

2/69
8/70 addendum / Supplement

COPY

PLAN OF RECLAMATION

FOR

SAN CARLOS ESTATES DRAINAGE DISTRICT

HYDROLOGIC AND DESIGN CRITERIA

A. General

The land comprising the San Carlos Estates Drainage District is located in the Southwestern portion of Lee County, Florida, just 1-1/2 miles North of Bonita Springs, Florida.

The land is generally flat with a fall of approximately 1 ft. per mile to the South and West. Elevations in the northern part are 14 to 15 ft. above mean sea level and fall to 12 feet in the Southwestern portion.

Water from the area flows Southwesterly in shallow streams to several concrete box culverts under U. S. Highway 41 and continues to Spring Creek thence on out to the Gulf of Mexico.

Native vegetation consists of second growth pine on the higher lands with cypress and water loving trees in the slough and pond areas. Wire grass, reeds and palmetto are the chief low growing native plants.

The soil is primarily light sand with a stained layer at 18 to 24 inches. Clay underlies some of the area at 18 to 30 inches deep. Rock is present over a portion of the area varying in depth from 21 to 36 inches below the surface. Detailed investigations were not made to determine the extent of the underlying rock strata.

Tests for percolation of water were made to determine the use of septic tanks and water samples were taken from existing weels and tested for potability.

The boundaries of the District are shown on Plate II and the following is a description of lands in San Carlos Estates Drainage District:

In Township 47 South, Range 25 East, Lee County, Florida

Section 14 - The North half (N-1/2)

Section 15 - All that portion lying East of Atlantic Coast Line Railroad right-of-way excepting a tract of land described as follows: Beginning at a point on the line common to Sections 15 and 22, which point is westerly along said line for 4,026.5 feet from the Southeast corner of said Section 15, run westerly to the right-of-way line of the Atlantic Coast Line Railroad,

thence run northerly along said railroad right-of-way line, .65 feet from the center line, to a point 760 feet North of said Section line common to Sections 15 and 22; thence run easterly parallel with said Section line to a point of intersection with a line through the point of beginning parallel with the West line of said Section 15; thence run South along said line parallel with said West line of said Section 15 for 760 feet to the point of beginning; and also including a tract of land being bounded on the North by the easterly extension of the North line of Lot 14 of Block 15, Bonita Terrace Subdivision and on the South by the easterly extension of the South line of Lot 17 of Block 15 of said Bonita Terrace Subdivision, as recorded in the Public Records of Lee County, Florida in Plat Book 8 at Page 23.

Section 16 - Lots 14, 15, 16 and 17 of Block 15, Bonita Terrace Subdivision, according to the map or plat thereof on file and recorded in the office of the Clerk of the Circuit Court of Lee County, Florida in Plat Book 8 at Page 23.

Section 22 - A tract or parcel of land lying North and East of U. S. Highway #41 more particularly described as follows: From the Southeast corner of said Section 22 run N. $83^{\circ}36'30''$ W. along the South line of said Section 22 for 192.31 feet to an intersection with the northeasterly right-of-way line of said U. S. #41; thence run N. $45^{\circ}27'40''$ W. along said right-of-way line (50 feet from the center line) for 880 feet to a concrete monument; thence run N. $44^{\circ}32'20''$ E. Perpendicular to said right-of-way line for 1,130.31 feet to a concrete monument on the East line of said Section 22; thence run N. $1^{\circ}01'00''$ W. along said Section line for 271.62 feet to a POINT OF BEGINNING, thence run N. $45^{\circ}29'50''$ W. for 5,746.1 feet to a point on the southeasterly boundary of the lands conveyed by and described in deed recorded in Deed Book 321 at Page 493, Public Records of Lee County, Florida, which point is S. $44^{\circ}32'20''$ W., and thence northeasterly along this boundary line 22.12 feet to the concrete monument on the North line of Section 22, thence East to the Northeast corner of said Section, thence South along the East line of said Section to the point of beginning.

In addition to these above described lands it is anticipated that rights-of-way for Outfall canals leading South and Westerly to the concrete box culverts under U. S. Highway #41 will be acquired. As these easements are acquired this Plan will be amended to include them.

B. Climatology

The district is located in Southwest Florida which has climate characterized as sub-tropical. Its nearness to the Gulf of Mexico causes temperatures to be moderated to the effect that extreme highs and lows are very rare. Winter weather is generally mild with freezing temperatures occurring for only short and infrequent periods between December and February. The annual mean

temperature is 75.7 degrees Fahrenheit as recorded at Naples, Florida with variation of 98 degrees for a maximum high and 30 degrees for a minimum low. The average annual rainfall as recorded at Naples (the nearest recording station) is 51.5 inches annually.

C. Water Control Design Criteria

The area is very flat with only shallow sloughs that serve to drain the excess water. The water control plan is designed to remove the drainage and flood water based upon the observed discharges on South Florida Canals compiled by the U. S. Corps of Engineers. This criteria is slightly greater than four inches run-off in 24 hours for areas less than 2 sections in area.

A system of wide shallow Main and Lateral canals is utilized so as to not over drain the area, but remove only excess water from storms and normal drainage. A system of "W" type ditches is utilized for the sub-lateral canals. The access roads will be built using spoil from all ditches and canals for stabilizing material. Culverts will be used for crossing the Main and Lateral canals.

DISCUSSION OF THE FUNCTIONING OF THE
WATER CONTROL PLAN

A. General

The Plan of Reclamation provides benefits to the Drainage District through its principal features of the Water Control Plan which consist of:

1. Perimeter Canal and Dike
2. Main Canals
3. Lateral Canals
4. Sub-lateral Canals
5. Access Roads adjacent to canals
6. Outlet

B. Water Control Plan

The Water Control Plan is shown in Plate III including the Main, Lateral and Sub-lateral canals, the outlet canals leading to the concrete box culverts under U. S. Highway 41 and thence to Spring Creek which empties into the Gulf of Mexico.

➤ 1. Perimeter Canals and Dikes

The perimeter canals and adjacent dikes will be constructed on all sides of the property except the west side along the Atlantic Coast Line Railroad where water moves away rather than onto the property. A low level dike is to be constructed from the spoil on the outside of the perimeter canal. Any water from areas that would naturally drain across the district will be permitted to flow through culverts under the dike into the perimeter canals. The shaped spoil serving as a dike will be seeded with grass to control erosion.

2. Main Canals

Two Main Canals running north and south collect water from the Lateral canals and conduct it to the Outlets. The spoil from the Main Canals will be shaped sloping away from the canals for roadways. Culverts will be located in the Main Canals for road crossings.

3. Lateral Canals

The Lateral Canals run east and west collecting water from the Sub-lateral canals and conveying it to the Main Canals. Spoil from these canals will also be shaped to slope away from the canals to serve as roadways. Culverts will be installed where necessary for road crossings.

4. Sub-Lateral Canals

The Sub-lateral Canals run North and South and are centered on the 1/4, 1/4 1/4, and 1/4 1/4 1/4 lines except where Main Canals are located. They are designed to be "W" type ditches, grading the material for a roadway. These will empty into Lateral Canals via culverts utilized as drop inlets or propped outlets. These will provide access to all tracts not adjacent to the Main or Perimeter Canals.

5. Access Roads Adjacent to Canals

Roads for access to all tracts will be made by shaping spoil from all canals to stabilize the roadways. Culverts will be used for roads to cross the canals.

6. Outlets

The excess water from the District presently passes through sloughs and shallow streams to concrete box culverts under U. S. Highway 41, thence to Spring Creek and out to the Gulf of Mexico. Elevations to the west of the highway fall below 10 ft. M.S.L. and at Spring Creek are below 5 ft. M.S.L. within one-half mile of U. S. Highway 41. It is planned to improve the outlet canals to the culverts under the highway.

C. Estimated Construction Costs

The costs of construction for the proposed facilities of the San Carlos Estates Drainage District are calculated based on prevailing prices for similar work. No costs have been allowed for rights-of-way land.

Clearing R.O.W.	\$50,000
Excavation	19,535
Culvert Crossings	19,250
Road Shaping	<u>11,615</u>
Sub-Total	100,400
Engineering	10,000
Contingencies	<u>10,000</u>
TOTAL ESTIMATED COST	\$120,400
Average cost per acre	\$ 110.50

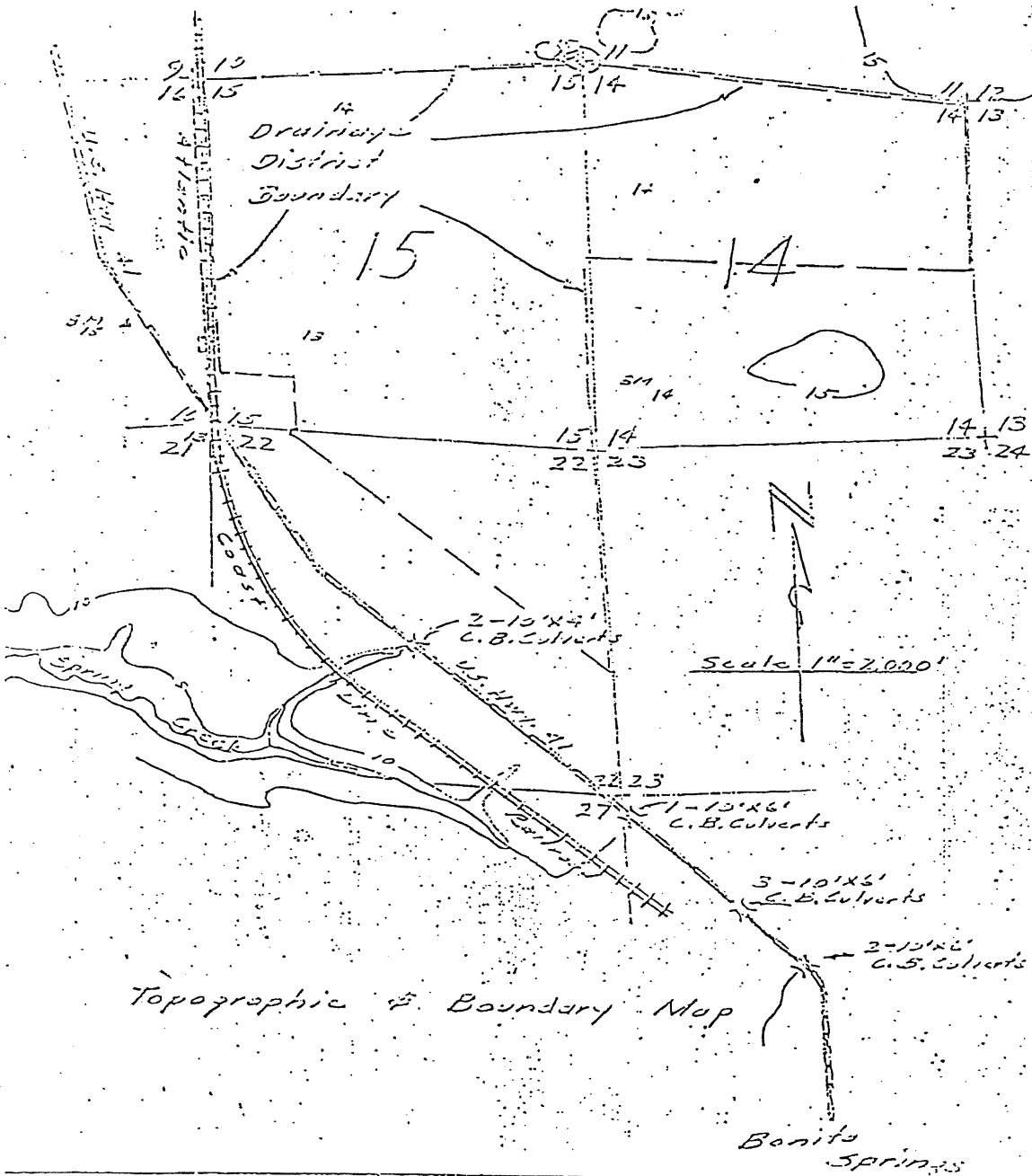
D. Recommendations

It is recommended that:

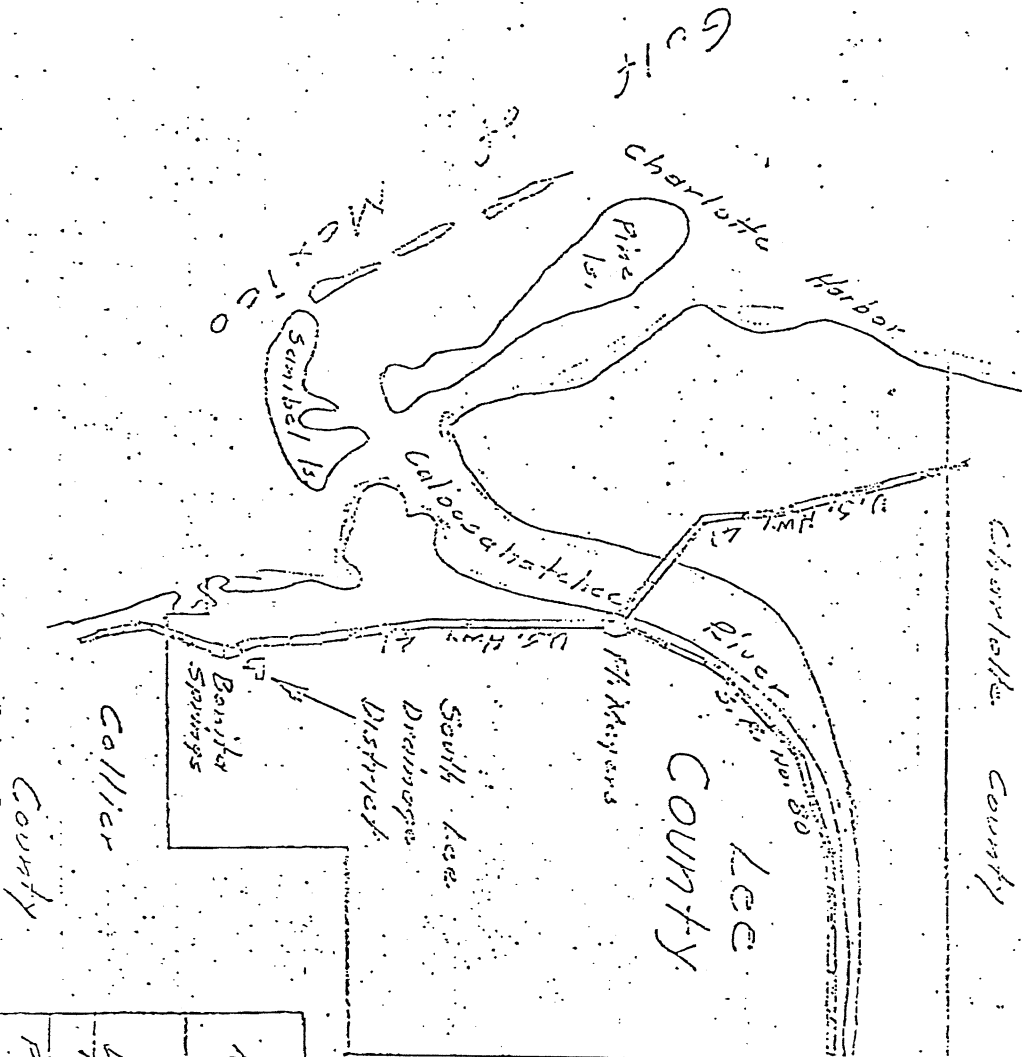
1. San Carlos Estates Drainage District be organized pursuant to Chapter 298, Florida Statutes.
2. This Plan of Reclamation be approved by the Board of Supervisors of San Carlos Estates Drainage District.
3. The Plan of Reclamation be submitted to the Florida State Road Engineering Department for comment after approval by the Board of Supervisors.
4. The District acquire by due process the rights-of-way for facilities included in the Plan of Reclamation.
5. The District establish such rules, regulations and procedures as are needed for orderly operation of the Plan of Reclamation.
6. Construction be commenced and proceed in accordance with the Plan of Reclamation until complete.

AGRINEERS, INC.

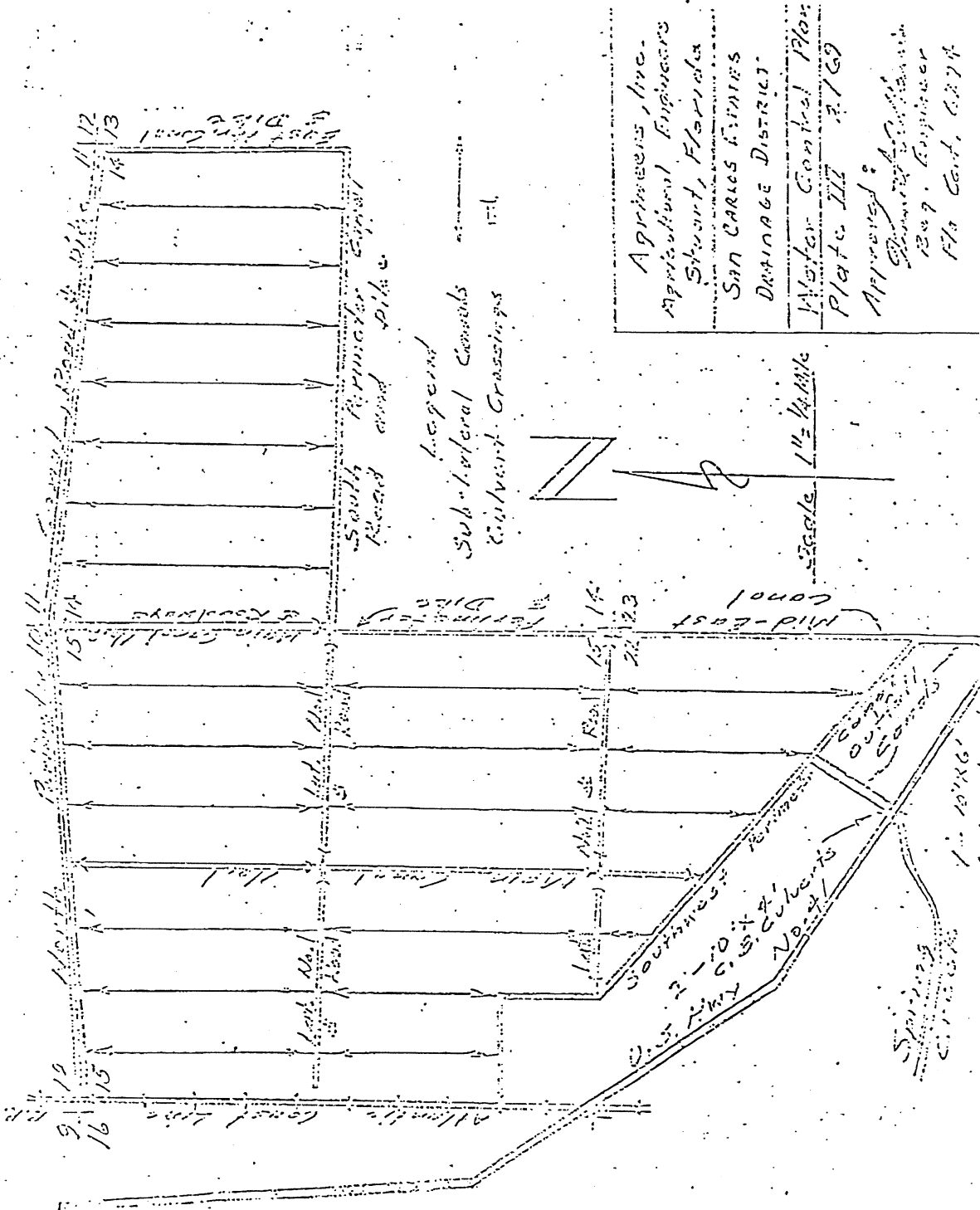
Kenneth A. Harris
Professional Engineer
Florida Certificate No. 6274



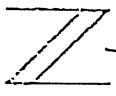
Approved 2/69 [Signature] Date 2/18/78	Plate II	Agrineers, Inc. SAN GABRIEL COUNTY DRAINAGE DISTRICT
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Agronomers, Inc.
 Agricultural Engineers
 Stuart, Florida
 San Carlos Estates
 Drainage District
 VICINITY PLAN
 Plate I Date 2/69
 Approved:
 [Signature]
 [Signature]
 [Signature]



Agrimeers, Inc.
 Agricultural Engineers
 Stuart, Florida
 SAN CARLOS FIATERS
 DRAINAGE DISTRICT
 Water Control Plan
 Plate III 3/769
 Approved:
 [Signature]
 Reg. Engineer
 Fla. Cert. 6874



Scale 1" = 1/4 Mile

8-19-70

ADDENDUM TO THE PLAN OF RECLAMATION
FOR SAN CARLOS ESTATES DRAINAGE DISTRICT

I N T R O D U C T I O N

The purpose of this Addendum is to provide an outfall canal and revise the perimeter canals for the San Carlos Estates Drainage District.

ADDENDUM TO THE PLAN OF RECLAMATION
FOR SAN CARLOS ESTATES DRAINAGE DISTRICT

I.

Outfall Canal -

The outfall canal will run from two 10' x 4' concrete box culverts under U. S. Highway 41, northeasterly to the property intersecting the perimeter canal. The two box culverts under Highway 41 have an invert of 8.5 feet mean sea level. When flowing full, this opening will provide discharge capacity of over 9 inches runoff in 24 hours for the equivalent of two sections of land.

The outfall canal will be approximately 50 feet wide by 5 feet deep, necessitating excavation into the rock of approximately two feet.

II.

Perimeter Canal, Dike and Road -

The perimeter canal will encircle the entire area of the Drainage District, and will consist of a canal on the exterior to collect water from the outside, adjacent areas and conduct it around the Drainage District, thus

preventing overland flow of water from the north and east. Spoil from this perimeter canal will be placed on the inside of the perimeter canal and serve as a low-level dike and road, further preventing overland flow of water from adjacent areas.

III.

Estimated Cost -

The outfall canal is estimated to cost approximately \$6.50 per foot to remove an average of 3 yards of rock per foot and 5 yards of sandy material; thus, the cost of the outfall canal is estimated at \$10,000.00.

IV.

Perimeter Canal -

The perimeter canal and dike will change in the cost due to cross-section changes herein scheduled. Approximately three miles of the perimeter canal will be deepened into the underlying rock; and, thus, the cost for excavating three miles of rock is estimated to be approximately \$40,000.00.

V.

Summary -

The cost for the outfall canal and rock excavation in the perimeter increases our total estimated cost by

\$50,000.00; thus, the total estimated cost will be
\$170,400.00.

9. 19, 1970

SUPPLEMENT NO, 1
to the
PLAN OF RECLAMATION
for the
SAN CARLOS ESTATES DRAINAGE DISTRICT

Prepared for
THE BOARD OF SUPERVISORS
SAN CARLOS ESTATES DRAINAGE DISTRICT
LEE COUNTY, FLORIDA

Prepared by
AGRINEERS, INC.
Consulting Engineers
Stuart, Florida

August 1970

AGRIENGINEERS, INC.

Agricultural Engineers

Tel. 287-2758

August 1970

Rt. 2, So. Carolina Drive
Stuart, Florida 33494

Board of Supervisors
San Carlos Estates Drainage District
866 Ponce de Leon Blvd.
Coral Gables, Florida 33134

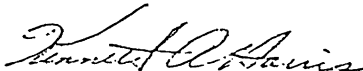
Gentlemen:

Pursuant to your instructions of August 1970, Supplement No. 1 to the Plan of Reclamation of the San Carlos Estates Drainage District is submitted in accordance with the provisions of Chapter 298, Florida Statutes 1941, otherwise known as the General Drainage law.

This Supplement contains a revised plan for draining and reclaiming the lands of the District in order to provide drainage outlets and to eliminate or change certain Main and Lateral canals in order to better utilize the lands for residential purposes.

The information contained in this Supplement No. 1 supersedes any data to the contrary in the original Plan of Reclamation.

Yours very truly,
Agrineers, Inc.
Consulting Engineers



Kenneth A. Harris
Registered Professional Engineer
Florida Certificate No. 6274

KAH/ljc

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INTRODUCTION

The purpose of this Supplement No. 1 to the Plan of Reclamation for the San Carlos Estates Drainage District is to present a revised drainage plan with certain changes in the Main and Lateral Canals to better utilize the lands of residential purposes.

The original plan of Reclamation was prepared in February 1969 with rights of ways for the District facilities pending the final drafting of the layout plan for the tracts and lots. The layout plan has been completed and the Rights of Way deeded to the District. The attached Rights-of-Way Plan is in accord with the deeded Rights of Way and with the Drainage Plan.

The revised plan also covers the improvement of existing outlets and alternate outlets to the Imperial River.

The basic requirements for protection against flooding and for control and conservation of water for residential purposes are met by this revised plan.

DISCUSSION OF THE PLAN OF RECLAMATION

The revised water control plan is designed to remove the drainage and flood water based upon the observed discharges on South Florida Canals compiled by the U.S. Corps of Engineers. This criteria is slightly less than four inches run-off in 24 hours for areas less than two sections in size.

A. General

The plan of Reclamation provides benefits to the drainage District through its principal features of the Water Control Plan which consist of:

1. Perimeter Canal and Dike
2. Main Canals
3. Lateral Canals
4. Access Roads adjacent to canals
5. Outlets

B. Water Control Plan

The Water Control Plan is shown attached including the Main, Lateral and Perimeter canals, the outlet canals leading to the concrete box culverts under U.S. Highway 41 and thence to Spring Creek which empties into the Gulf of Mexico.

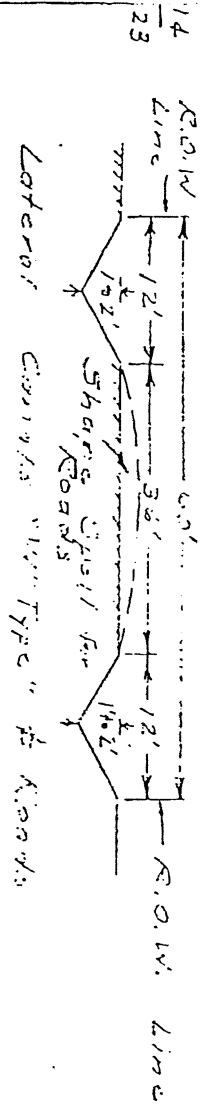
1. Perimeter Canals and Dikes

The perimeter canals and adjacent dikes will be constructed on all sides of the property except the west side along the Seaboard Coast Line Railroad where water moves away rather than onto the property. A low level dike is to be constructed from the spoil on the outside of the perimeter canal. Any water from areas that would naturally drain across the district will be permitted to flow through culverts under the dike into the perimeter canals. The shaped spoil serving as a dike will be seeded with grass to control erosion.

*Superseded
by Addendum
dated Aug. 19, 1974*

2. Main Canal

The Main Canal runs across section 15 starting at the Southwesterly portion curving to the north to enter Section 14 just above the midpoint, thence continuing across the Southerly portion of the Northerly one-half of Section 14. An access road parallels either side of the Main Canal providing a central access to the area. The Main Canal receives the water from the Lateral Canals via corrugated metal pipe serving as propped outlets. A crossing will be provided in the Main Canal every $\frac{1}{4}$ mile by installing a corrugated metal pipe for convenience.



Note: ACCMP to be used as Proposed Outlets for conveying water from Lateral "W" Canals into Transverse canals.

Dimensions taken from Map of Survey by Carl E. Johnson, Inc. L.S. & Eng'rs, dated February 1969

Proposed outfall canal to carry 182 C.F.S from District.

SAN CARLOS ESTATES
DRAINAGE DISTRICT
Lee County, Florida

[Signature]
OFF-WAY MAP
& DRAINAGE

Prepared by:
Agrinners, Inc.
515 So Carolina Drive
Stuart, Florida.

Approved by:
[Signature]
Ray Egan, M.D. 6274

Sheet 1 of 1 August 1970

3. Lateral Canals

The lateral canals run North and South spaced every 1/8 mile (section distance) to provide drainage and access for each tract. The canals will be constructed as two parallel "V" ditches as shown on the typical cross-section of the attached Right-of-Way Map for Access and Drainage. Each lateral canal will drain into the Main Canal or the Perimeter Canal through corrugated metal pipe.

4. Access Roads Adjacent to Canals

Roads for access to all tracts will be made by shaping spoil from all canals to stabilize the roadways. Culverts will be used for roads to cross the canals.

5. Outlets

The excess water from the District presently passes through sloughs and shallow streams to concrete box culverts under U.S. Highway 41, thence to Spring Creek and out to the Gulf of Mexico. Elevations to the west of the highway fall below 10 ft. M.S.L. and at Spring Creek are below 5 ft. M.S.L. within one-half mile of U.S. Highway 41. It is planned to improve the outlet canals either to the culverts under the highway, thence to the railroad and to Spring Creek or directly South to the Imperial River.

Outlets under U.S. Highway 41 starting in the approximate center of section 22 and continuing Southeast to Bonita Springs consist of two 10 ft X 4 ft concrete box culverts: one 10 ft X 6 ft concrete box culverts at the intersection of sections 22, 23, 26 and 27; three 10ft X 6ft concrete box culverts in the approximate center of the NW $\frac{1}{4}$ of section 26 and two 10 ft X 6 ft concrete box culverts in the approximate center of section 26. In Bonita Springs a bridge is under U.S. Highway 41 over the Imperial River. With this amount of outlets under the highway it is considered sufficient to convey the water from the Drainage District and adjacent lands providing channels are excavated to conduct it to the culverts and bridge, to the railroad and thence to Spring Creek as one possible outlet.

C. Recommendations

It is recommended that:

1. The Board of Supervisors of the San Carlos Estates Drainage District adopt this Supplement No. 1 to the Plan of Reclamation.
2. Construction be continued on a progressive schedule to institute the facilities of the Drainage District.
3. The District acquire by due process the rights of way for the Outlet canal either to Spring Creek or the Imperial River.

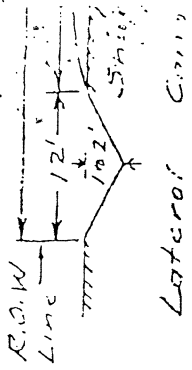
AGRIENGINEERS, INC.

Kenneth A. Harris

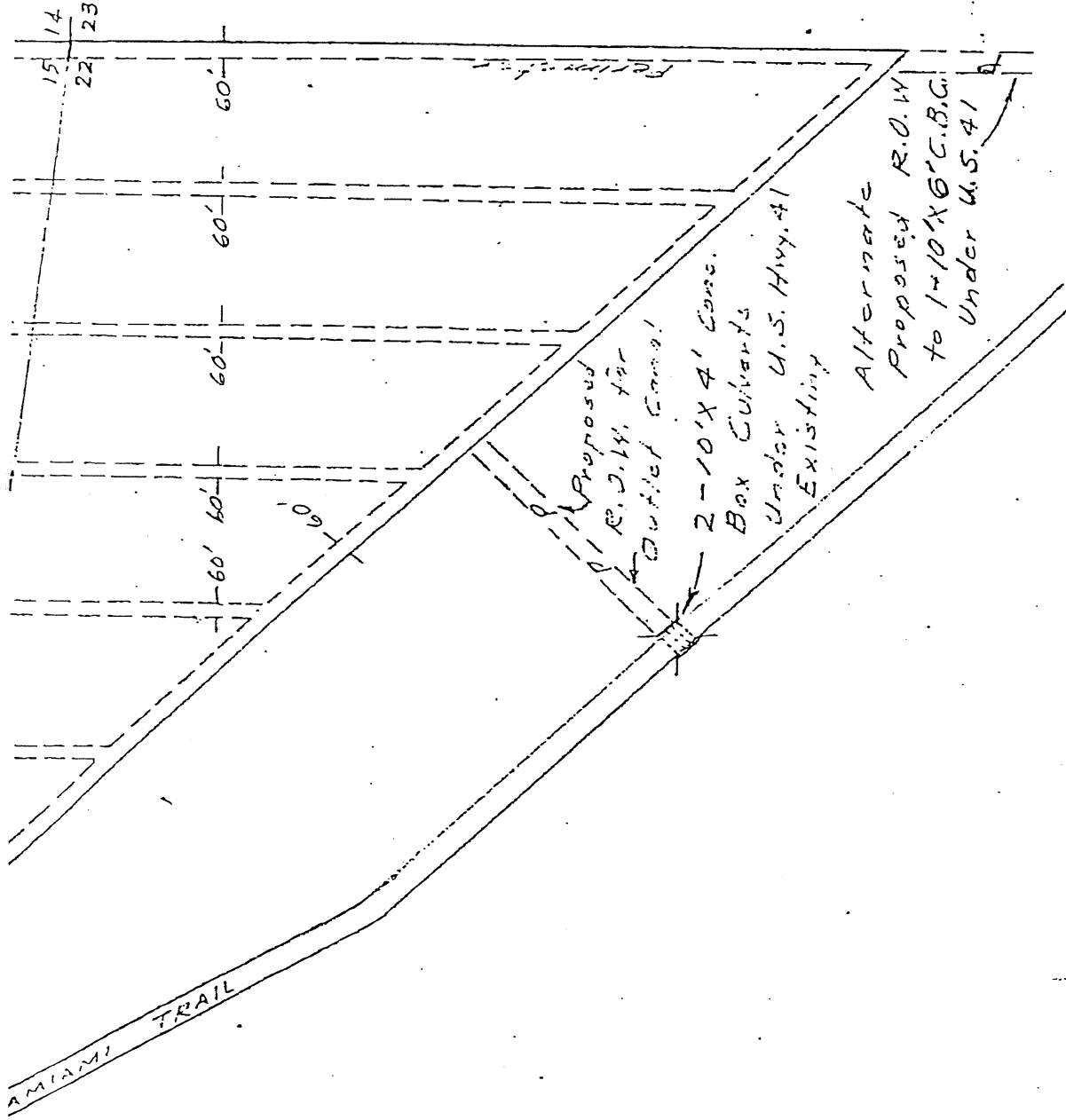
Kenneth A. Harris

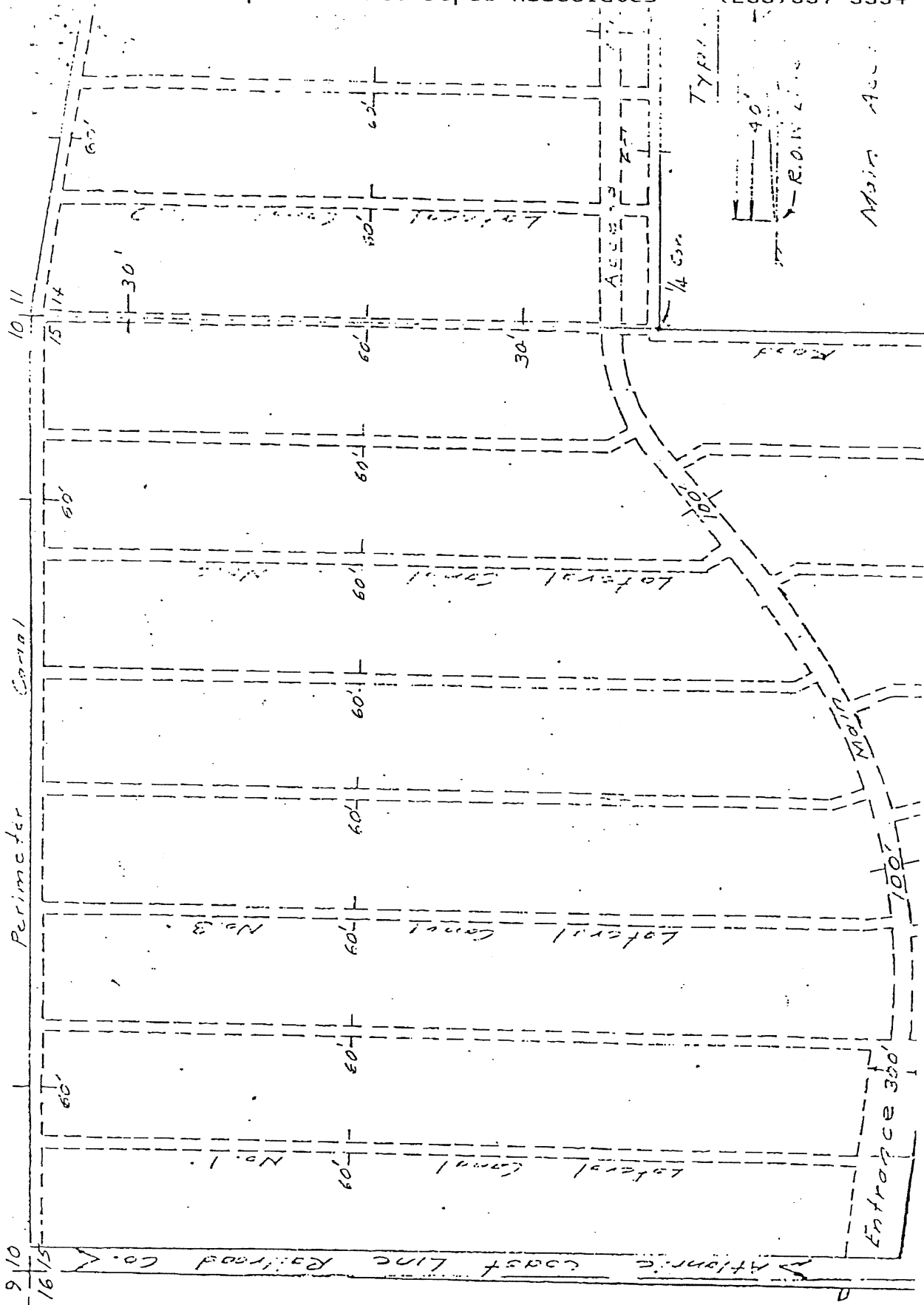
Professional Engineer

Florida Certificate No. 6274

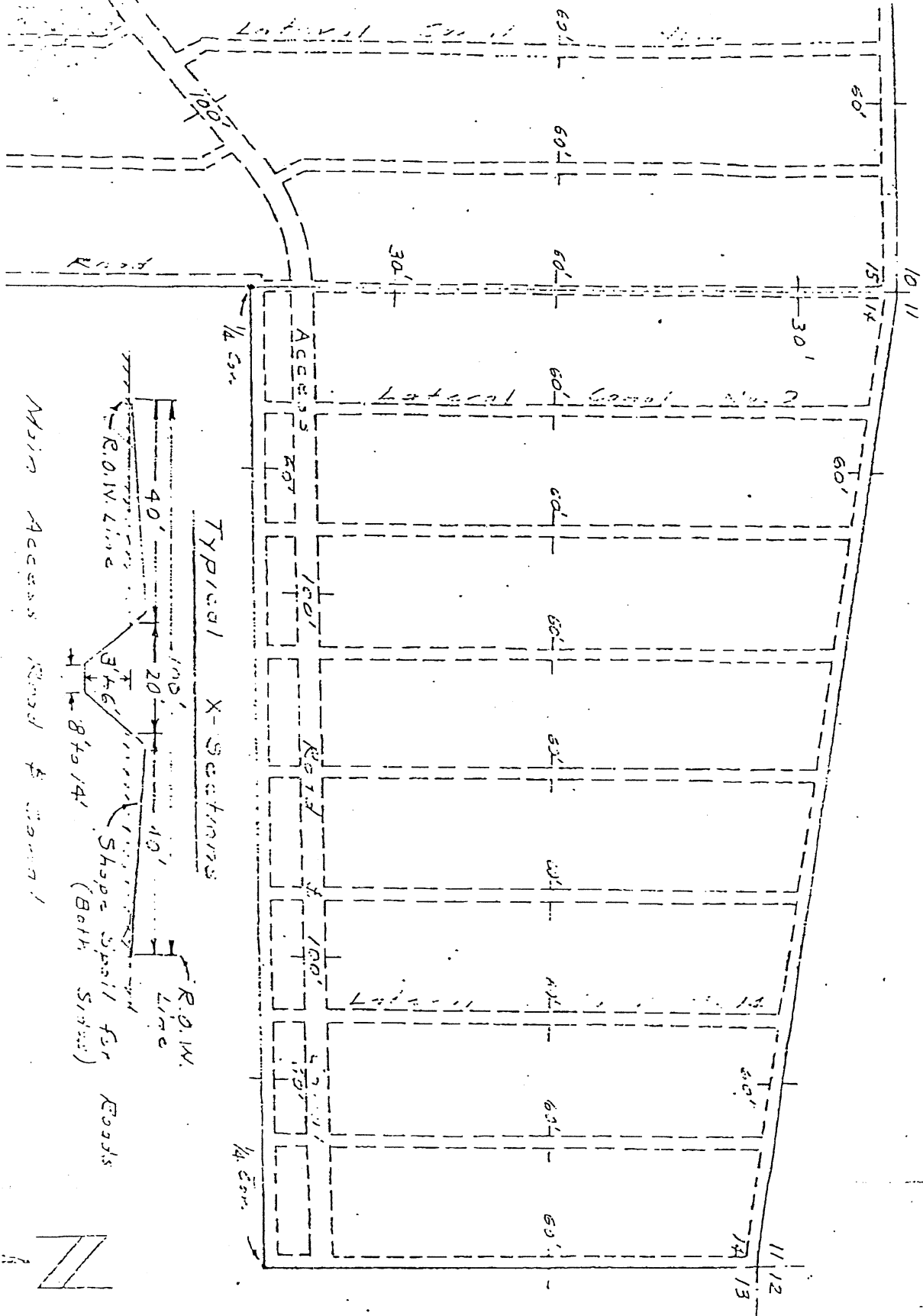


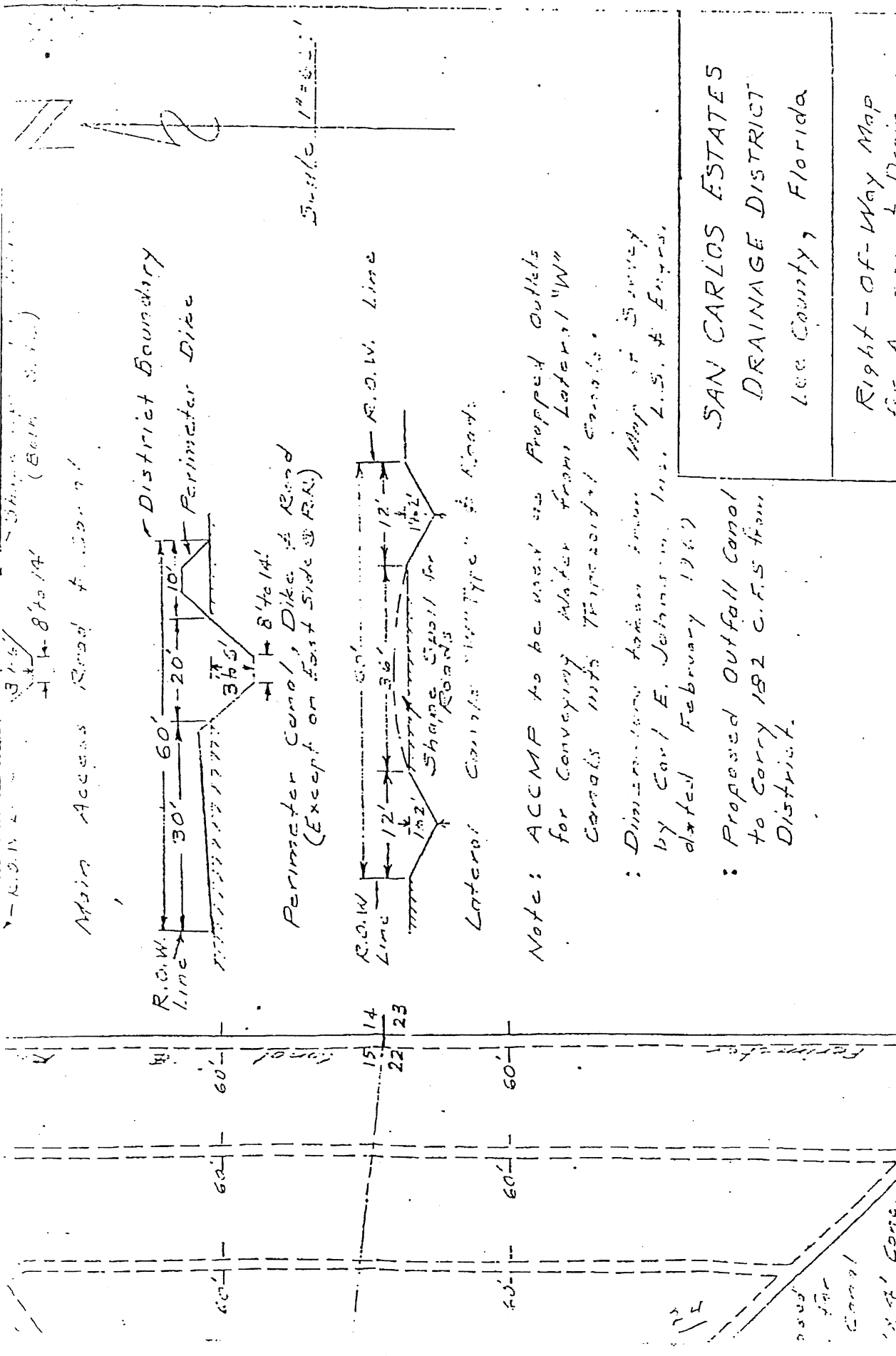
Note: ACCIMP
for Canal
Canals
: Dimensions
by Canal
dated Feb
: Proposed
to Carry
District.





U.S.





Main Access Road 8' to 14' (Elev. 3.00)

R.O.W. Line
District Boundary
Perimeter Dike

Perimeter Canal, Dike & Road (Except on East Side @ R.R.)

R.O.W. Line
R.O.W. Line
Lateral Canal "Type" & Road

Note: ACCMP to be used as Propped Outlets for Conveying Water from Lateral "W" Canals into Truncated Canals.

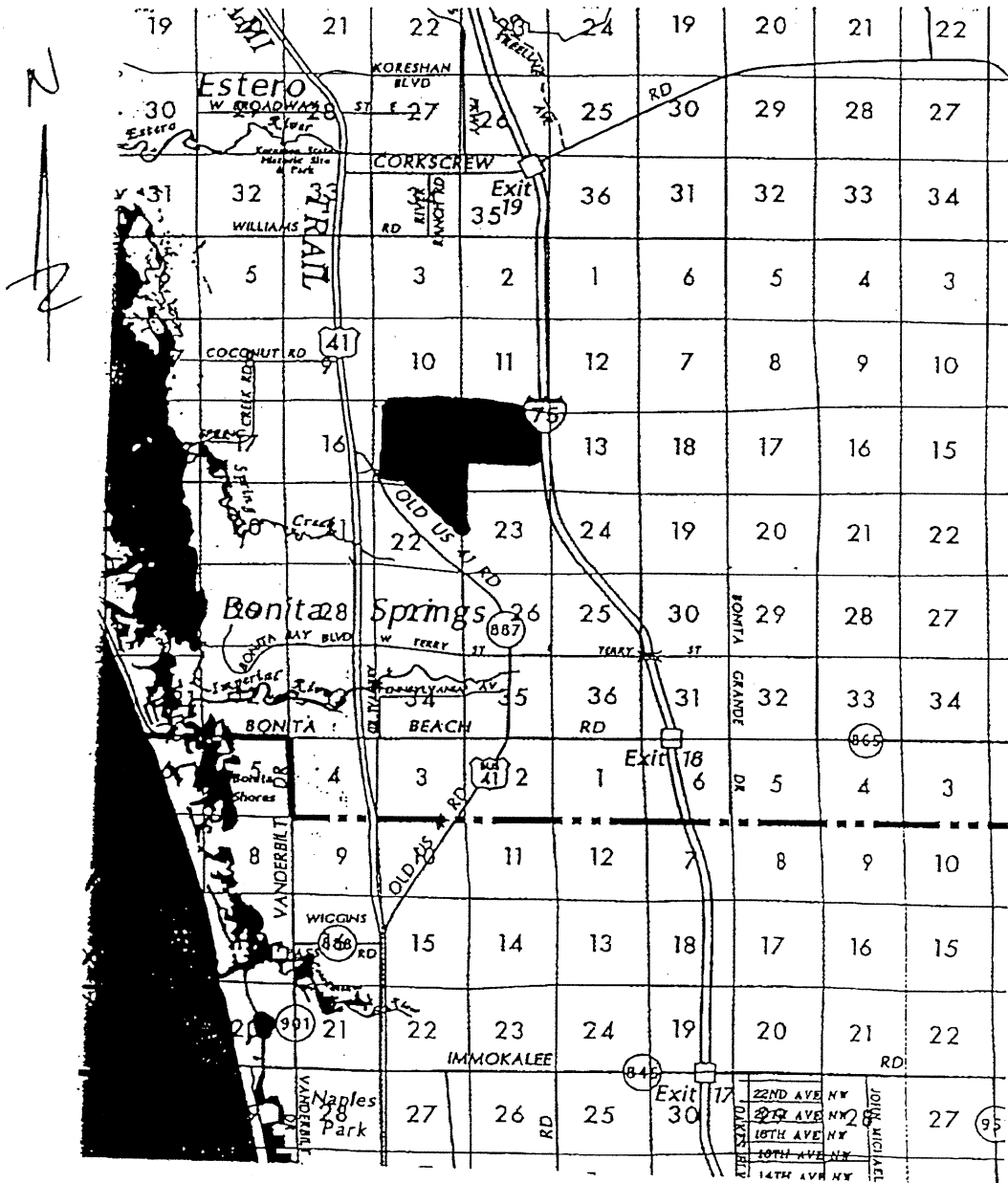
: Dimensioned from former Map of Survey by Carl E. Johnson, Inc., L.S. & Engrs. dated February 1967

: Proposed Outfall Canal to Carry 182 C.F.S. from District.

SAN CARLOS ESTATES
DRAINAGE DISTRICT
Lee County, Florida

Right-of-Way Map
for Access & Drainage

San Carlos Estates Water Control District Water Control Plan



March 21, 2000

DRAFT

Water Control Plan
Requirements
Chapter 298.225(3)

(a) Narrative description of the statutory responsibilities and powers of the water control district.

The District was formed by decree of the Lee County Circuit Court on April 3, 1969 under the provisions set forth in Chapter 298 Florida Statute. See Exhibit B attached.

(b) A map delineating the legal boundary of the Water Control District and identifying any subdistricts or units within the District.

A map of the district (Exhibit A) delineating the legal boundary of the District is attached. There are no subdistricts or units within the District.

(c) Narrative description of land use within the District and all existing District facilities and their purpose and function, and a map depicting their locations.

All of San Carlos Estates is zoned AG-2 and consists entirely of single family residential. The land uses and their approximate acreage within the District are as follows: (Exhibit A)

Residential Single Family	1090	Acres
Canals	23	Acres
Total Acreage	1113	Acres

(d) Engineering drawings and narrative sufficient to describe each facility's capacity for the management and storage of surface waters and potable water supply, if applicable.

The location of the District maintained canals and other stormwater conveyance are shown on Exhibit A. The District facilities consist of lateral canals along each north-south roadway which feed into perimeter canals through an 18 inch culvert pipe. The perimeter canals carry the water to the two outfalls along the western boundary of San Carlos Estates. The water then travels west through box culverts under US 41 and towards Spring Creek.

The hydraulic information used for the canals was derived from the District's original Plan of Reclamation (See Exhibit D) of slightly less than 4 inches of run-off in 24 hours for areas less than two sections in size.

The District does not operate a potable water supply. Individual private wells currently serve water to residents but Bonita Springs

Utilities is currently planning to construct potable water lines throughout the District within the next two years. The San Carlos Estates Water Control District consents to the use of District rights-of-way by BSU, but BSU is responsible for the operation and maintenance of the potable water facilities.

(e) A description of any environmental or water quality program that the water control district has implemented or plans to implement.

The District does not currently perform any water quality testing. We have a NPDES permit # FL 000035. As a requirement of this permit, Lee County will perform the testing for us.

(f) A map and narrative description of any area outside the water control district's legal boundary for which the district provides services. (Exhibit A)

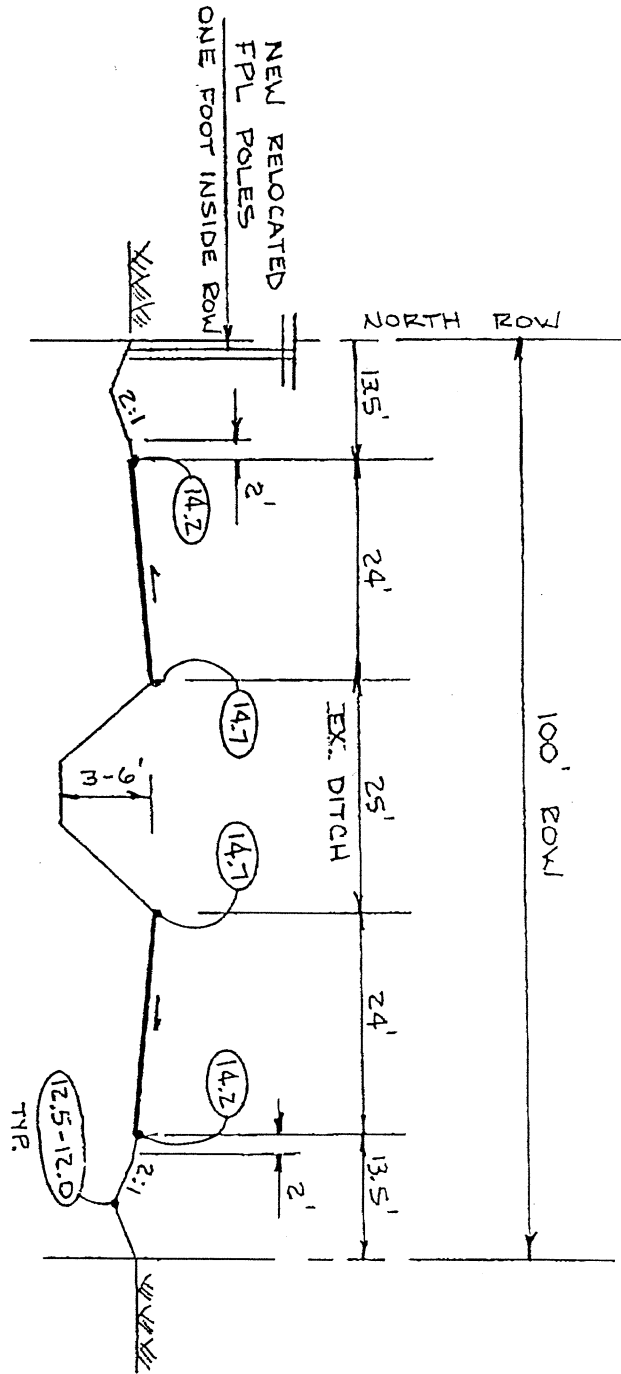
The District receives inflow into it's perimeter canal system at six points. The Brooks has an overflow pipe entering on the north boundary, the Villages of Bonita enter on the southwest boundary, Bonita Springs Country Club pumps at the southeast corner and Fairway Dunes enters in three places along the east boundary. All contributors had to obtain a South Florida Water Management District Permit. The District only provides conveyance of these inflows as retention is provided prior to outfalling into our perimeter canal.

(g) Detailed descriptions of facilities and services that the water control district plans to provide within 5 years.

The District has no plans to provide any additional facilities or services within the next five years.

(h) A description of the administrative structure of the water control district.

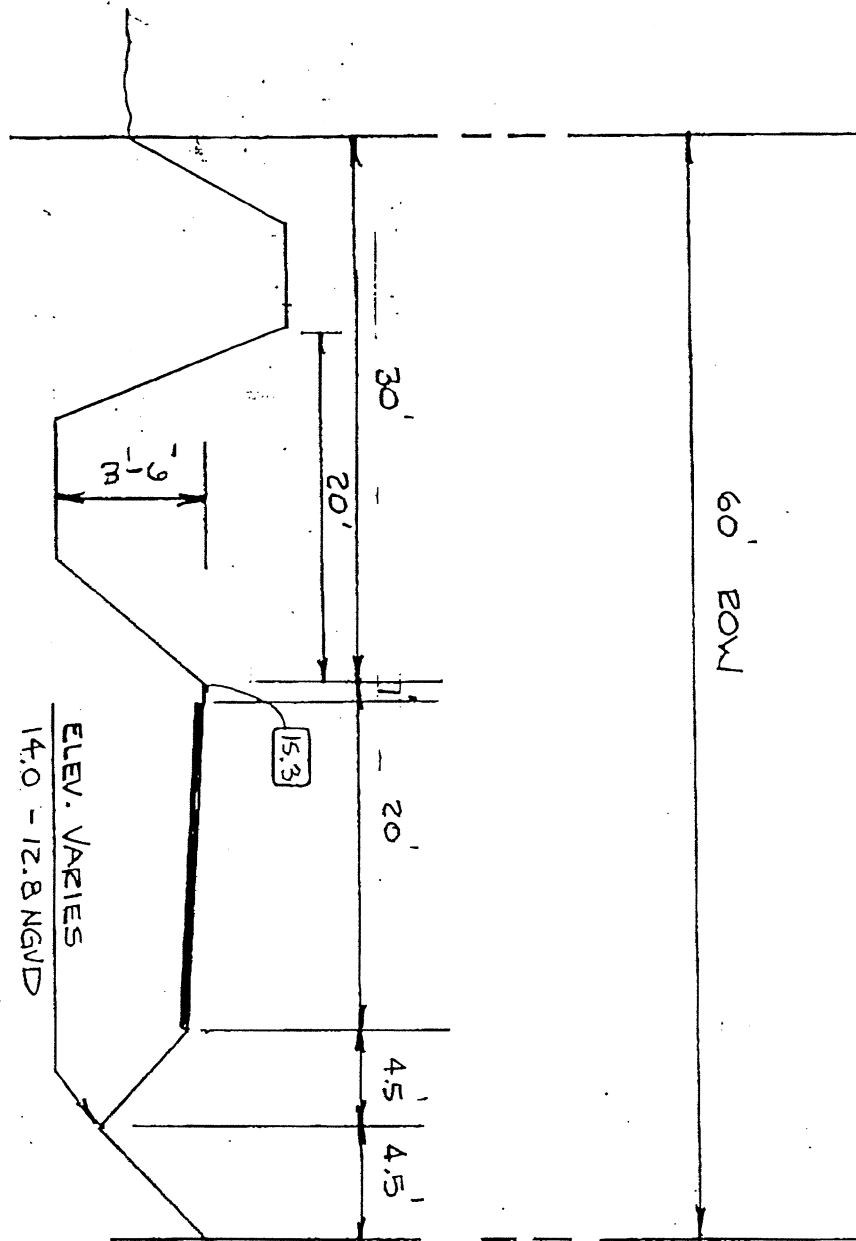
The District administration consists of 3 elected supervisors, each elected to a 3 year term. Each year in September at the Annual meeting, there is an election for one seat on the Board. All services for maintenance are contracted out with private firms as the District does not have a maintenance department. See San Carlos Estates Water Control District Organizational Chart (Exhibit C).



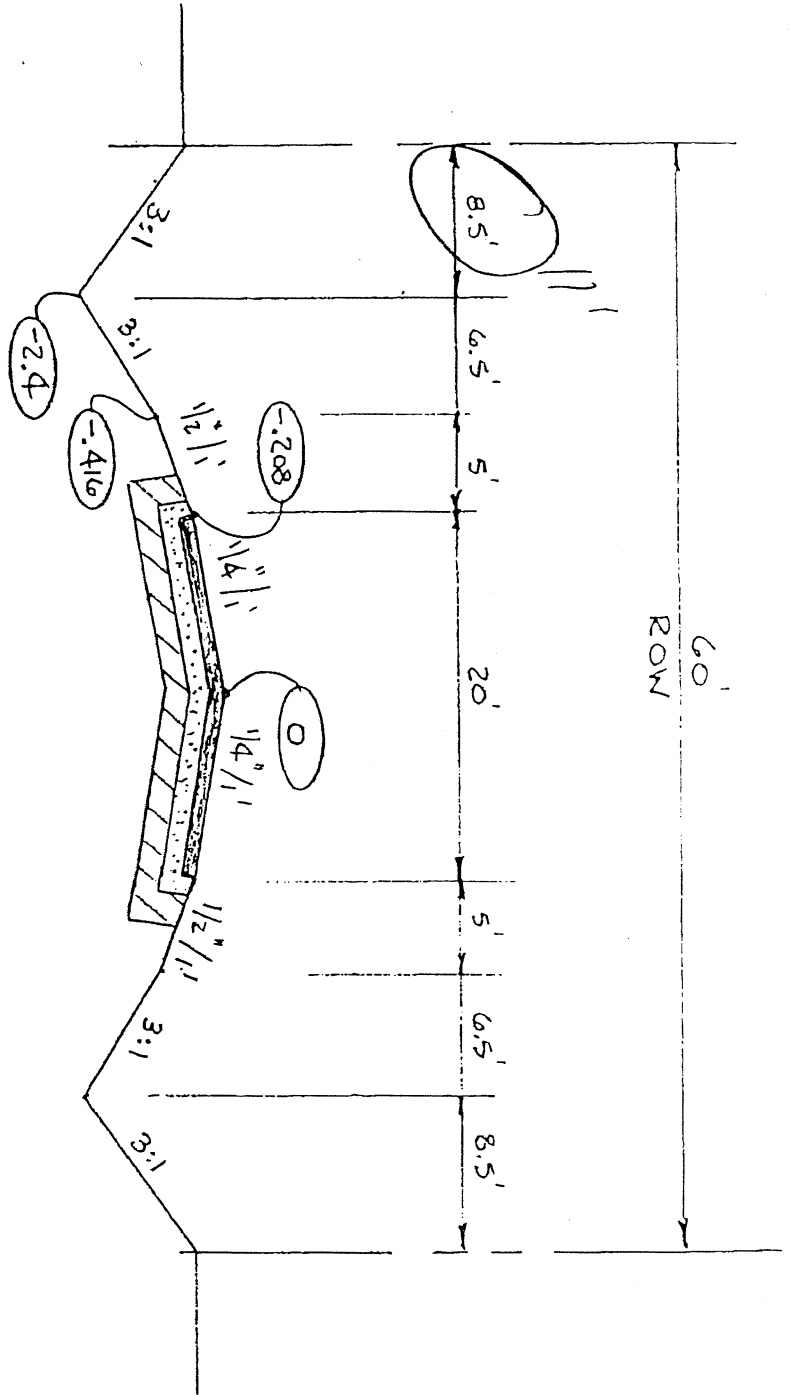
TYPICAL CROSS SECTION STRIKE LANE

Main access road & canal

CROSS SECTION PERIMETER CANAL



- CATEGORY C
- 1" TYPE S III ASPHALT
- 6" LIMESTONE
- 6" SUBGRADE



TYPICAL SECTION

Lateral canal "W" type & roads to tracks

San Carlos Estates Water Control District Organizational Chart

Board of Supervisors

District Secretary . District Treasurer

District Auditor District Engineer District Attorney

Exhibit "C"