak, Swamp white oak, Hackberry

Shrub Grp #3

Red-osier dogwood, Indigobush, Button bush

Shrub Grp #4

Nannyberry, Winterberry, Chokecherry

Shrub Grp #5

Red-osier dogwood, Nannyberry

REFERENCES: DWG. NO.:

SITE PLANS ---------- 60/002-006

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ISLAND CONSTRUCTION
PLAN VIEW
TREE AND SHRUB PLANTING PLAN

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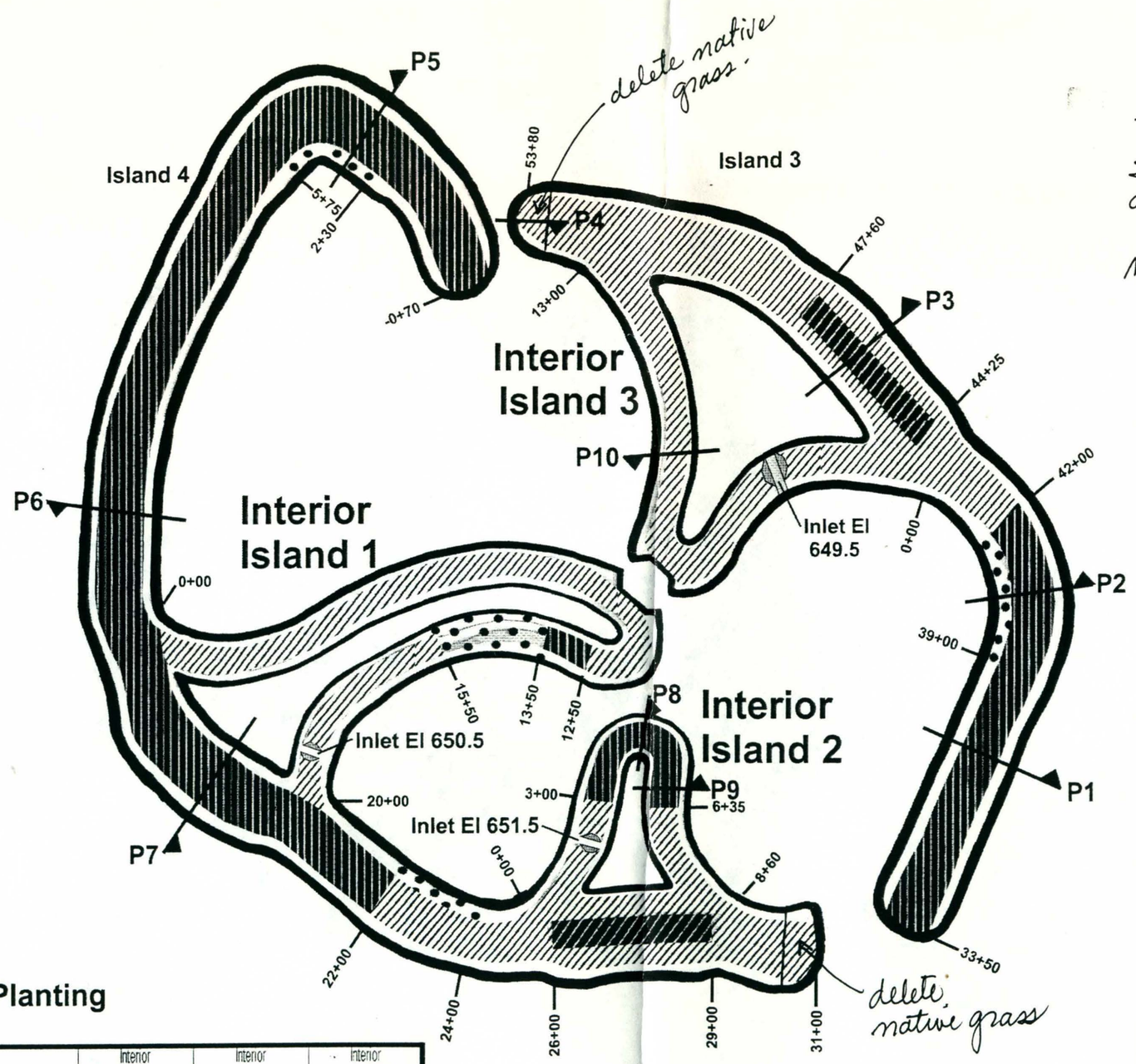

KEY

- Seed Mix #1
- Seed Mix #2
- Seed Mix #3
- Beach Grass

Grass and Forbs Planting

Grass/Forb Plantings	Island 4	Island 3	Interior Island 1	Interior Island 2	Interior Island 3
Seed Mix #1	Sta. -0+70 to 22+00	Sta. 33+50 to 42+00	Sta. 12+50 to 13+50	Sta. 3+00 to 6+35	n.a.
Seed Mix #2	Sta. 26+00 to 29+00	Sta. 44+25 to 47+60	n.a.	n.a.	n.a.
Seed Mix #3	Sta. 22+00 to 31+00	Sta. 42+00 to 53+80	Sta. 0+00 to 12+50 Sta. 15+50 to 20+00"	Sta. 0+00 to 3+00" Sta. 6+35 to 8+60	Sta 0+00 to 13+00" n.a.
Beach Grass	Sta. 2+30 to 5+75 Sta. 22+00 to 24+00	Sta. 39+00 to 42+00	Sta. 13+50 to 15+50	n.a.	n.a.

Seed Mix #1

Alfalfa, Sm. brome, Timothy
Oats

Seed Mix #2 - Dry

Indiangrass, Can. wildrye, Side-oats, Little bluestem, Sand dropseed, Oats
Prairieclovers, Partridgepea, Max. sunflower, Black-eyed susan

Seed Mix #3 - Dry, mesic

Canada wildrye, switchgrass, Indiangrass, Big bluestem, Prairie cordgrass, Bluejoint reedgrass, + oats

Black-eyed susan, prairie clovers, Max. sunflower

REFERENCES: DWG. NO.:

SITE PLANS 60/002-006

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GRASS AND FORBS PLANTING PLAN

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