VIETNAM - VA PROJECT

BEACH SURVEY HUE

NOVEMBER 25TH, 1995

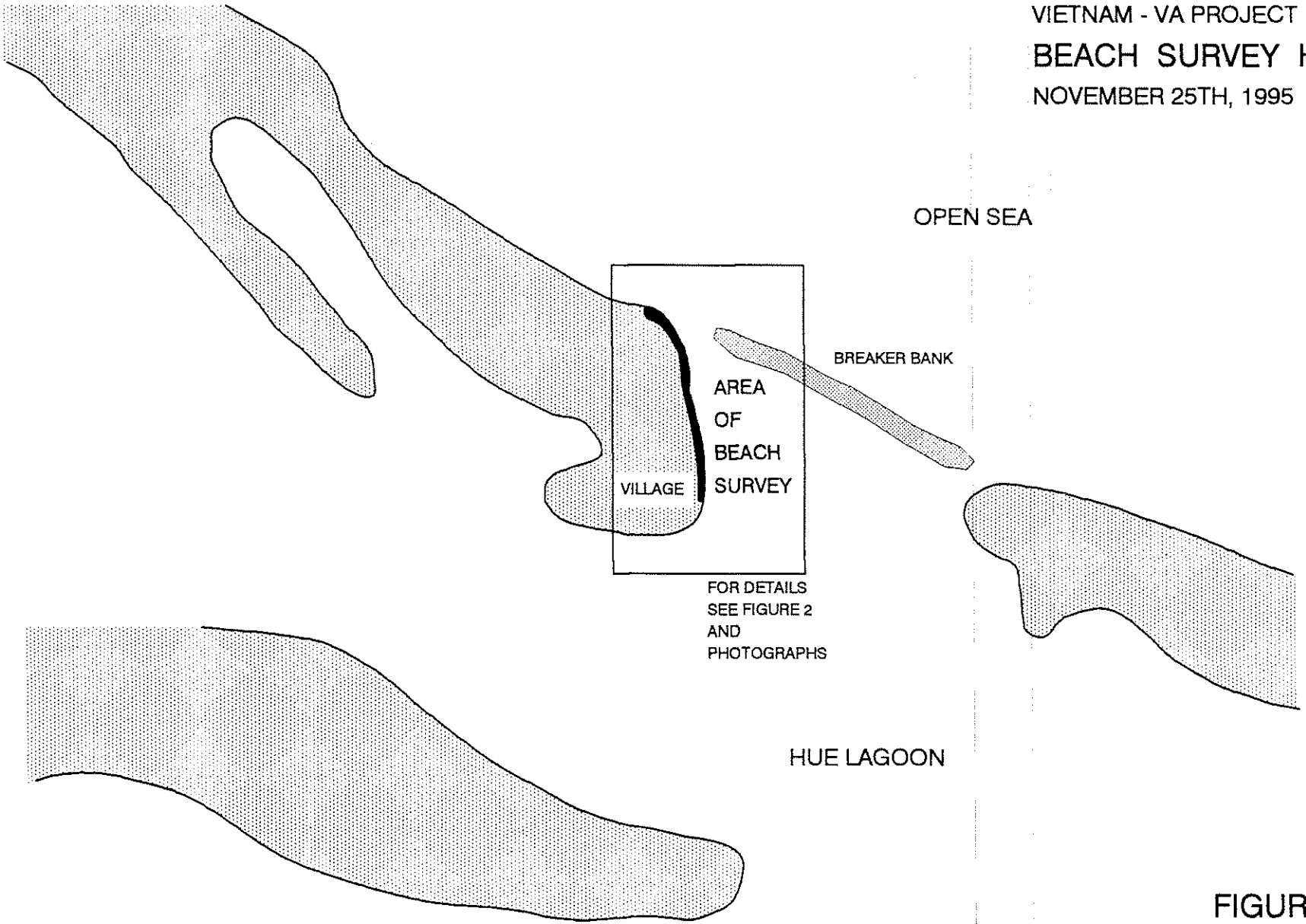
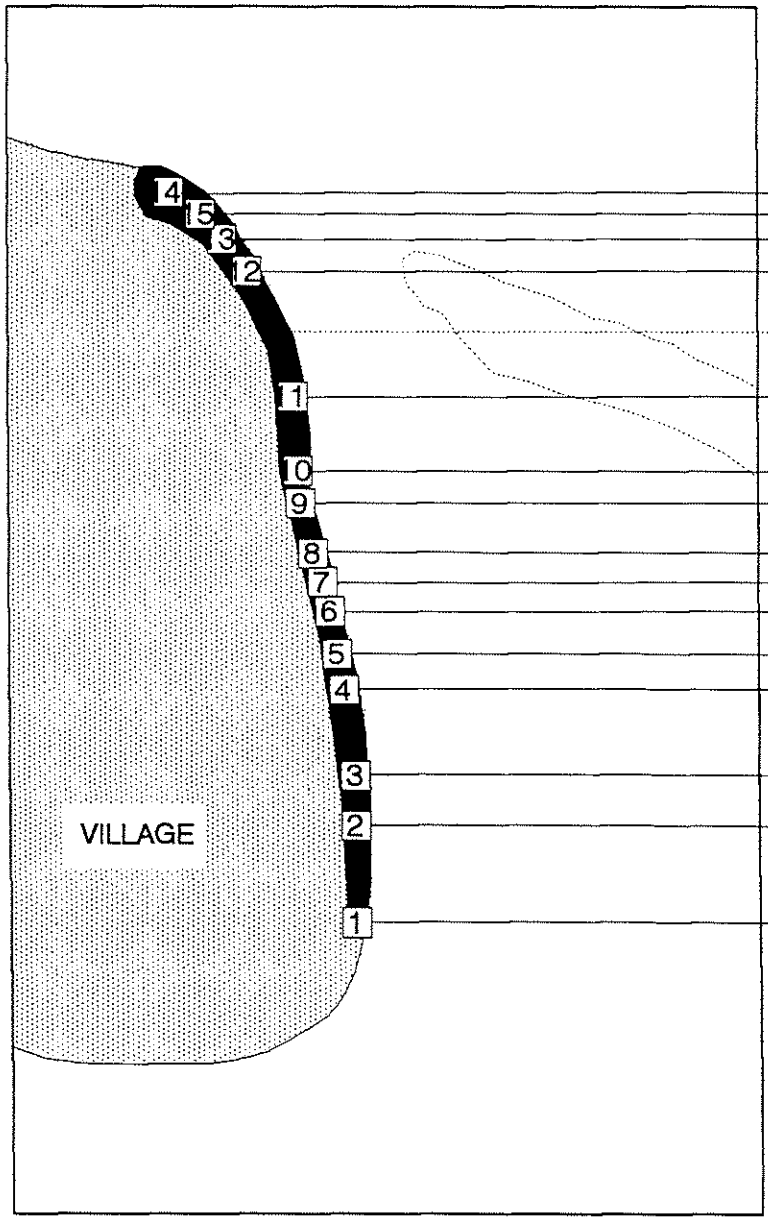


FIGURE 1

VIETNAM - VA PROJECT

BEACH SURVEY HUE

NOVEMBER 25TH, 1995



BEACH, LOOKING INTO NORTH-WEST DIRECTION (ALONG THE COAST)
BEACH FLAT, WALKING BACK INTO LAGOON DIRECTION
BEACH FLAT, LOOKING INTO LAGOON DIRECTION
BEACH FLAT, VEGETATION, SOME DUNES IN THE BACK

STEEP CLIFF, NO BEACH (NO PHOTO)

CLIFF, OLDER EROSION, WIND EROSION AT CLIFF FRONT, BEACH EROSION

DESTROYED HOUSES
DESTROYED HOUSES

PANORAMIC VIEW FROM CLIFF, INTO EASTERN DIRECTION (SOUTH SPIT)
PANORAMIC VIEW FROM CLIFF, INTO NORTHERN DIRECTION
LIGHTHOUSE AT TOP OF THE CLIFF

DUNE CONTROL BY PLANTING VEGETATION (YOUNG)
LOOKING INTO NORTHERN DIRECTION, CLIFFS, SOME BEACH EROSION (STEEP EDGE)

LOW DUNES, SOME VEGETATION, NO EROSION

BEACH, GOING FROM VILLAGE INTO NORTHERN DIRECTION

VILLAGE, START OF SURVEY

SCALE : NONE
LOCATIONS : APPROXIMATE

FIGURE 2

PHOTO 1 : VILLAGE, START OF SURVEY

PHOTO 2 : BEACH, GOING FROM VILLAGE INTO NORTHERN DIRECTION

PHOTO 3 : LOW DUNES, SOME VEGETATION, NO EROSION

PHOTO 4 : LOOKING INTO NORTHERN DIRECTION, CLIFFS, SOME BEACH EROSION

PHOTO 5 : DUNE CONTROL BY PLANTING OF VEGETATION

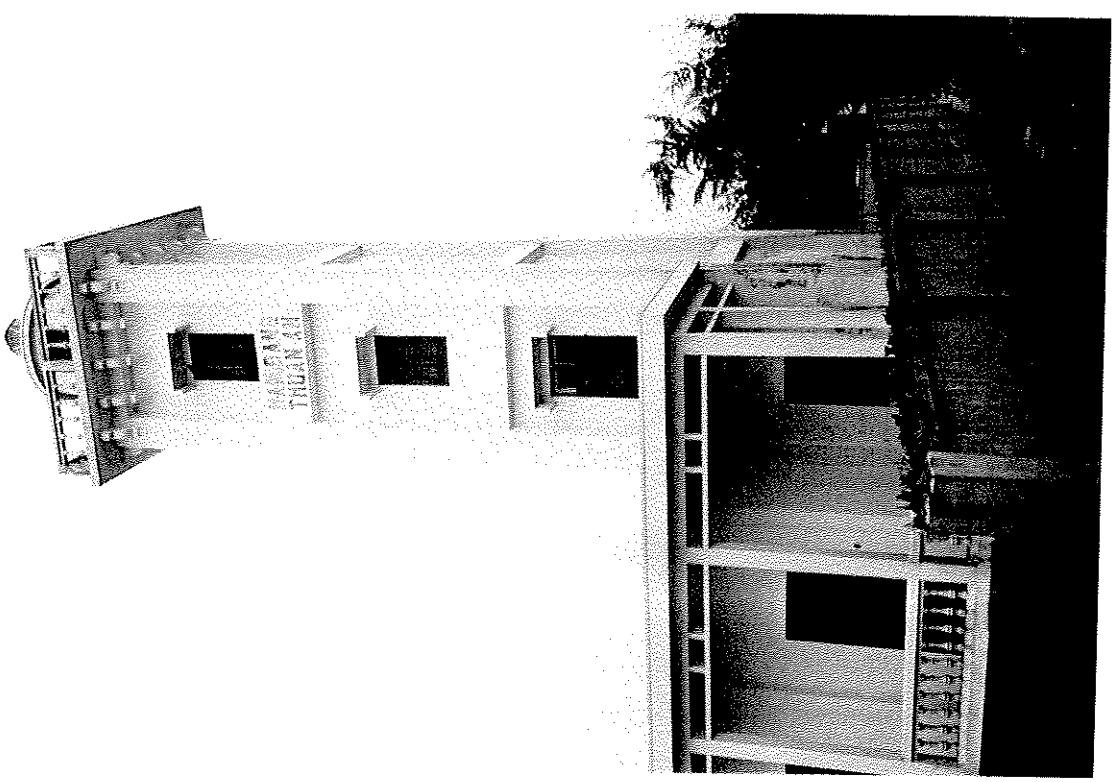


PHOTO 6 : LIGHTHOUSE AT THE TOP OF THE CLIFF

PHOTO 7 : PANORAMIC VIEW FROM CLIFF (NORTHERN DIRECTION)

PHOTO 8 : PANORAMIC VIEW FROM CLIFF (EASTERN DIRECTION)

PHOTO 9 : DESTROYED HOUSES

PHOTO 10 : DESTROYED HOUSES

PHOTO 11 : CLIFF, OLDER, SOME WIND EROSION AT CLIFF FRONT

PHOTO 12 : BEACH FLAT, VEGETATION, DUNES IN THE BACK

PHOTO 13 : BEACH FLAT, LOOKING INTO LAGOON DIRECTION

PHOTO 14 : BEACH, LOOKING ALONG THE COAST

PHOTO 15 : BEACH FLAT, WALKING BACK INTO LAGOON DIRECTION

2. Brief Description of the Vietnam-VA Coastlines Model for Hue Beach

On basis of the existing basis Coastlines Program for the computation of sediment (sand) transport along a coast, a dedicated version has been made for the Vietnam-VA Project. With this program comes a schematization (approximate) of the bottom bathymetry for the Hue Coast.

Subject of this chapter is the description of the use of the program.

2.1 Getting started

The program is on a floppy disk under the name VACOAST.EXE. The bottom schematization is under the name HUEBEACH.DAT.

Copy the program and all files to the hard disk.

Then go to the hard disk and type VACOAST, followed by a Return.

The program will start itself and the first screen will come up.

2.2 Going through the program

For each of the subsequent screens, a hard copy is attached. Starting from screen 1, the procedure will develop itself as follows:

Screen 1

This screen contains some basic information about the program.

In order to go to the next screen, please press the space bar (see line at the bottom of the screen). Once done, the next screen will come up.

Screen 2

This screen contains some information about the background of the program. For any theoretical information about these backgrounds, reference is made to literature.

This screen also contains a warning: Every computer program is a schematization of reality. This should always be kept in mind when using the computational results.

The user of the model will always be responsible for what comes out. The model (program plus bathymetry and manual input) only computes what it has ben designed for. The quality of the input determines the result. Not the program itself.

Pressing the space-bar will bring up the next screen.

Screen 3

This screen asks for the schematization of the bathymetry, the bottom schematization. This schematization has been made in an earlier stage, outside the program (see attachment and figure 3).

Here the name of the bottom-schematization is being asked for and has to be typed (in this case as): Huebeach.dat, to be followed by a return (see last line of this

screen).

If you have forgotten the name of the file(s), please type files and you will get a directory. Pick your choice and type return.

Once done, the program will read (import) the data of the bottom-schematization.

The next screen will now come up automatically.

Screen 4

The program can be run from a laptop or any other type of computer, not being connected to a printer. In order to avoid any output errors, the program asks for identifying wether a printer is connected or not.

If a printer is connected (Y: return), the input data and the results from the sandtransport computations will come out automatically as hard copy (printed on paper).

If a printer is not connected (N:return) the results will only be shown on screen.

After answering the question with Y or N, plus a return, the next screen will come up.

Screen 5

This screen presents some basic data about the bottom-schematization that has been imported in screen 3.

If you want to see (view) the bottom, please type Y and give Return. The schematization will now come up on the next screen (6).

If not, type N and give return. The program will continue with screen 7.

Screen 6

The imported schematization is now being shown on the screen, together with information about the scale (horizontal is along the coast/reference line; vertical is perpendicular to the coast i.e. the distance to the reference line (see also figure 3)).

If this is what you want, please type N and give return. The program will continue with screen 7.

If you want to change anything, type Y and give return. The program will now tell to edit your file (outside the program) and - after that - start the program again.

Screen 7

This is the first screen for manual input of physical boundary conditions. To start with waves.

Hs : Hsig in meters on deep water (say 20 meters).

If a value is given > = half the waterdepth at the most seaward depthcontour of the bottom-schematization, the

program will give a warning and ask for new input.

T : the wave period in seconds

Angle : the incoming wave-angle at deep water, measured with respect to the coast/reference-line normal (perpendicular to), according to the convention as shown on figure 3.

If the angle is more than + or - 90 degrees, the program will come up with a warning.

% : frequency of occurrence, being the percentage of the time per year, that this condition occurs.

After the input of this last value, the next screen will come up.

Screen 8

This is the screen for the manual input of the boundary conditions for currents.

U : the current velocity, depth average, along the coast, in meters per second.

d : being the waterdepth (surface to bottom) at which the (depth average) current velocity U is being measured, in meters.

The program automatically computes the actual values at all other waterdepths of the bottom-schematization on basis of these values (U and d).

% : frequency of occurrence, related to the period of time that this conditions occurs during a tidal period (% of a tidal cycle, not necessarily to be closed at 100 %).

After inputting these data, the next screen will come up automatically.

Screen 9

The last screen for manual input, related to the sediment characteristics.

D-50 : being the medium grainsize of the sand in microns.

If a value out of the sand-range is given as input, the program will come up with a warning and ask for new input.

D-90 : being the 90% (< =) grainsize of the sand in microns.

R : the bottom roughness, usually equals half the ripple-height.

Once this input has been completed, the next screen comes up automatically.

Screen 10

This screen gives an overview of the values that have been given as input. If you want to change something, type Y and give Return. This will lead you again through the screens 7 till 9.

If everything is correct, type N and give Return. The program now starts the computation.

Screen 11

On this screen the computational results are being displayed. If the printer is switched on, the same figures will be printed on paper.

Apart from the computed sandtransport-capacities per cross-section, the program also presents the differences between two subsequent cross-sections (the gradient, i.e. erosion (-) or deposition (+)).

If you want to see the results in a graphical mode, type Y and give Return. The curve along the coast will then be presented.

If not, type N and give Return. The program then will ask you if you want to make another computation with the same bottom-schematization. If not, give again a N and Return and the program will stop.

Screen 12

This screen presents the computed sandtransport-capacities, per cross section, along the coast.

The sign (+ or -) refers to the convention as given on figure 3.

If you are interested in the gradients, type Y and give Return.

Screen 13

This screen presents the gradient (difference in sandtransport-capacity between subsequent cross sections).

The sign i.e. increase or decrease in capacity determines erosion (-) or deposition (+).

The print-out

The print gives the same information.

As the refraction in the program is computed according Snell's law, negative (seaward) reflection may occur in case of a large angle for the incoming wave, in combination with a bottom-schematization with firm irregularities. If this happens, the program will come up with a warning for those cross sections where this has happened. The results for these cross-sections have to be watched carefully, as well as their differences to the next cross section (gradient).

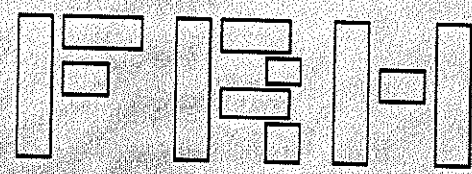
screen 1: opening screen

Vietnam VA Project

PROGRAM COASTLINES

Program for the computation of :
* sandtransport due to the combined effect of waves and currents
  along a coast.

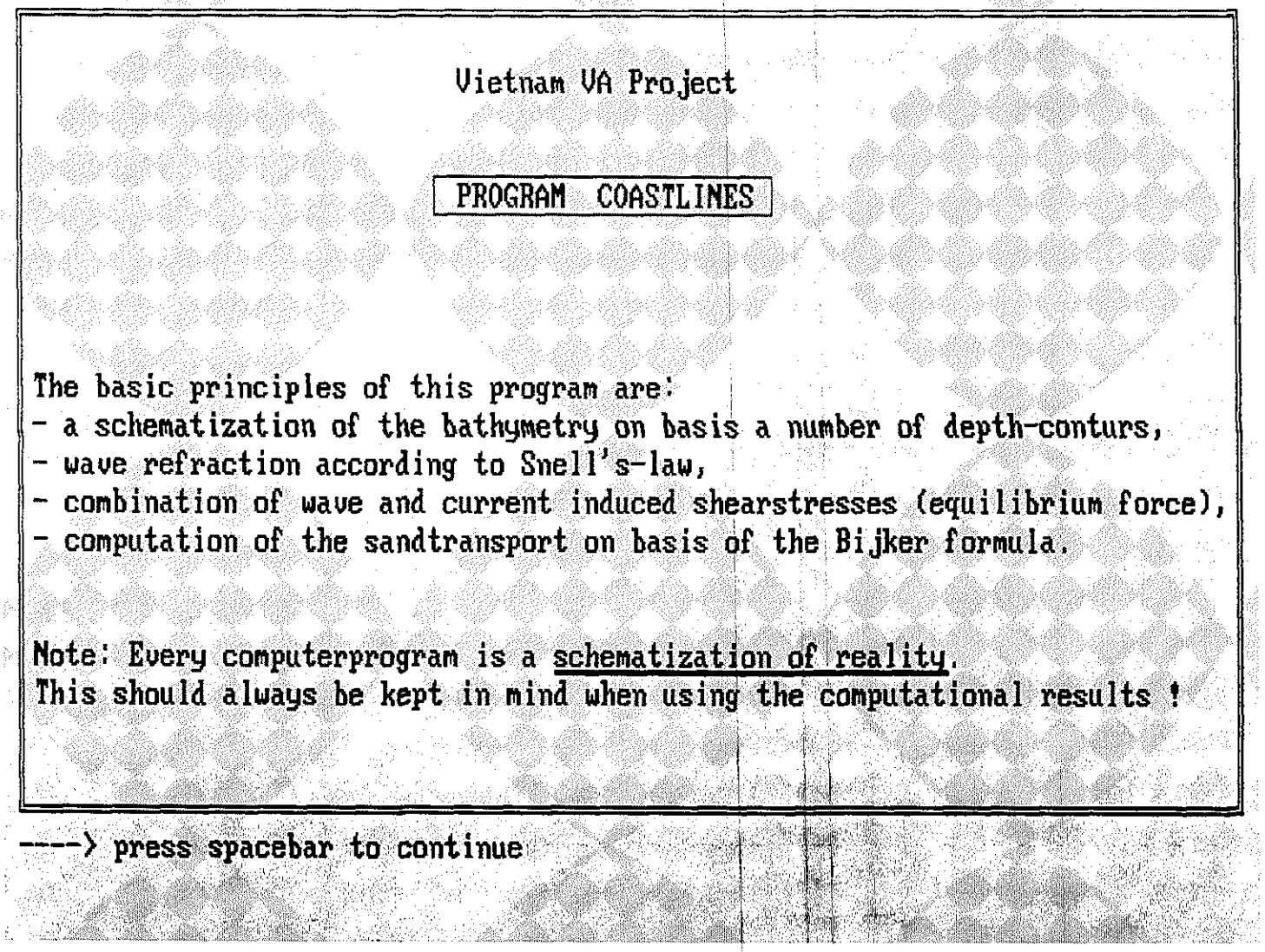
This program has been made available for the Vietnam-VA Project
by Frederic R. Harris B.V.
November 1995

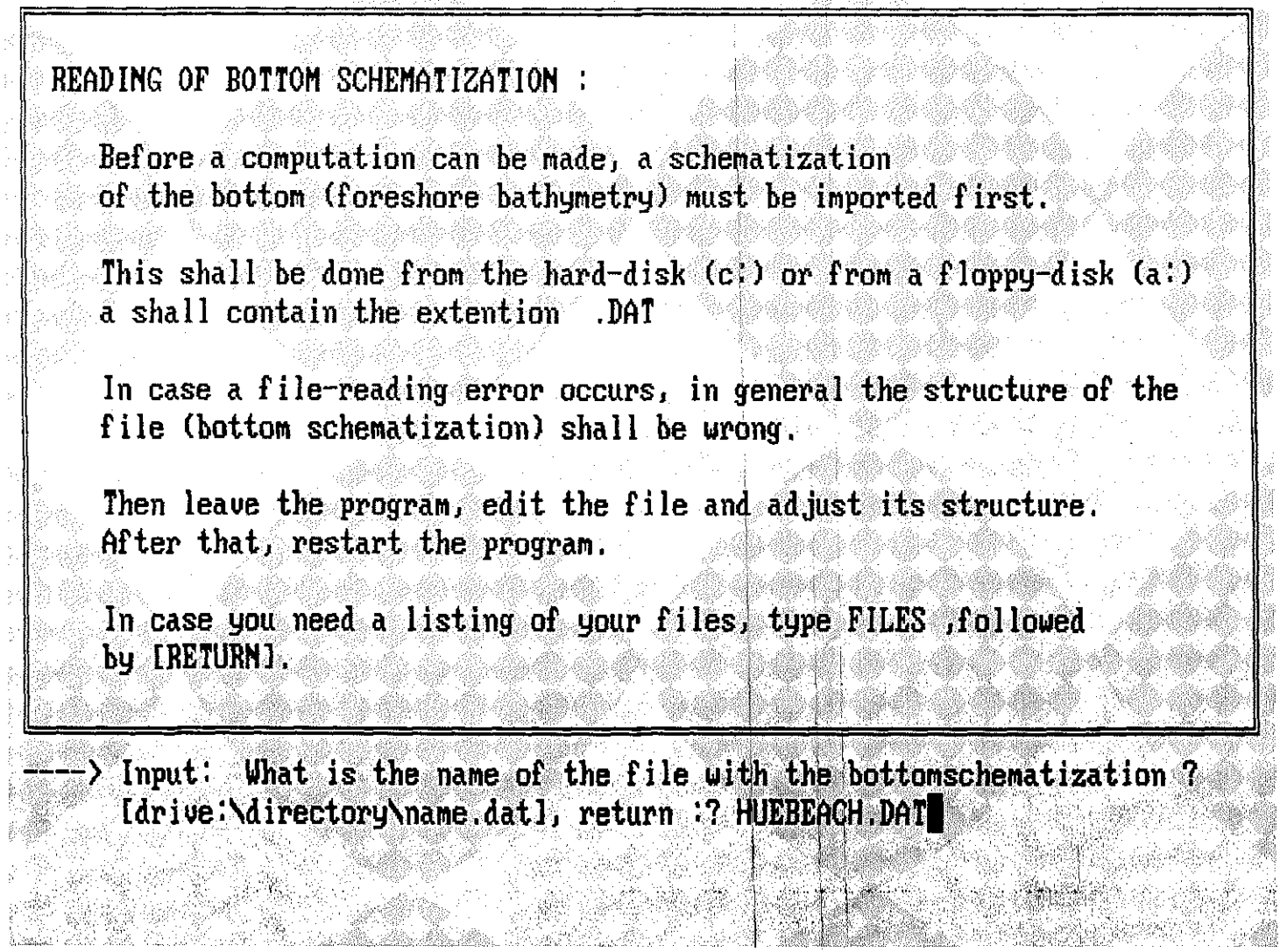


© FRH / 1995

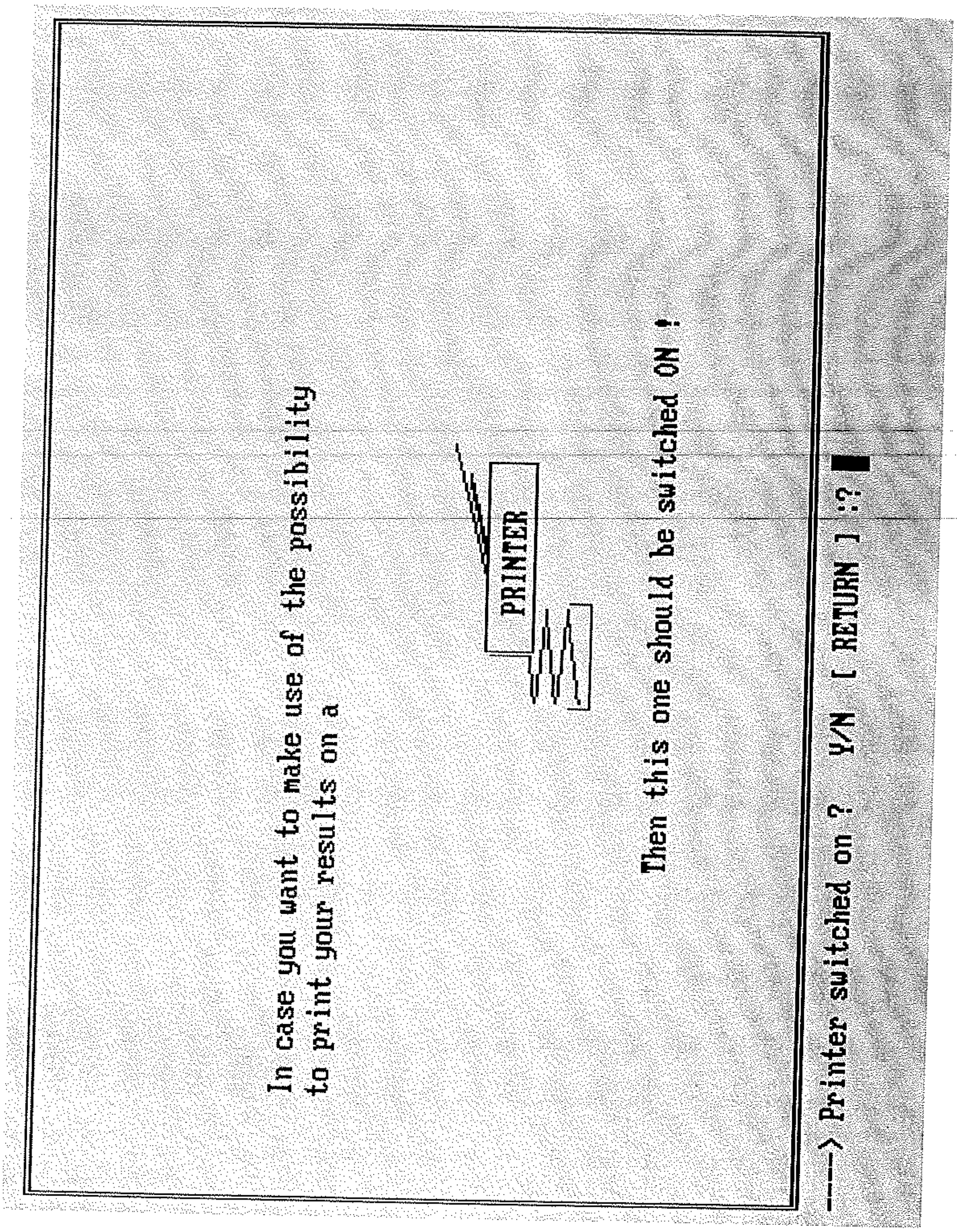
----> press spacebar to continue

screen 2: screen with basic principles and WARNING





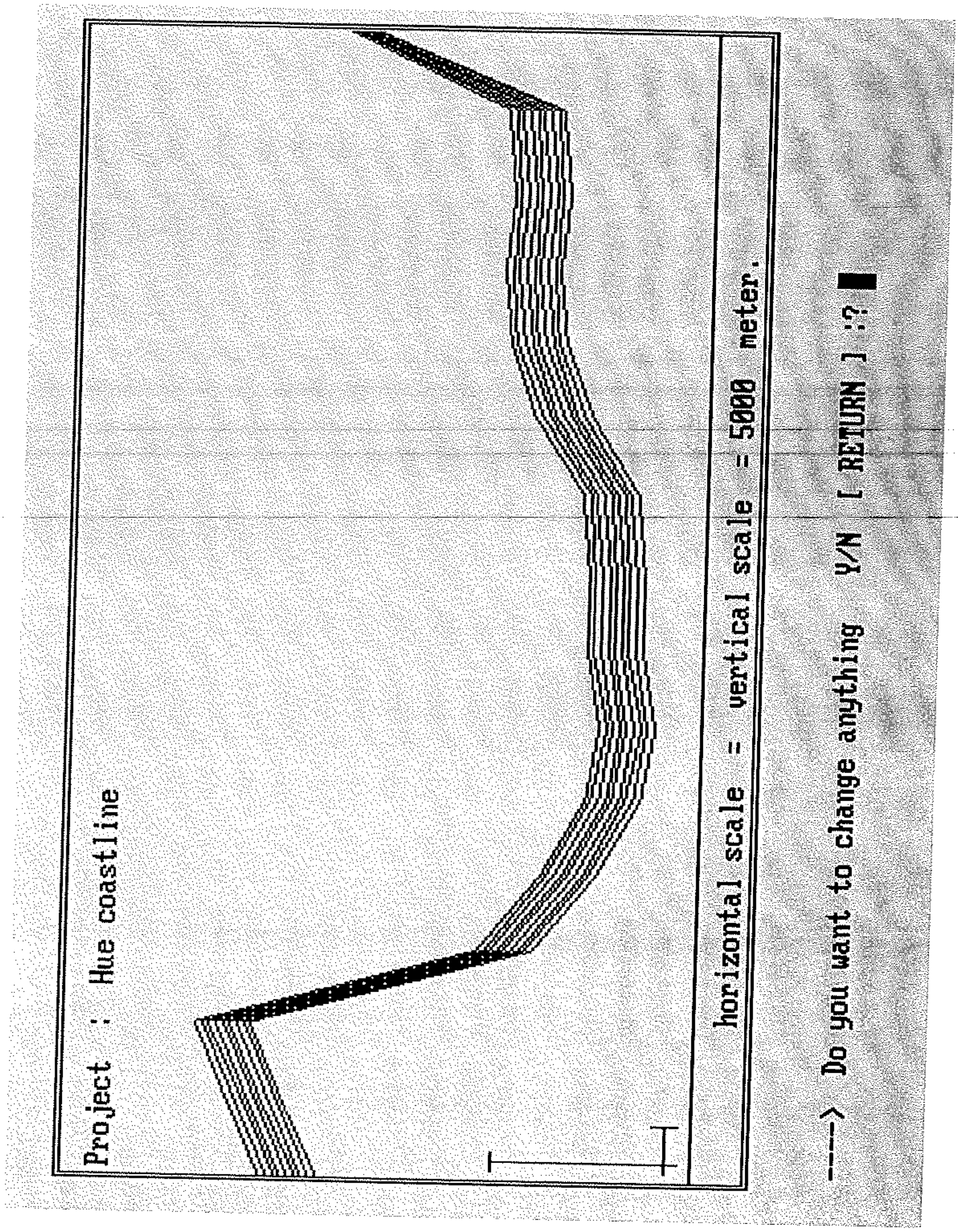
screen 3: input screen for reading bottom schematization



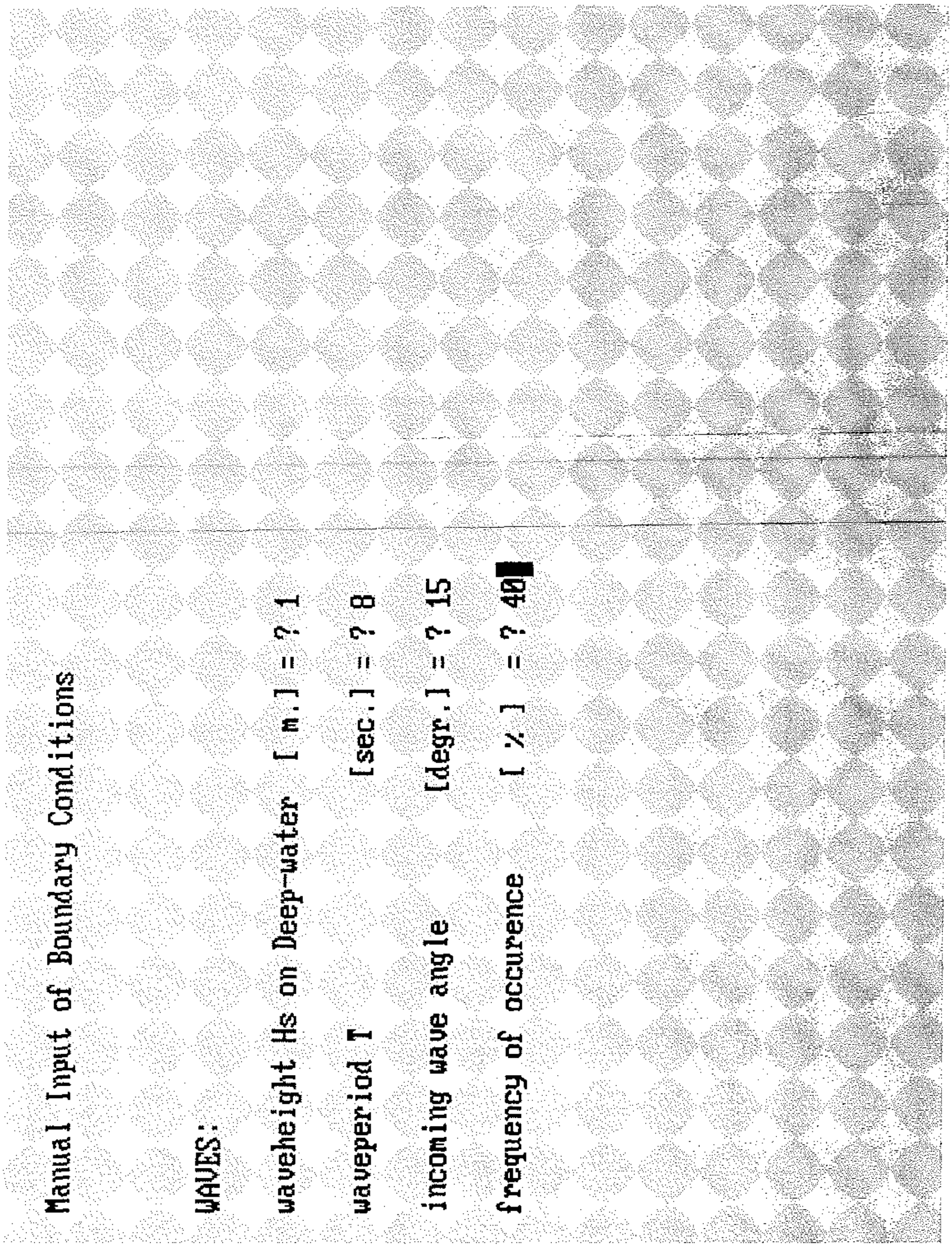
screen 4: input screen for printer on or off/hardcopy output

screen 5: screen presenting basic data bottomschematization

```
BOTTOMSCHEMATIZATION:
project                             : Hue coastline
number of depth contours            : 9
with interval distance    [m]       : 1
the most seaward one is M.S.L. -    : 8
number of cross sections            : 16
with interval distance    [m]       : 10000



     N.B. Please remember that the PRINTER should be switched ON
     If not, please do it NOW !!

---> Do you want to view the bottom schematization   Y/N  [ RETURN ] :?
```



screen 6: output screen presenting bottomschematization



screen 7: screen for manual input data, waves

Manual Input of Boundary Conditions

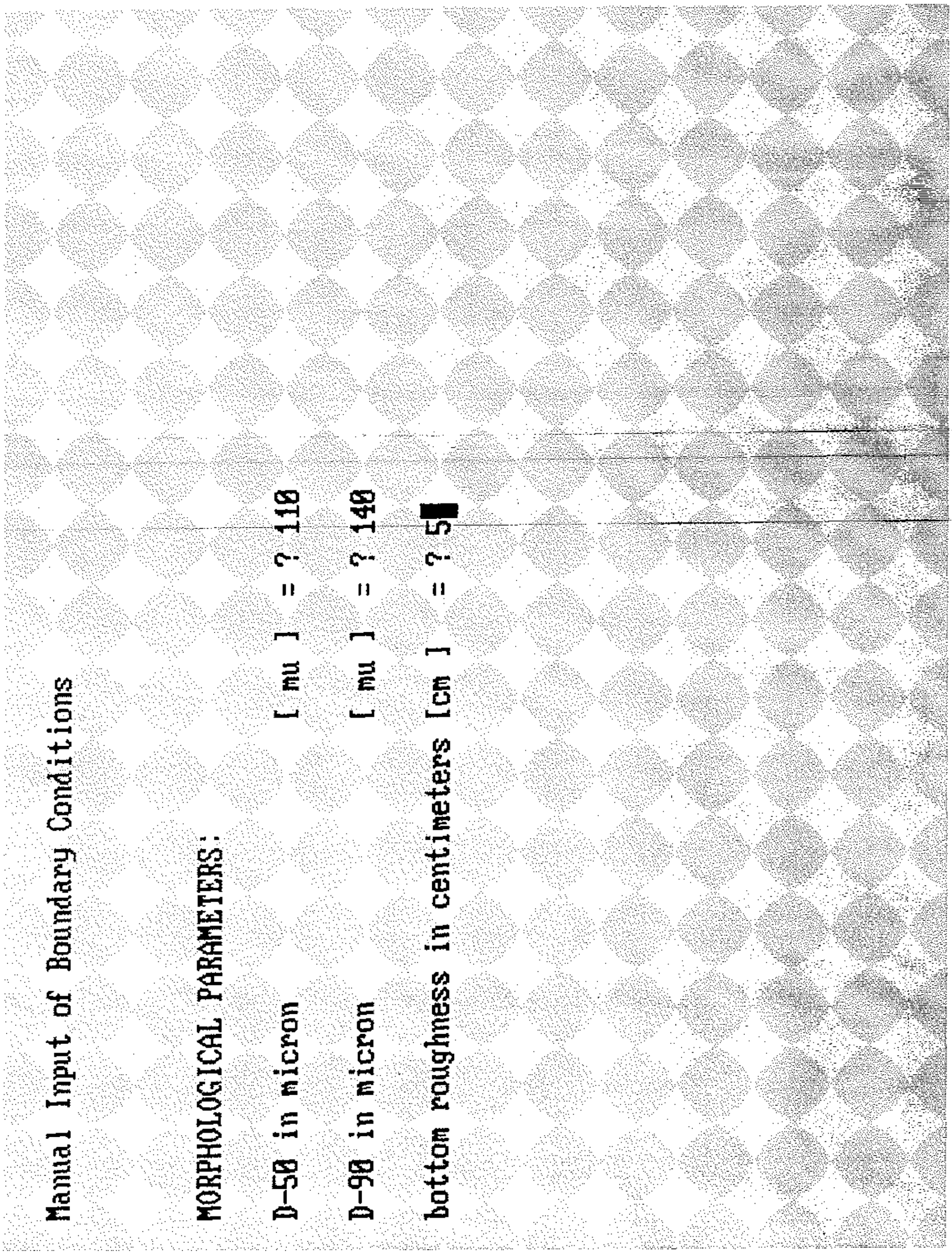
CURRENTS :

current velocity [m/s.] = ? .2

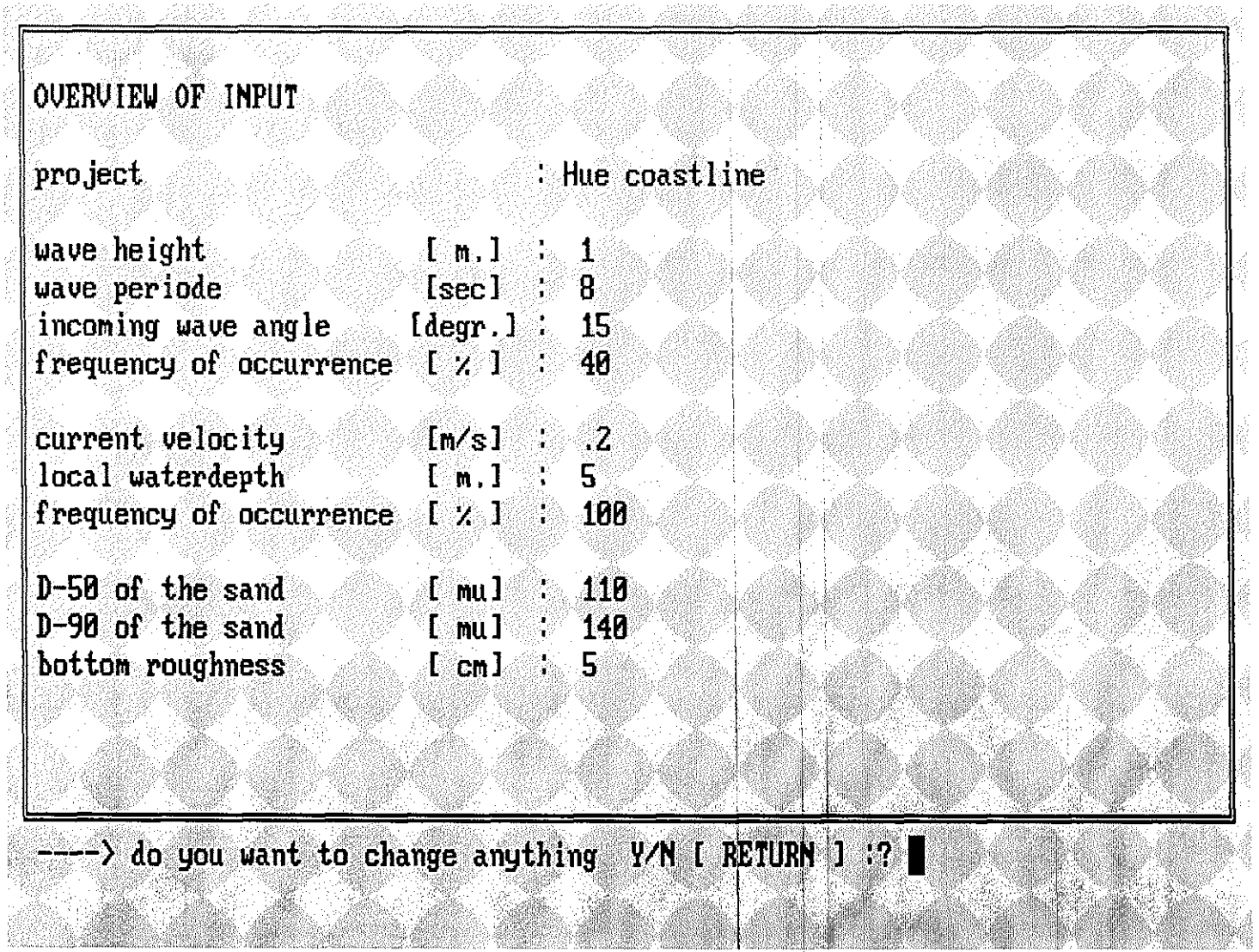
local waterdepth [m.] = ? 5

frequency of occurrence [%] = ? 100

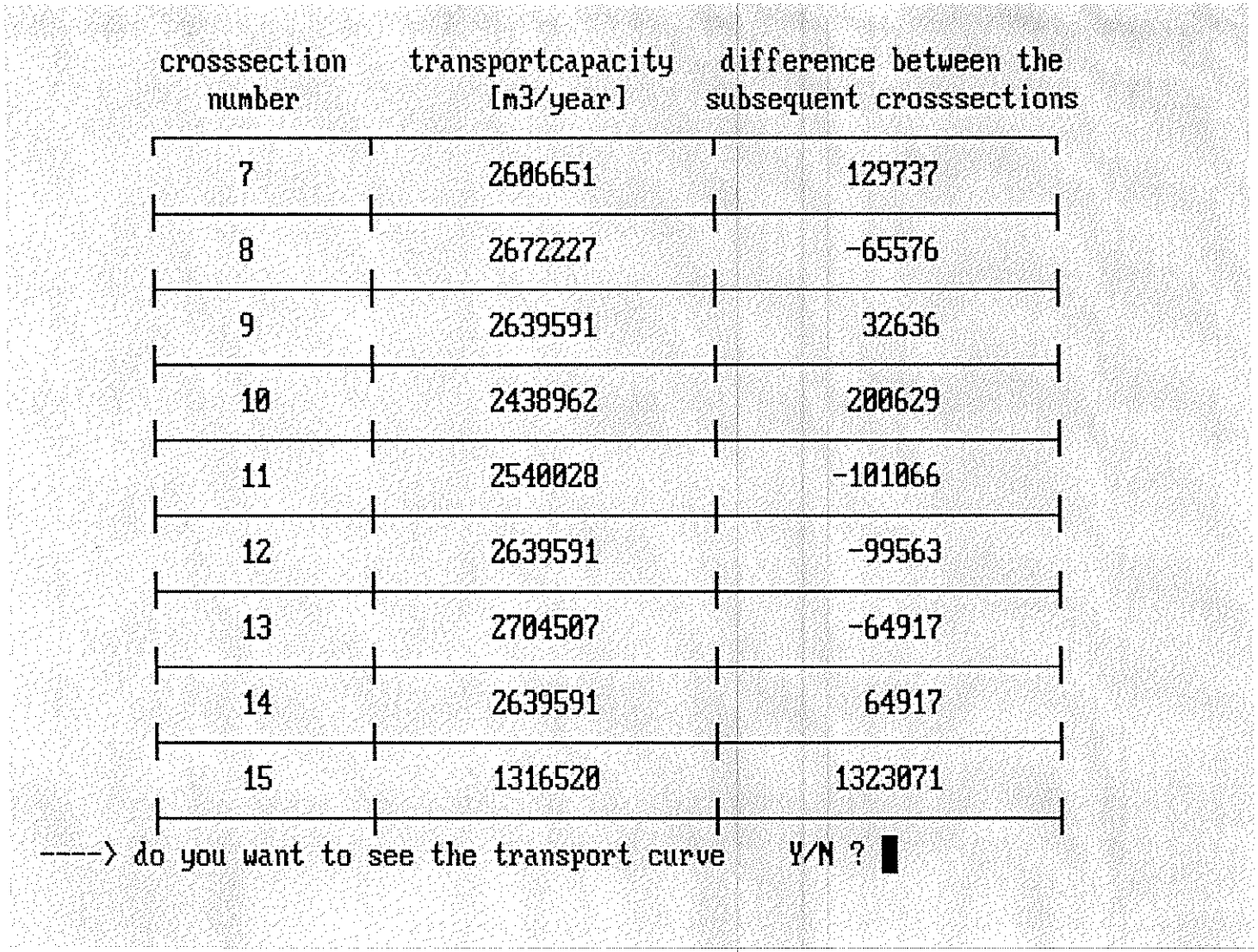
screen 8: screen for manual input data, currents



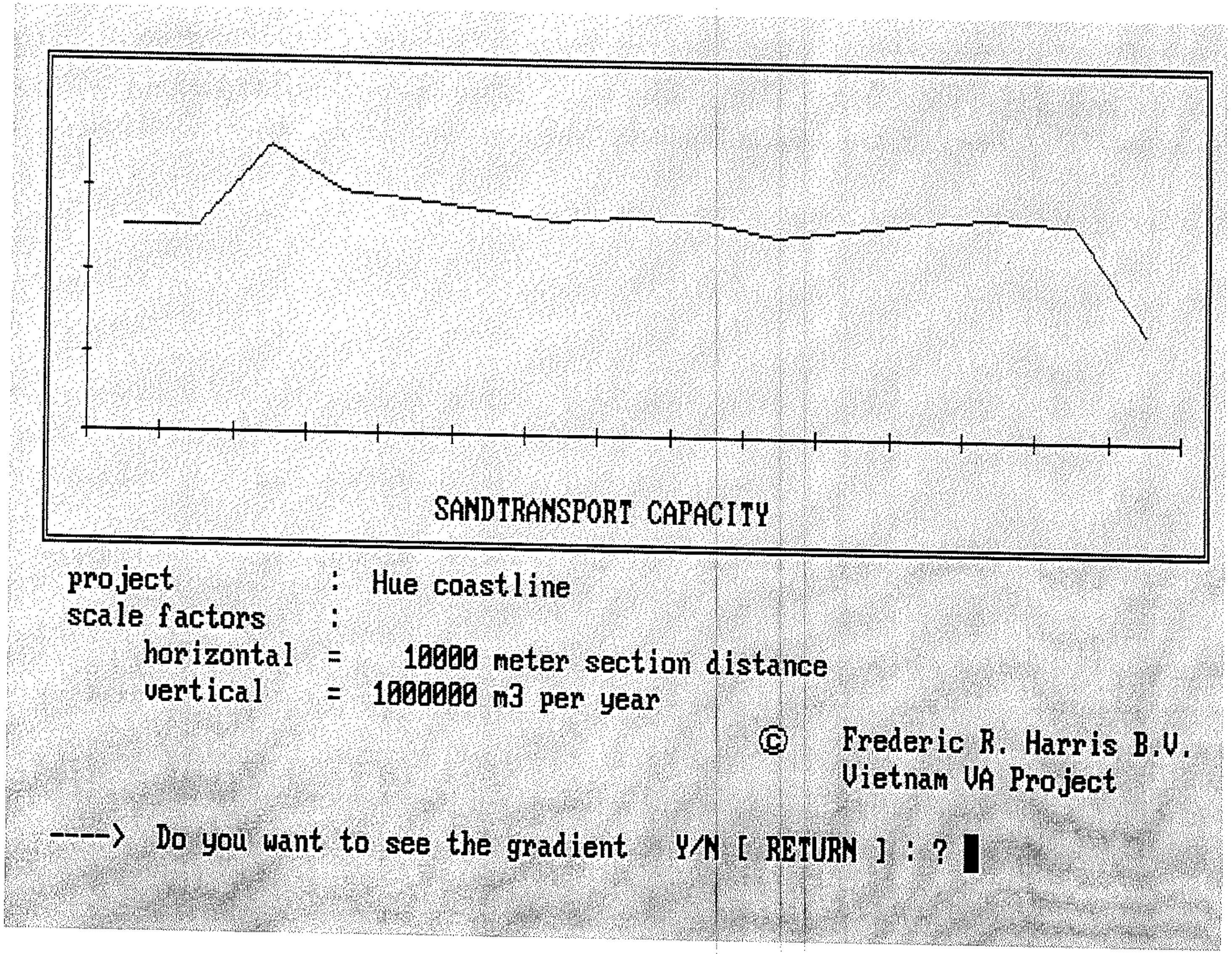
screen 9: screen for manual input data, sediment



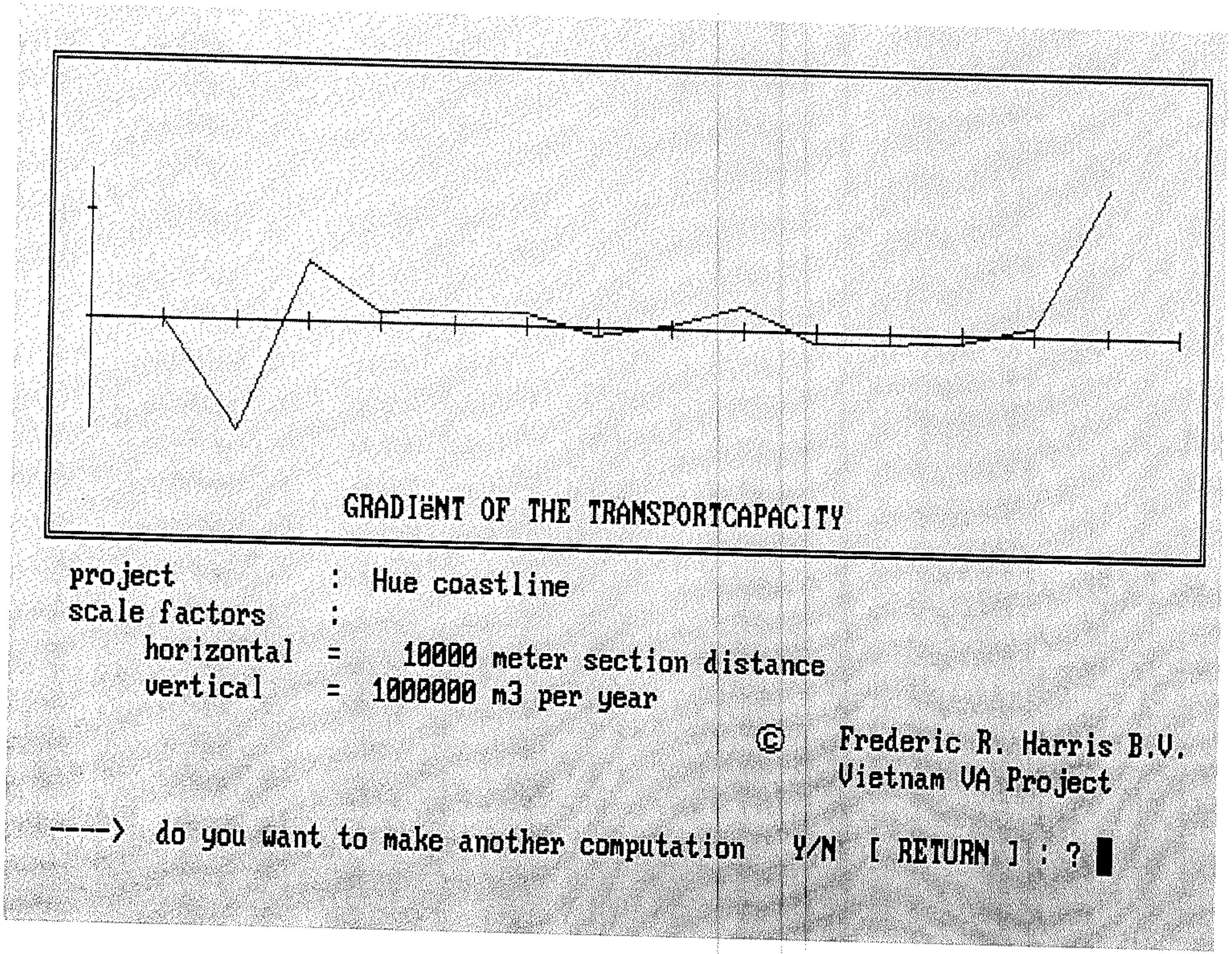
screen 10: screen for overview of manual input



screen 11: screen presenting computational results



screen 12: screen presenting computational results, graphics



screen 13: screen presenting computational results, graphics

OVERVIEW OF THE INPUT

project		:	Hue coastline
wave height	[m.]	:	1
wave period	[sec]	:	8
incoming wave angle	[degr.]	:	15
frequency of occurrence	[%]	:	40
current velocity	[m/s]	:	.2
local waterdepth	[m.]	:	5
frequency of occurrence	[%]	:	100
D-50 of the sand	[mu]	:	110
D-90 of the sand	[mu]	:	140
bottom roughness	[cm]	:	5

crossection number	transportcapacity [m3/year]	difference between the subsequent crosssections
1	2506443	
2	2506443	0
3	3487318	-980876
4	2945297	542021
5	2859166	86131
6	2736387	122779
7	2606651	129737
8	2672227	-65576
9	2639591	32636
10	2438962	200629
11	2540028	-101066
12	2639591	-99563
13	2704507	-64917
14	2639591	64917
15	1316520	1323071

VIETNAM-VA PROJECT

SEDIMENT TRANSPORT MODEL HUE BEACH

BASIS FOR SCHEMATIZATION OF BATHYMETRY

BOTTOM SCHEMATIZATION

ORENTATION BOUNDARY CONDITIONS

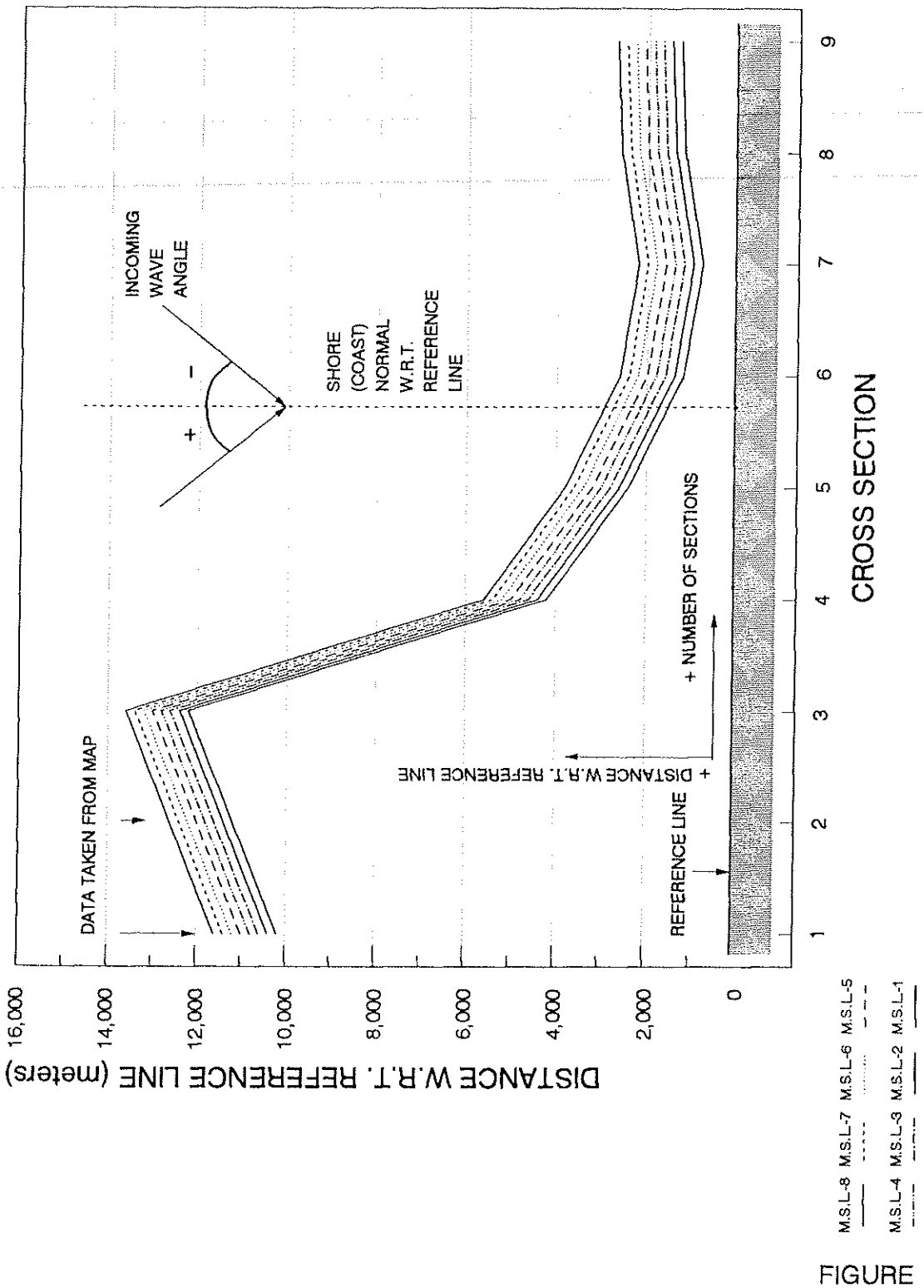
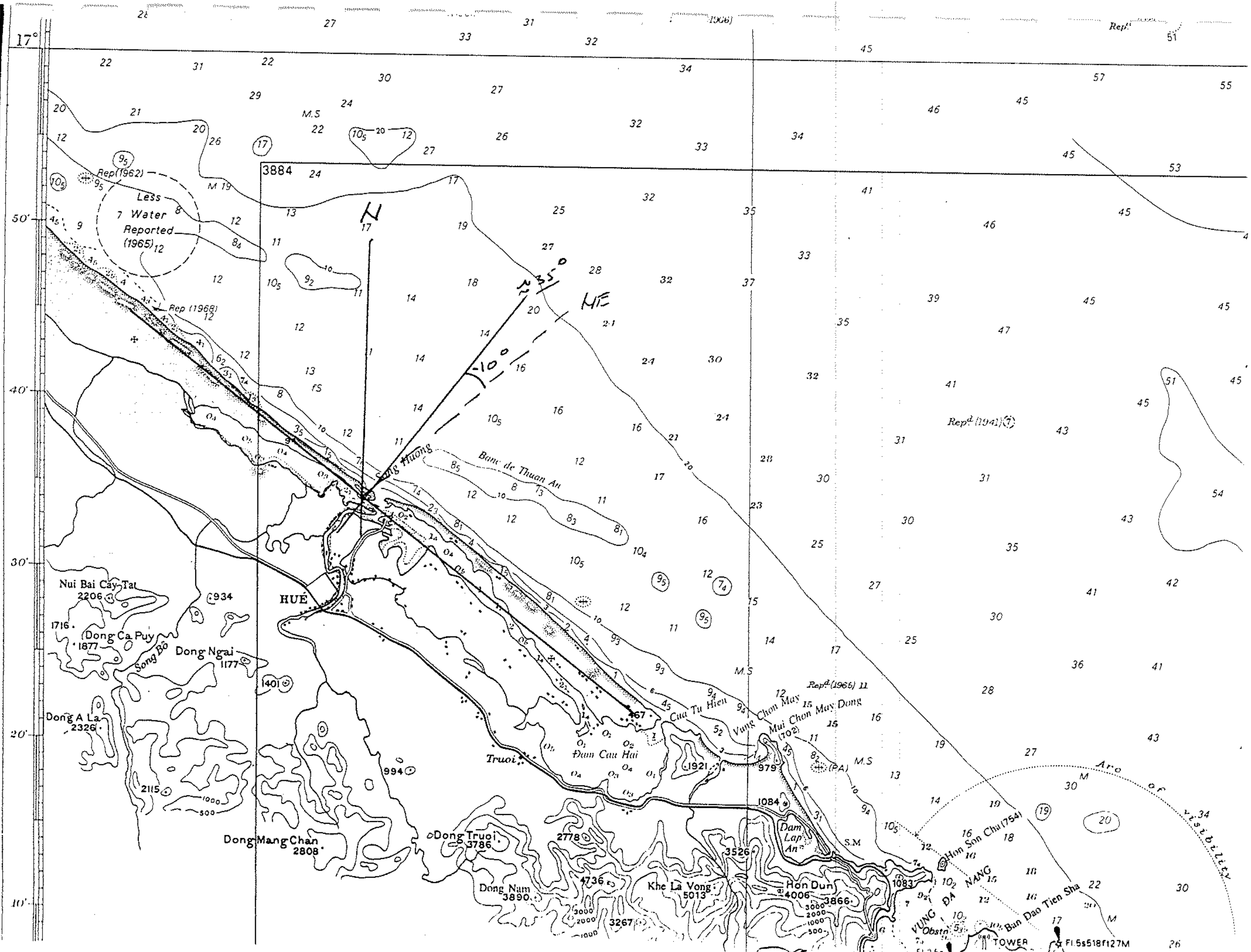
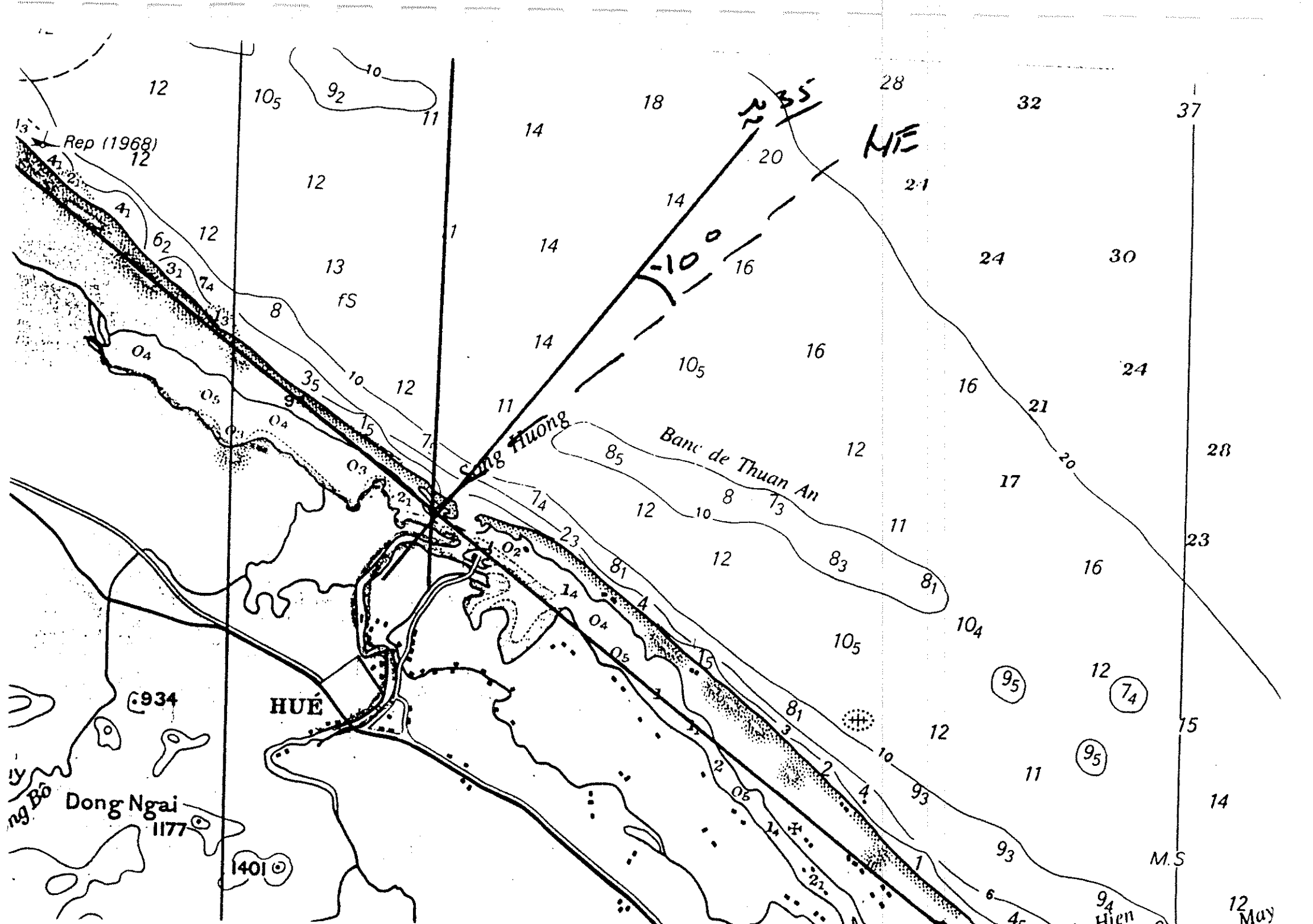


FIGURE 3



17°
3884
Less Water Reported (1965)
Rep (1962)
Rep (1968)
Song Huong
Banc de Thuan An
HUE
Nui Bai Cay Tat 2206
Dong Ca Puy 1877
Song Bo
Dong Ngai 1177
Dong A La 2326
Dong Mang Chan 2808
Dong Truoi 3786
Dong Nam 3890
Khe La Vong 5013
Hon Dun 4006
Dam Cau Hai
Truoi
Cua Tu Hien
Vung Chon May
Mui Chon May Dong
Dam Lap An
Hon Son Chu (754)
VUNG DA NANG
Ban Dao Tien Sha
TOWER
Fl.5s518ft27M
Arc of visibility
Repd (1941)
Repd (1966)


Rep (1968)
HUÉ
Dong Ngai
1177
1401
934
Song Huong
Banc de Thuan An
-10°
HUE
M.S
May
Hien

Vietnam-VA Project

Data Schematization Hue Beach for VACOAST-model

"Hue coastline",9,1,16,10000
11600,12600,13600,5600,3800,2600,2200,2600,2600,2800,4200,5000,
5200,5000,5200,9800
11400,12400,13400,5400,3600,2400,2000,2400,2400,2600,4000,4800,
5000,4800,5000,9700
11200,12200,13200,5200,3400,2200,1800,2200,2200,2400,3800,4600,
4800,4600,4800,9600
11000,12000,13000,5000,3200,2000,1600,2000,2000,2200,3600,4400,
4600,4400,4600,9500
10800,11800,12800,4800,3000,1800,1400,1800,1800,2000,3400,4200,
4400,4200,4400,9400
10600,11600,12600,4600,2800,1600,1200,1600,1600,1800,3200,4000,
4200,4000,4200,9300
10400,11400,12400,4400,2600,1400,1000,1400,1400,1600,3000,3800,
4000,3800,4000,9200
10200,11200,12200,4200,2400,1200,800,1200,1200,1400,2800,3600,
3800,3600,3800,9100
10000,11000,12000,4000,2200,1000,600,1000,1000,1200,2600,3400,
3600,3400,3600,9000