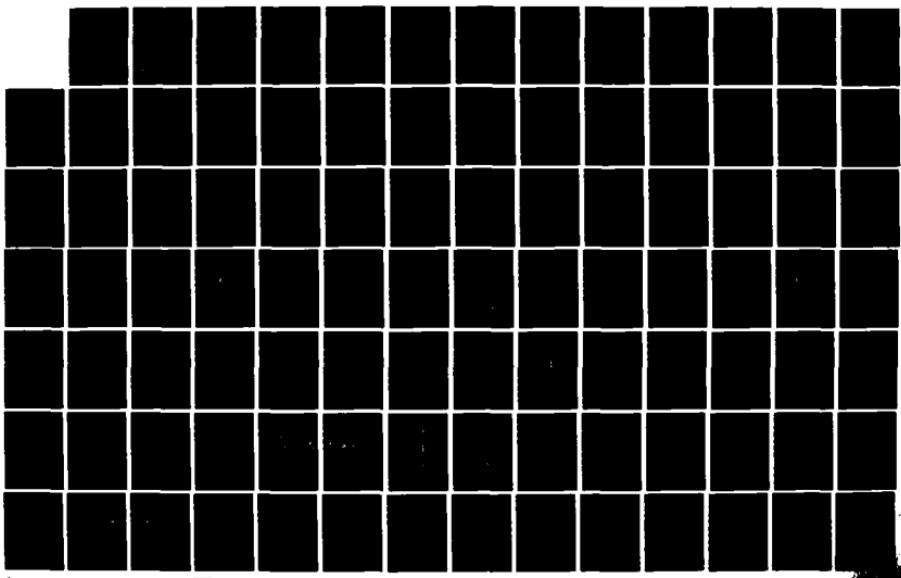


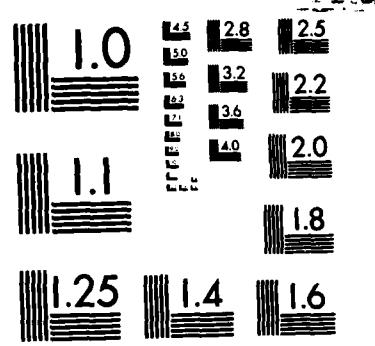
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PHYSICAL and BIOLOGICAL INVESTIGATIONS of the
MAIN CHANNEL BORDER HABITAT of POOL 5A,
on the UPPER MISSISSIPPI RIVER in 1980

Prepared By:
DENNIS D. ANDERSON
DANIEL B. WILCOX
DAVID R. McCONVILLE



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US Army Corps
of Engineers
St. Paul District

DECEMBER 1983

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for study because pool 5A was one of the shorter pools under the jurisdiction of the St. Paul District, because it has a diversity of MCB habitat types, and it has a Corps of Engineers service base in Fountain City, Wisconsin, providing easy access and work areas.

From the results of the physical survey, a physical habitat classification system was developed that considered general substrate type, general habitat, current velocity, and water depths. From the intersections of these four factors, 18 physical habitat types were determined to be present in sufficient abundance to warrant further study. Macroinvertebrate and fisheries surveys were conducted at 18 study areas in August and September. Each of the 18 areas represented one of the 18 habitat types.



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VOLUME 2 - MAIN CHANNEL BORDER STUDY

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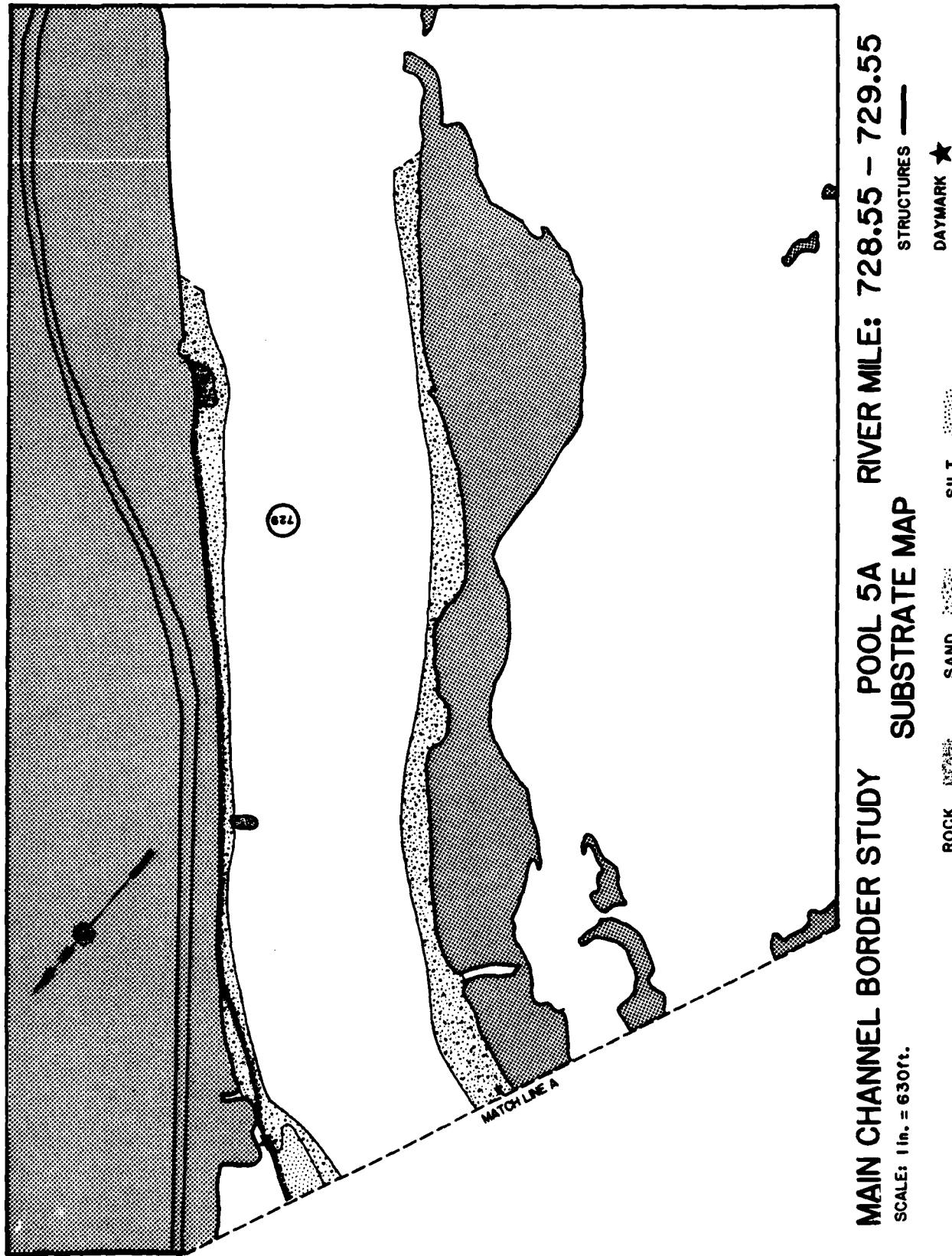


Figure A-1 General Substrate Map of River Mile 728.55 - 729.55

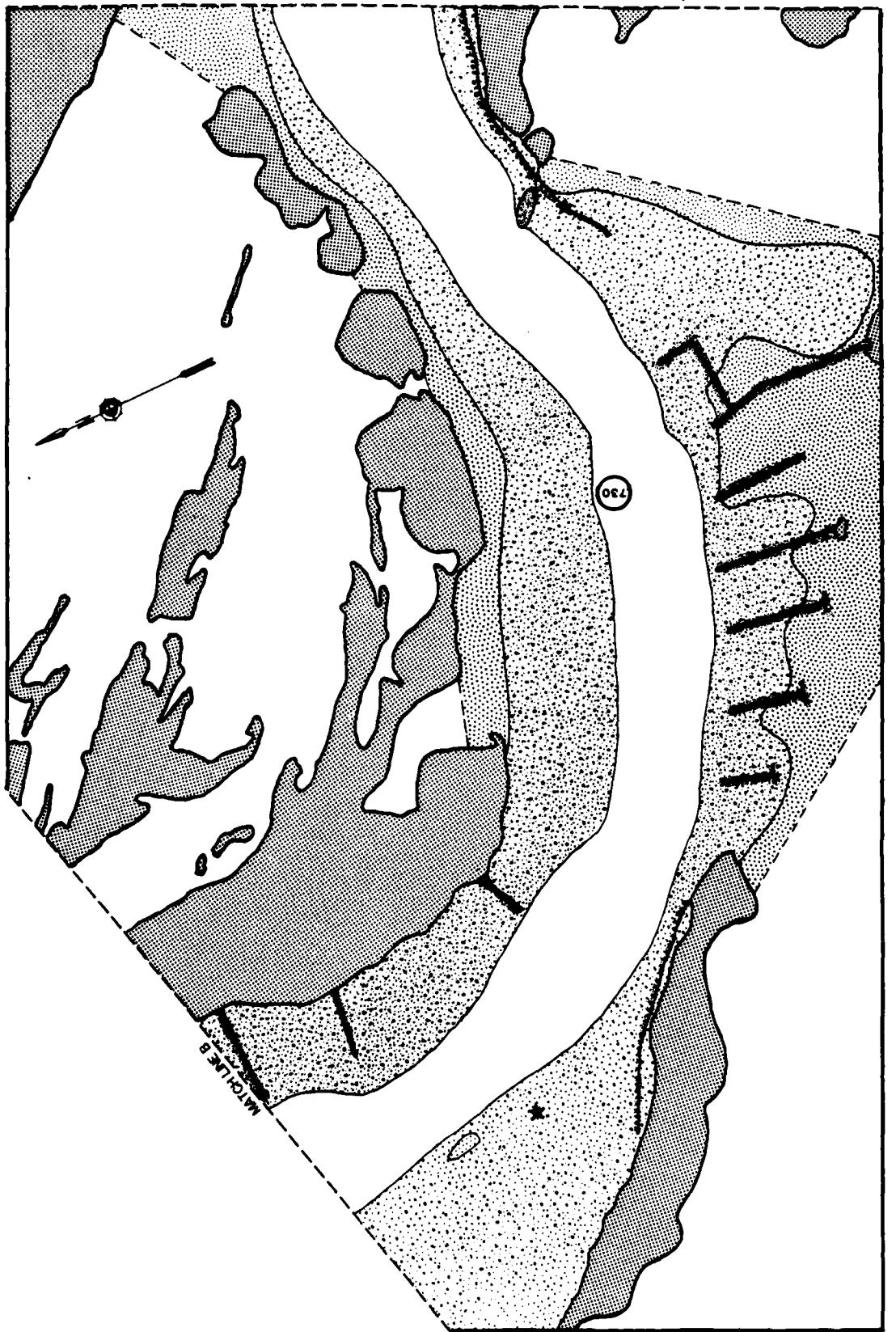


Figure A-2 General Substrate Map of River Mile 729.55 - 730.65

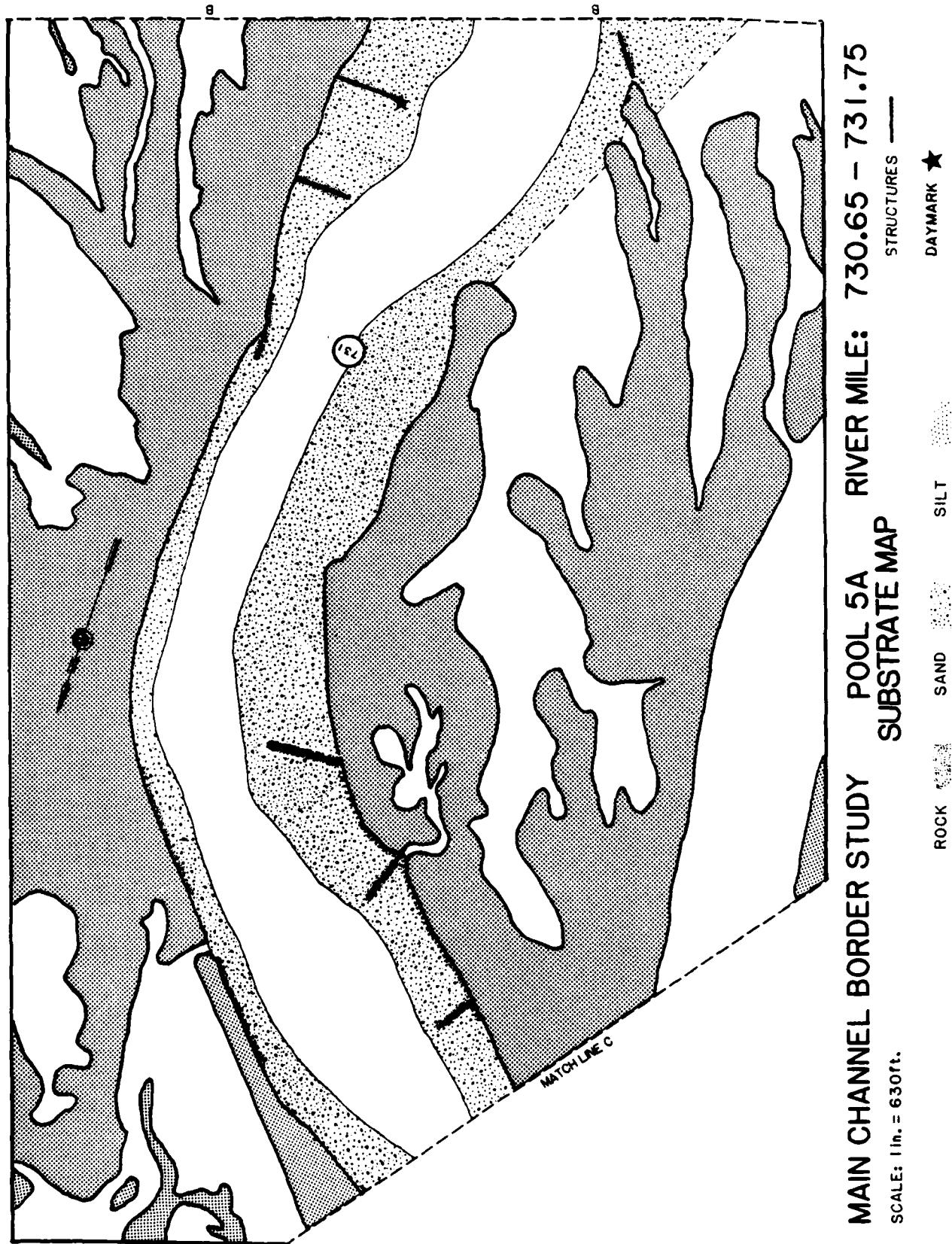


Figure A-3 General Substrate Map of River Mile 730.65 - 731.75

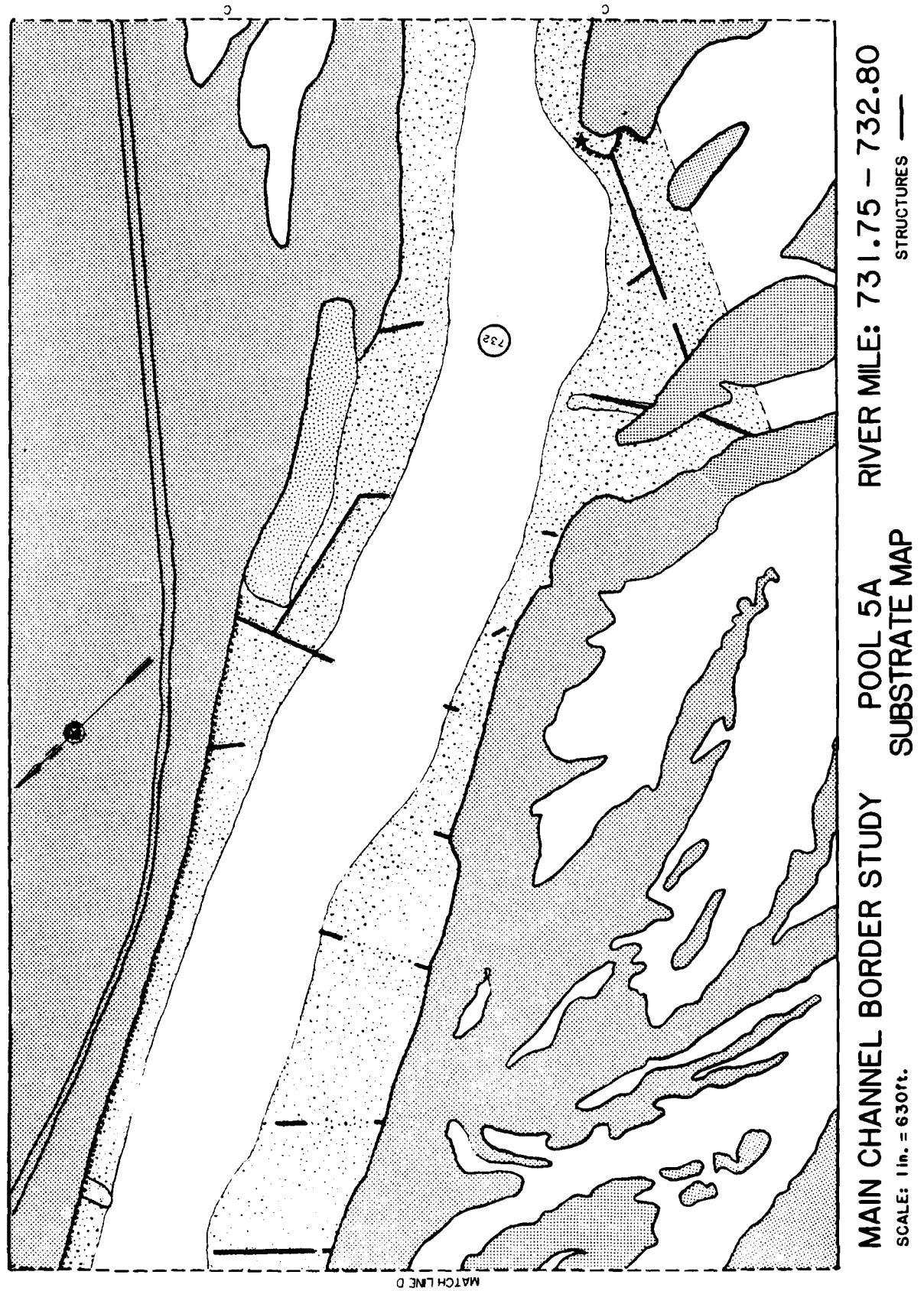


Figure A-4 General Substrate Map of River Mile 731.75 - 732.80

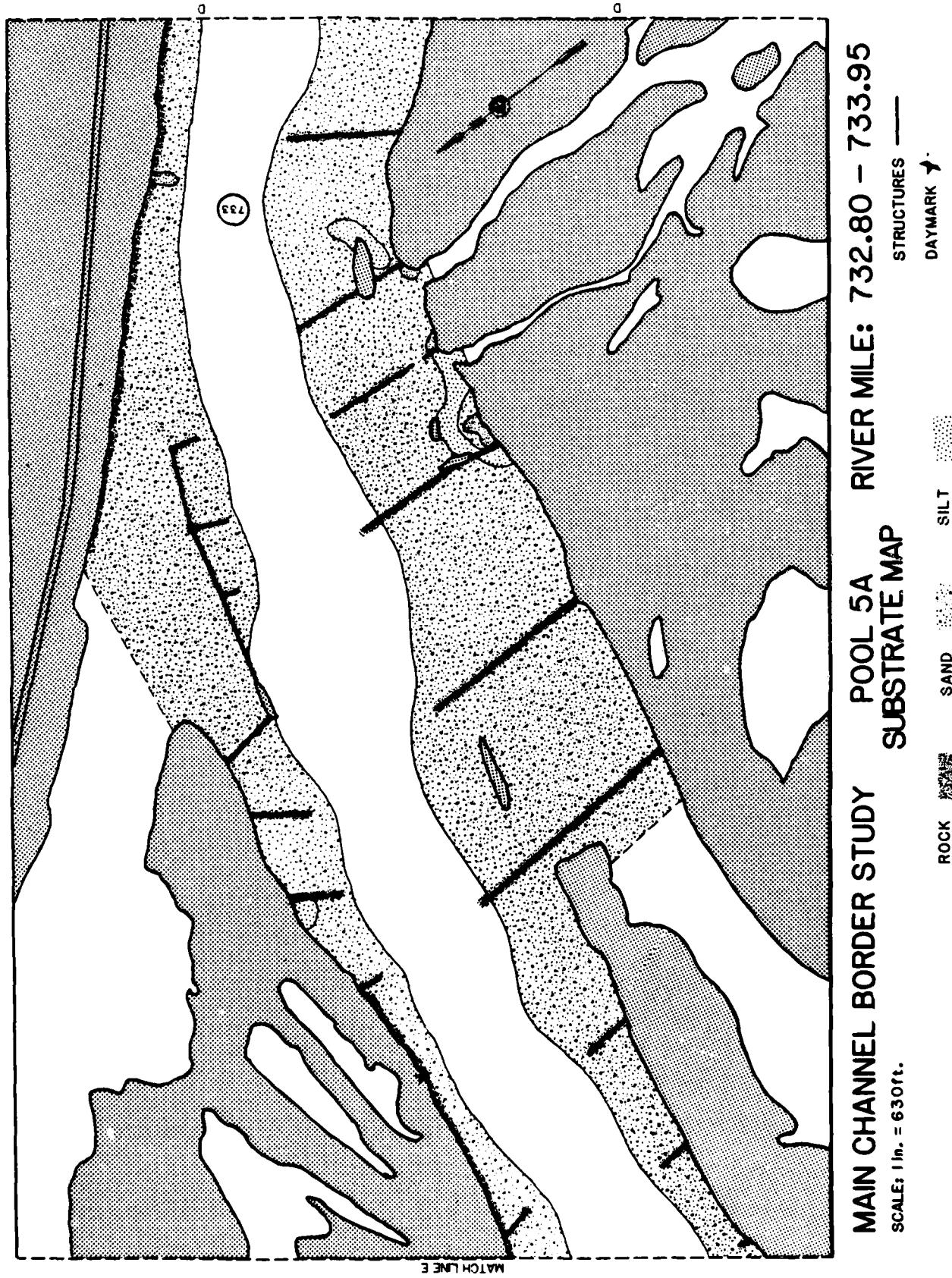


Figure A-5 General Substrate Map of River Mile 732.80 - 733.95



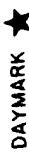
Figure A-6 General Substrate Map of River Mile 733.95 - 735.10

MAIN CHANNEL BORDER STUDY **POOL 5A SUBSTRATE MAP**

SCALE: 1 in. = 630 ft.

RIVER MILE: 735.10 - 736.15

STRUCTURES —



ROCK SAND SILT

MATCH LINE 6

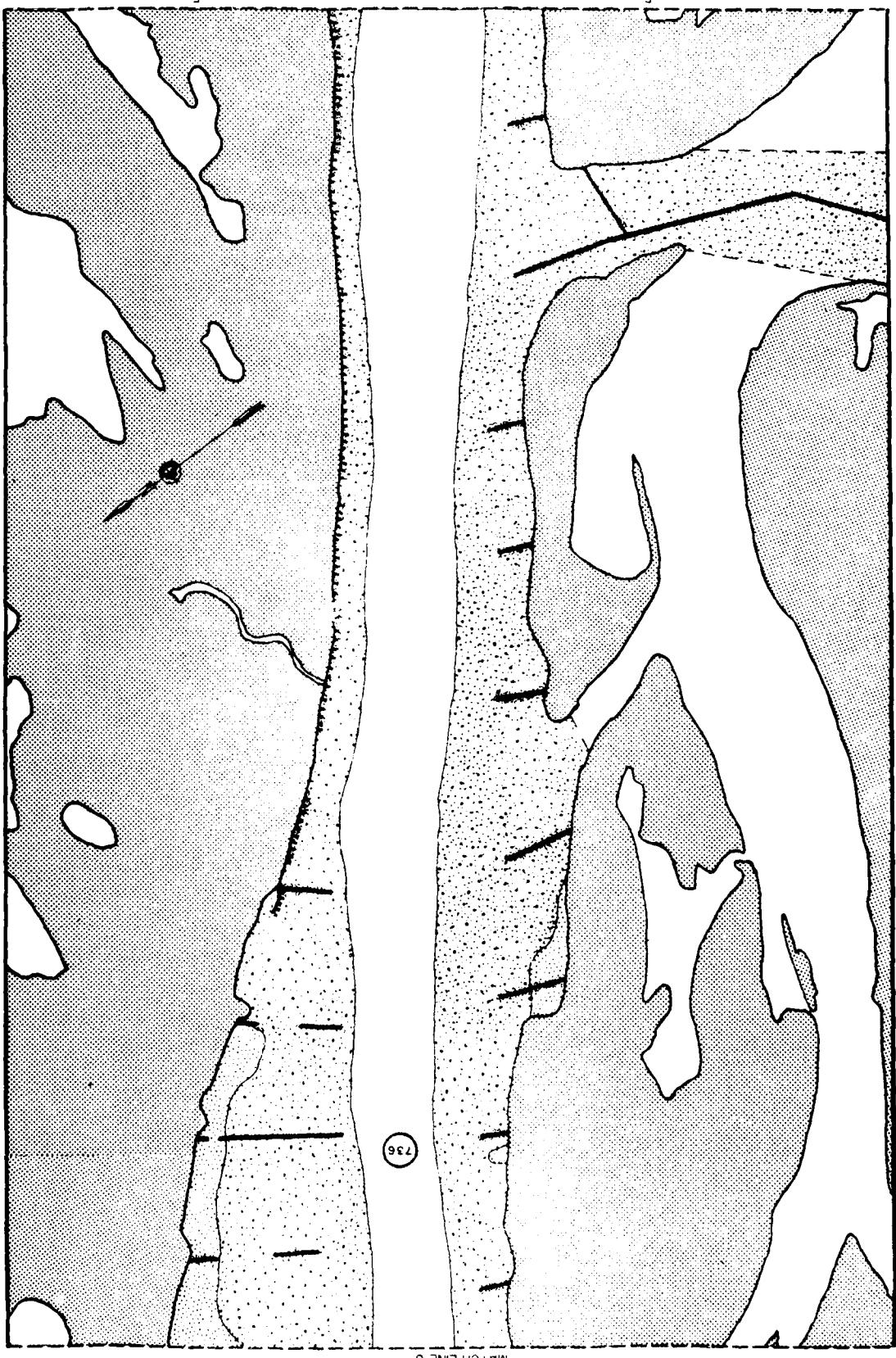


Figure A-7 General Substrate Map of River Mile 735.10 - 736.15

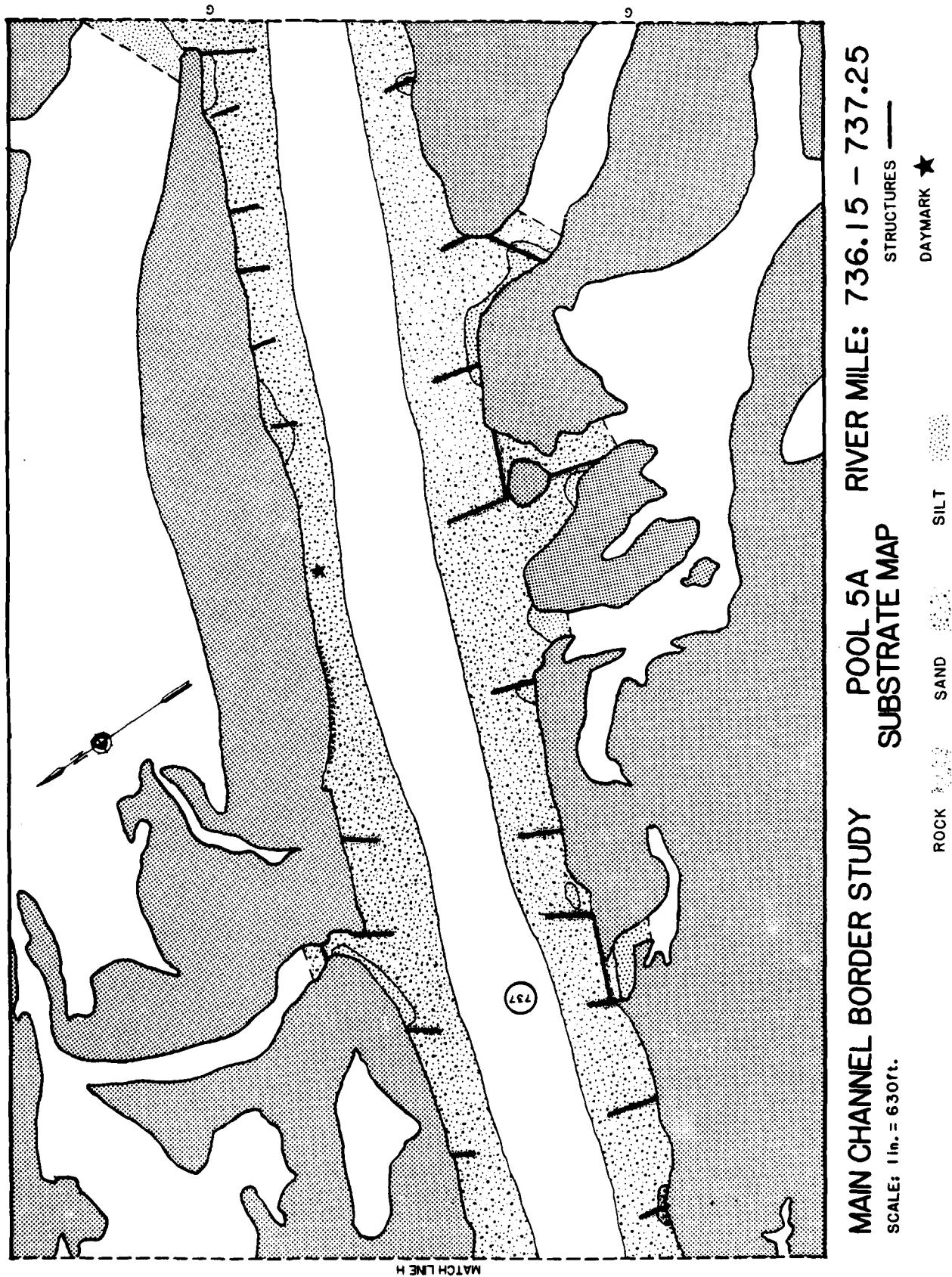


Figure A-8 General Substrate Map of River Mile 736.15 - 737.25

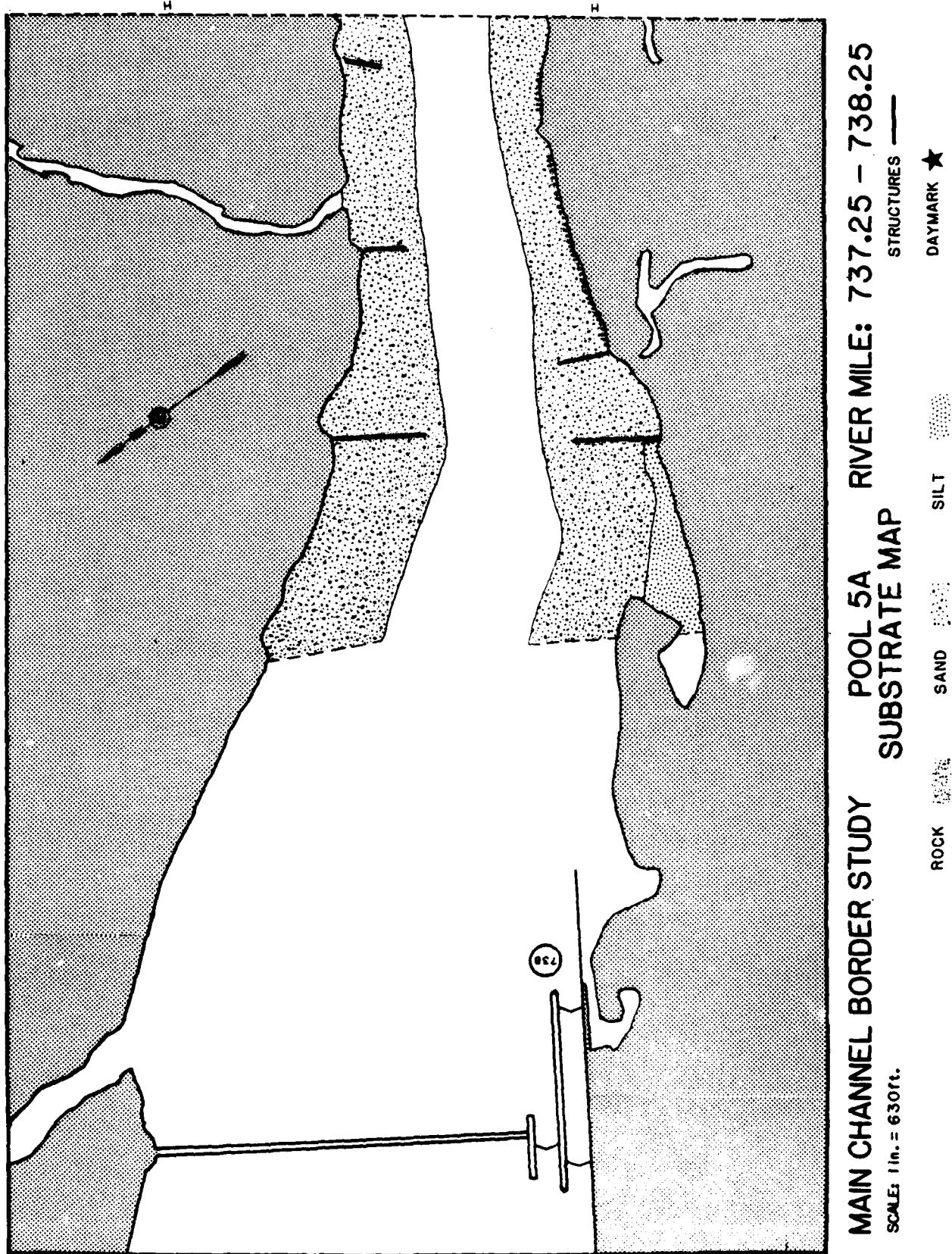


Figure A-9 General Substrate Map of River Mile 737.25 - 738.25

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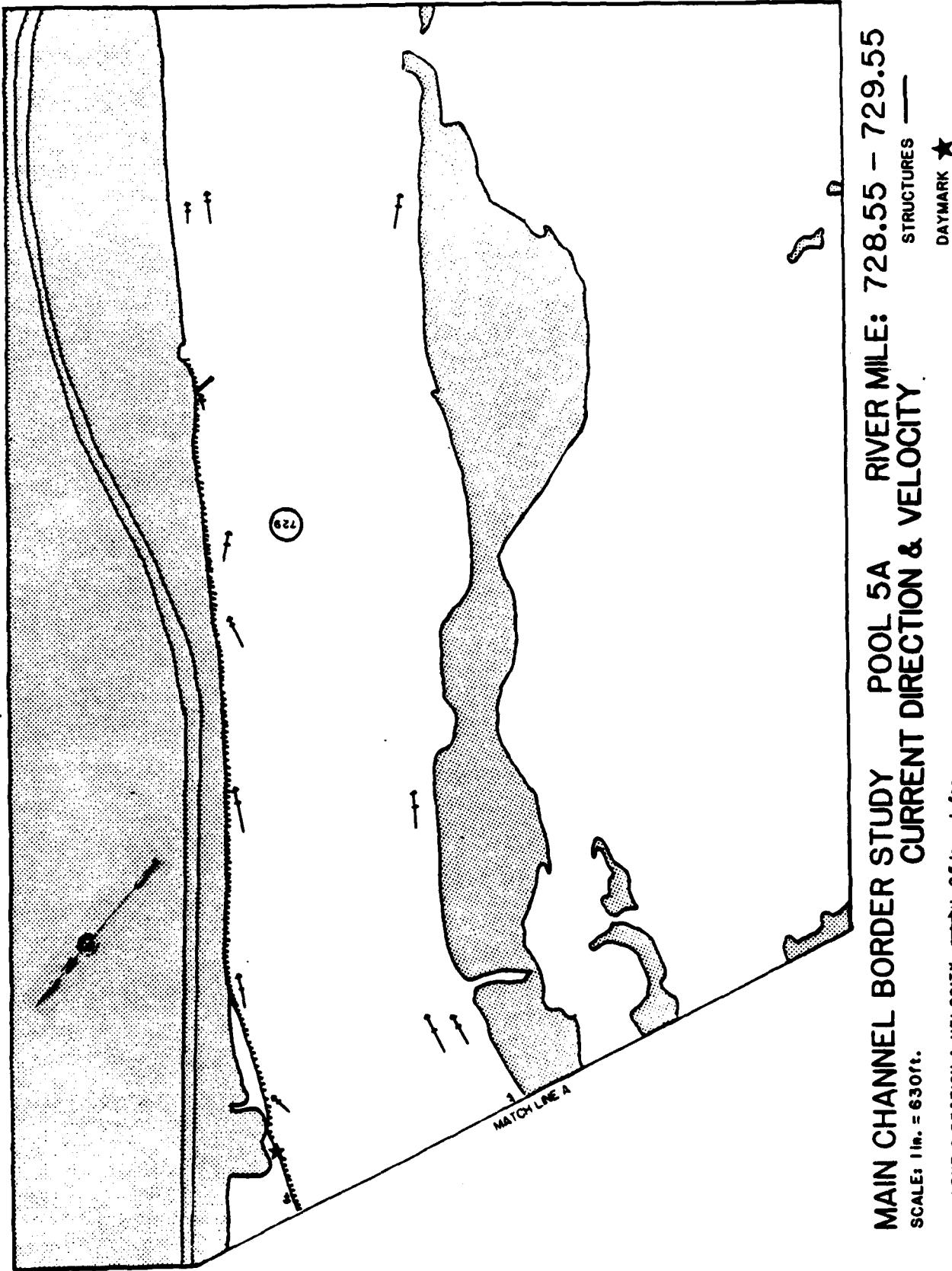


Figure B-1 General Current Velocity and Direction Patterns - River Mile 728.55 - 729.55

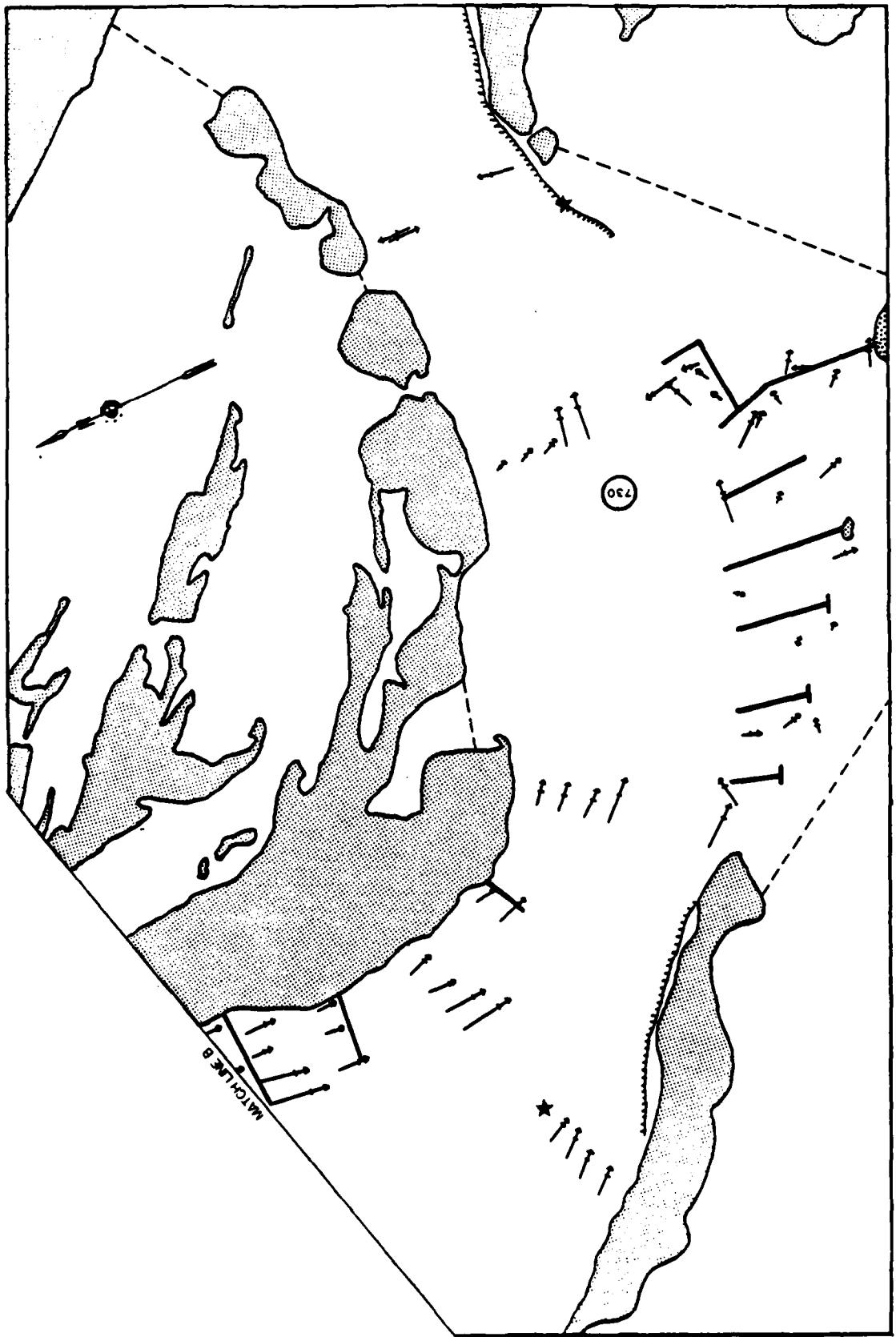


Figure B-2 General Current Velocity and Direction Patterns - River Mile 729.55 - 730.65

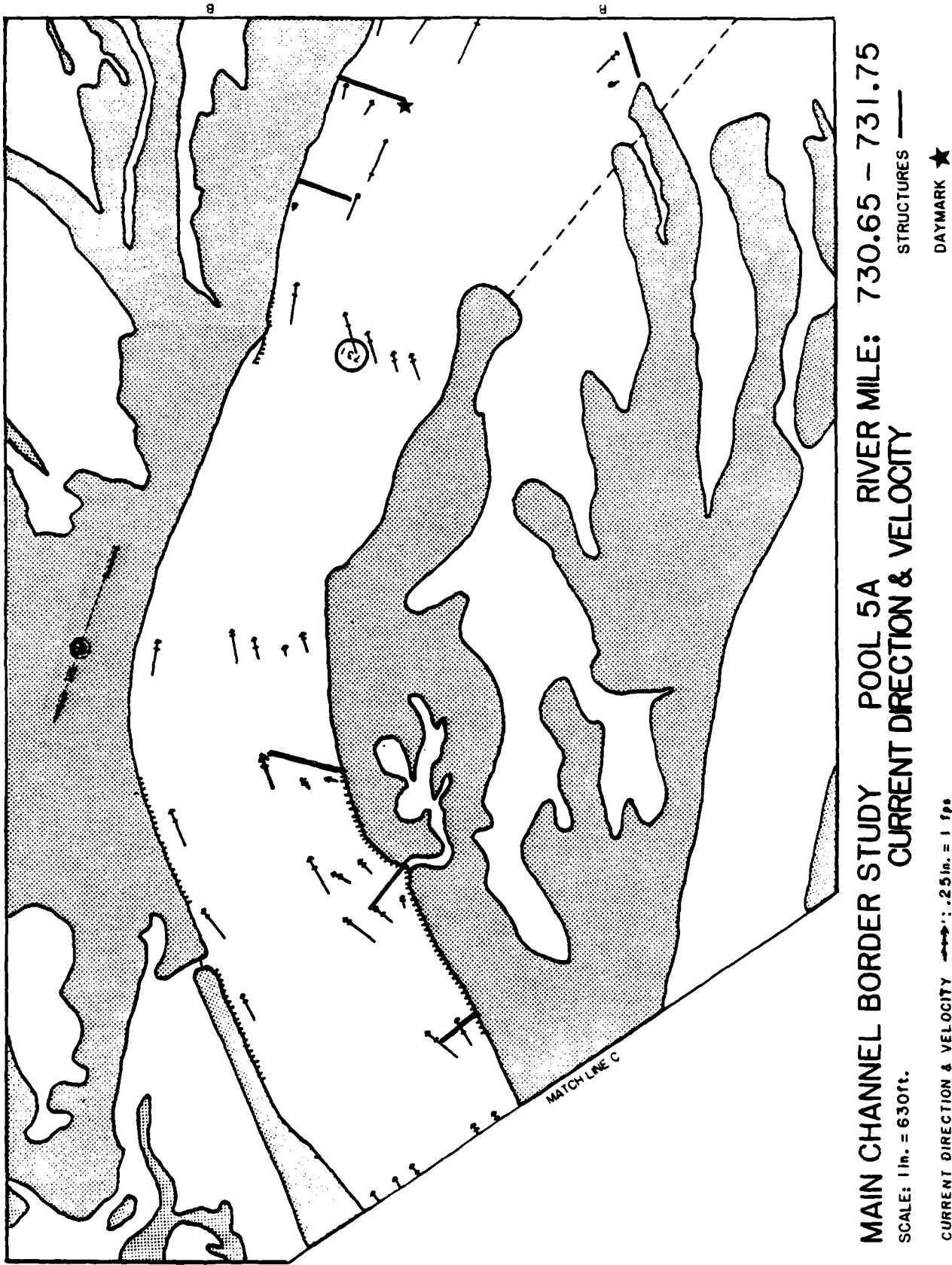


Figure B-3 General Current Velocity and Direction Patterns - River Mile 730.65 - 731.75

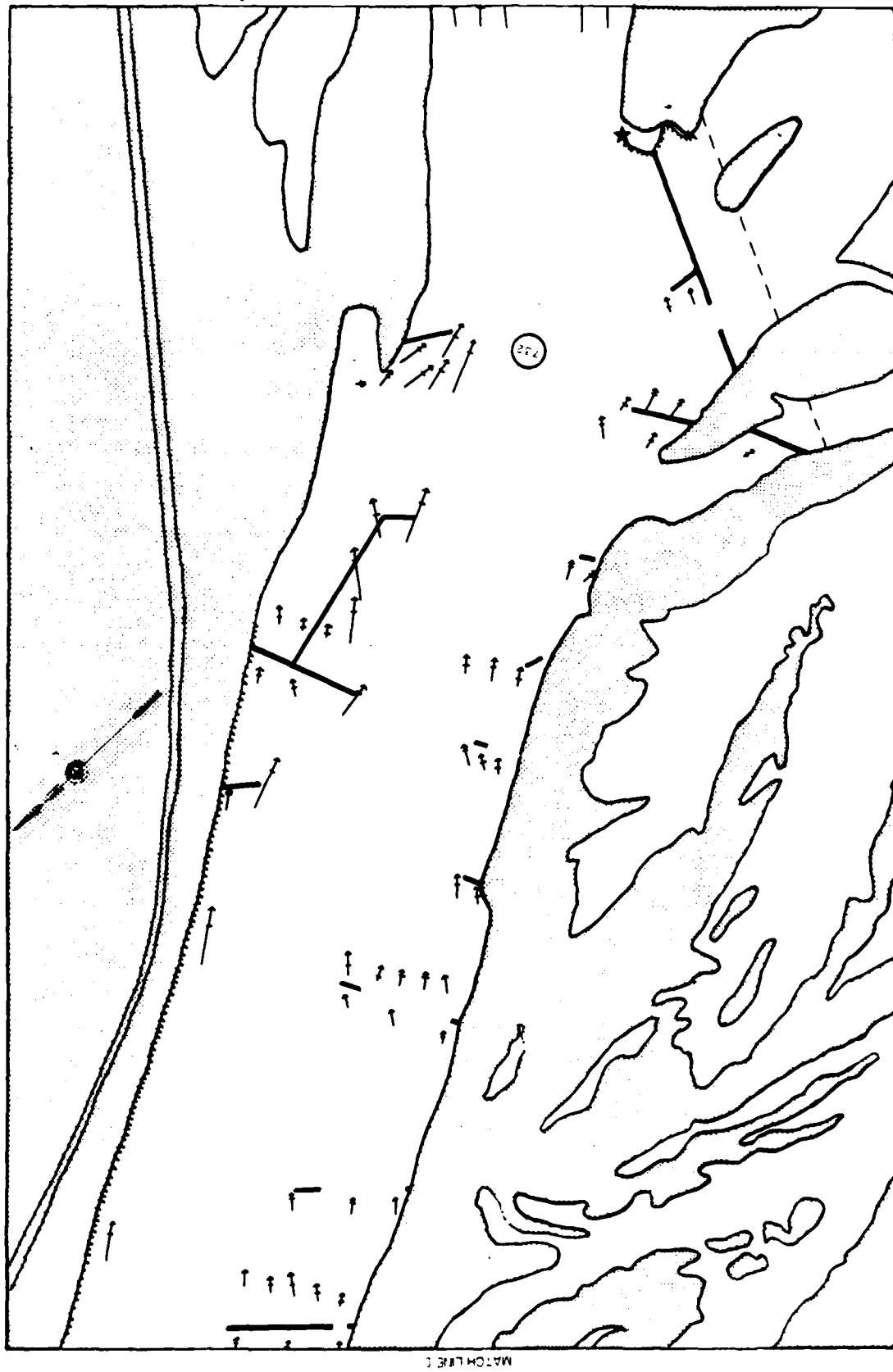


Figure B-4 General Current Velocity and Direction Patterns - River Mile 731.75 - 732.80

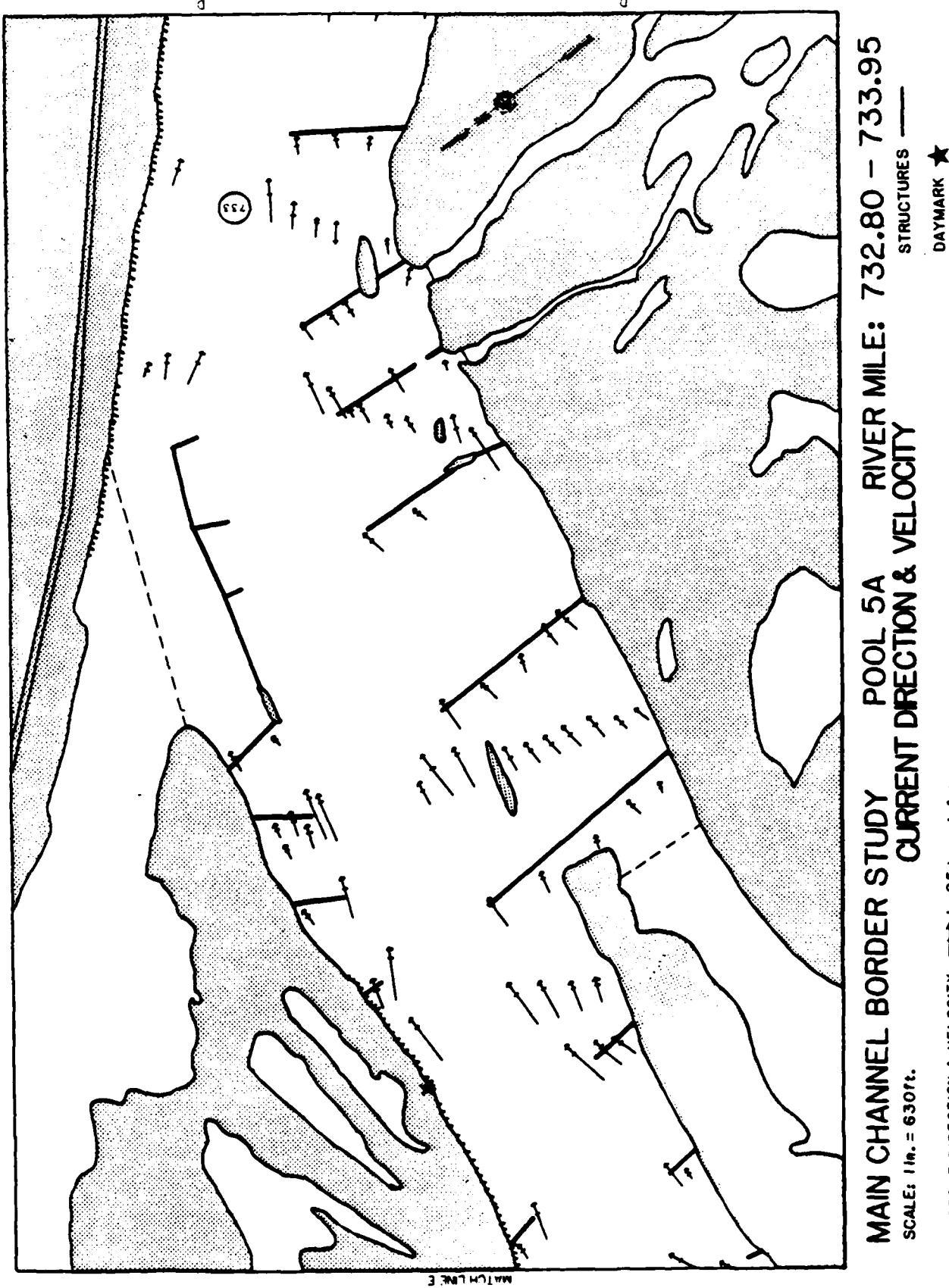


Figure B-5 General Current Velocity and Direction Patterns - River Mile 732.80 - 733.95

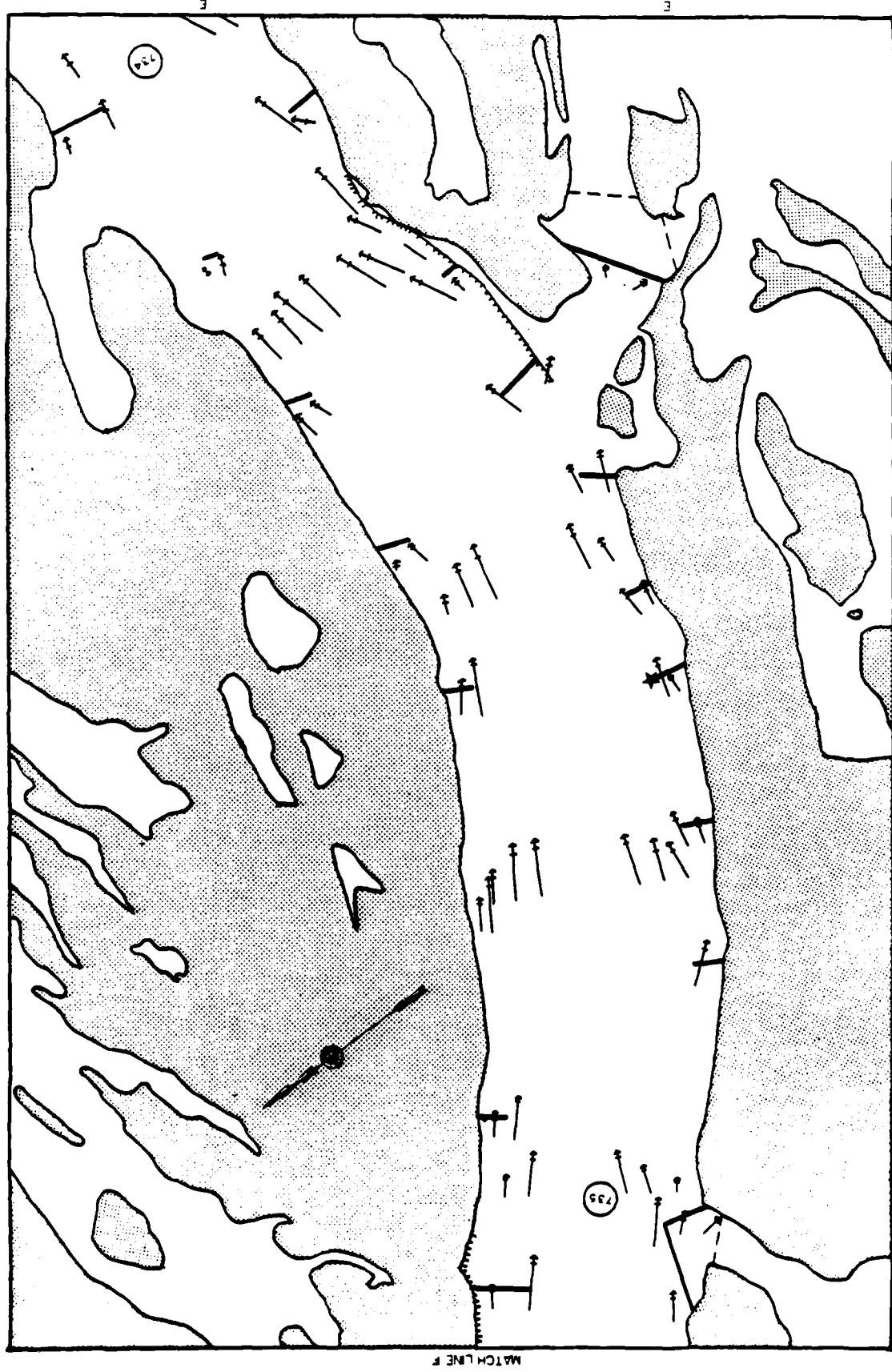


Figure B-6 General Current Velocity and Direction Patterns - River Mile 733.95 - 735.10

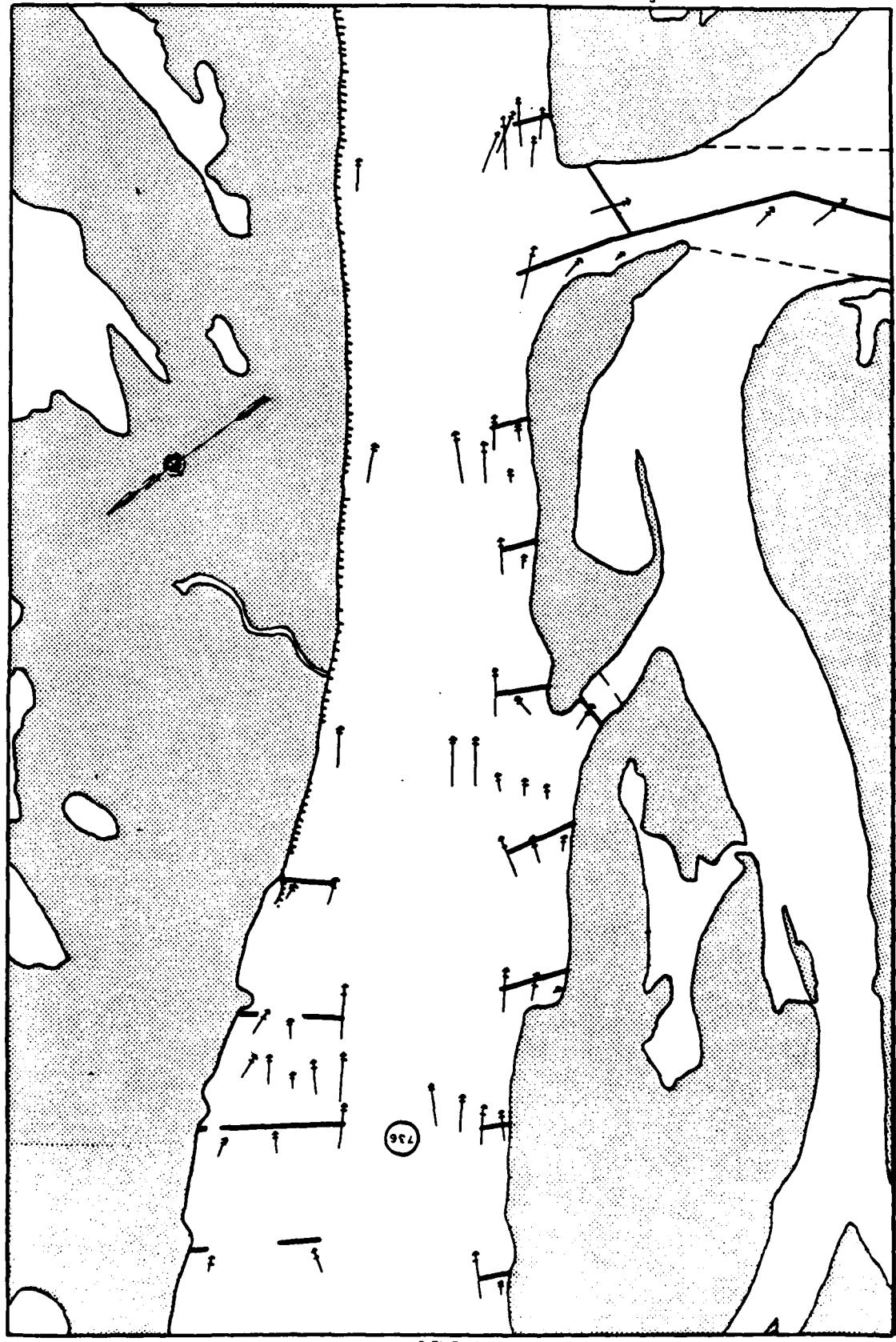


Figure B-7 General Current Velocity and Direction Patterns - River Mile 735.10 - 736.15

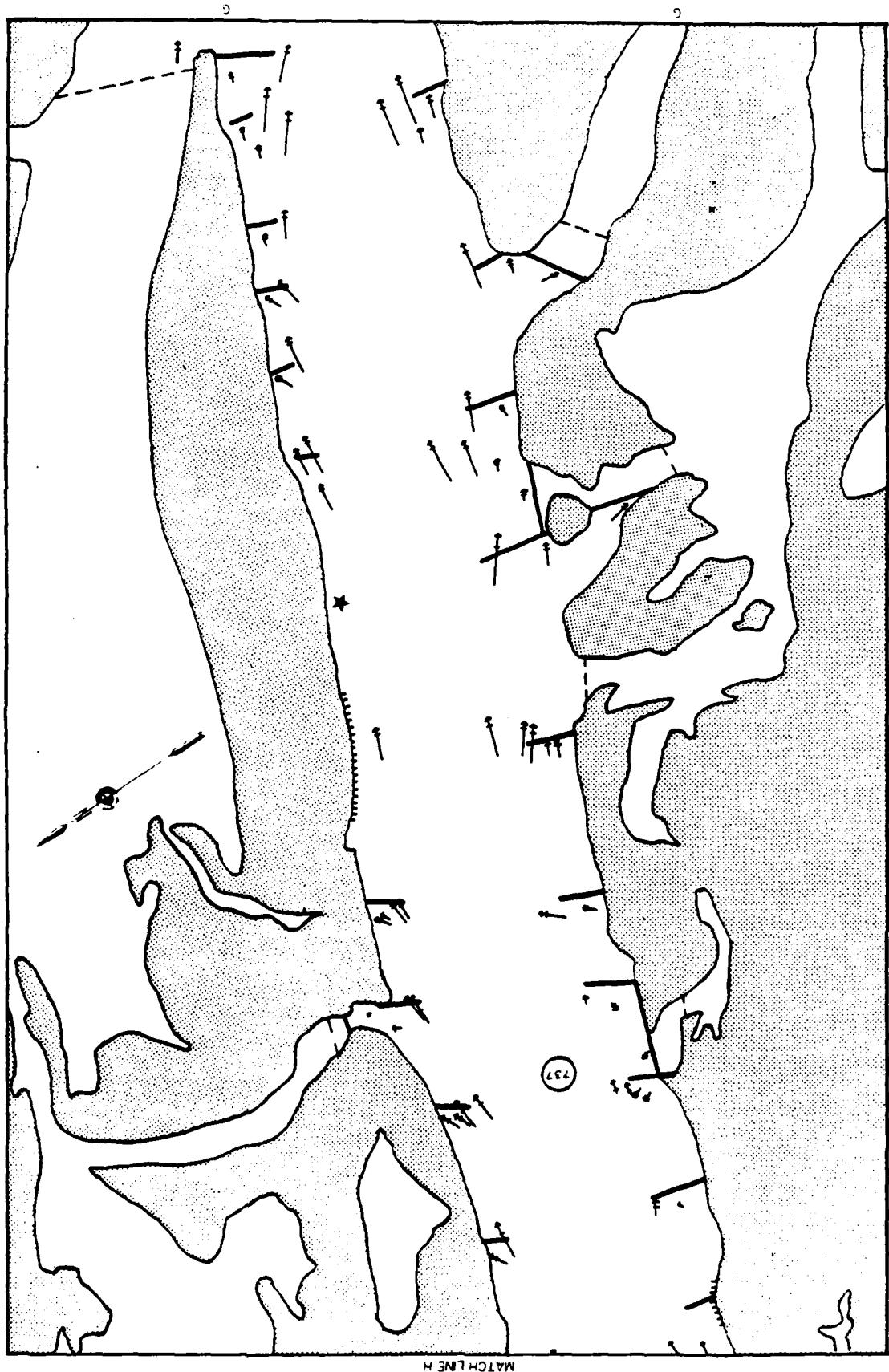


Figure B-8 General Current Velocity and Direction Patterns - River Mile 736.15 - 737.25

Figure B-8 General Current Velocity and Direction Patterns - River Mile 736.15 - 737.25

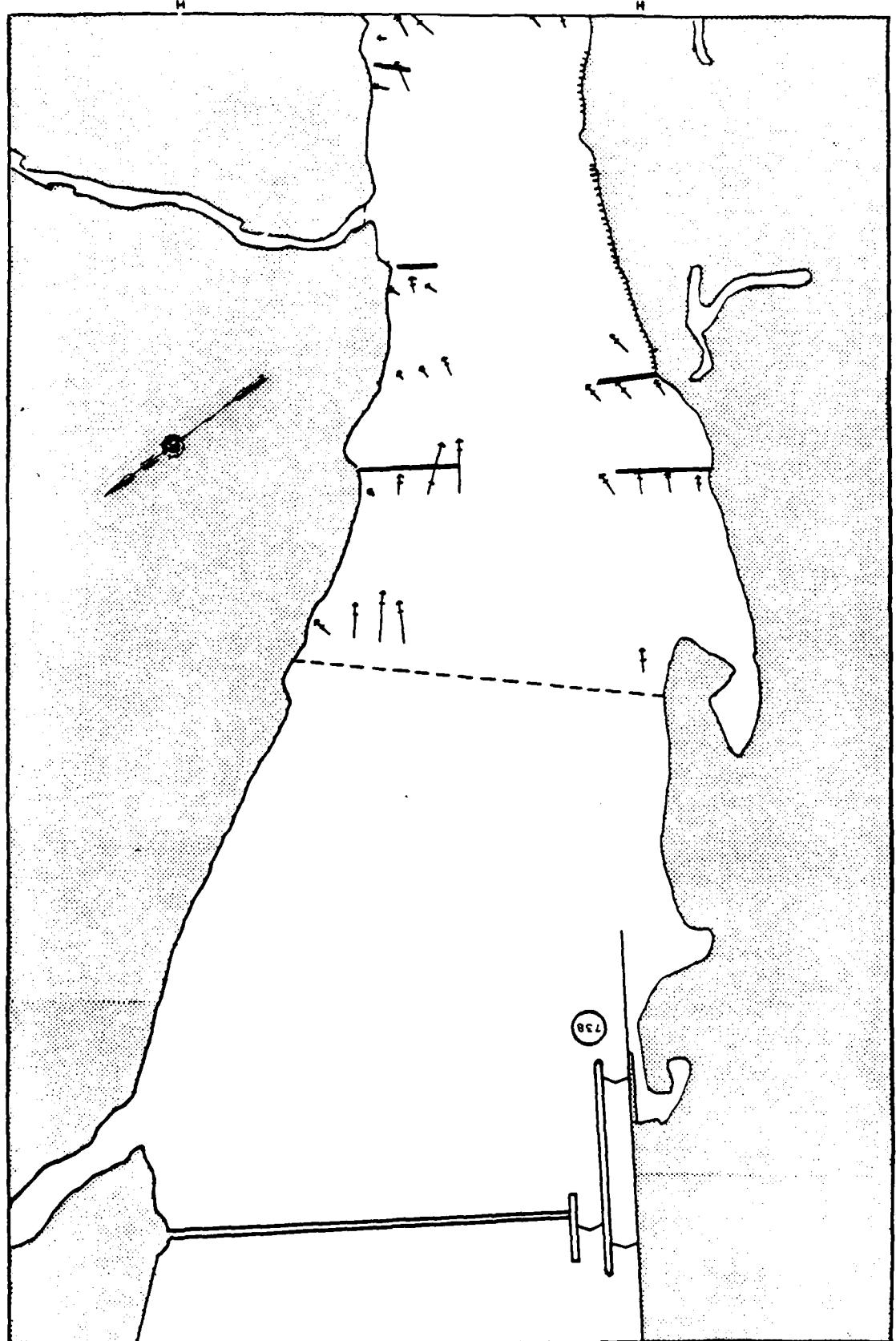


Figure B-9 General Current Velocity and Direction Patterns - River Mile 737.25 - 738.25

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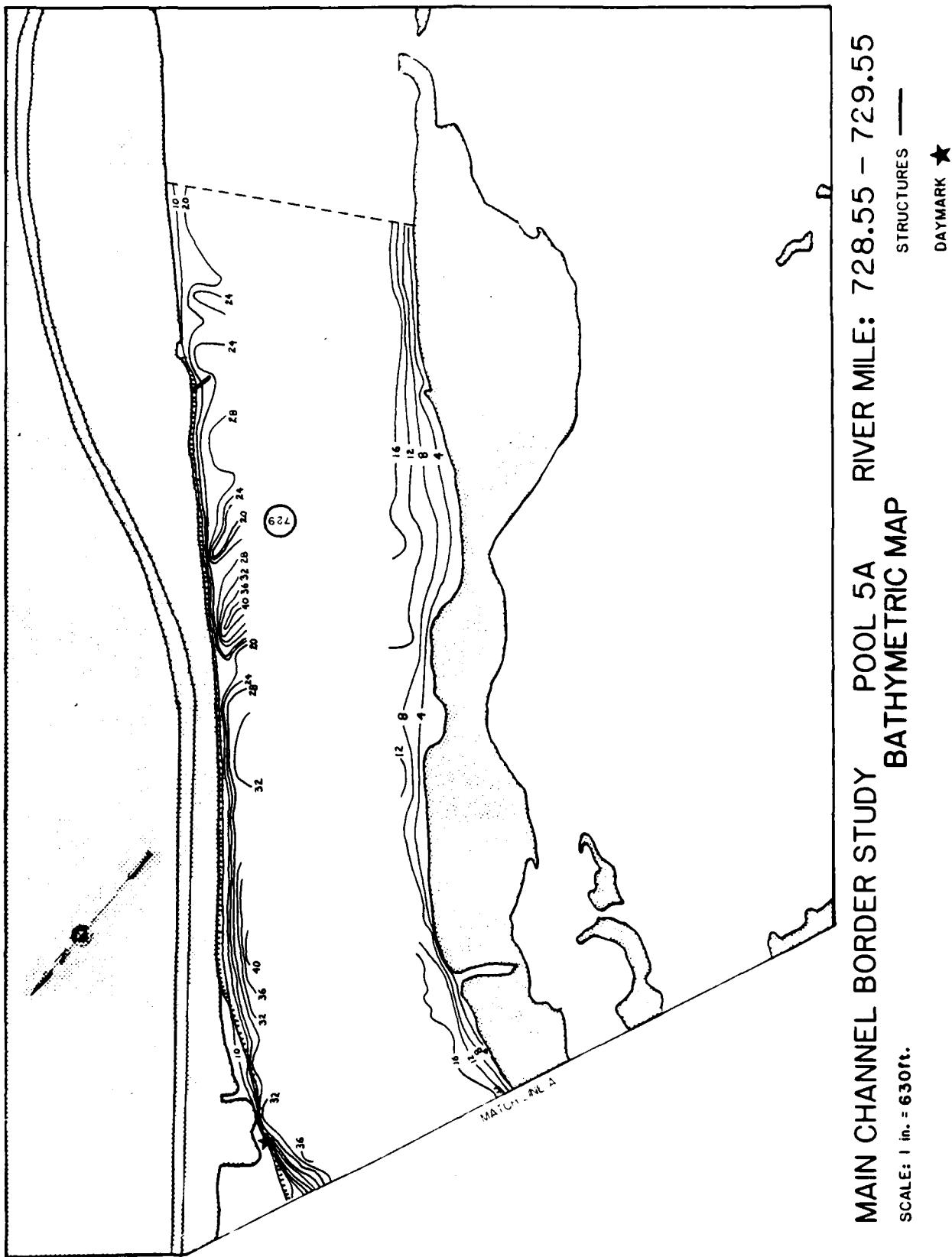


Figure C-1 General Bathymetric Map River Mile 728.55 - 729.55

DAYMARK ★

STRUCTURES —

RIVER MILE: 729.55 - 730.65

POOL 5A
BATHYMETRIC MAP

SCALE: 1 in. = 630 ft.

MAIN CHANNEL BORDER STUDY

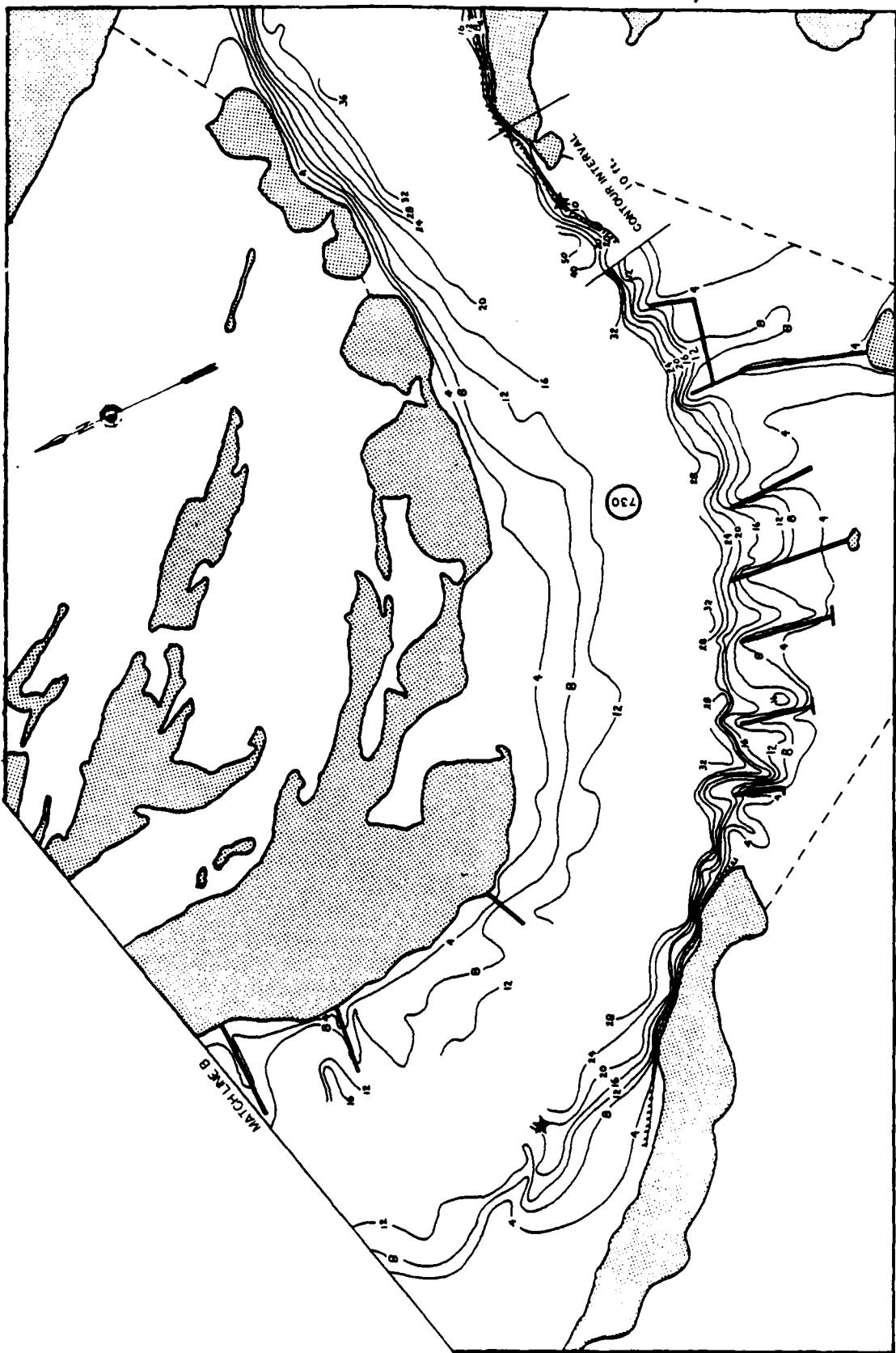
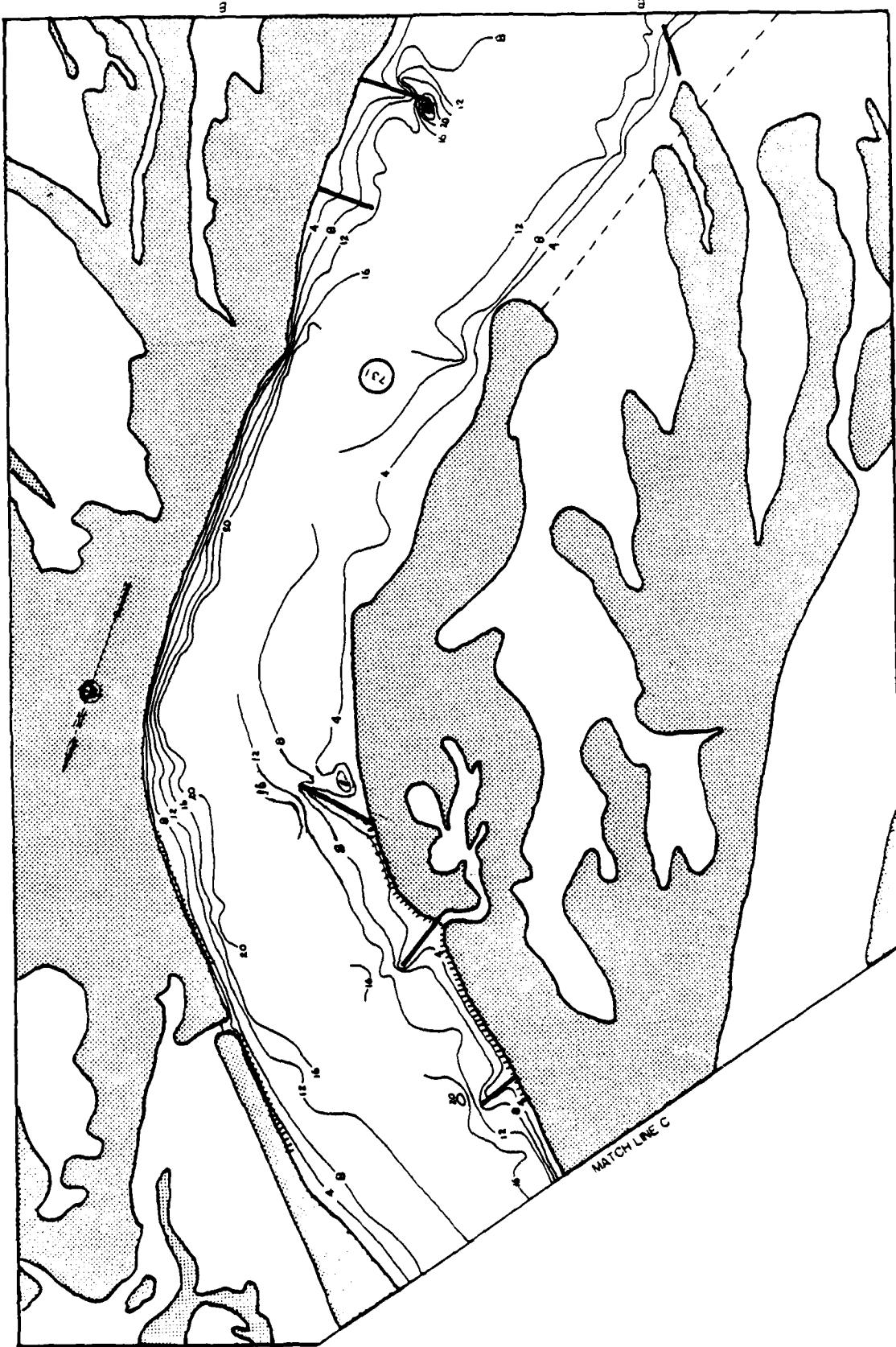


Figure C-2 General Bathymetric Map River Mile 729.55 - 730.65



MAIN CHANNEL BORDER STUDY POOL 5A RIVER MILE: 730.65 – 731.75
BATHYMETRIC MAP

SCALE: 1 in. = 630 ft.

STRUCTURES —
 DAYMARK ★

Figure C-3 General Bathymetric Map River Mile 730.65 - 731.75

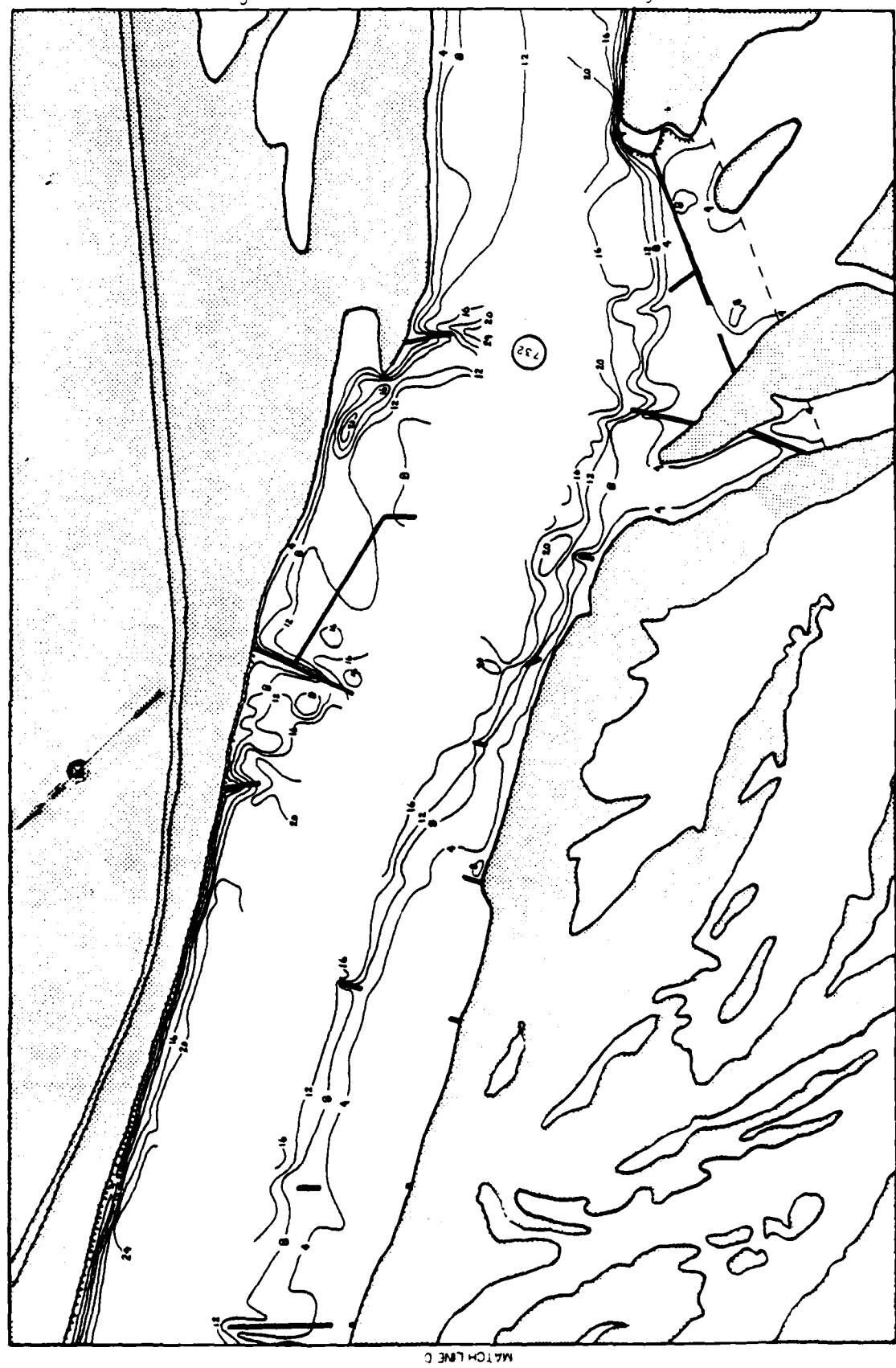
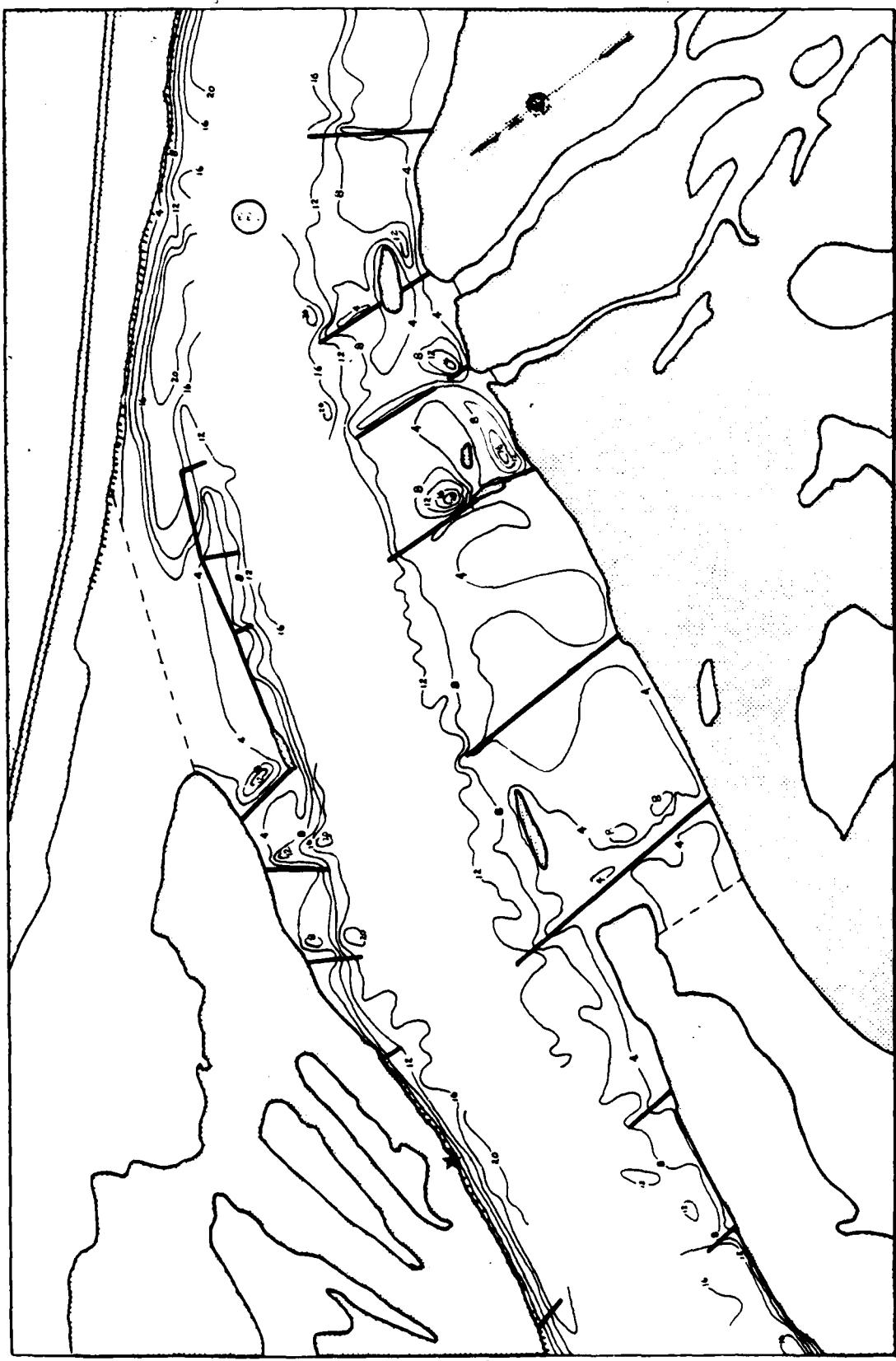


Figure C-4 General Bathymetric Map River Mile 731.75 - 732.80



MAIN CHANNEL BORDER STUDY RIVER MILE: 732.80 - 733.95
POOL 5A BATHYMETRIC MAP
STRUCTURES —
DAYMARK ★
SCALE: 1 in. = 630 ft.

Figure C-5 General Bathymetric Map River Mile 732.80 - 733.95



Figure C-6 General Bathymetric Map River Mile 733.95 - 735.10

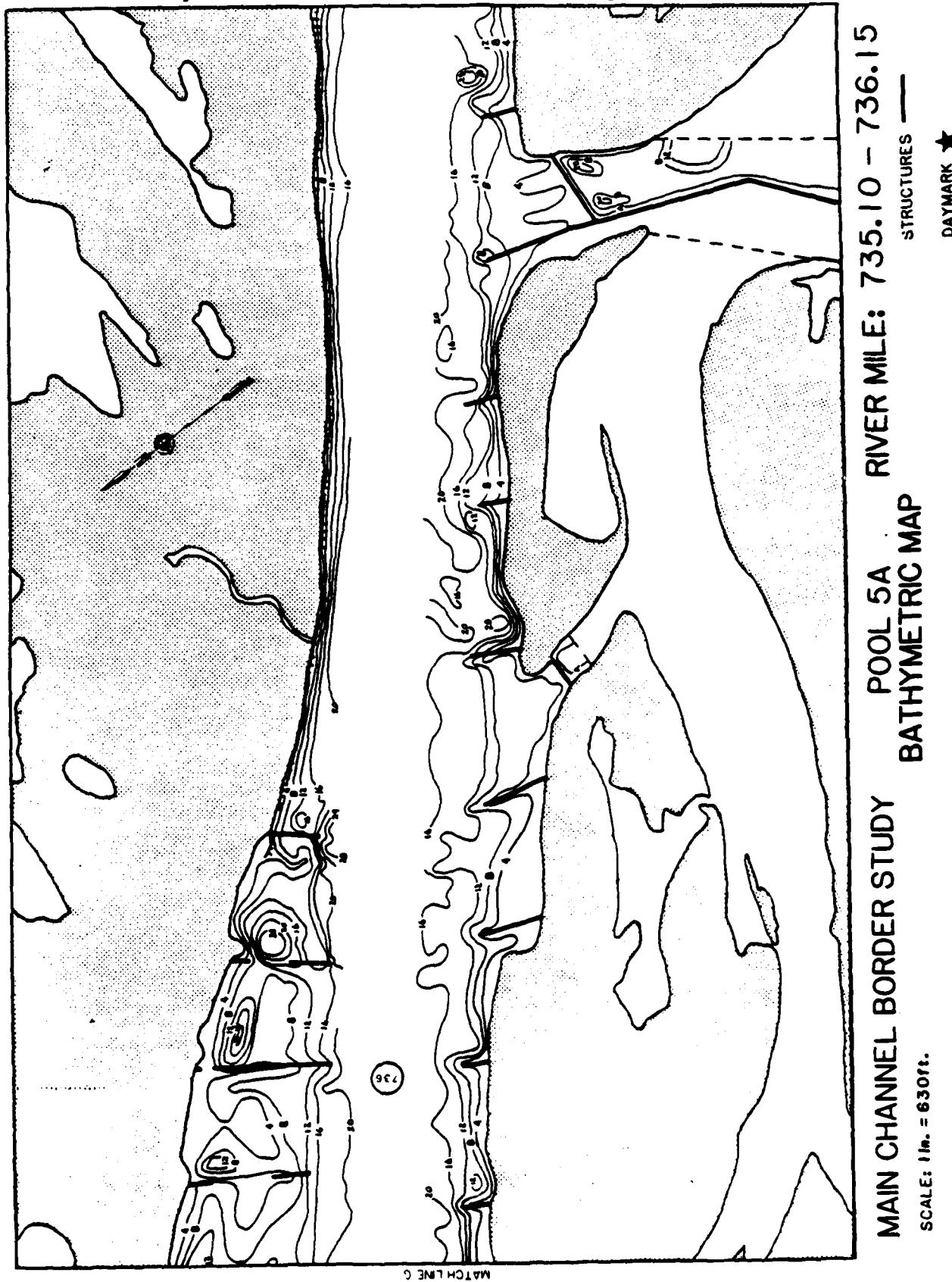


Figure C-7 General Bathymetric Map River Mile 735.10 - 736.15

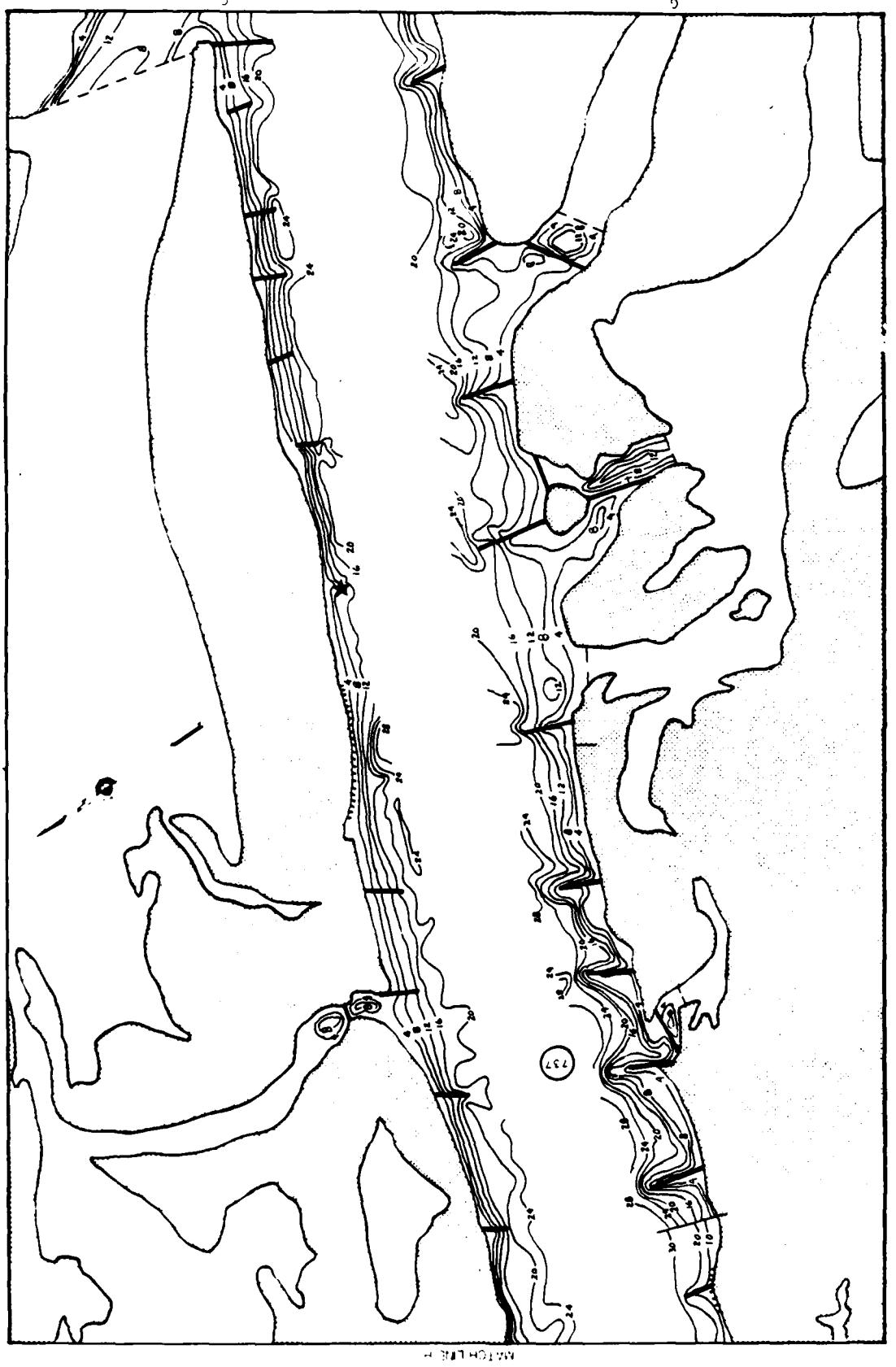
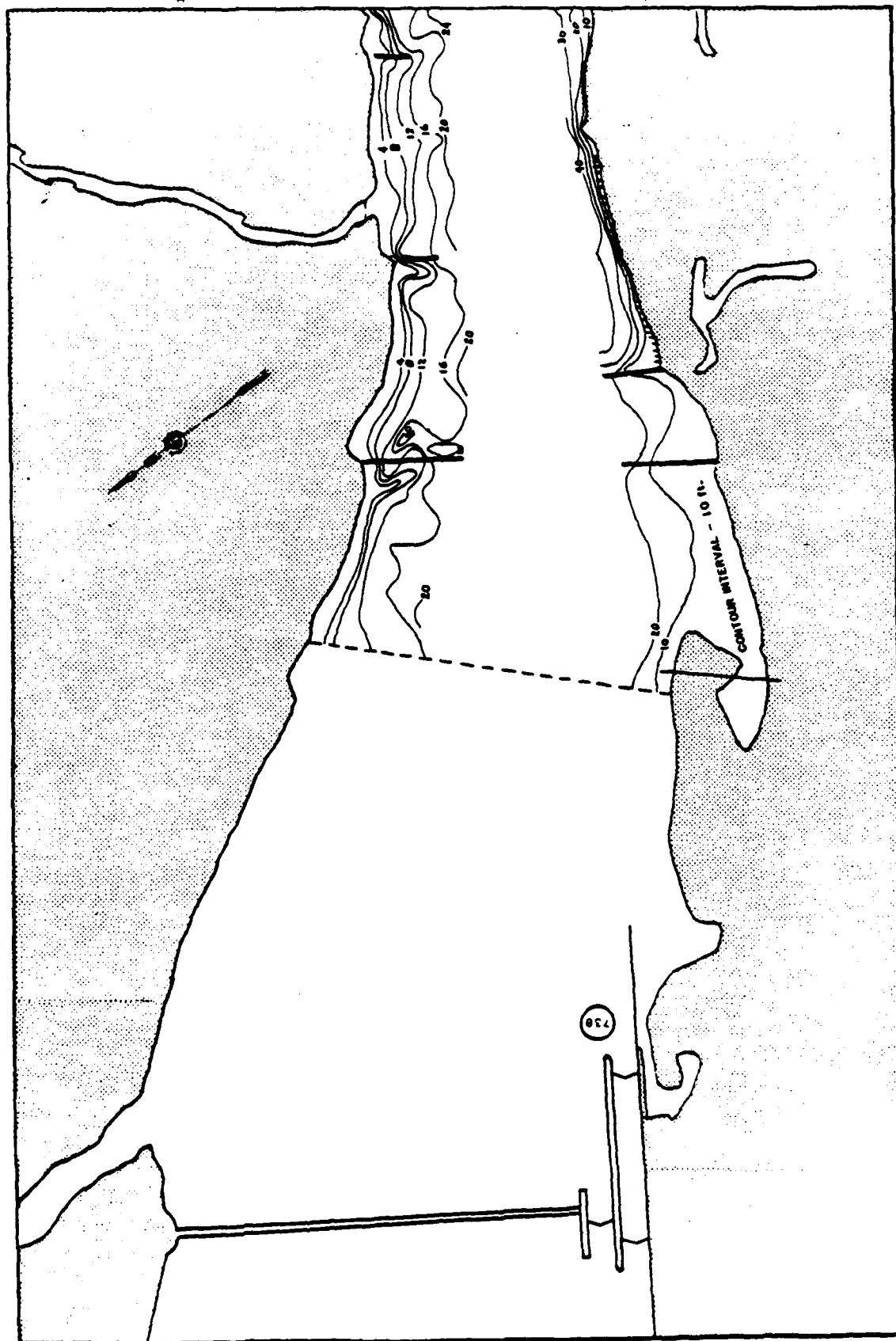


Figure C-8 General Bathymetric Map River Mile 736.15 - 737.25



MAIN CHANNEL BORDER STUDY **POOL 5A RIVER MILE: 737.25 – 738.25**
BATHYMETRIC MAP

STRUCTURES —
DAYMARK ★

Figure C-9 General Bathymetric Map River Mile 737.25 – 738.25

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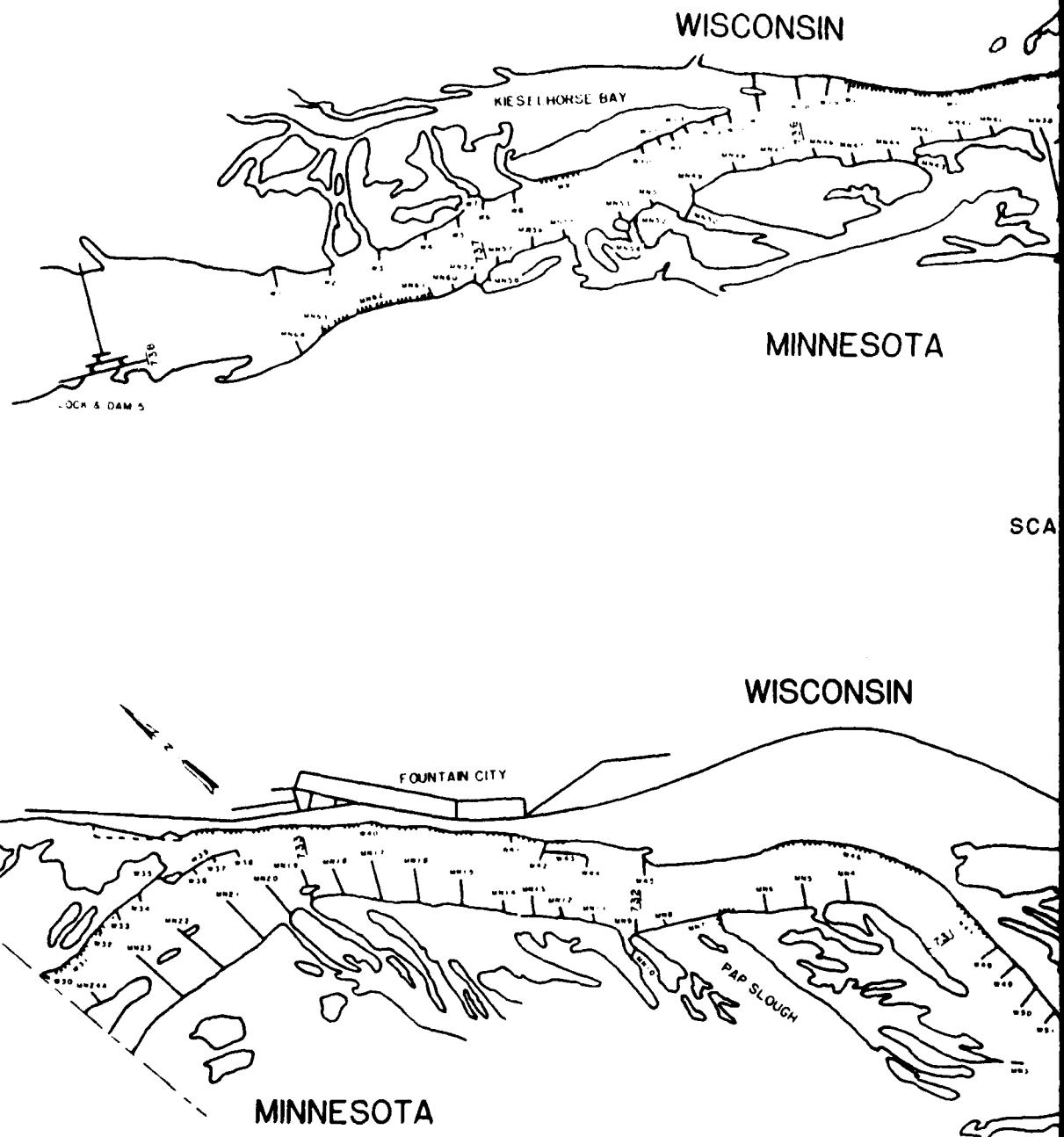
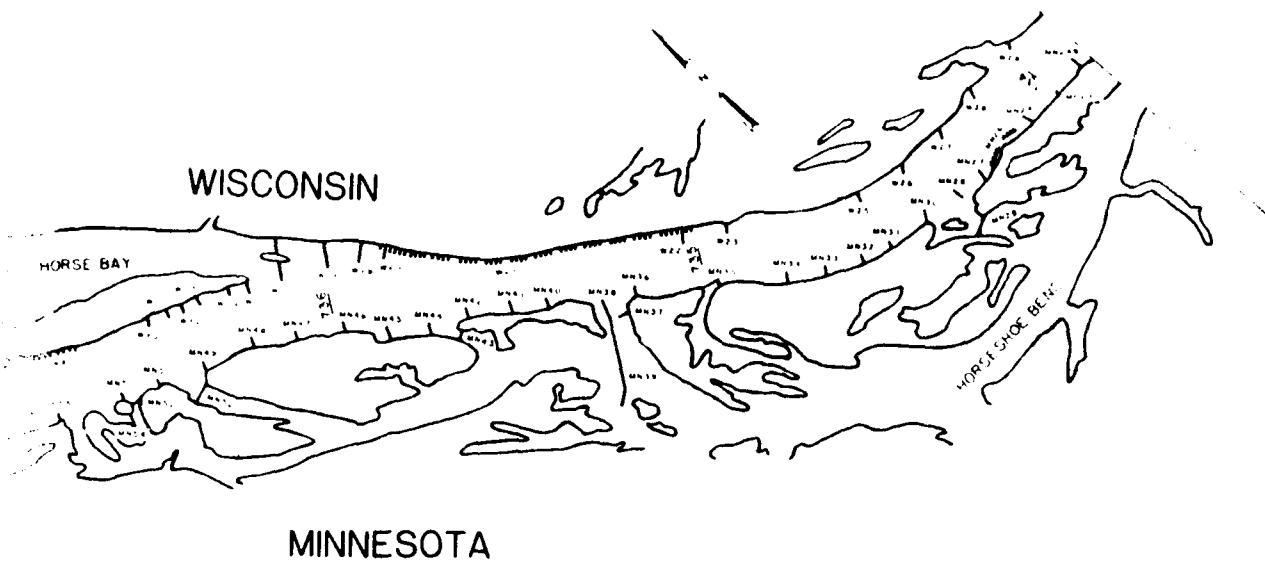
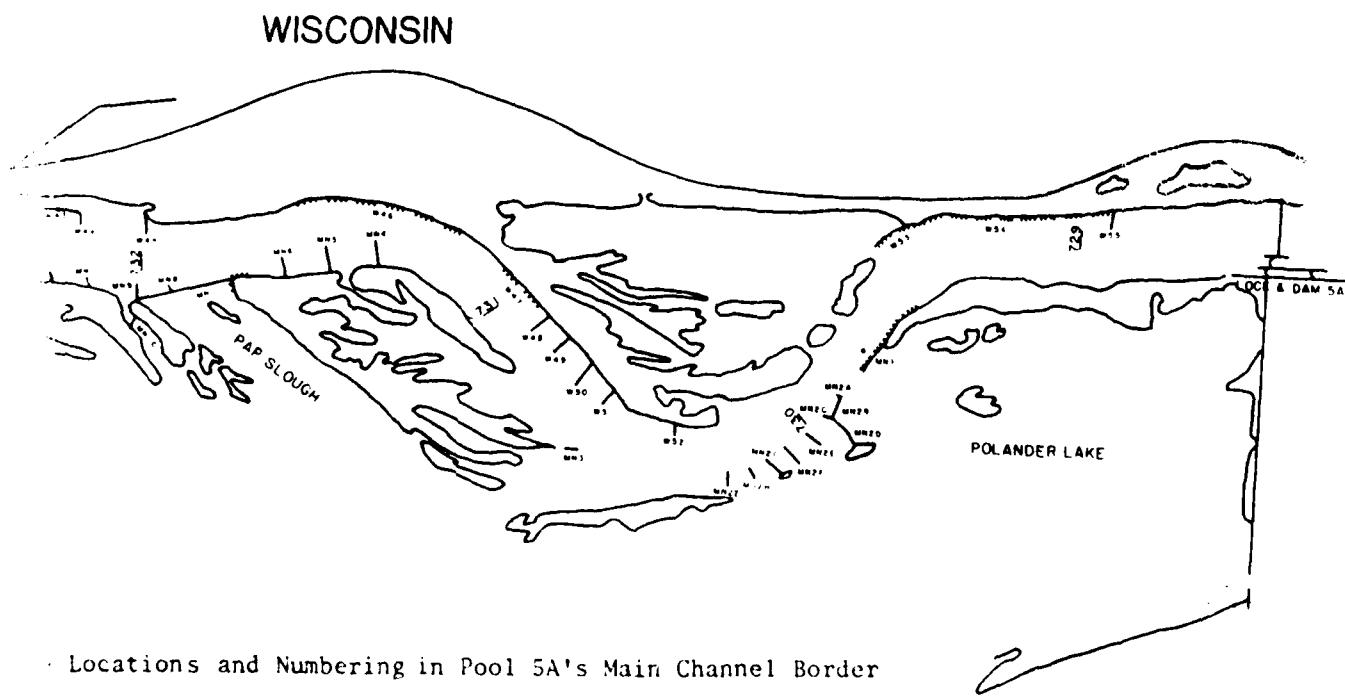


Figure D-1 General Map of Rock Control Structure Locations and Numbering in Pool SA's M

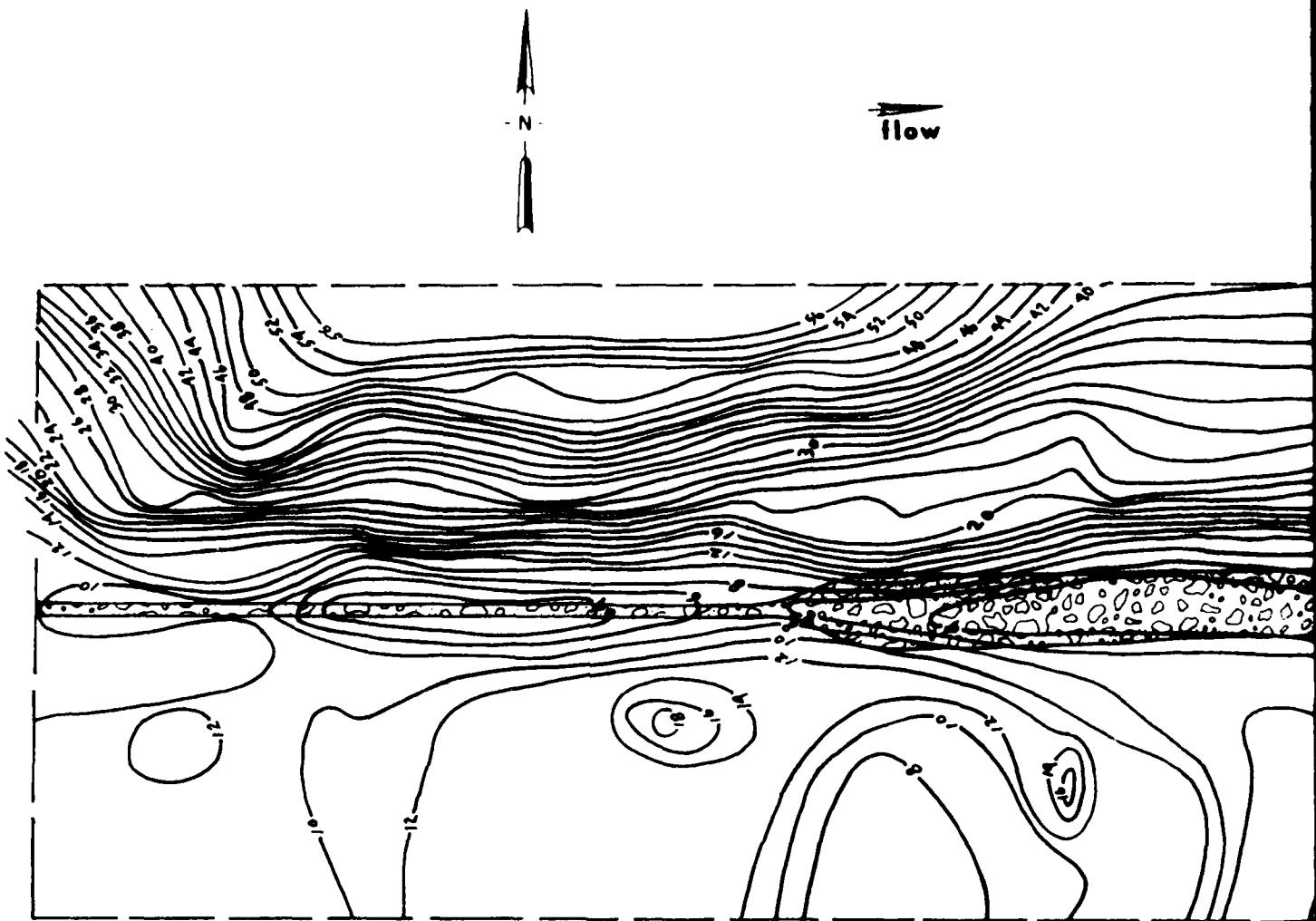


MINNESOTA

SCALE: 1 in. = 2,400 ft.



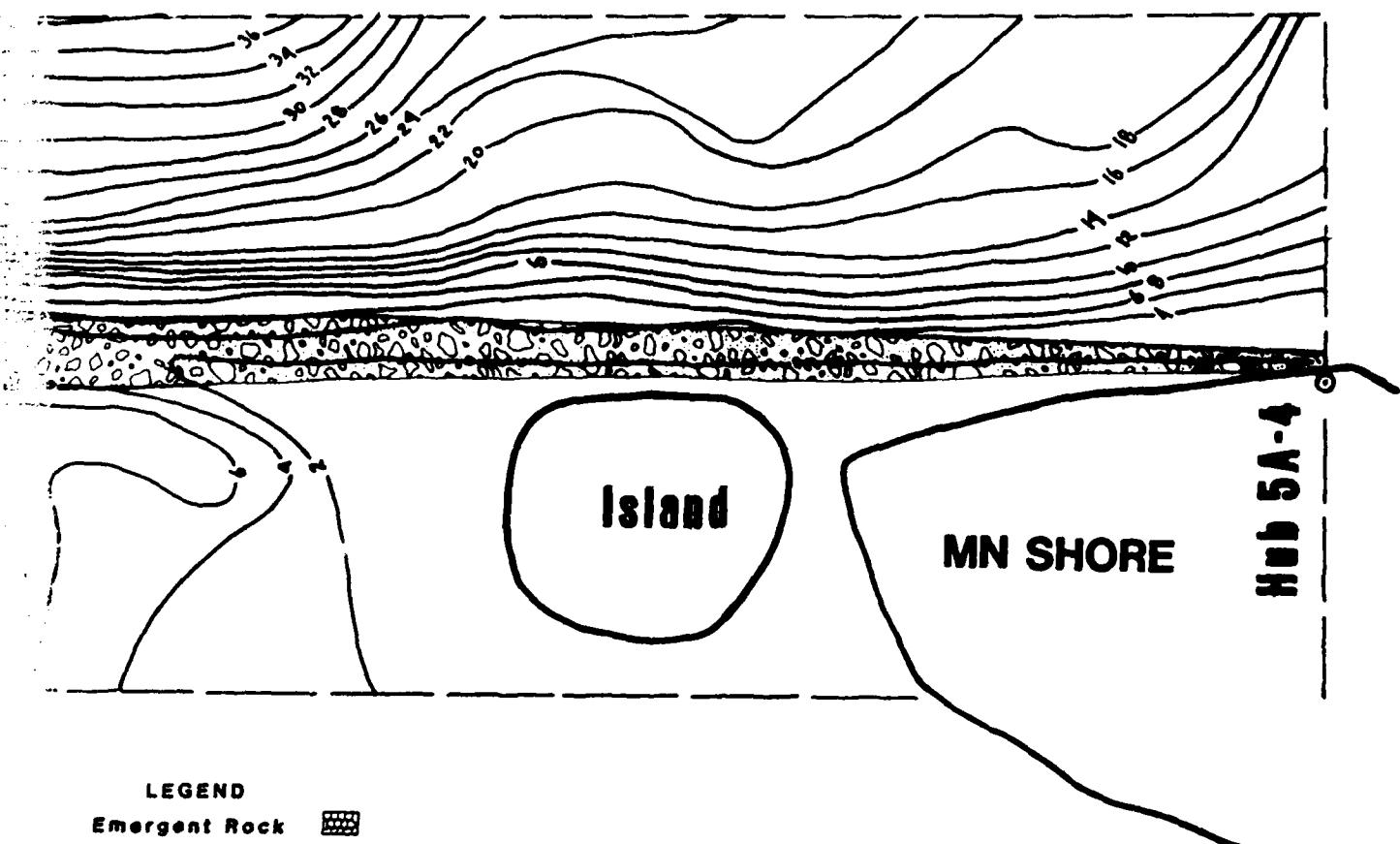
Locations and Numbering in Pool 5A's Main Channel Border



M 1

Polander Lake

Figure D-2 General Bathymetric and Substrate Map of Wing Dam M1



25
22/-

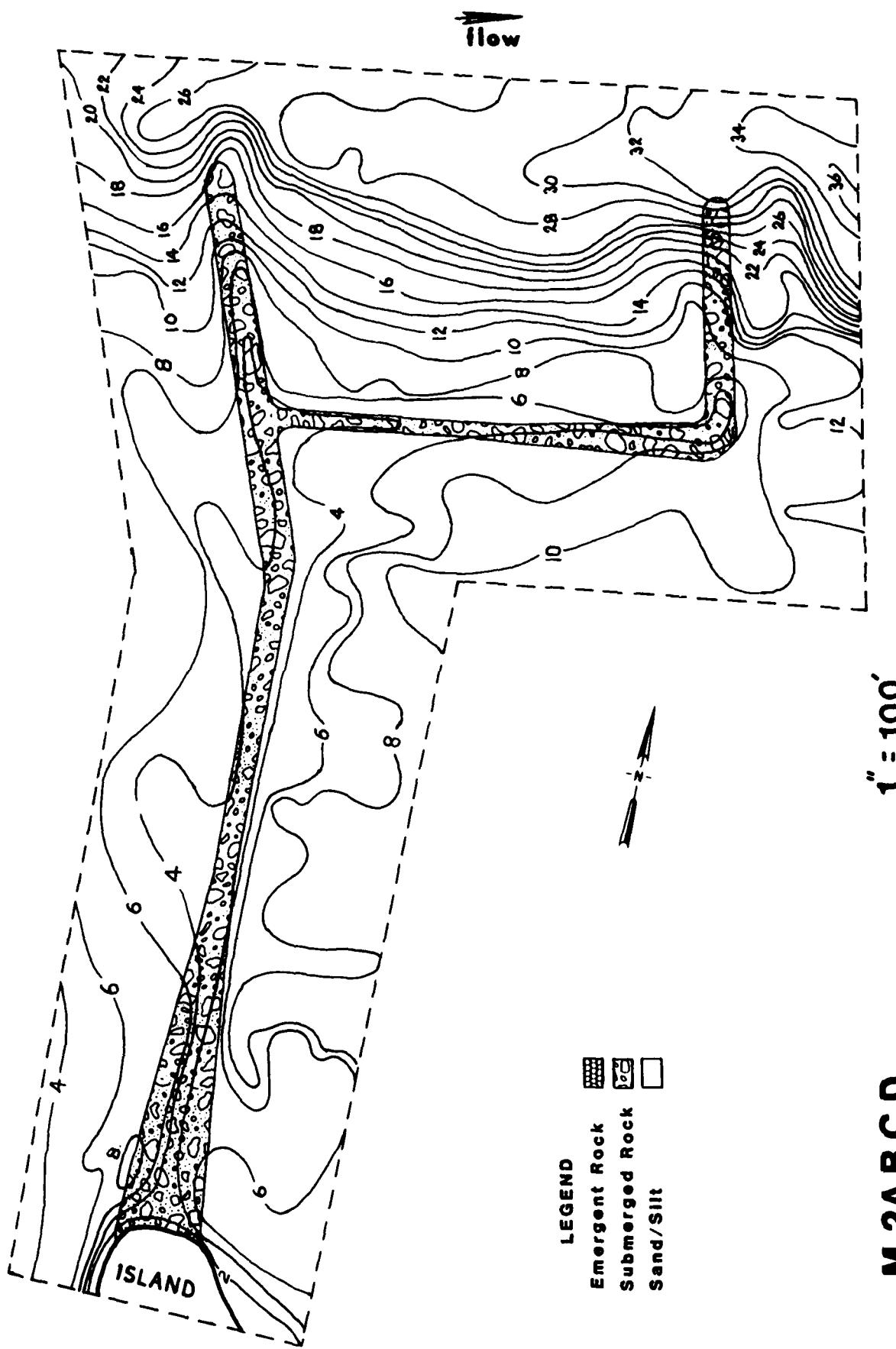
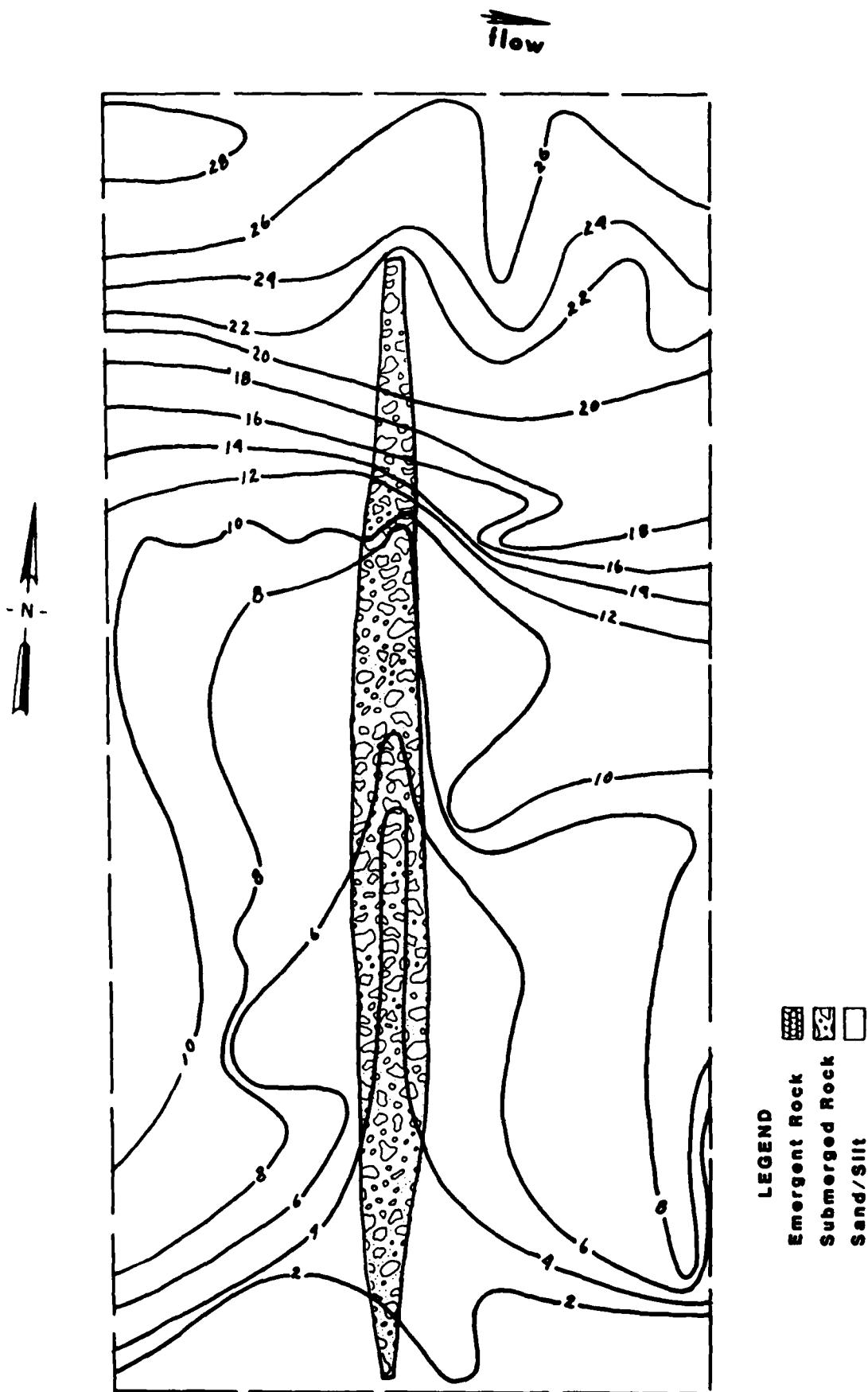
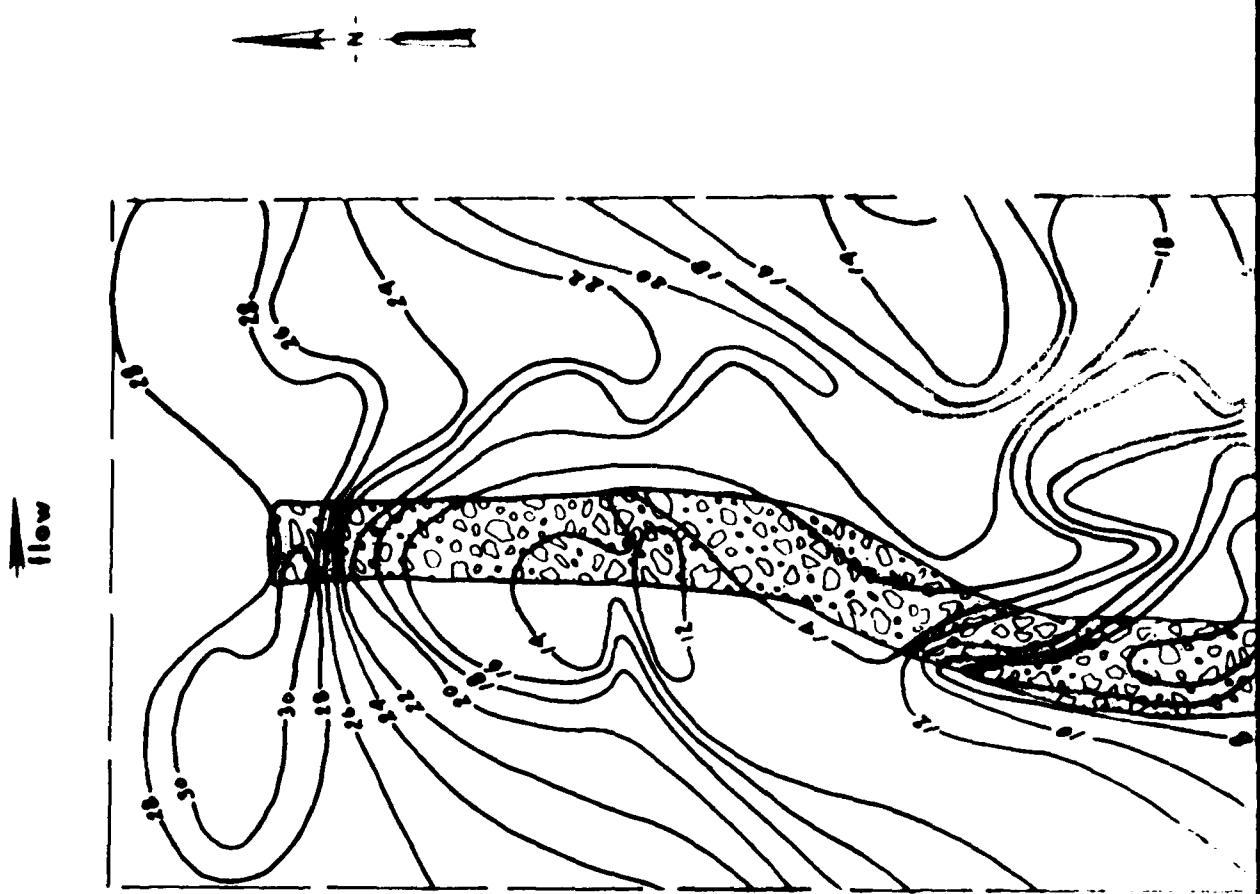


Figure D-3 General Bathymetric and Substrate Map of Wing Dam M2A, B, D, and Closing Dam C



M 2E Polander Lake 1" = 50'

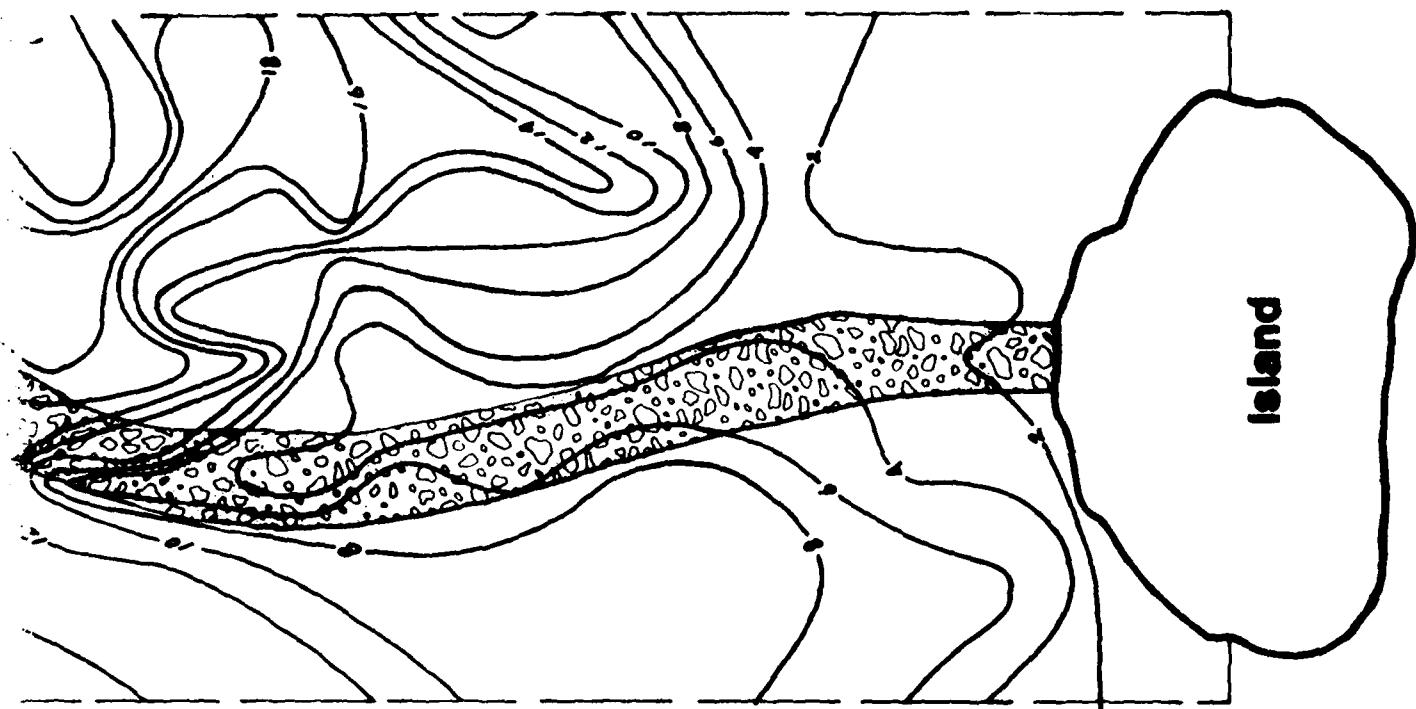
Figure D-4 General Bathymetric and Substrate Map of Wing Dam M2E



M 2F

$1'' = 50'$

Figure D-5 General Bathymetric and Substrate Map of Wing Dam M2F



LEGEND

- | | |
|----------------|------------------|
| Emergent Rock | [grid icon] |
| Submerged Rock | [dots icon] |
| Sand/Silt | [empty box icon] |

M2F

38

20/6/02

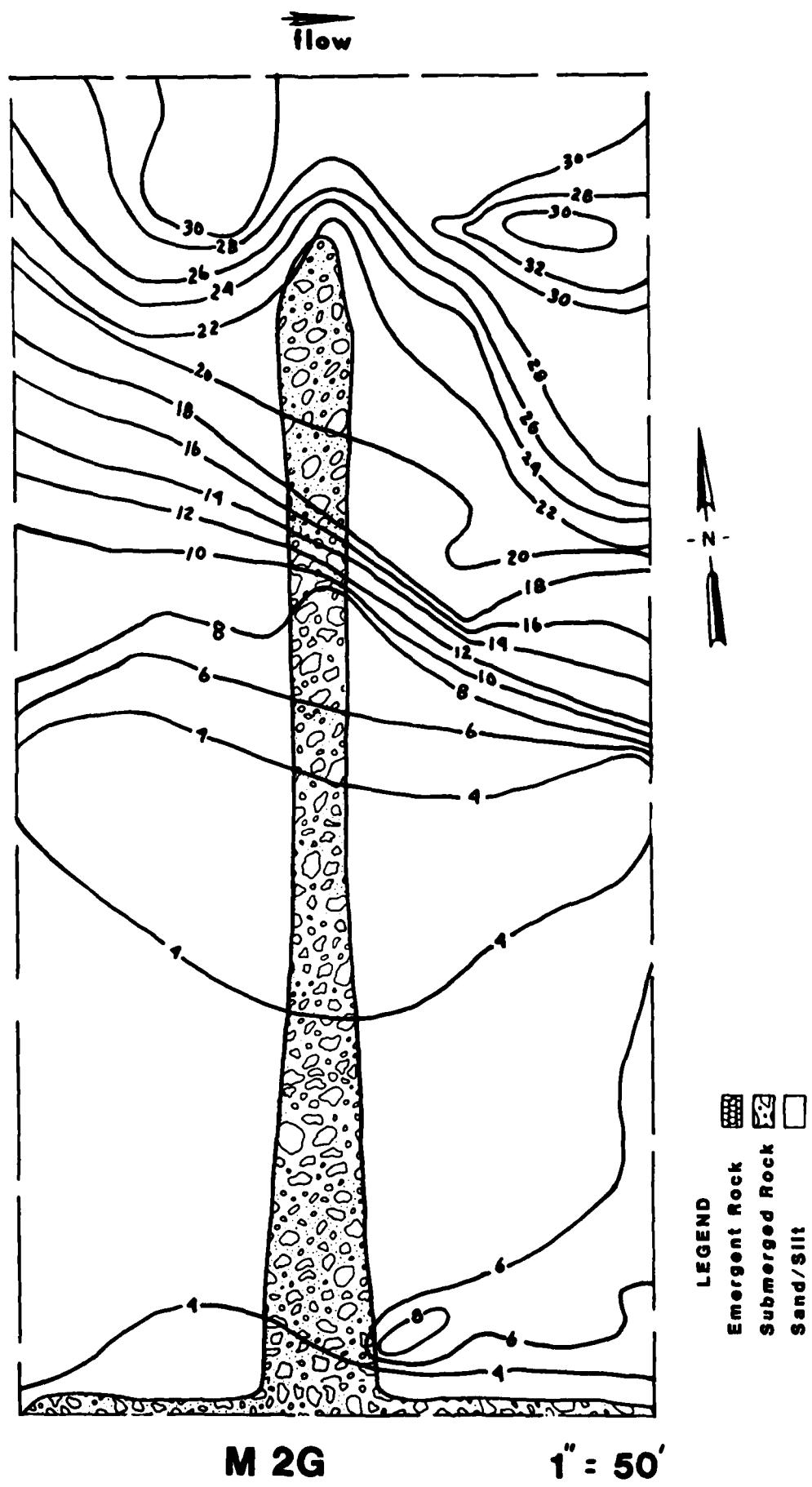


Figure D-6 General Bathymetric and Substrate Map of Wing Dam M2G

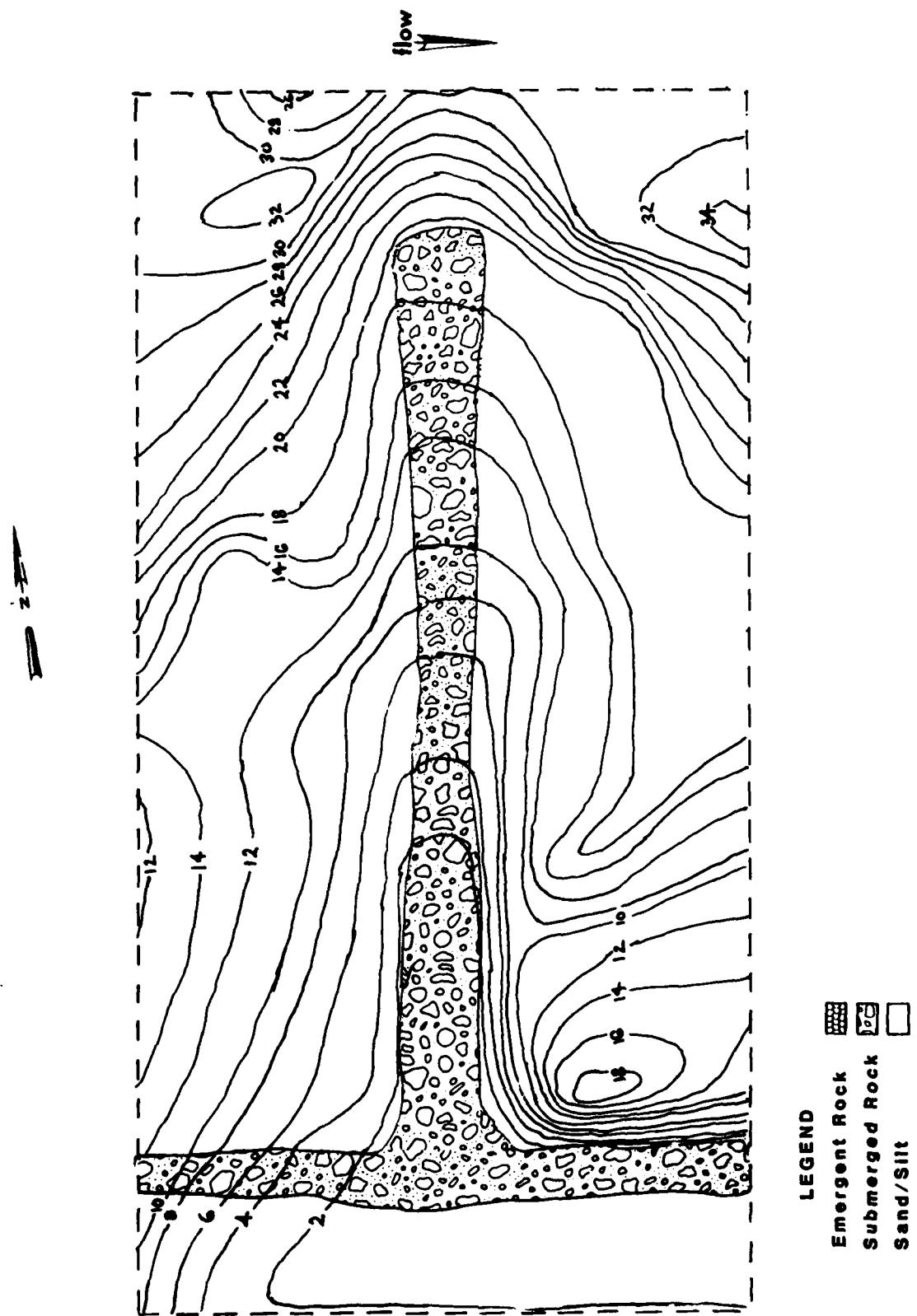
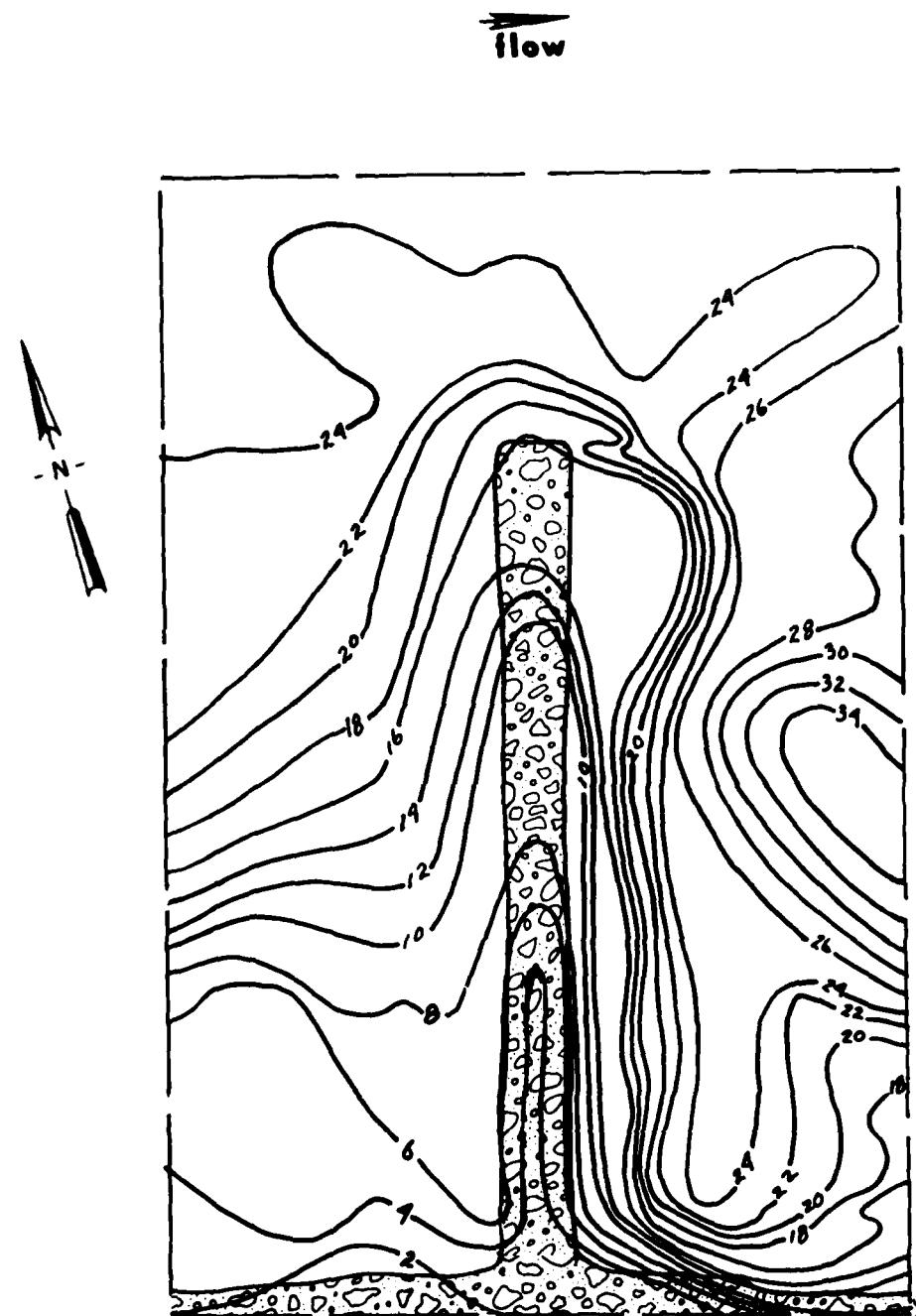


Figure D-7 General Bathymetric and Substrate Map of Wing Dam M2H



Polander Lake

M 2i

LEGEND

- Emergent Rock
- Submerged Rock
- Sand/Silt

1" = 50'

Figure D-8 General Bathymetric and Substrate Map of Wing Dam M2I

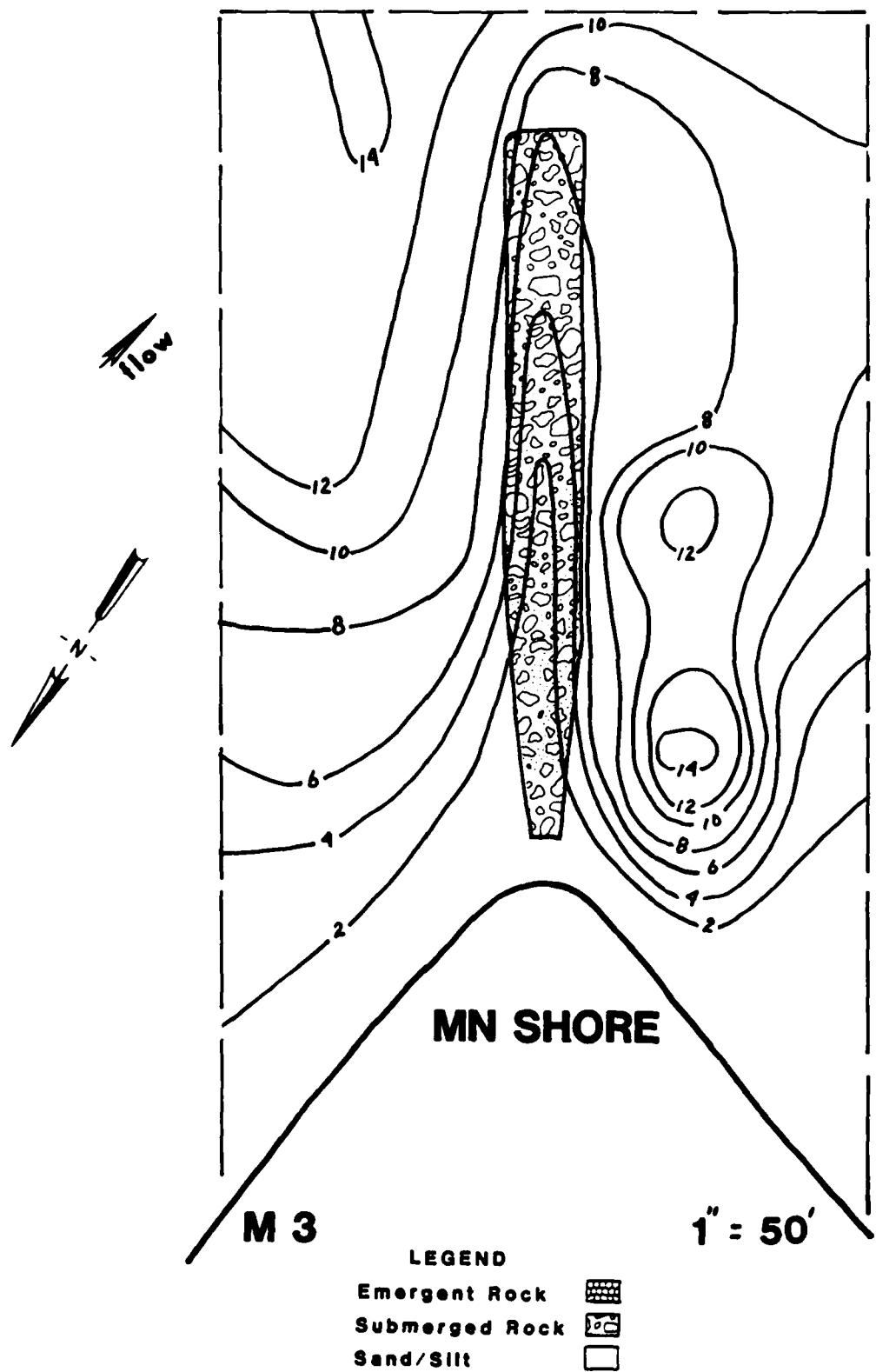


Figure D-9 General Bathymetric and Substrate Map of Wing Dam M3

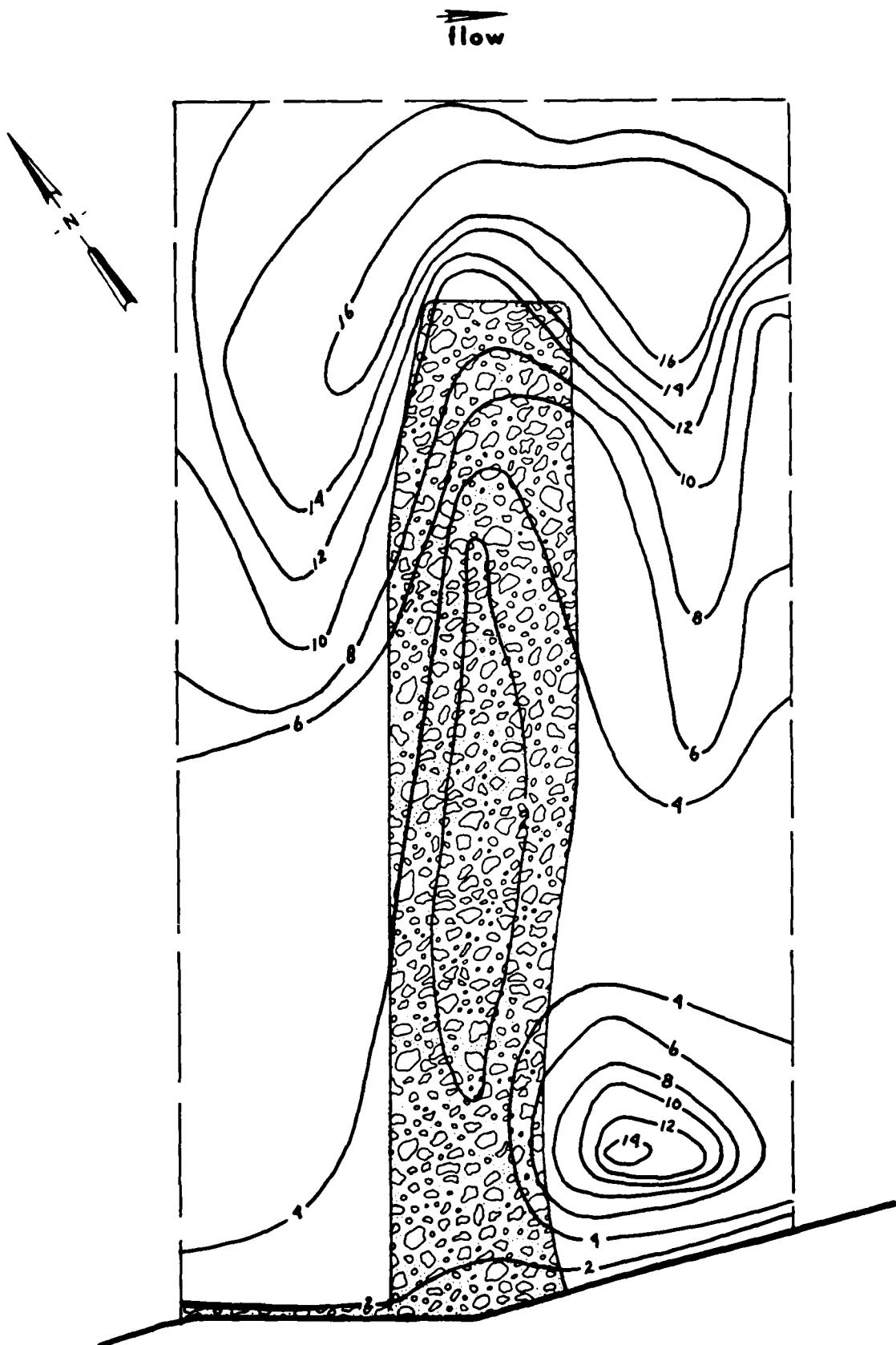


Figure D-10 General Bathymetric and Substrate Map of Wing Dam M4

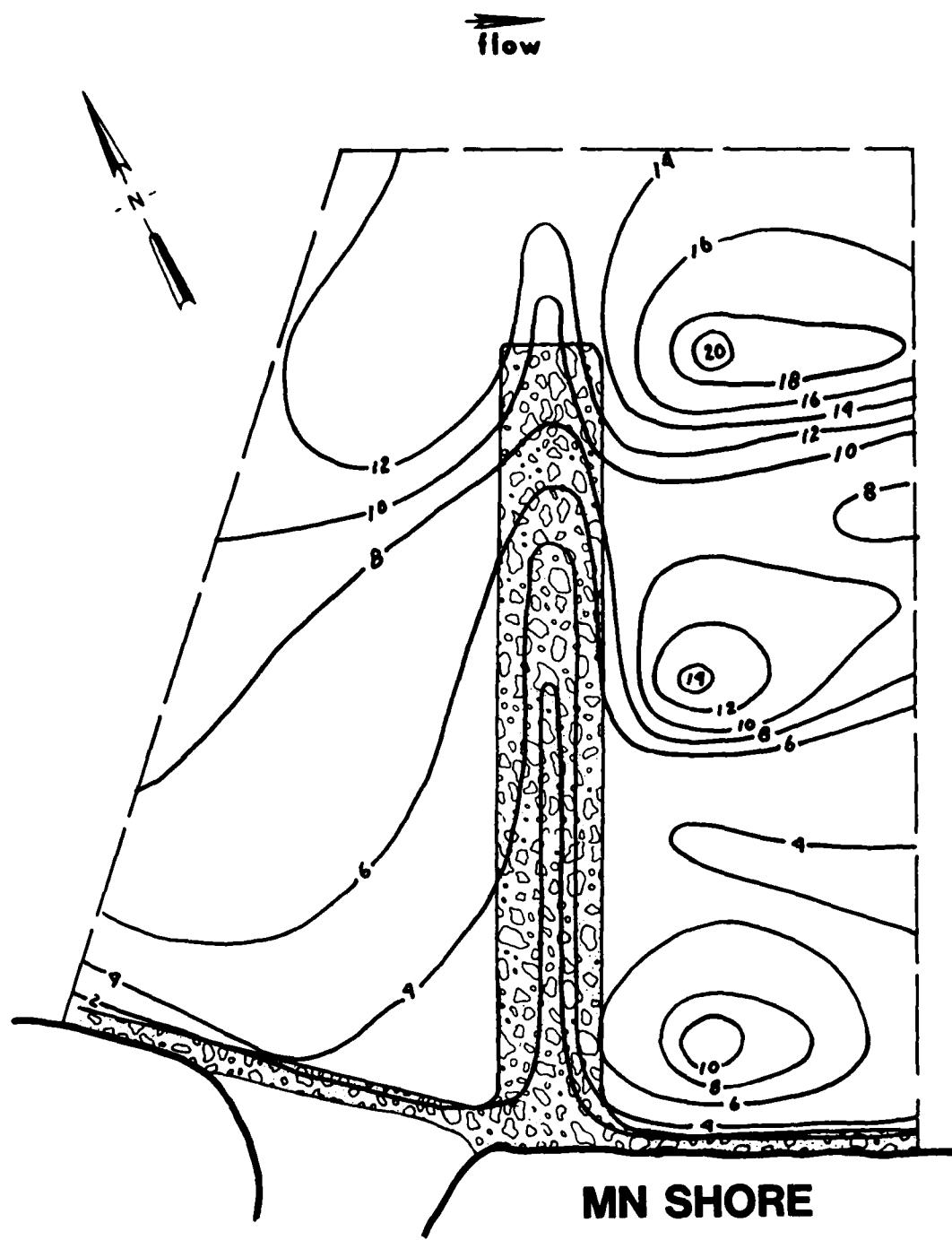
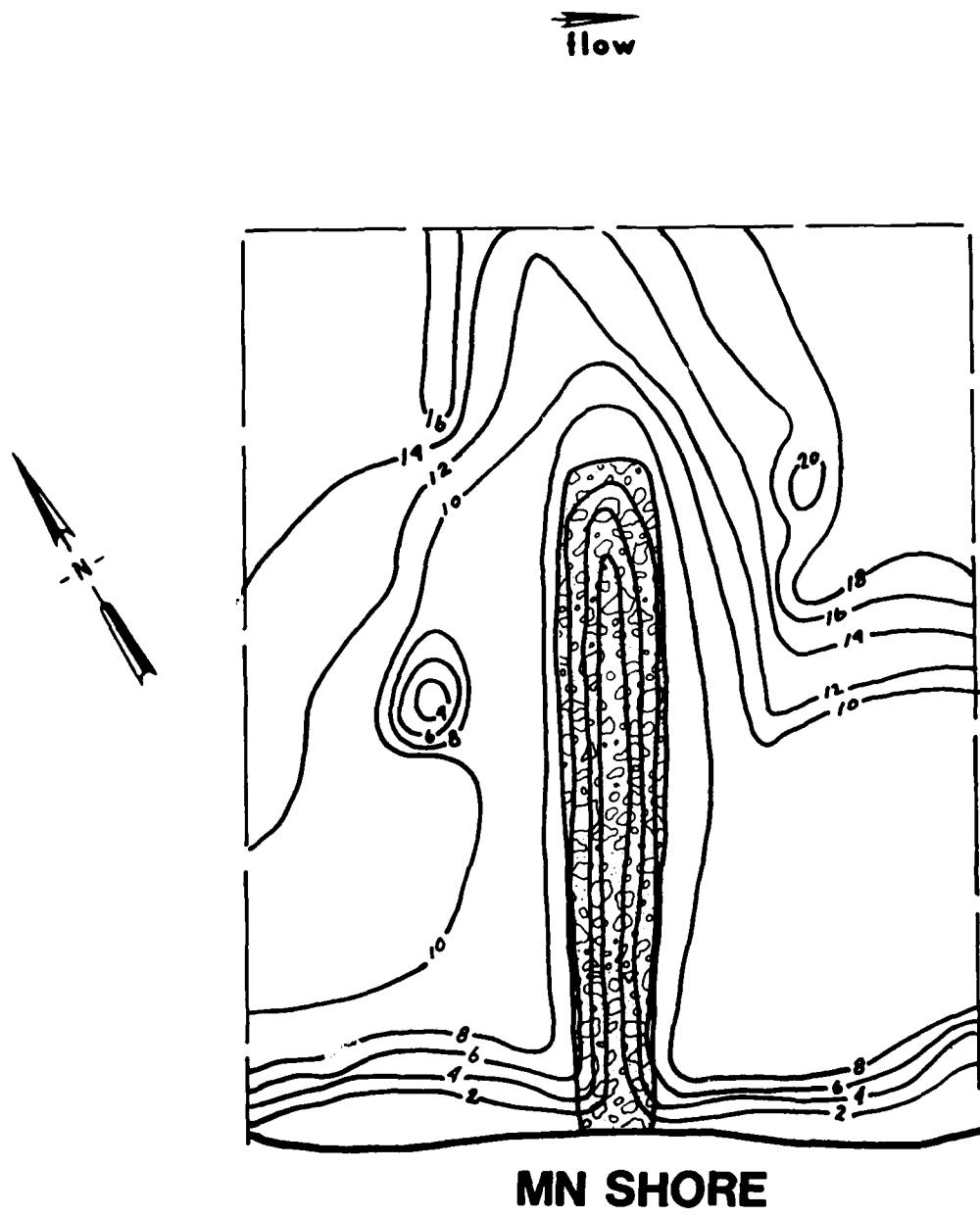


Figure D-11 General Bathymetric and Substrate Map of Wing Dam M5



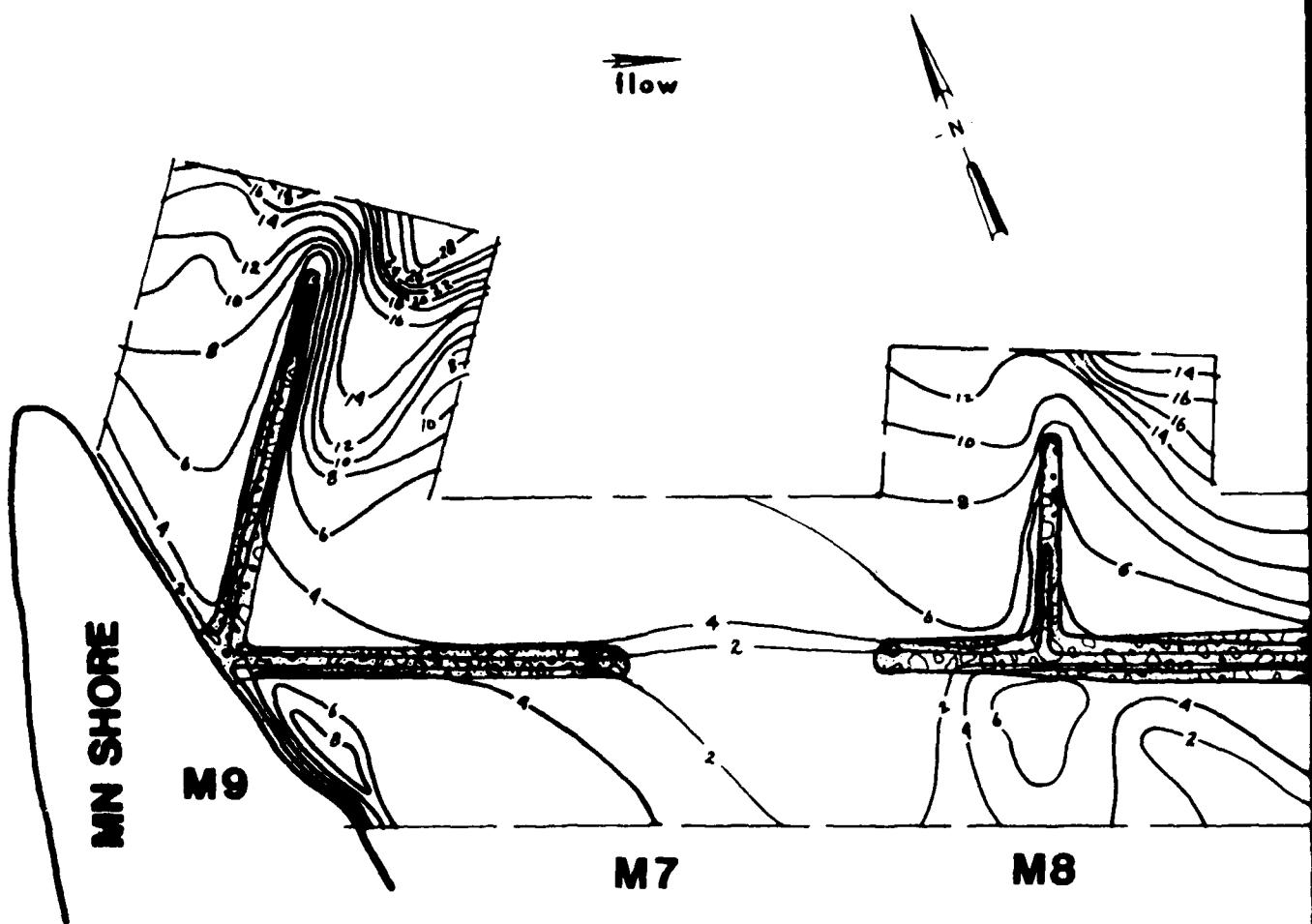
M 6

LEGEND

1" = 50'

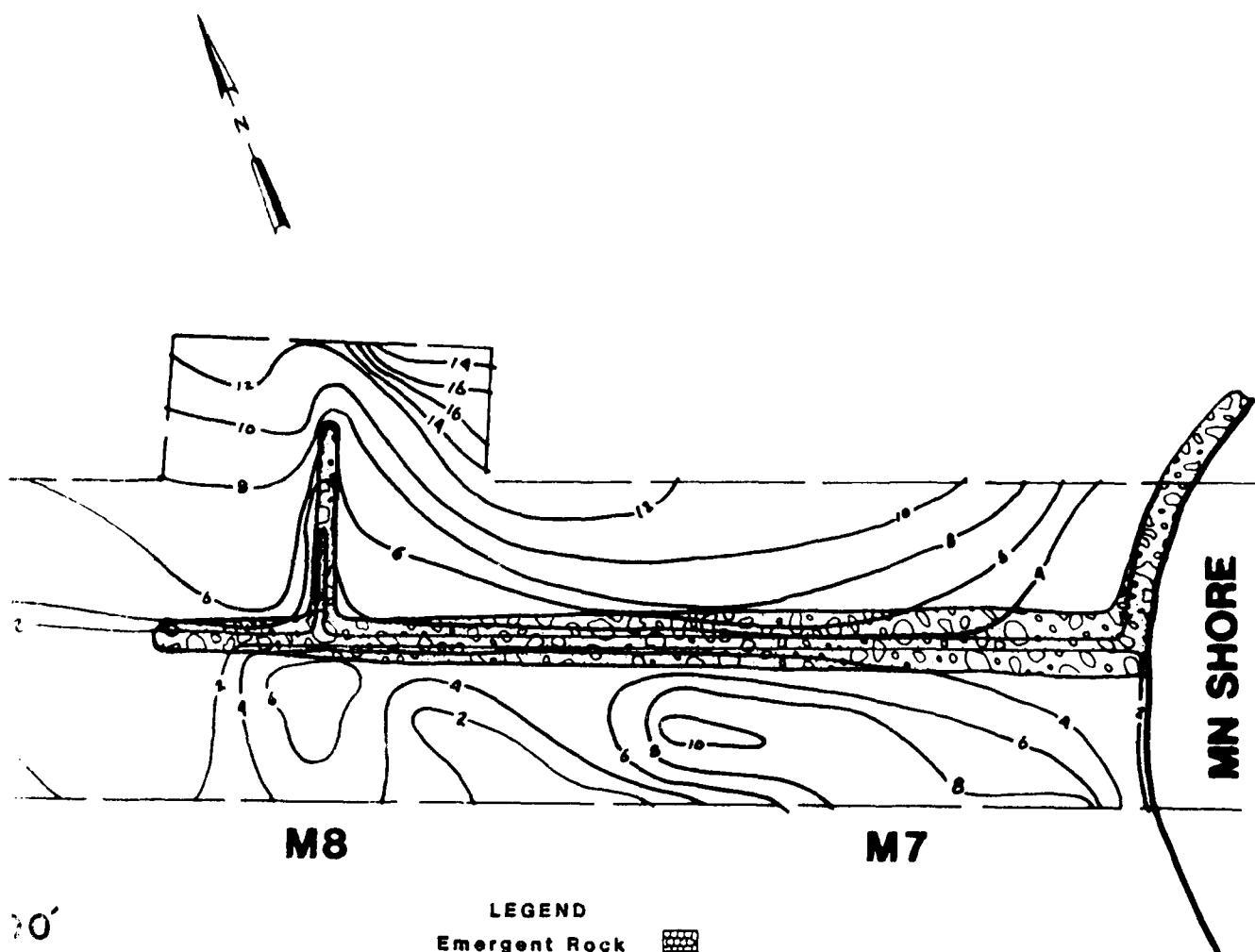
- | | |
|-----------------------|--|
| Emergent Rock | |
| Submerged Rock | |
| Sand/Silt | |

Figure D-12 General Bathymetric and Substrate Map of Wing Dam M6



1" = 100'

Figure D-13 General Bathymetric and Substrate Map of Closing Dam M7, Wing Dams M8 and M9



of Closing Dam M7, Wing Dams M8 and M9

46

20'

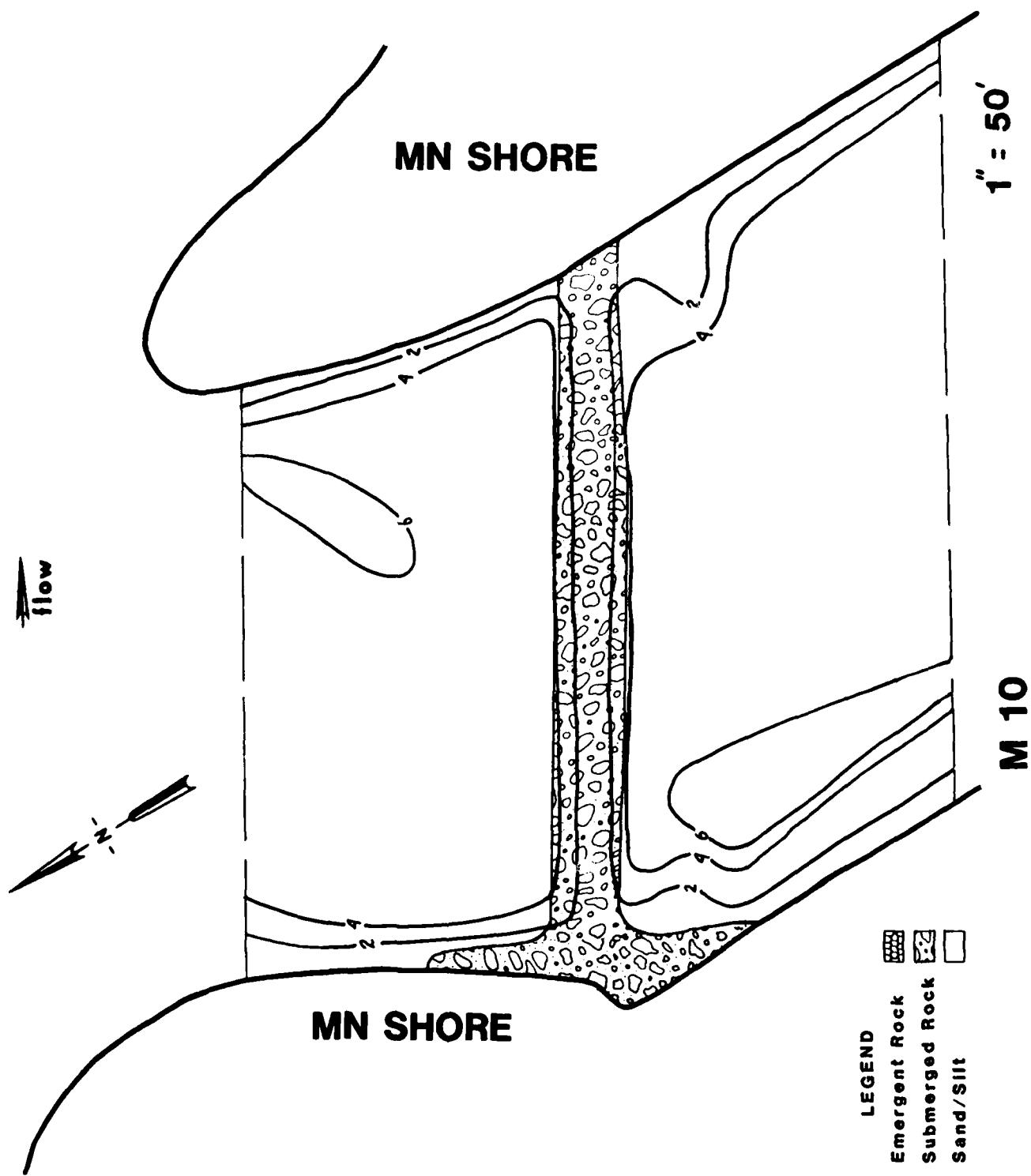
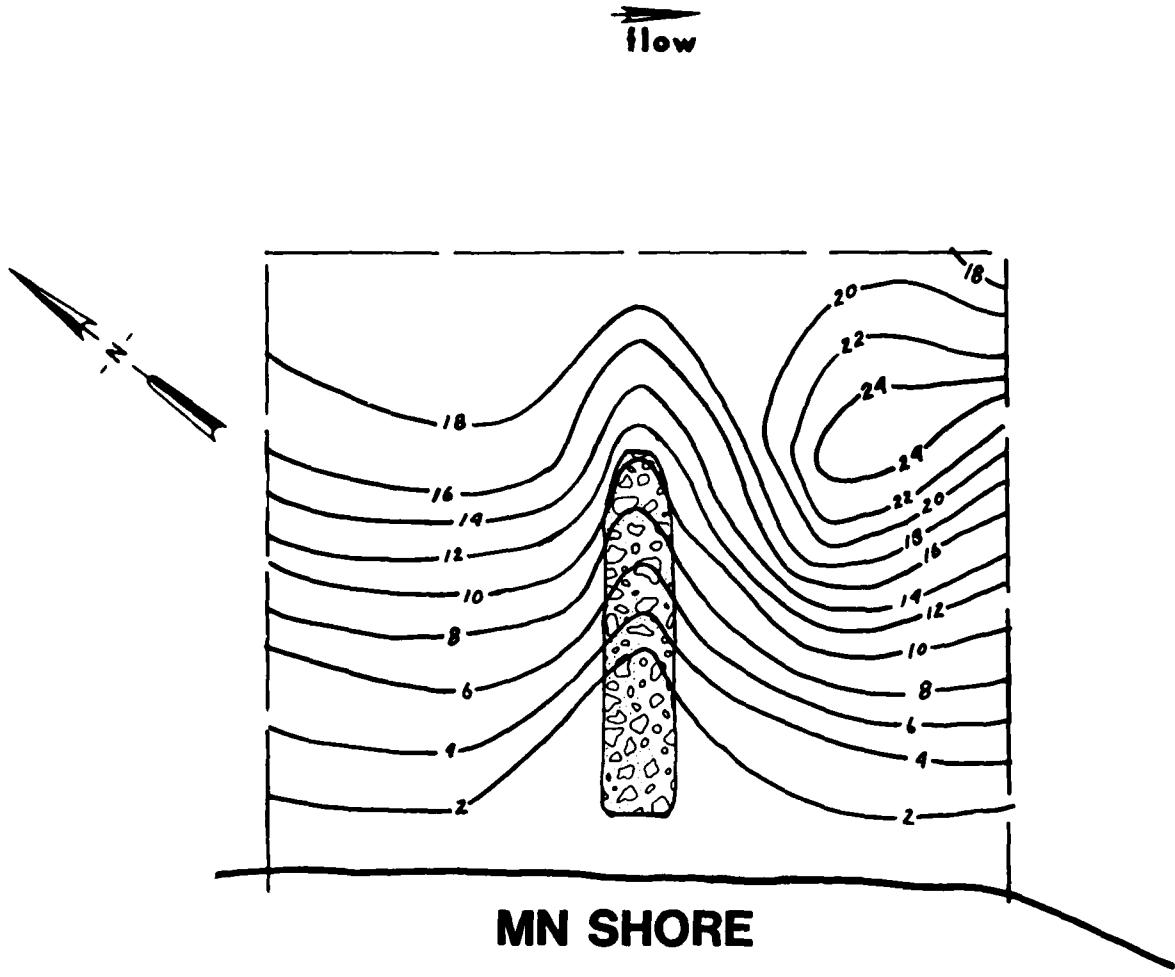


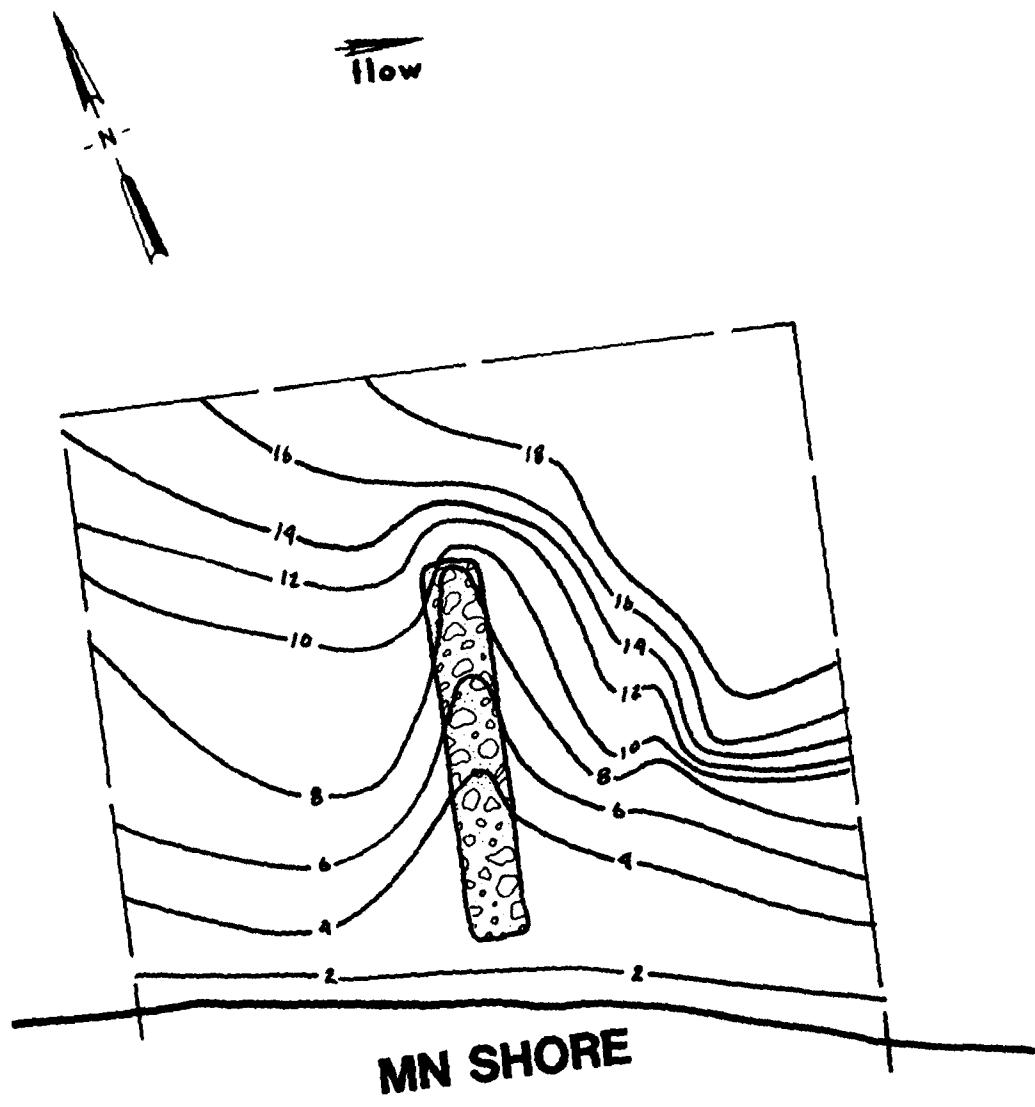
Figure D-14 General Bathymetric and Substrate Map of Closing Dam M10



M 11

1" = 50'

Figure D-15 General Bathymetric and Substrate Map of Wing Dam M11

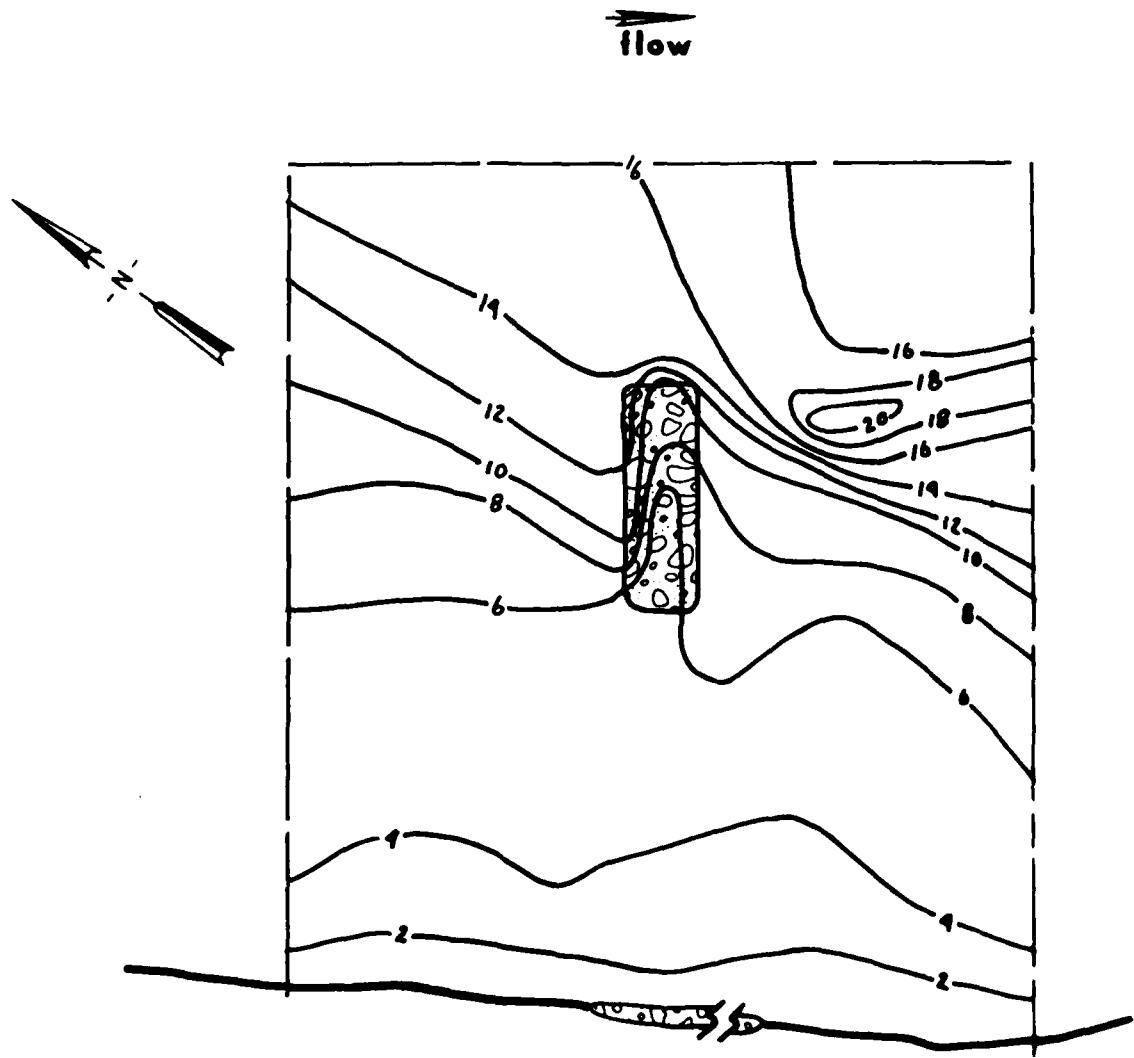


M 12

LEGEND
Emergent Rock
Submerged Rock
Sand/Silt

1" = 50'

Figure D-16 General Bathymetric and Substrate Map of Wing Dam M12



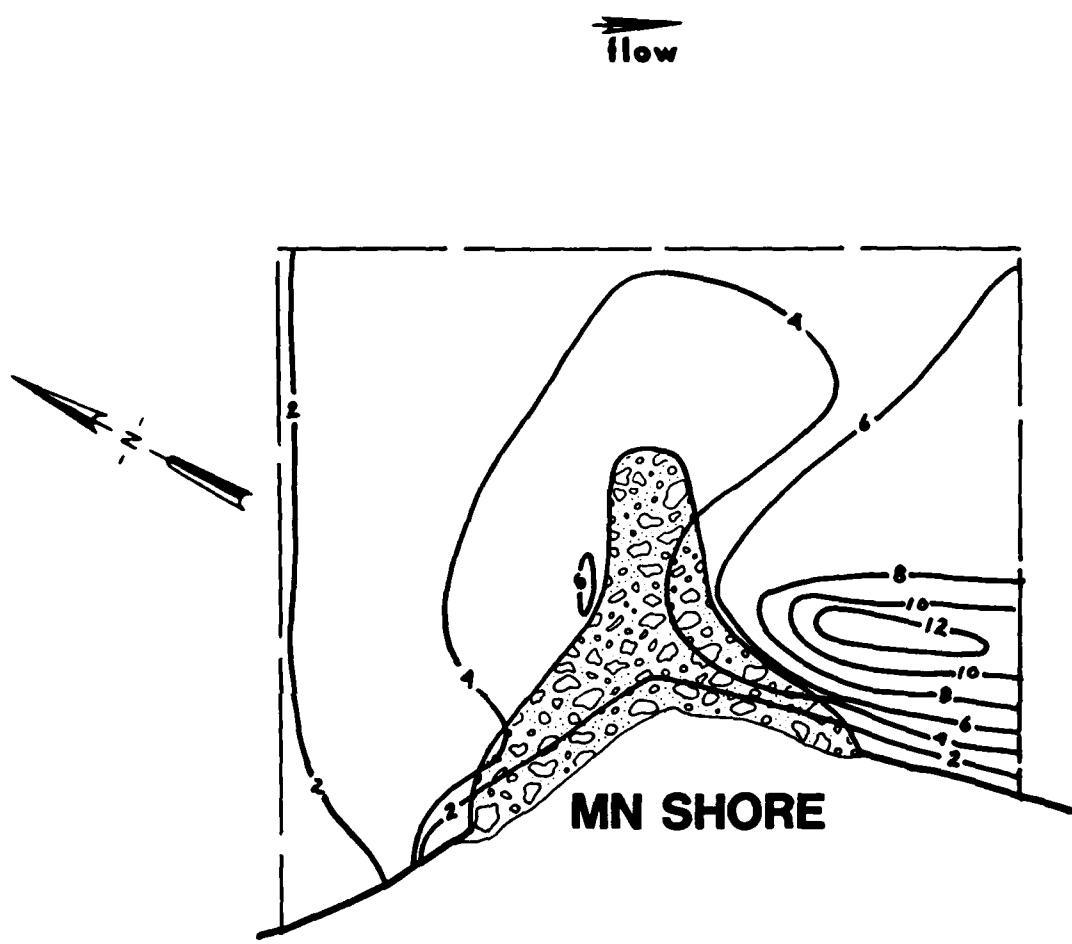
LEGEND

Emergent Rock	[Stippled Box]
Submerged Rock	[Cross-hatched Box]
Sand/Silt	[White Box]

M 13

1" = 50'

Figure D-17 General Bathymetric and Substrate Map of Wing Dam M13



LEGEND

Emergent Rock	[grid pattern]
Submerged Rock	[cross-hatch]
Sand/Silt	[empty square]

M 14

1" = 50'

Figure D-18 General Bathymetric and Substrate Map of Wing Dam M14

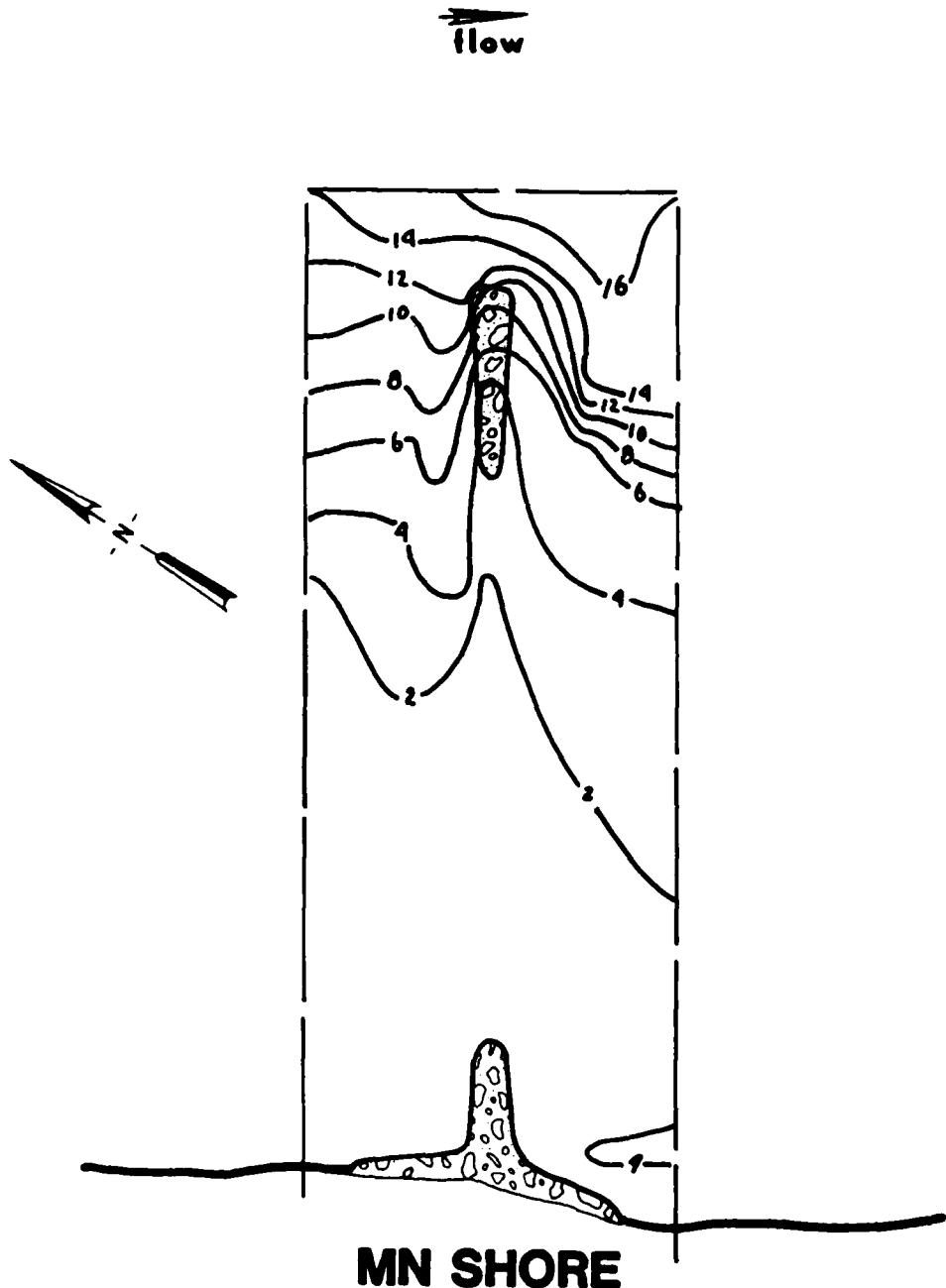
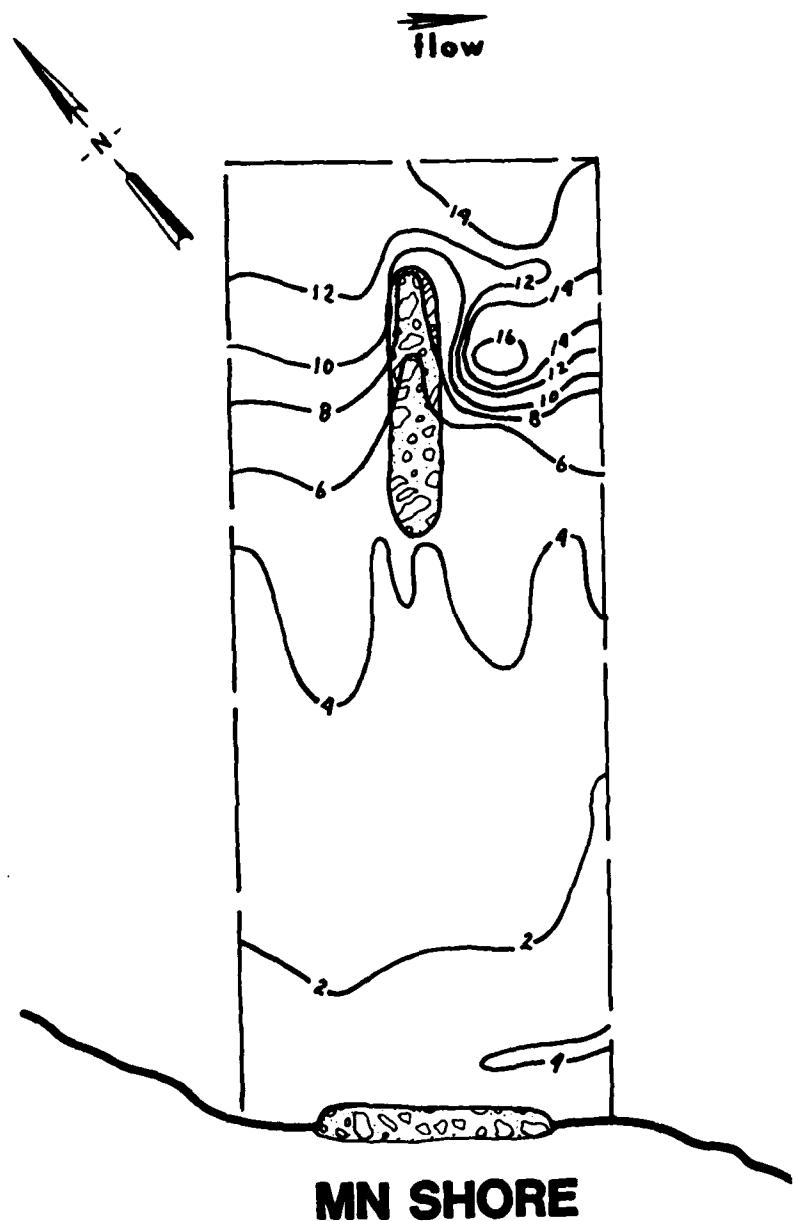


Figure D-19 General Bathymetric and Substrate Map of Wing Dam M15



M 16

Figure D-20 General Bathymetric and Substrate Map of Wing Dam M16

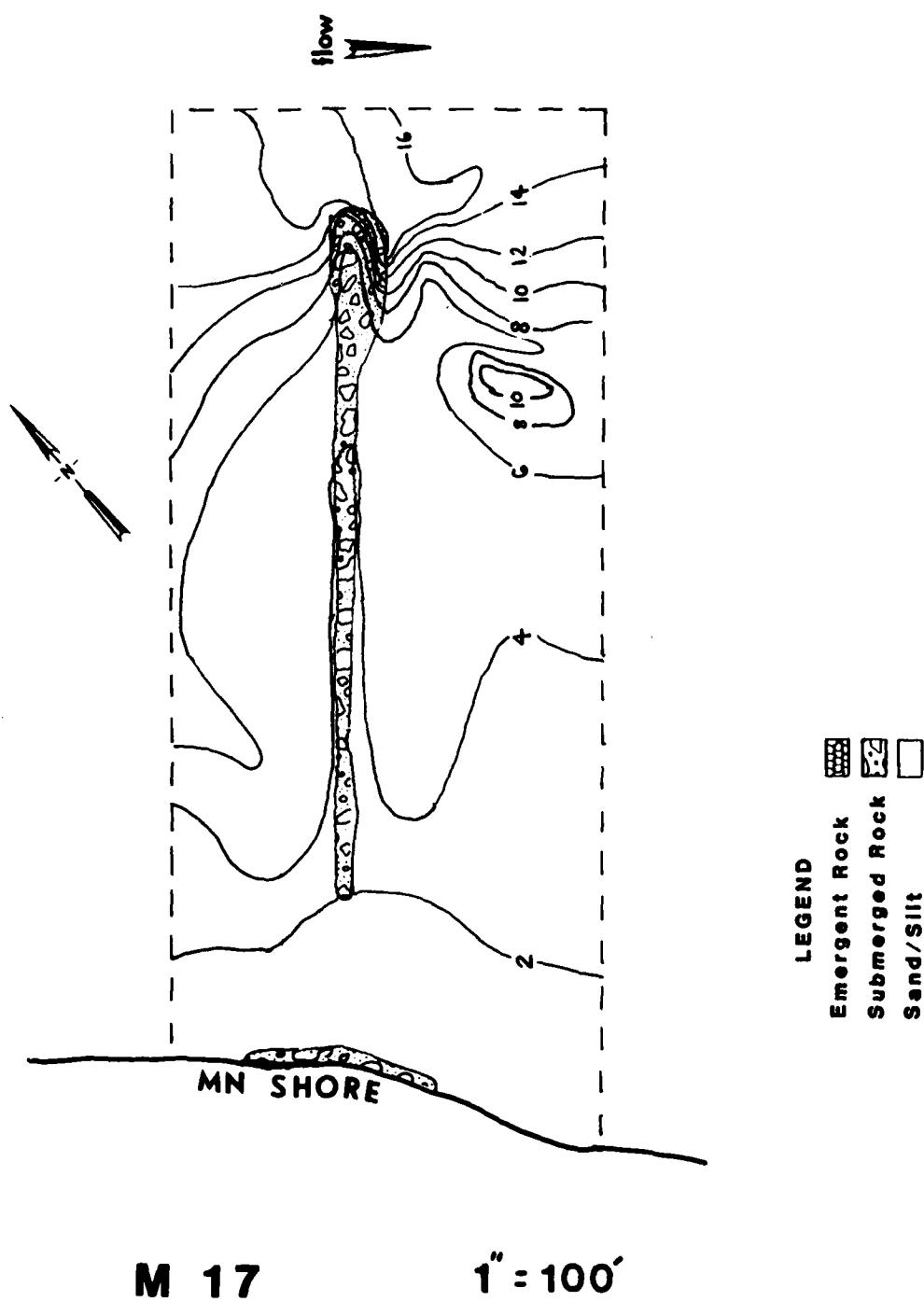


Figure D-21 General Bathymetric and Substrate Map of Wing Dam M17

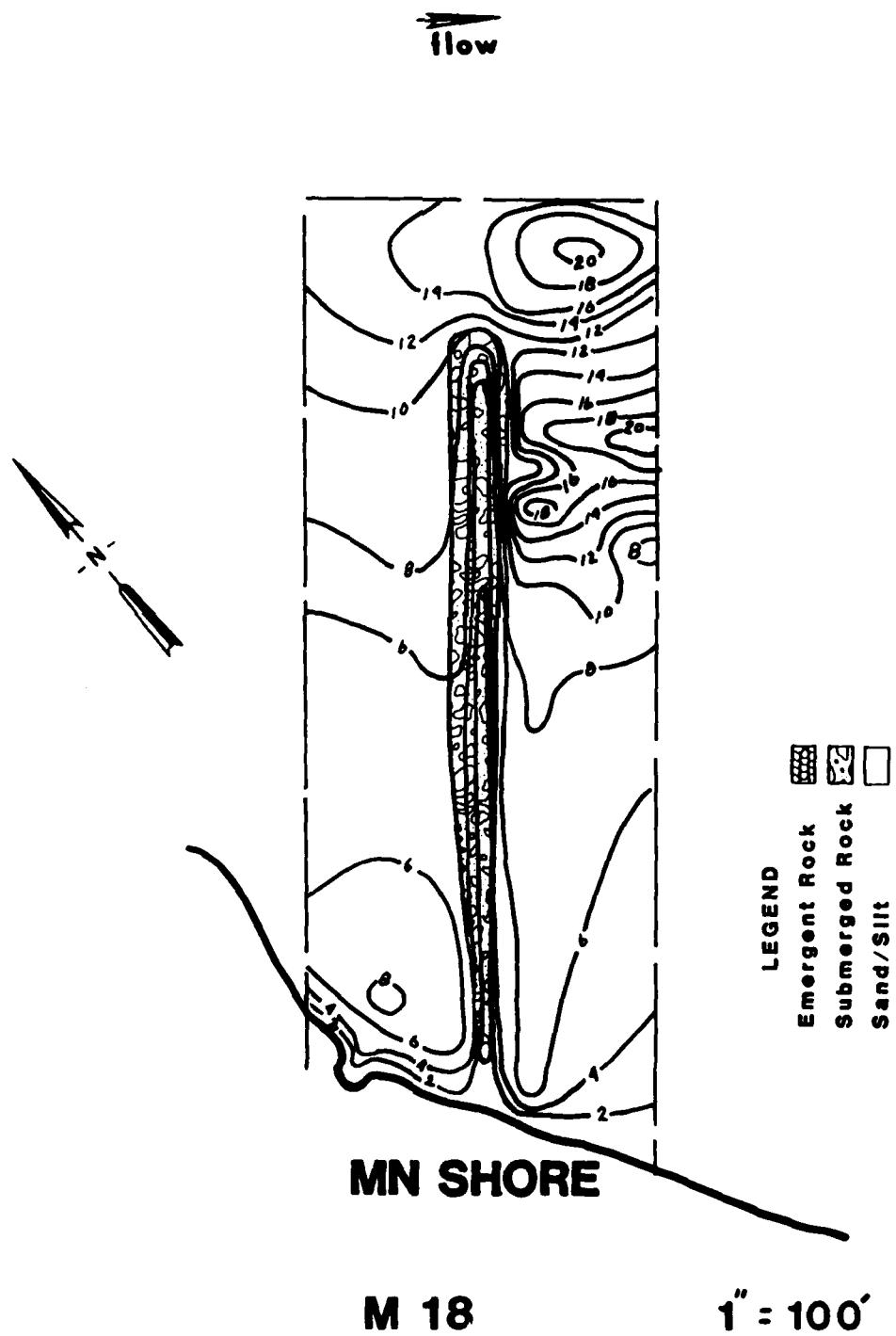
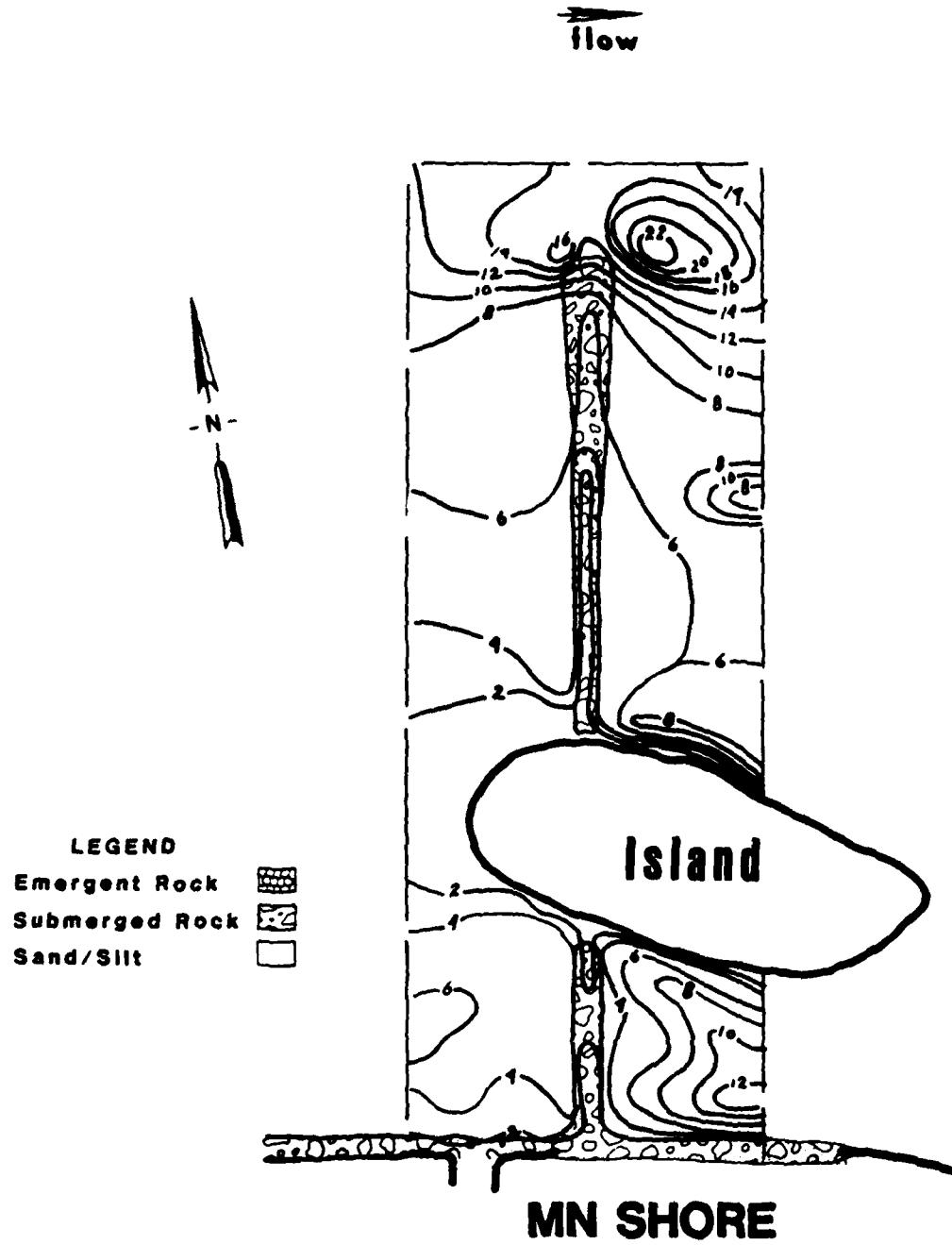


Figure D-22 General Bathymetric and Substrate Map of Wing Dam M18



M 19

1" = 100'

Figure D-23 General Bathymetric and Substrate Map of Wing Dam M19

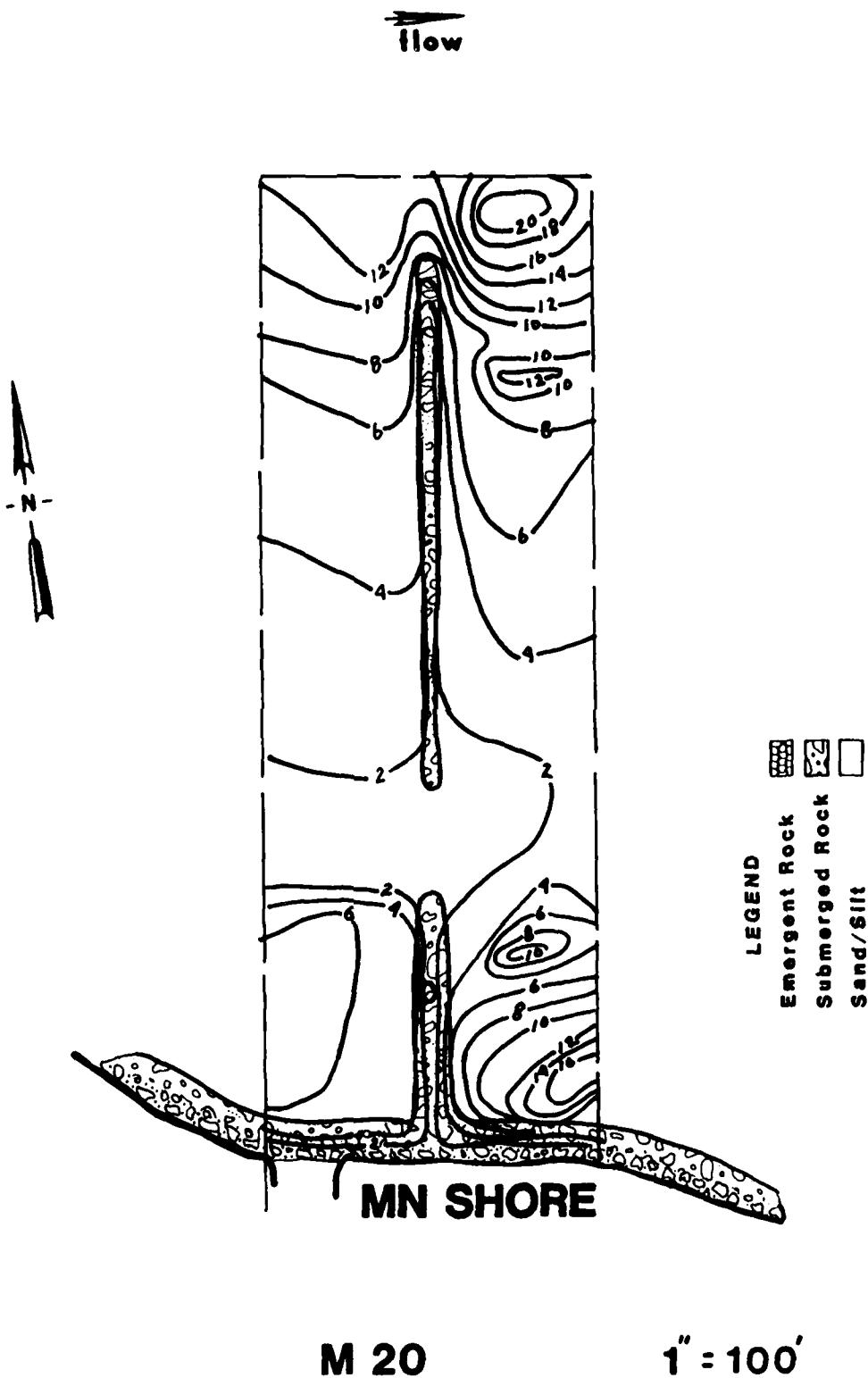


Figure D-24 General Bathymetric and Substrate Map of Wing Dam M20

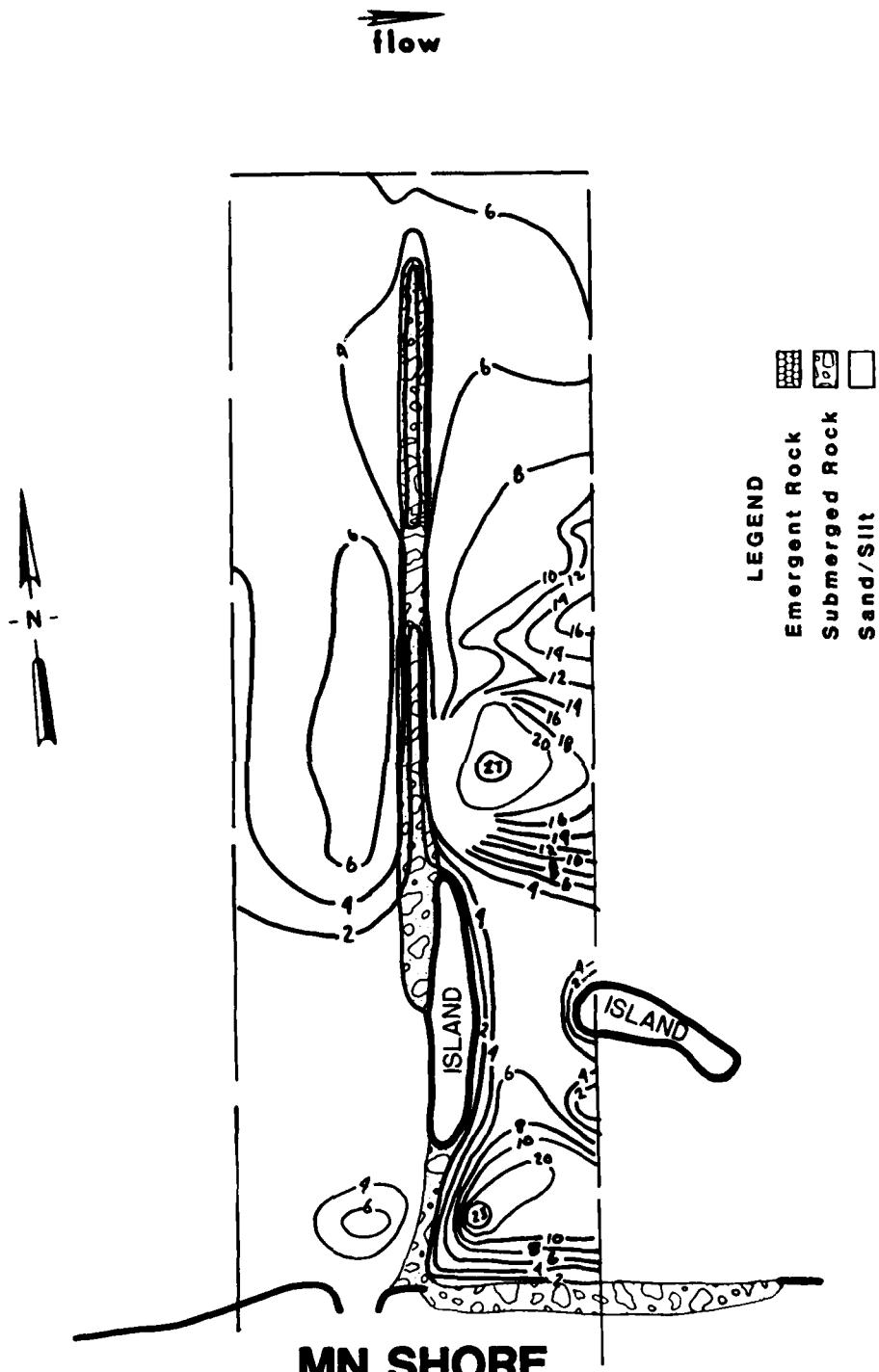


Figure D-25 General Bathymetric and Substrate Map of Wing Dam M21

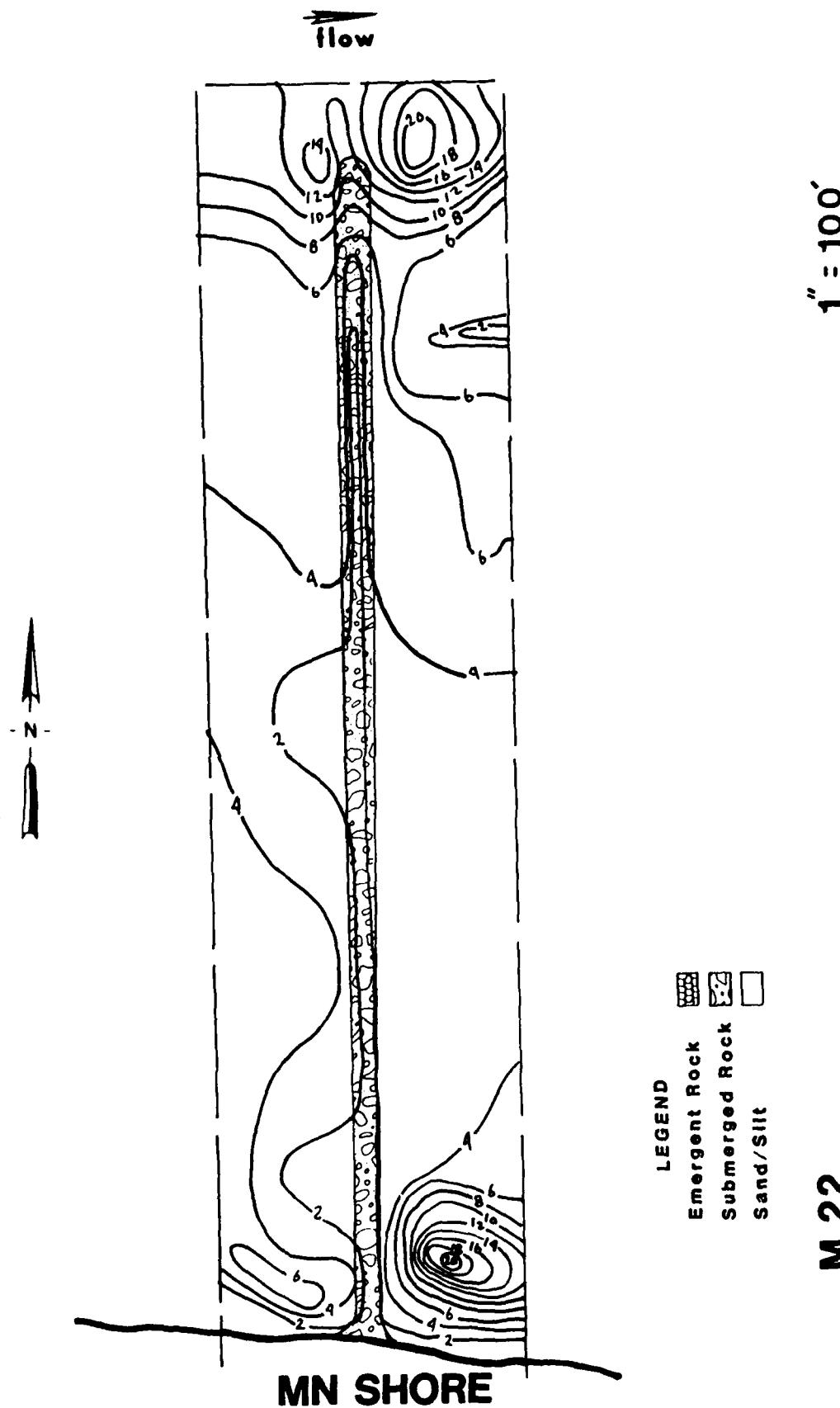


Figure D-26 General Bathymetric and Substrate Map of Wing Dam M22

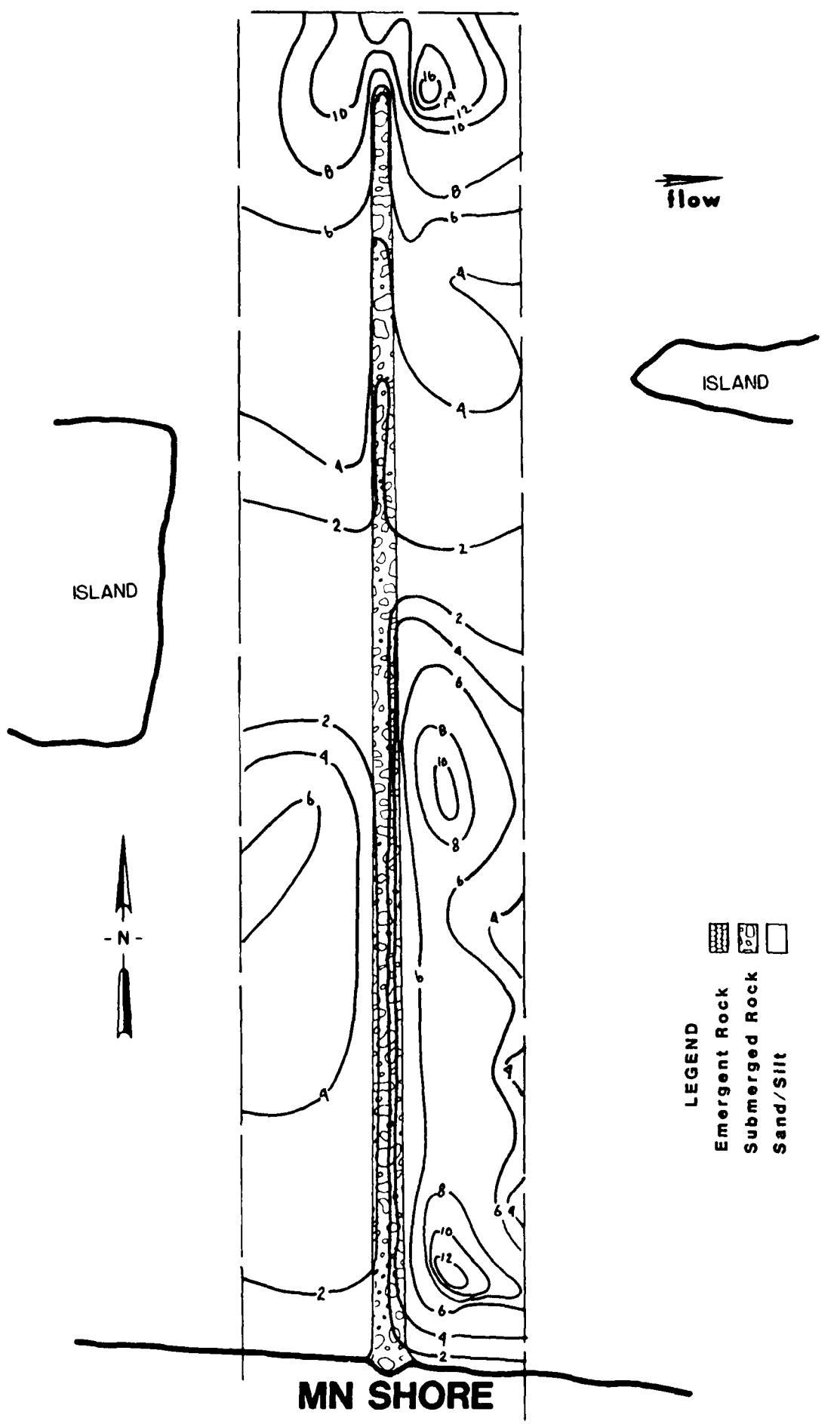
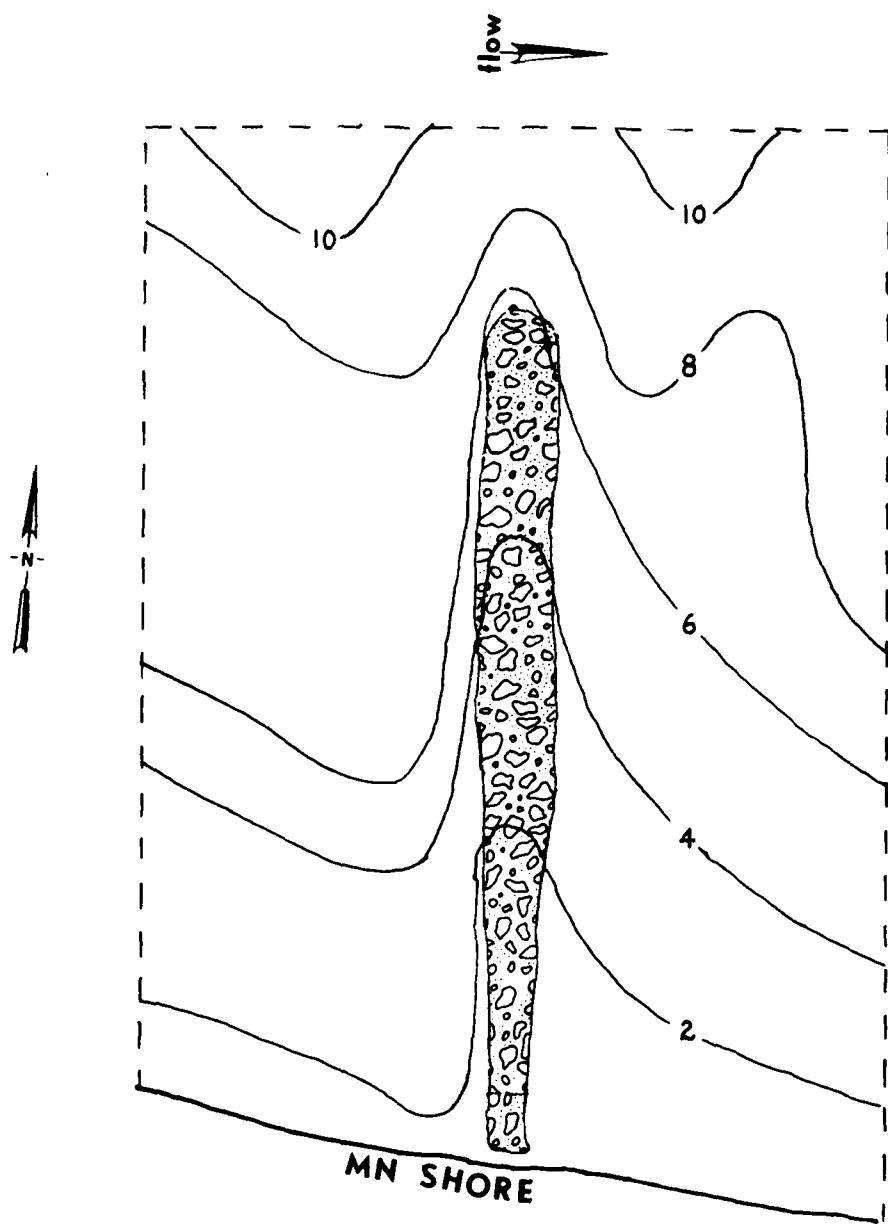


Figure D-27 General Bathymetric and Substrate Map of Wing Dam M23



M 24A

1" = 50'

LEGEND

- | | |
|-----------------------|-------------------------|
| Emergent Rock | [Cross-hatched square] |
| Submerged Rock | [Diagonal-lined square] |
| Sand/Silt | [White square] |

Figure D-28 General Bathymetric and Substrate Map of Wing Dam M24A

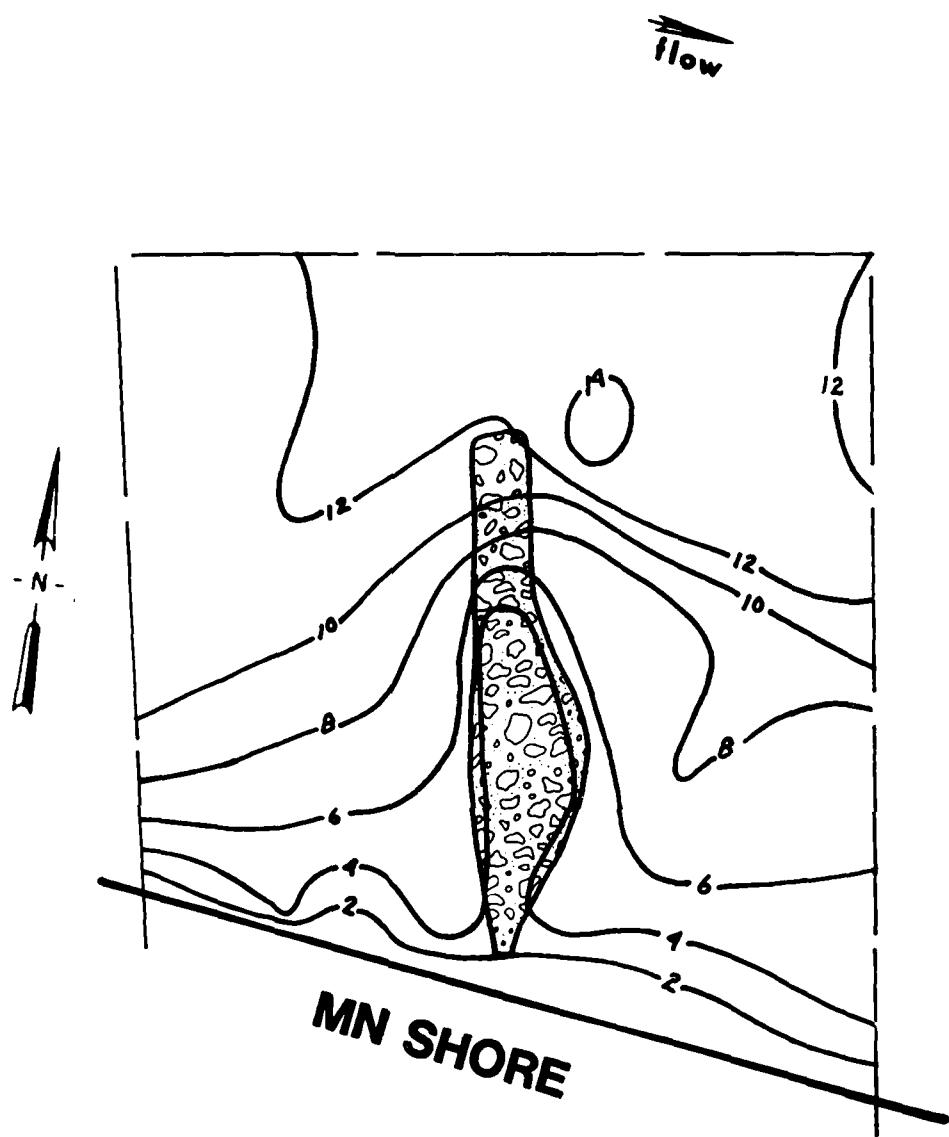


Figure D-29 General Bathymetric and Substrate Map of Wing Dam M24B

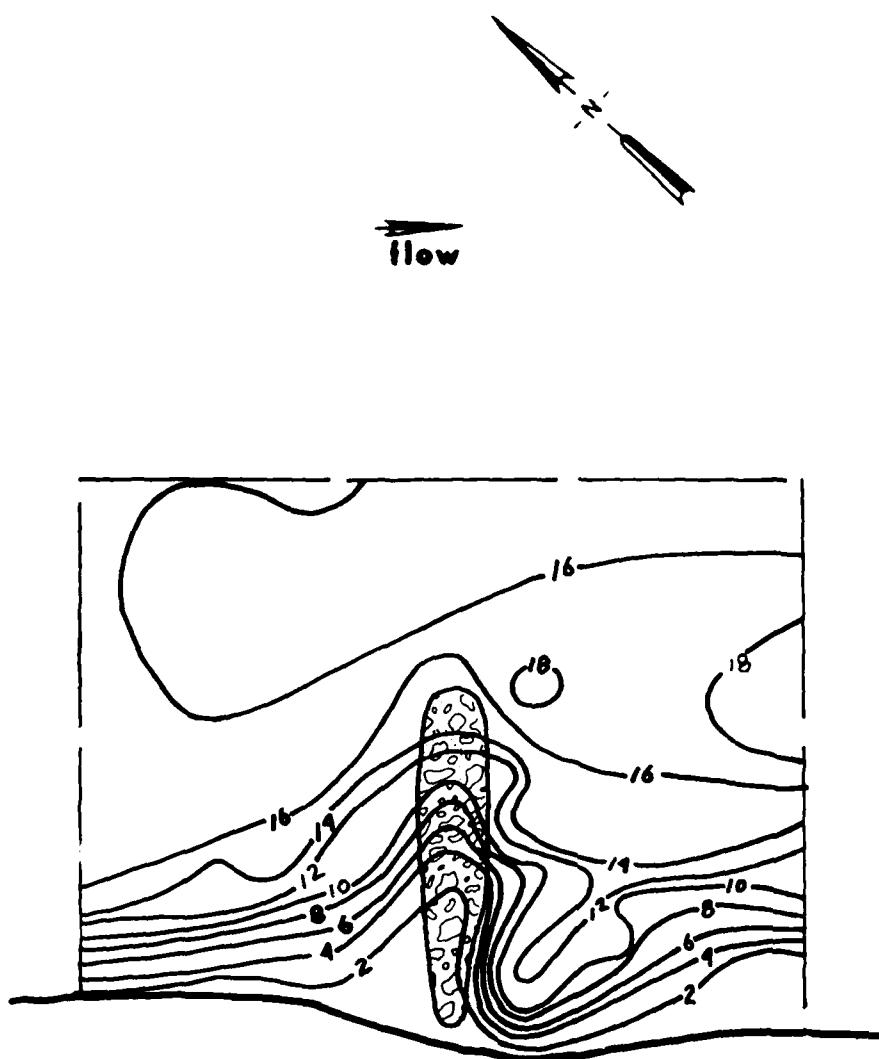
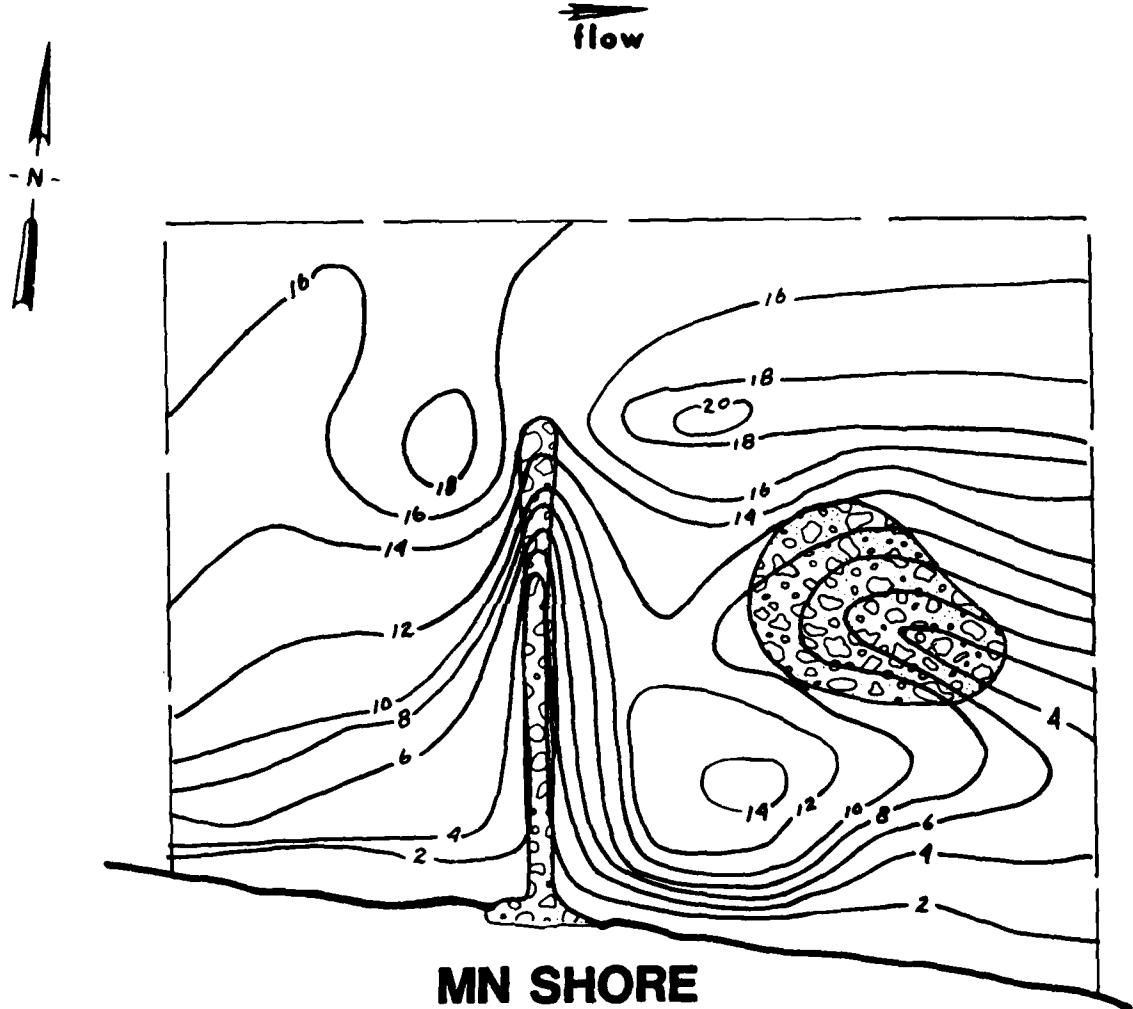


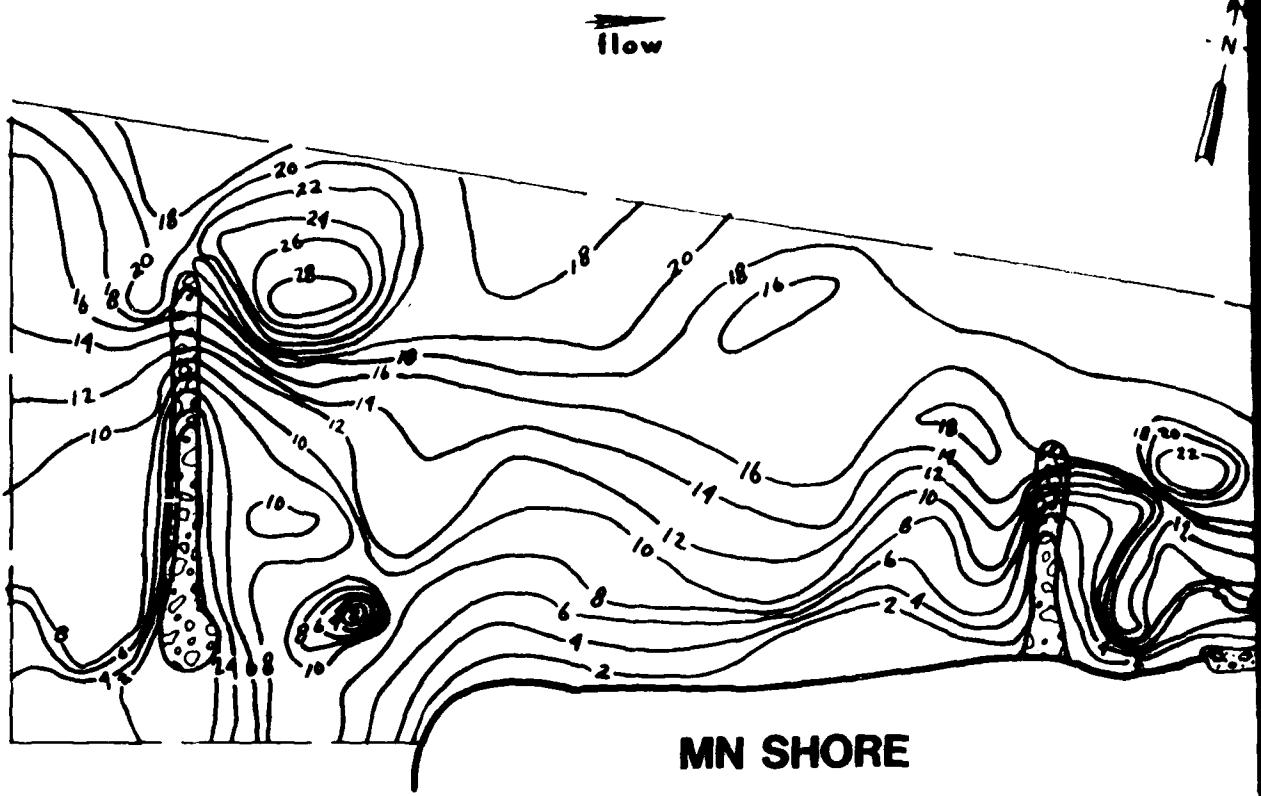
Figure D-30 General Bathymetric and Substrate Map of Wing Dam M24C



M 25

1" = 50'

Figure D-31 General Bathymetric and Substrate Map of Wing Dam M25

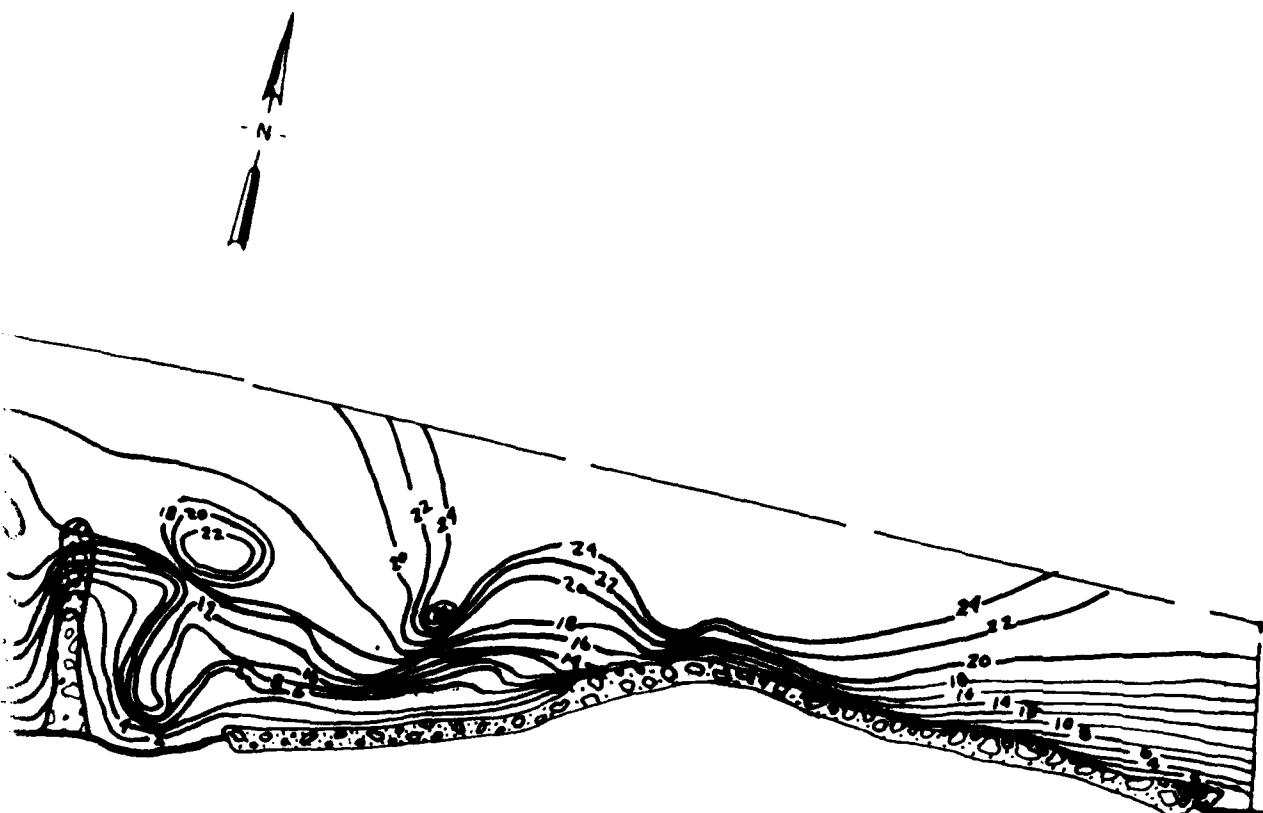


M 28

1" = 100'

M 27

Figure D-32 General Bathymetric and Substrate Map of Riprap M26, Wing Dam M27 and M28



LEGEND

Emergent Rock	[grid pattern]
Submerged Rock	[cross-hatch pattern]
Sand/Silt	[empty square]

M 27

M 26

Dig Dam M27 and M28

65
28/2

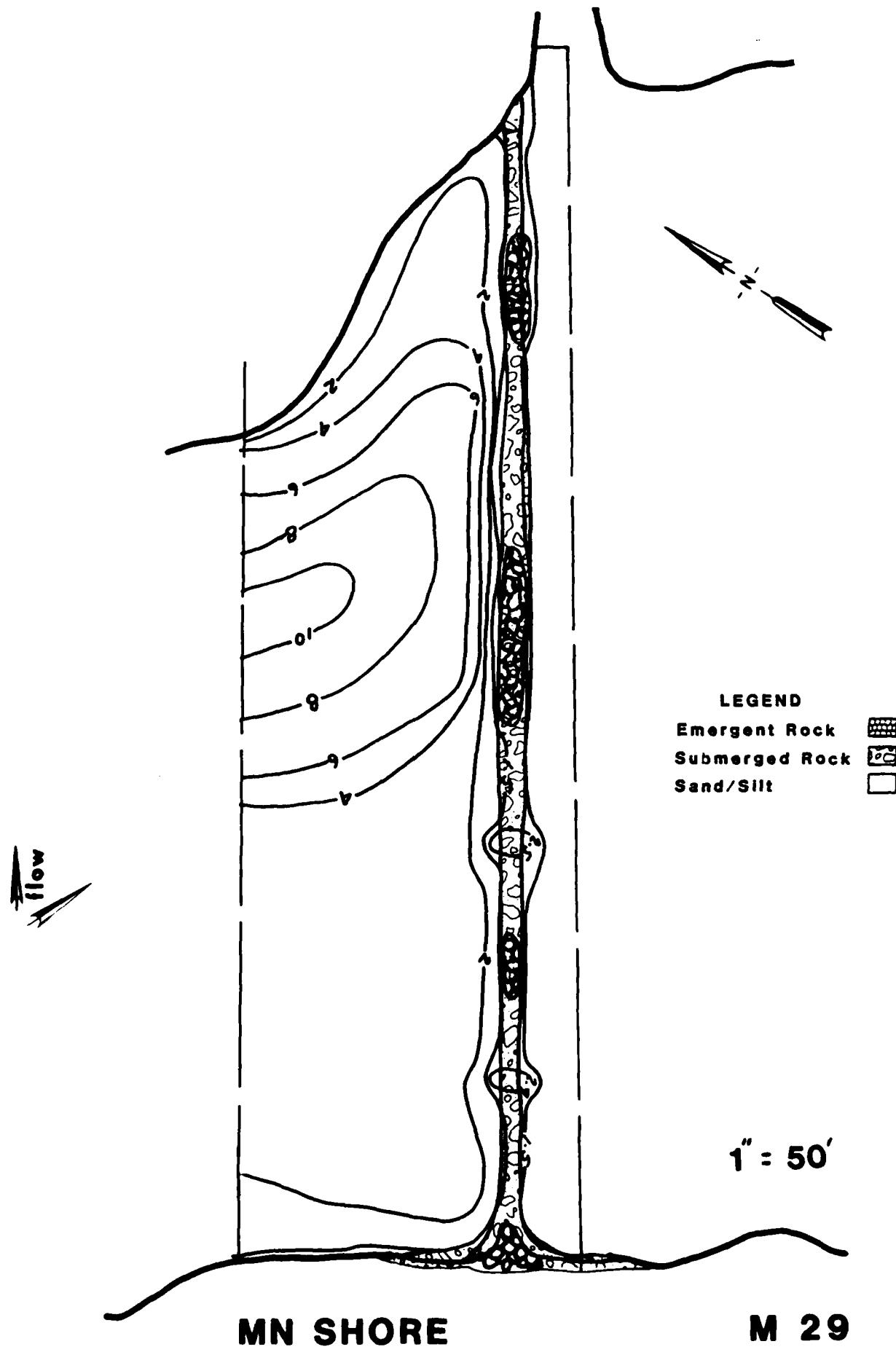


Figure D-33 General Bathymetric and Substrate Map of Closing Dam M29

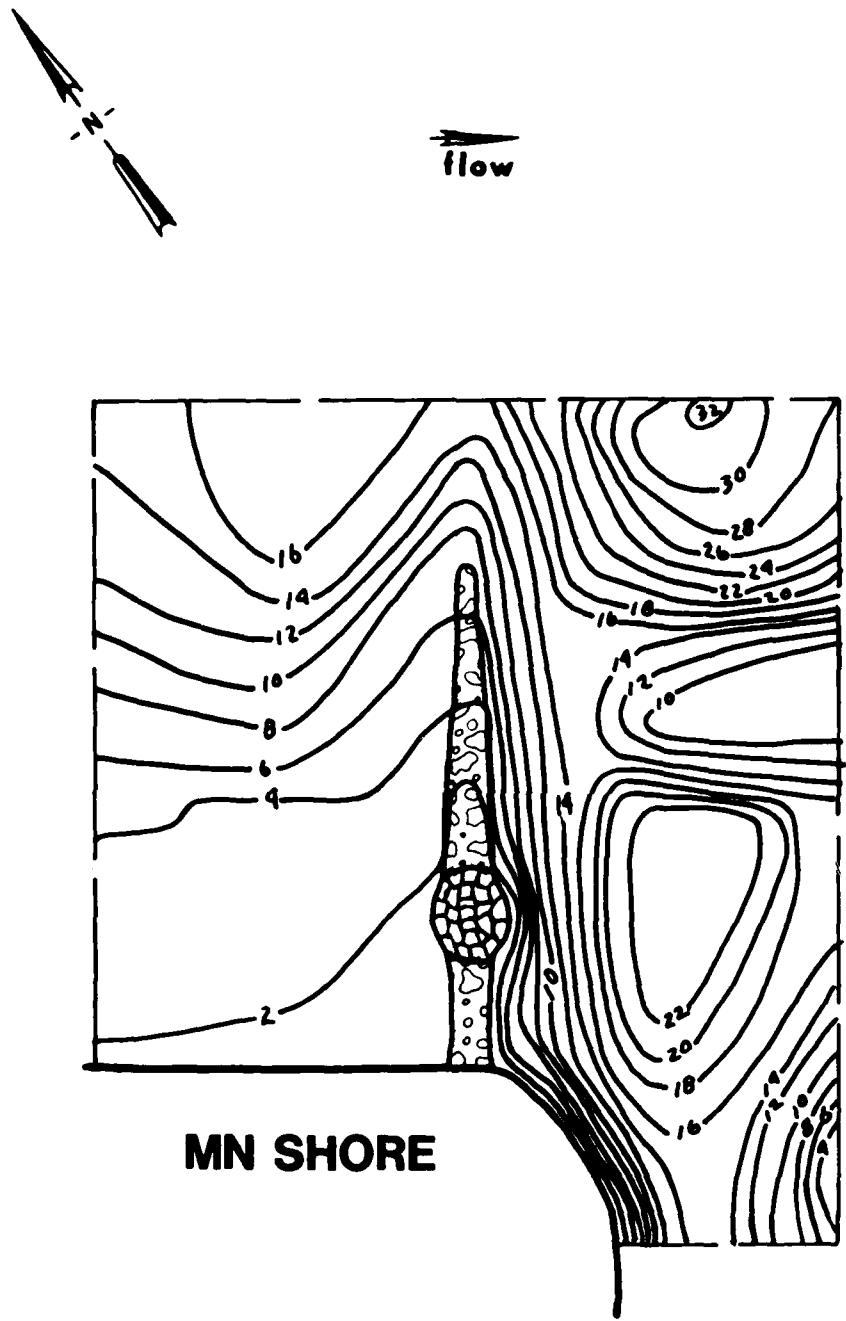
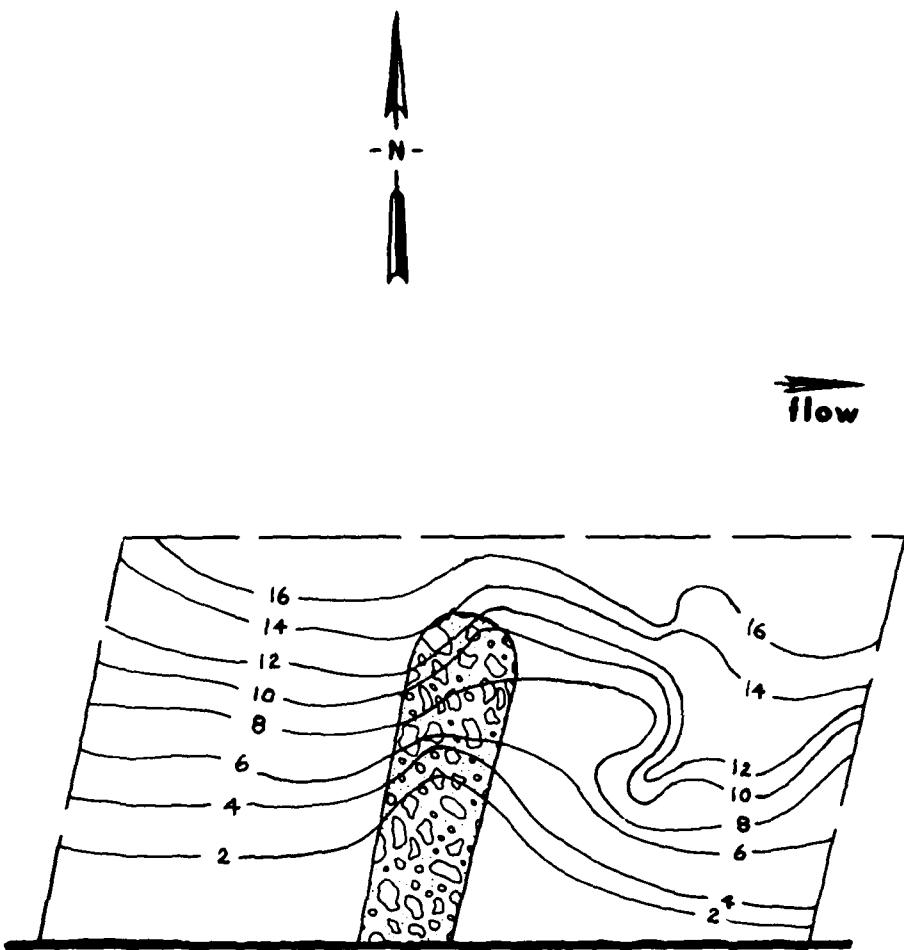


Figure D-34 General Bathymetric and Substrate Map of Wing Dam M30



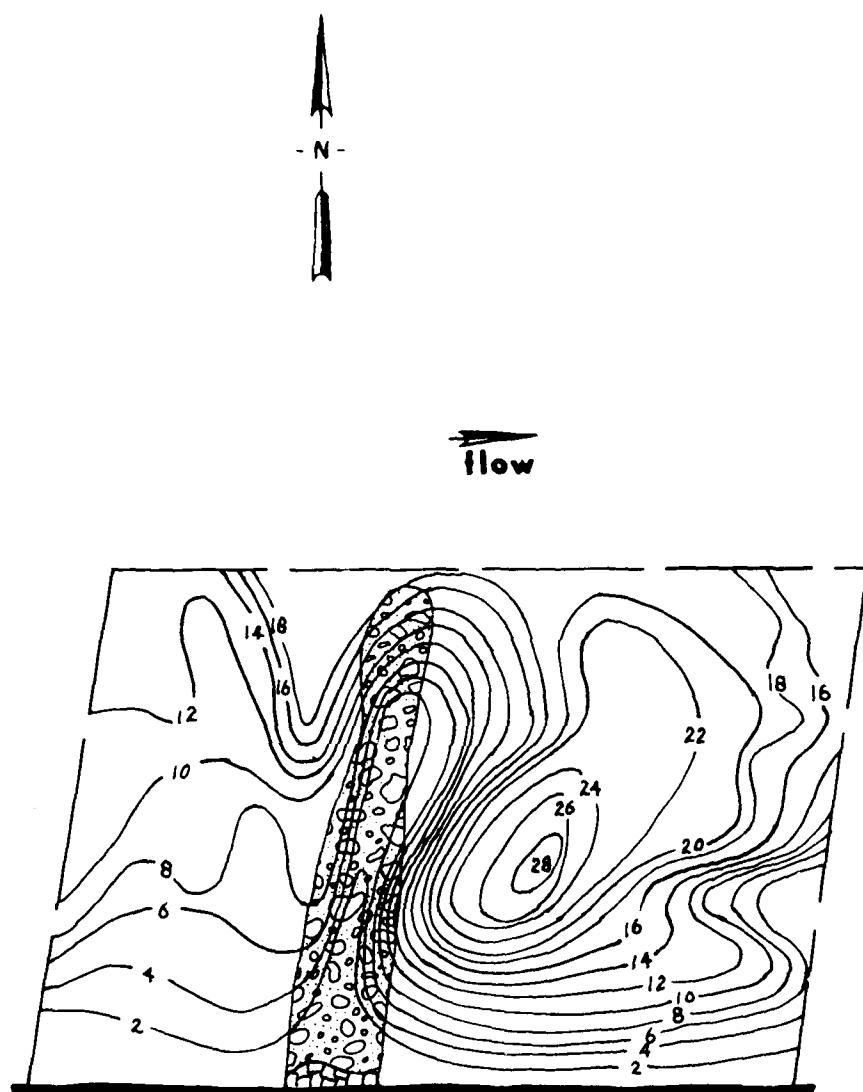
M 31

1" = 50'

LEGEND

Emergent Rock	[Dotted Pattern]
Submerged Rock	[Cross-hatch]
Sand/Silt	[Solid Black Box]

Figure D-35 General Bathymetric and Substrate Map of Wing Dam M31



M 32

LEGEND

1" = 50'

- Emergent Rock**
- Submerged Rock**
- Sand/Silt**

Figure D-36 General Bathymetric and Substrate Map of Wing Dam M32

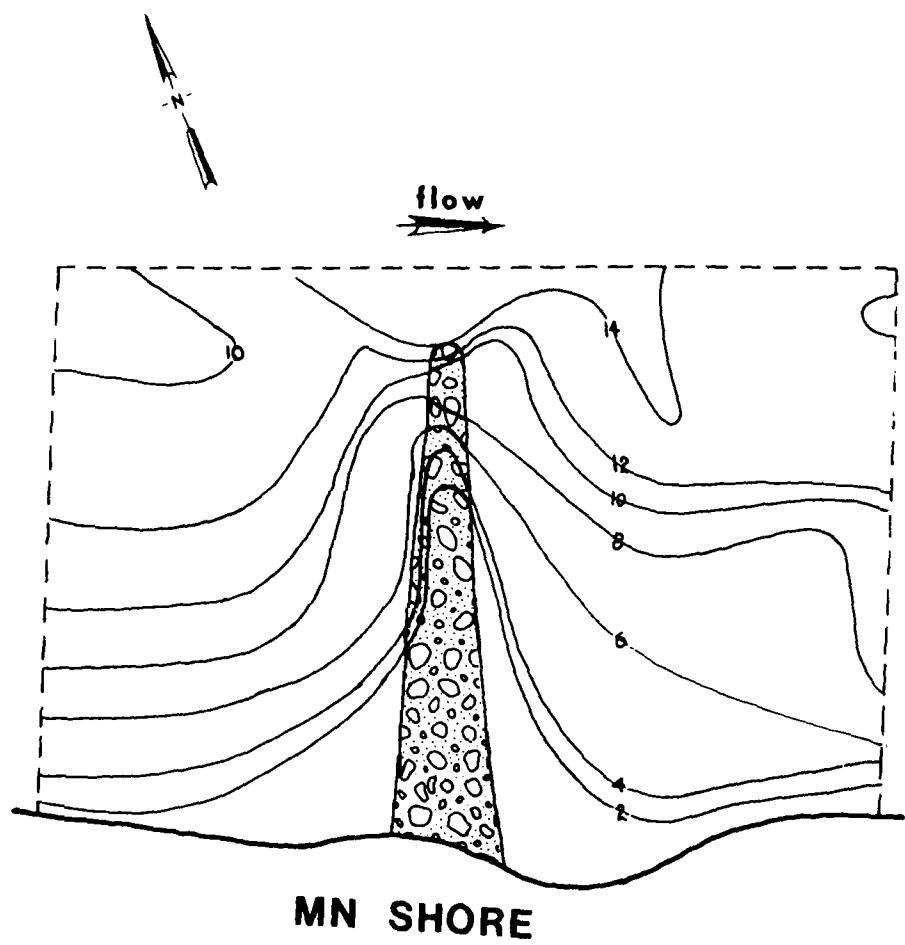
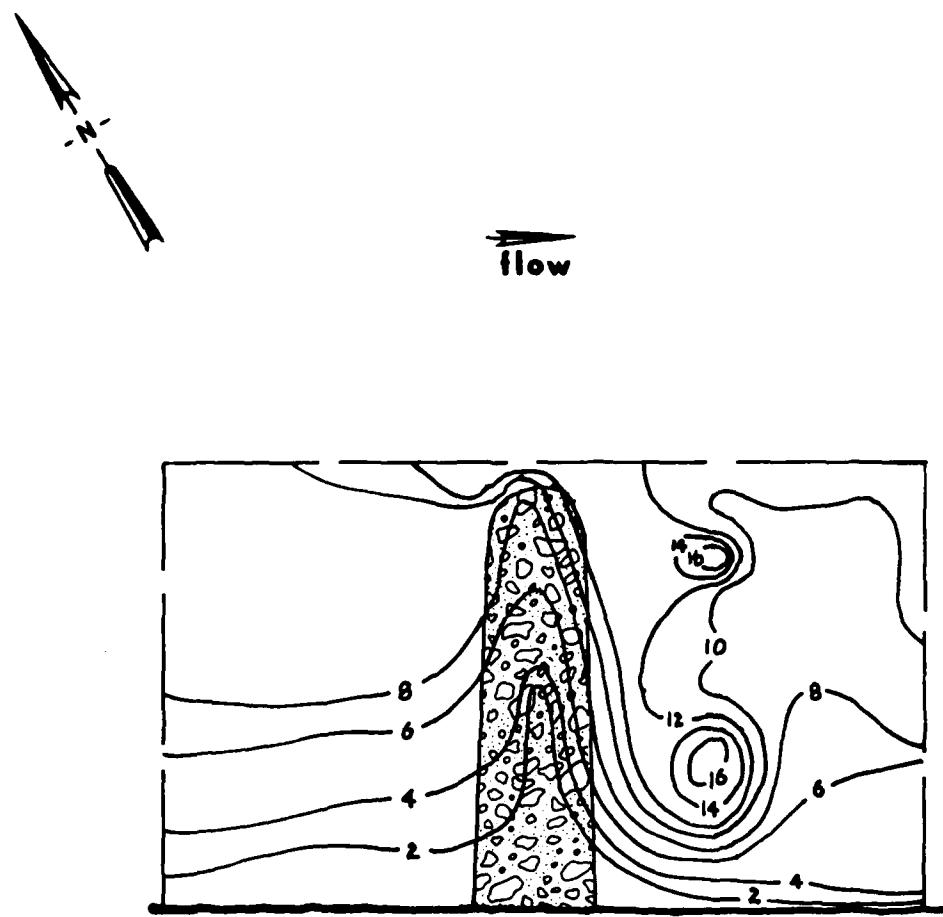


Figure D-37 General Bathymetric and Substrate Map of Wing Dam M33



M 34

LEGEND
 Emergent Rock [Cross-hatch]
 Submerged Rock [Diagonal lines]
 Sand/Silt [White square]

1" = 50'

Figure D-38 General Bathymetric and Substrate Map of Wing Dam M34

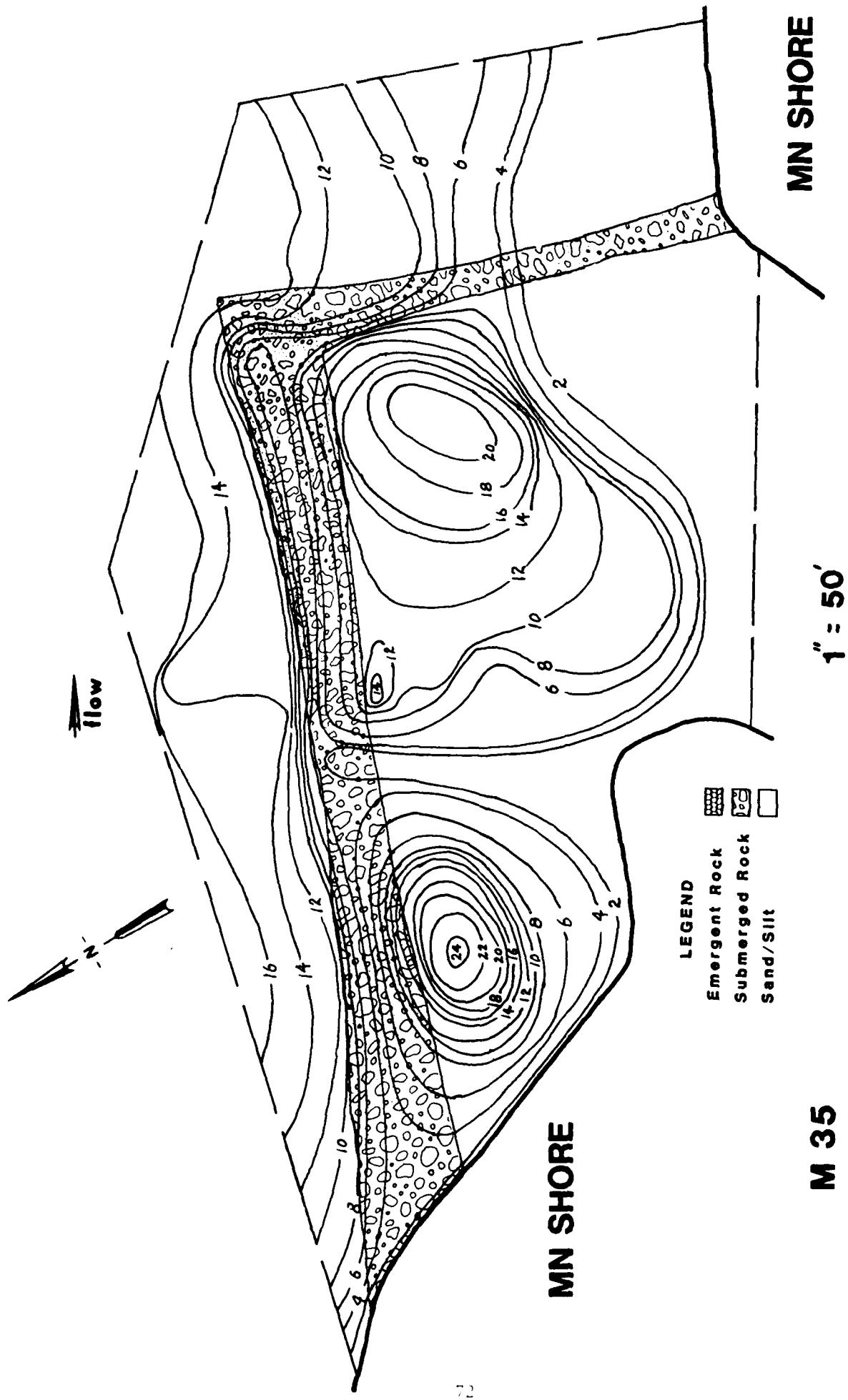


Figure D-39 General Bathymetric and Substrate Map of Closing Dam M35

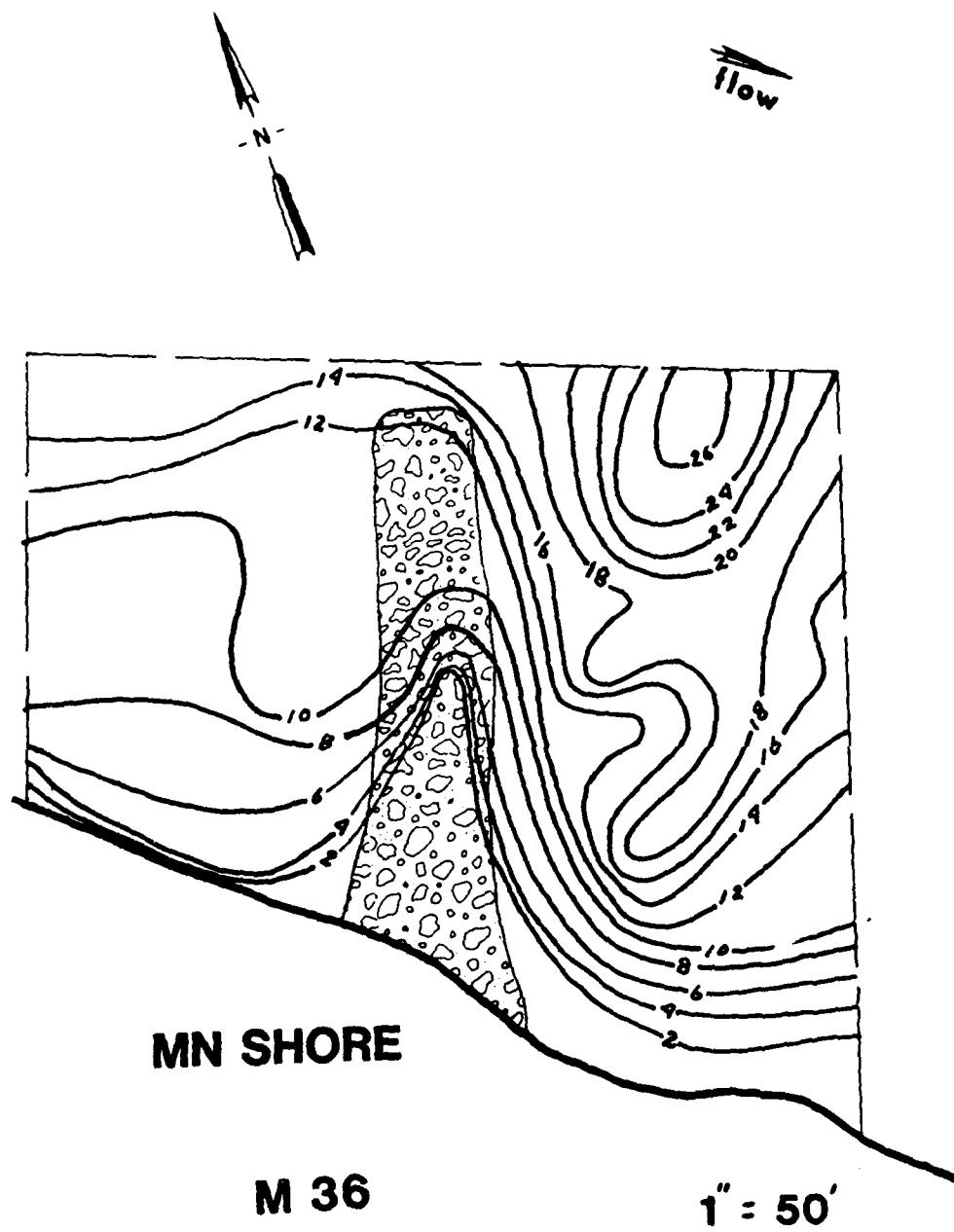
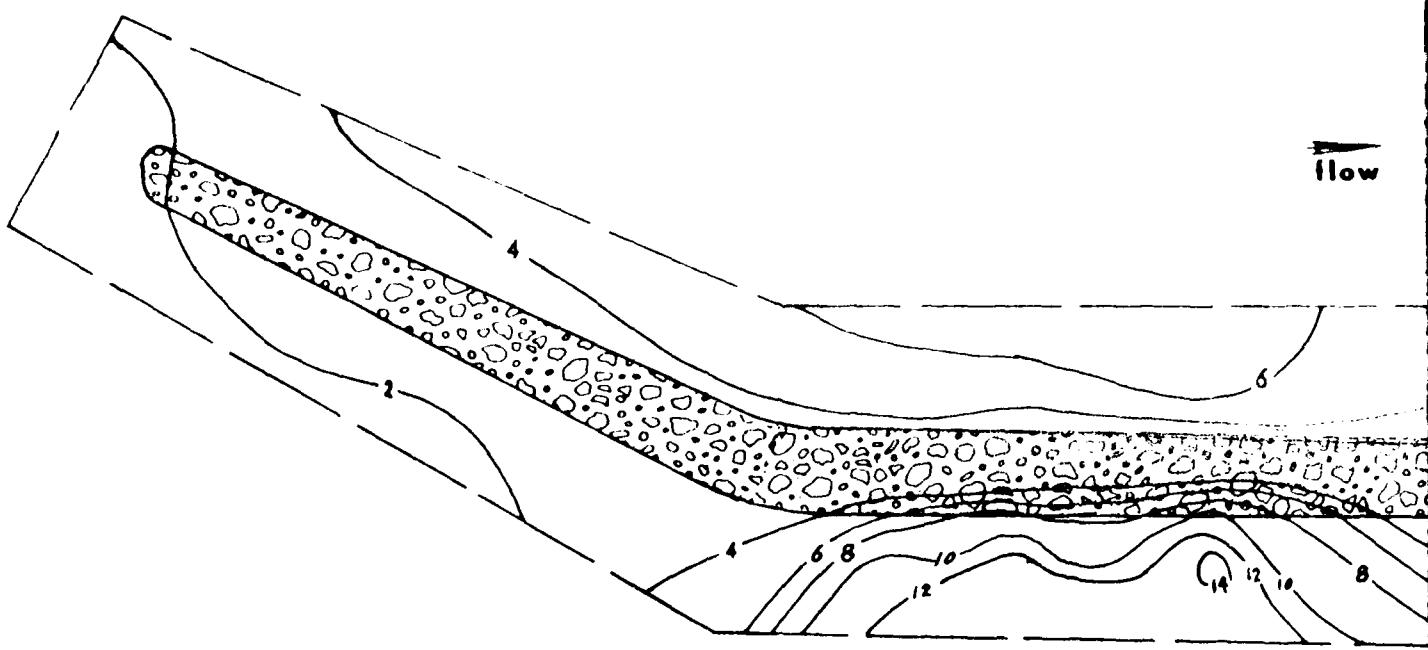


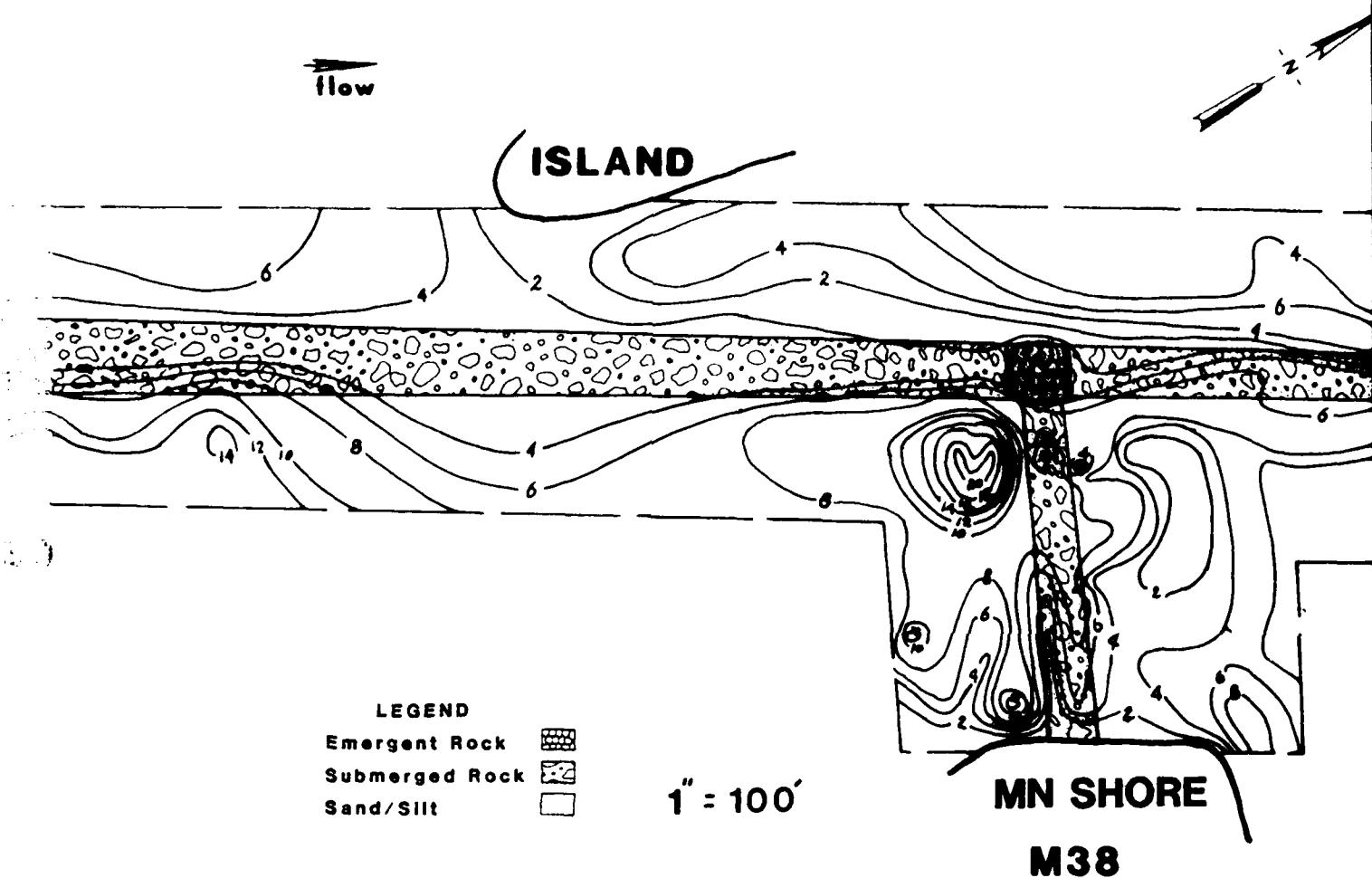
Figure D-40 General Bathymetric and Substrate Map of Wing Dam M36



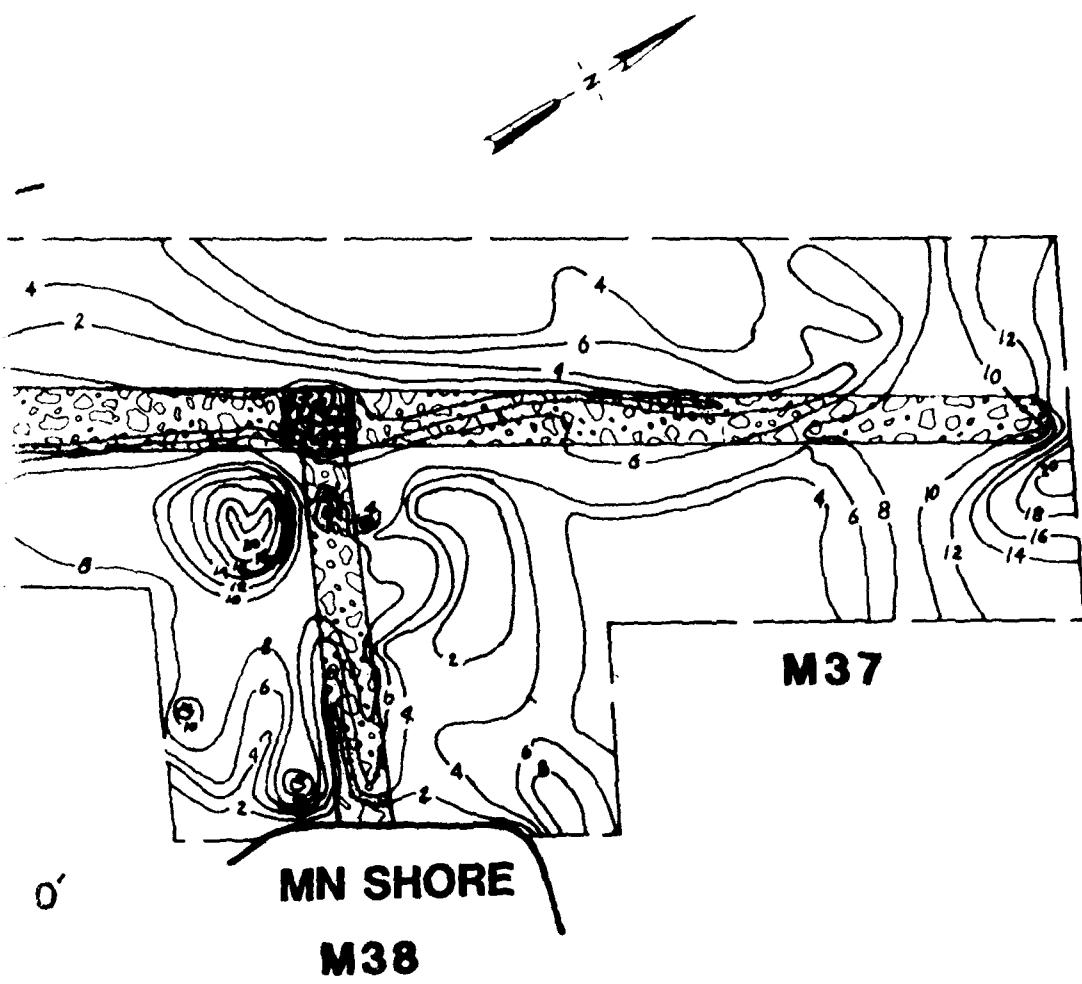
M39

LEG
Emerge
Submer
Sand/S

Figure D-41 General Bathymetric and Substrate Map of Wing Dam M38, Closing Dams

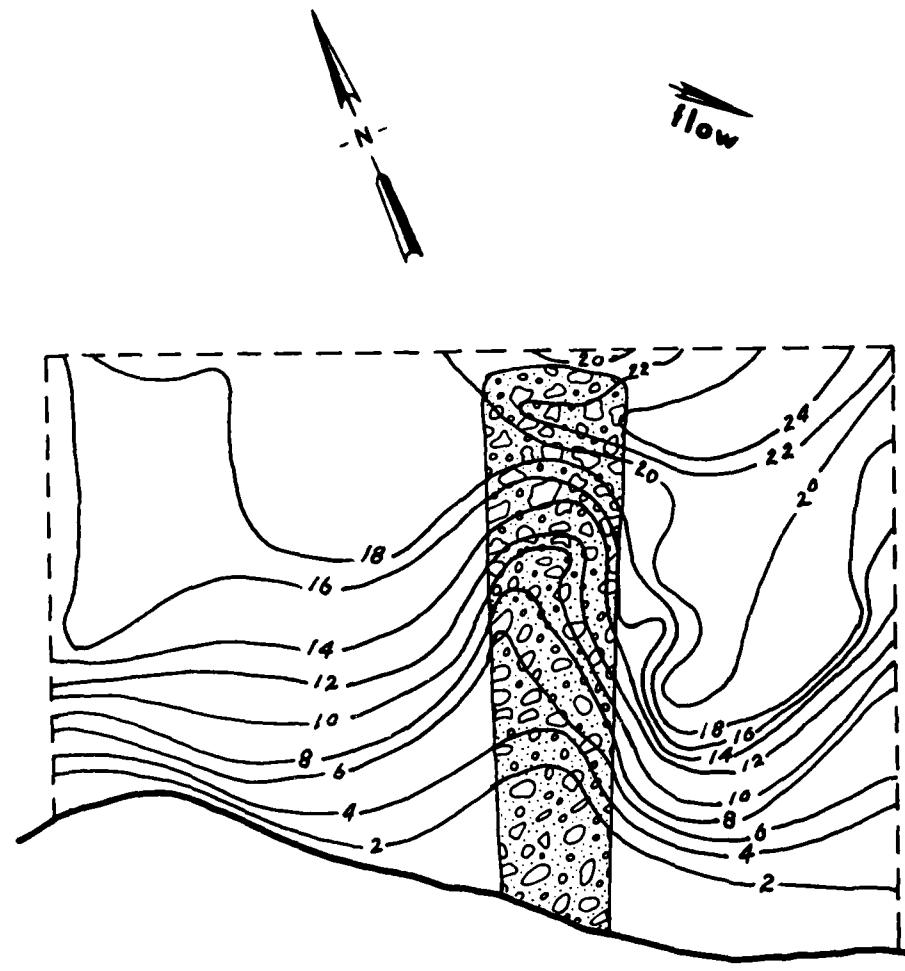


E Wing Dam M38, Closing Dams M37 and M39



3af:3

74

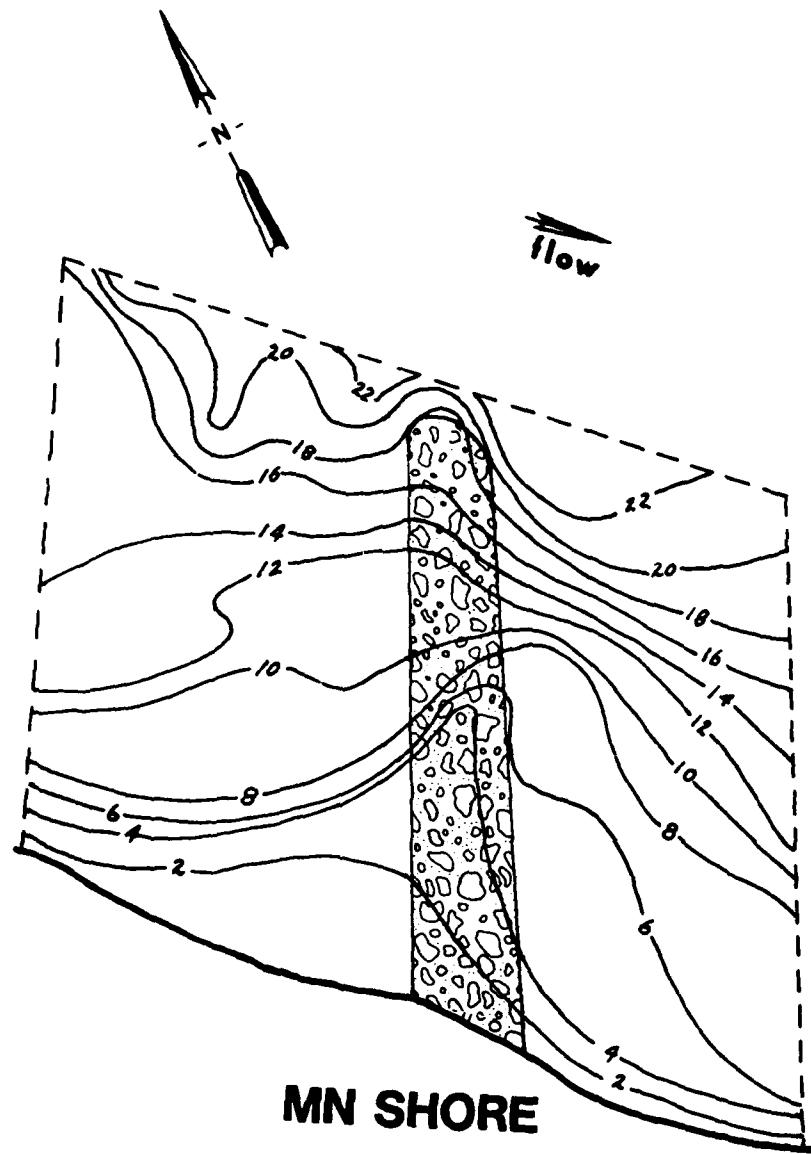


M 40

1" = 50'



Figure D-42 General Bathymetric and Substrate Map of Wing Dam M40

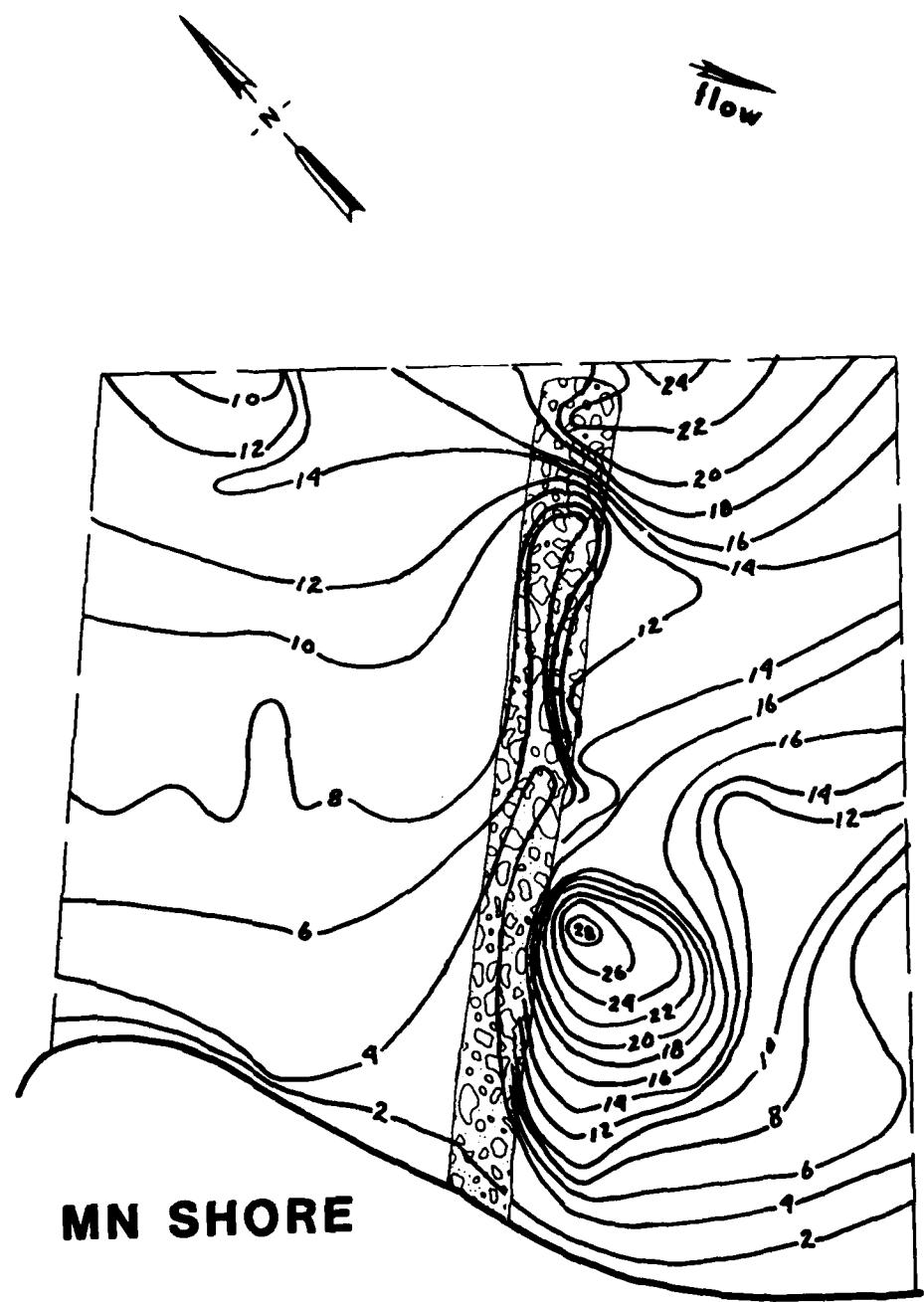


M 41

1" = 50'



Figure D-43 General Bathymetric and Substrate Map of Wing Dam M41



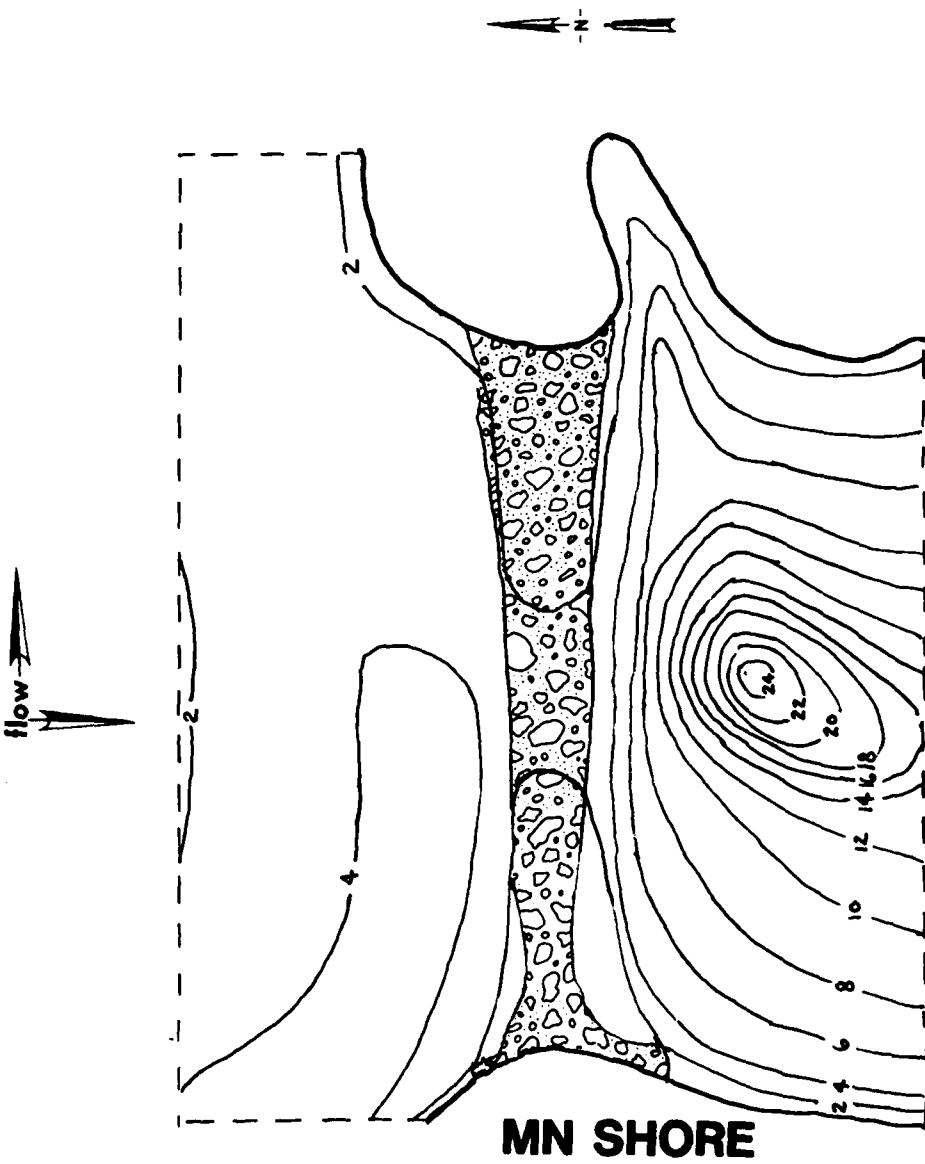
M 42

1" = 50'

LEGEND

- | | |
|-----------------------|-------------------------|
| Emergent Rock | [Cross-hatched square] |
| Submerged Rock | [Diagonal-lined square] |
| Sand/Silt | [White square] |

Figure D-44 General Bathymetric and Substrate Map of Wing Dam M42



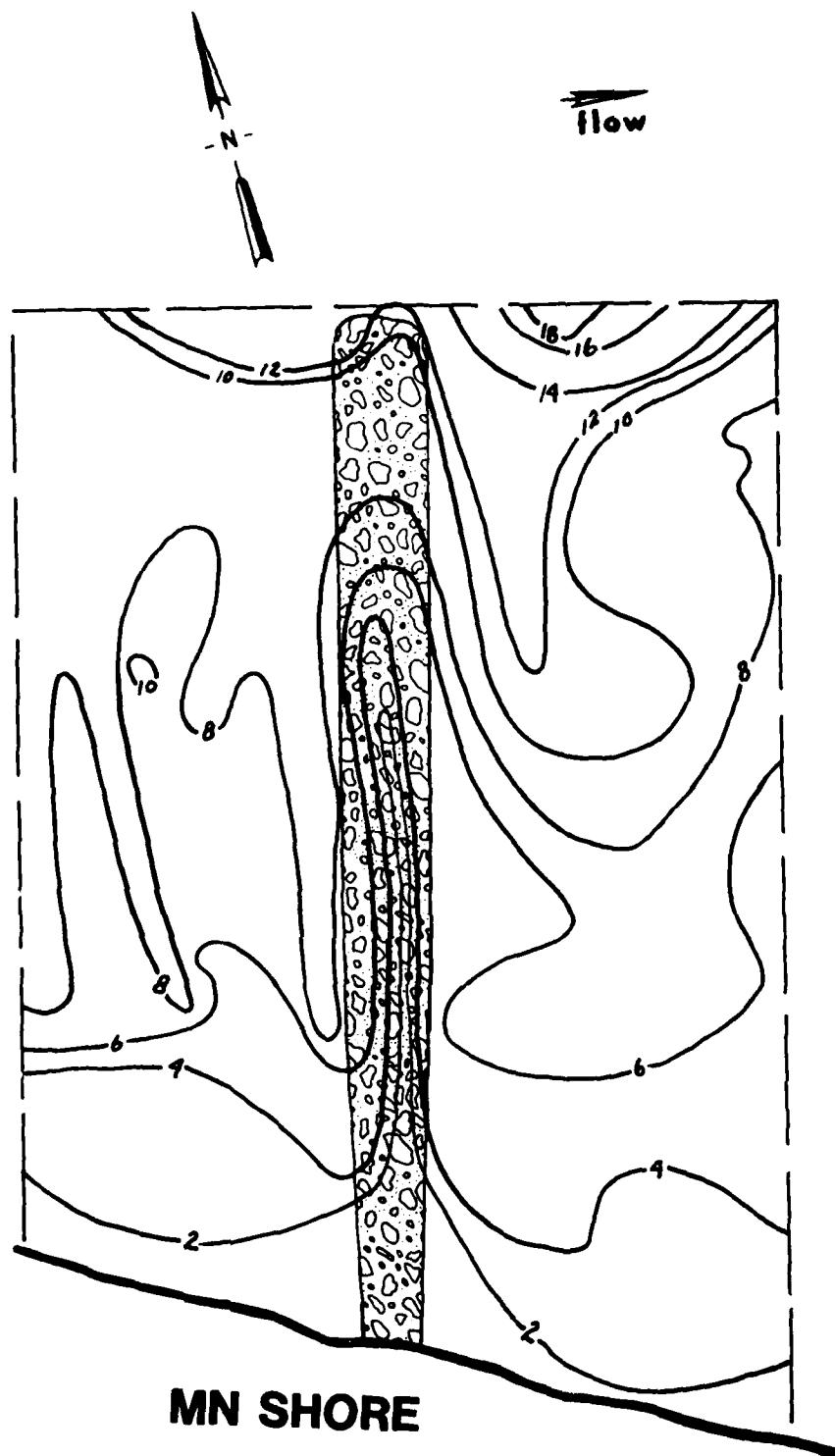
M 43

1" = 50'

LEGEND

Emergent Rock	[Stippled Pattern]
Submerged Rock	[Rock Pattern]
Sand/Silt	[White Box]

Figure D-45 General Bathymetric and Substrate Map of Closing Dam M43



M 44

1" = 50'

LEGEND

Emergent Rock



Submerged Rock



Sand/Silt



Figure D-46 General Bathymetric and Substrate Map of Wing Dam M44

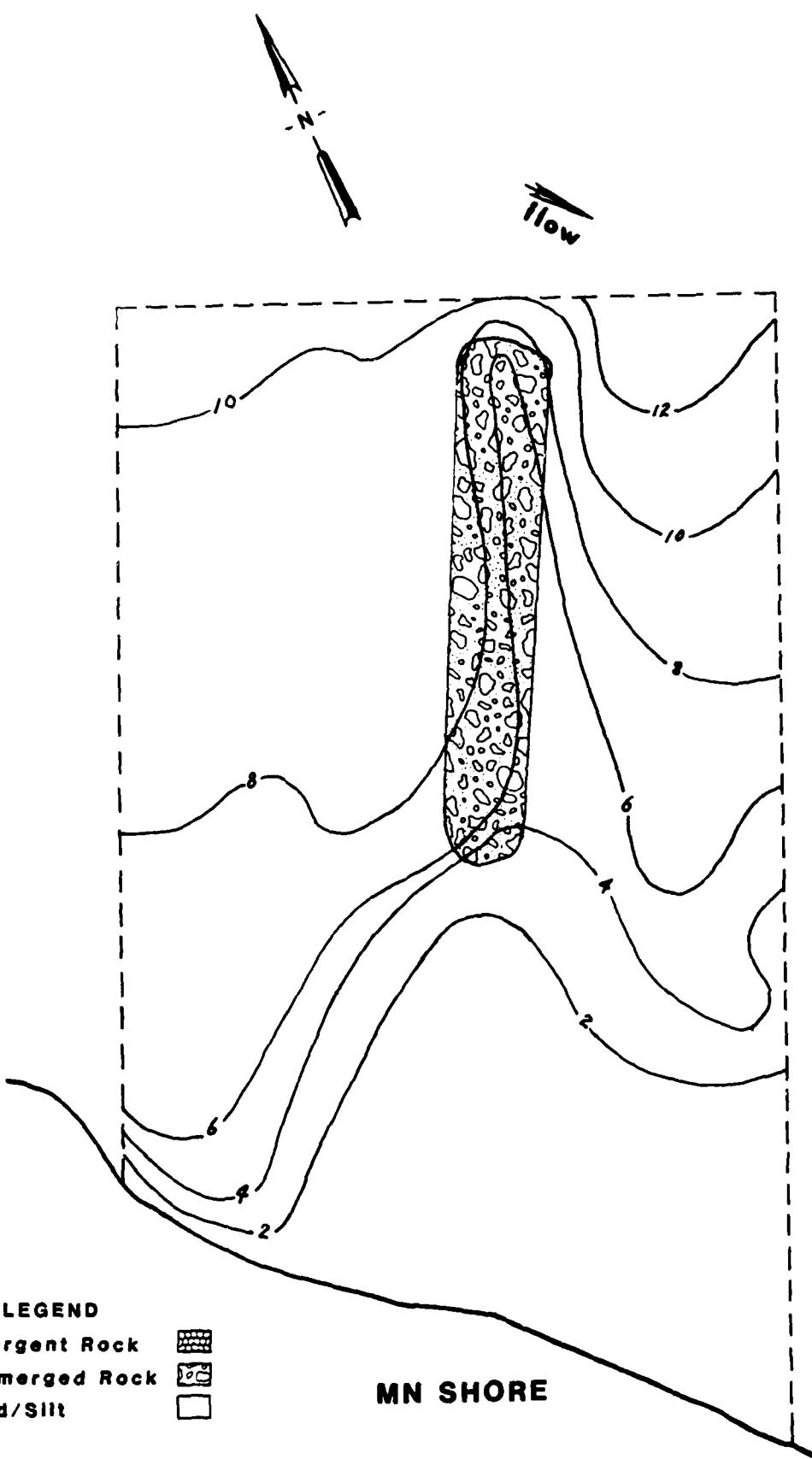
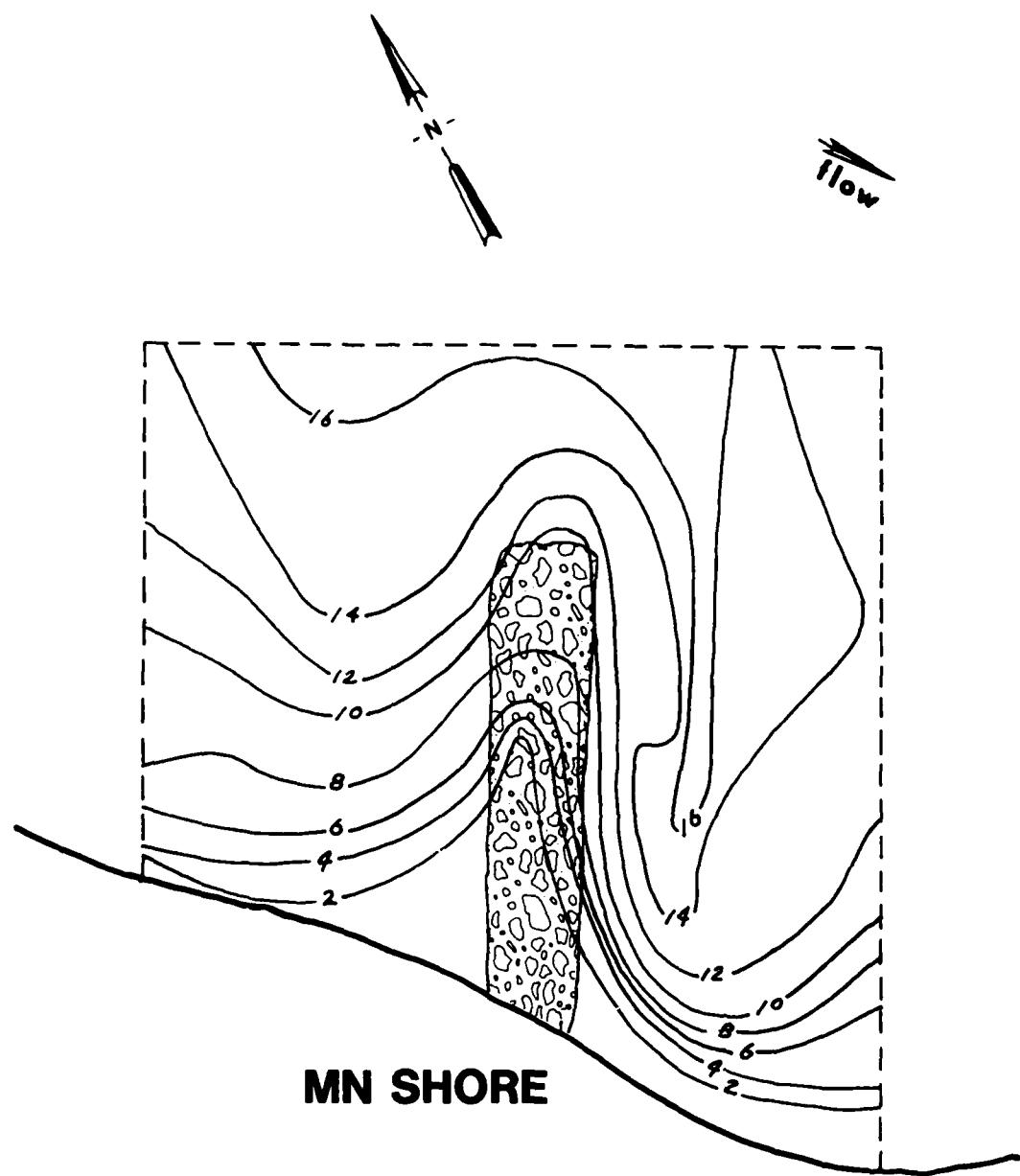


Figure D-47 General Bathymetric and Substrate Map of Wing Dam M45

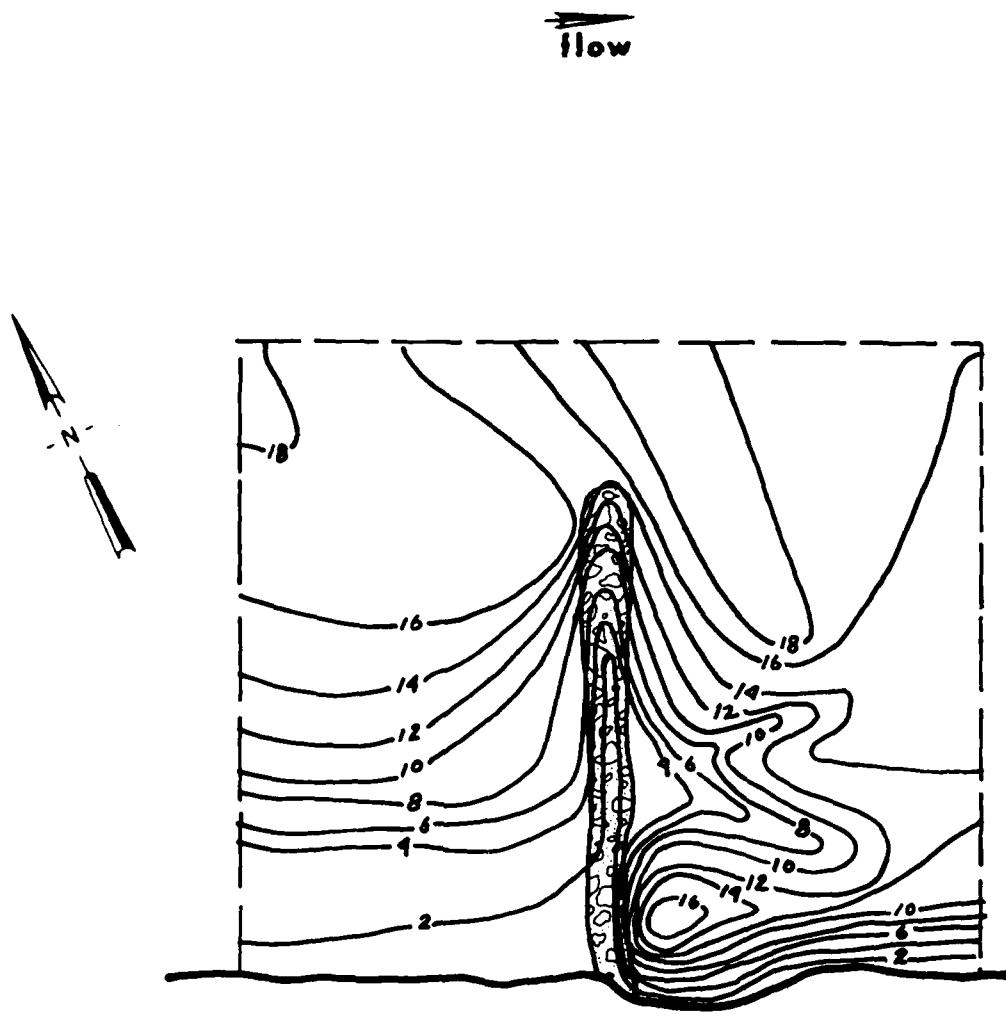


M 46

1" = 50'

LEGEND	
Emergent Rock	[Stippled Box]
Submerged Rock	[Cross-hatched Box]
Sand/Silt	[White Box]

Figure D-48 General Bathymetric and Substrate Map of Wing Dam M46



M 47

1" = 50'

LEGEND

- | | |
|-----------------------|----------------|
| Emergent Rock | [grid pattern] |
| Submerged Rock | [cross-hatch] |
| Sand/Silt | [white] |

Figure D-49 General Bathymetric and Substrate Map of Wing Dam M47

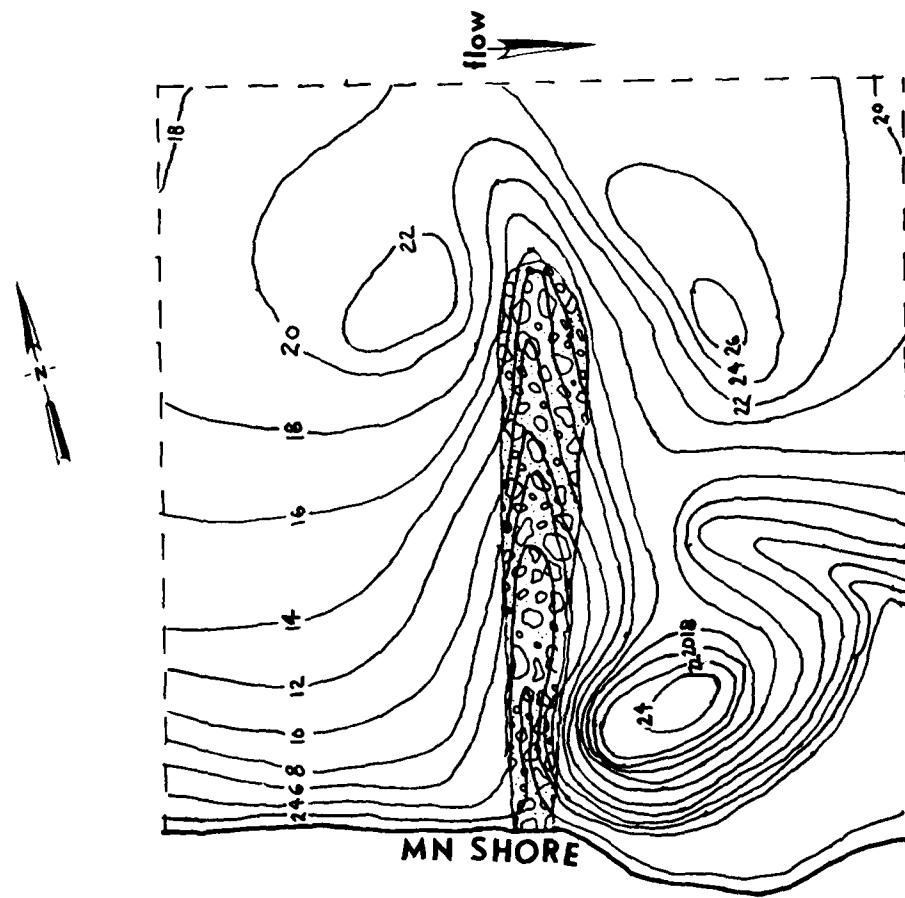
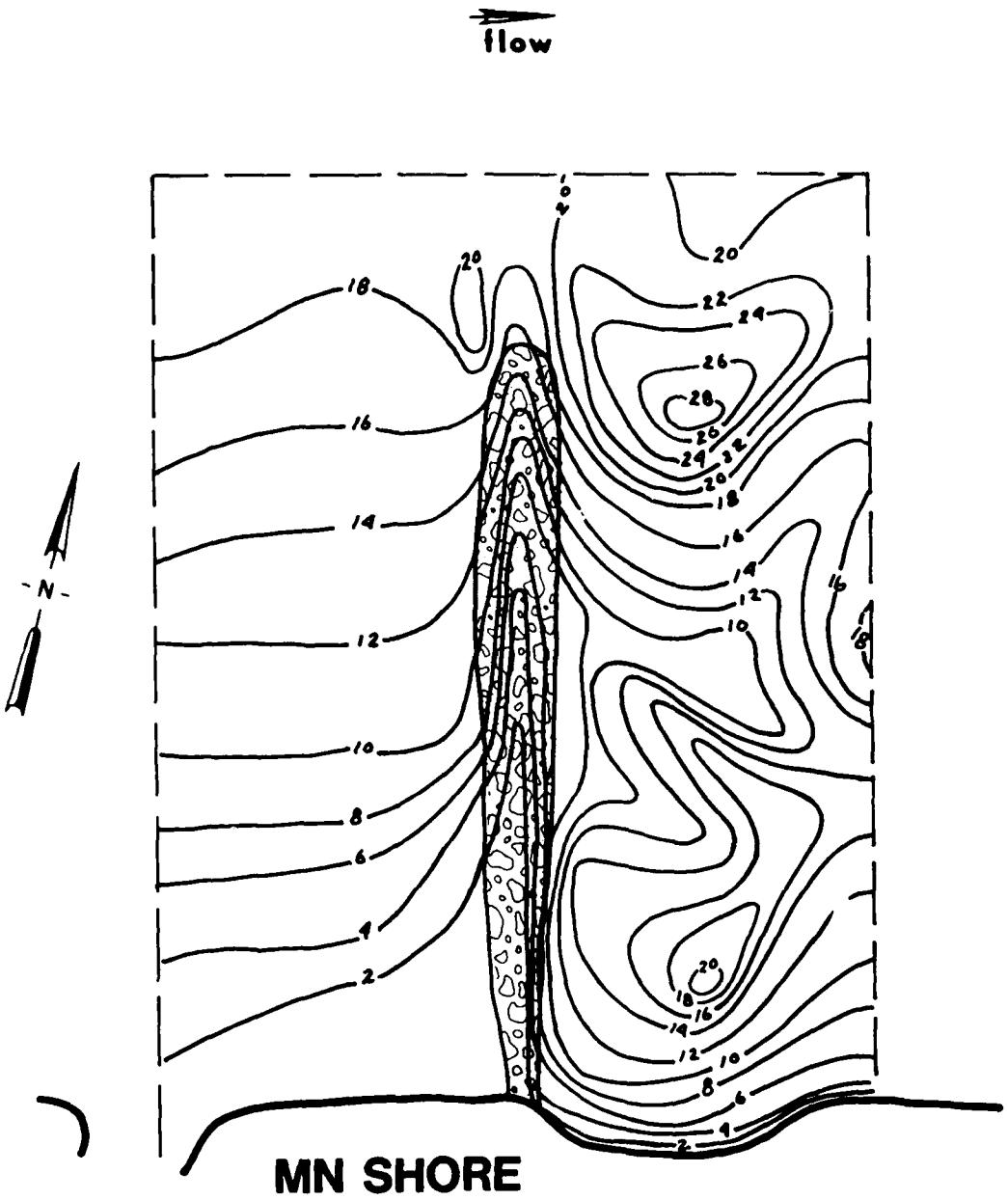


Figure D-50 General Bathymetric and Substrate Map of Wing Dam M48



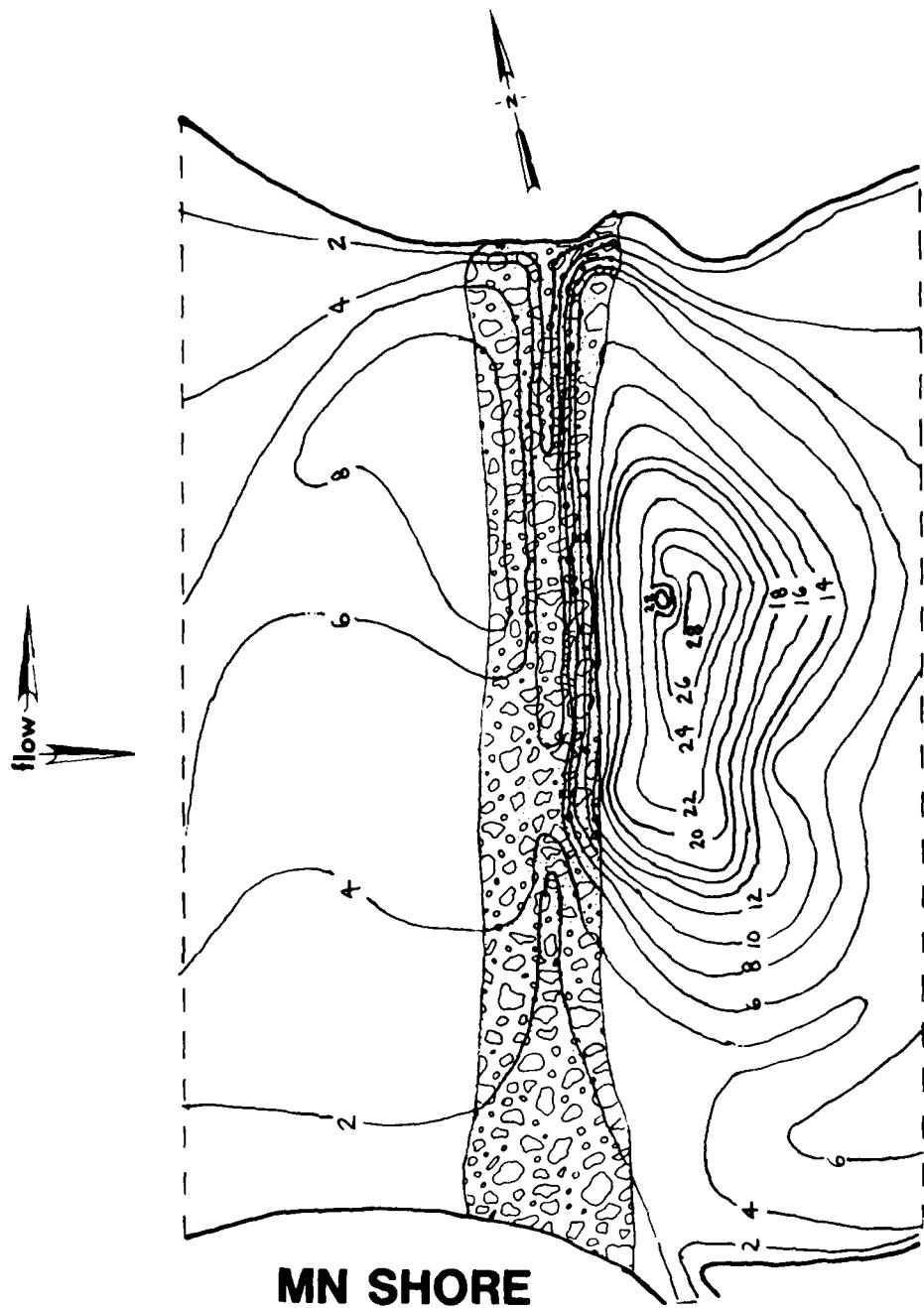
M 49

1" = 50'

LEGEND

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-51 General Bathymetric and Substrate Map of Wing Dam M49



M 50

LEGEND
 Emergent Rock
 Submerged Rock
 Sand/Silt

1" = 50'

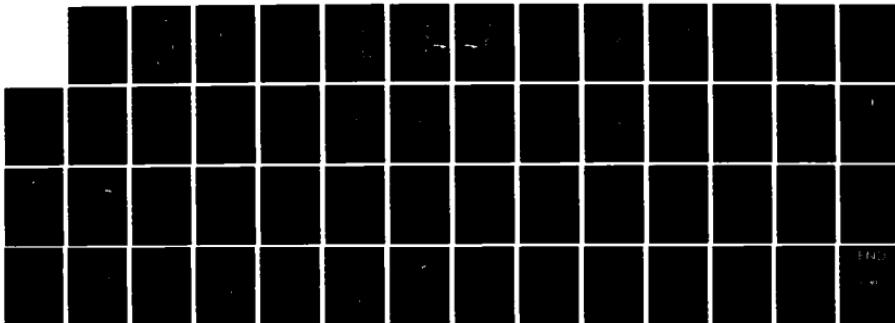
Figure D-52 General Bathymetric and Substrate Map of Closing Dam M50

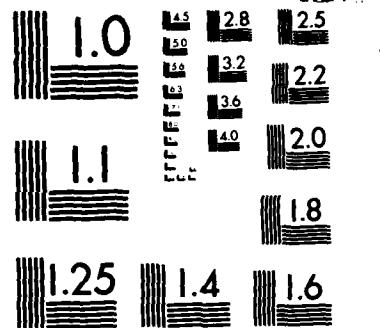
AD-A156 691 PHYSICAL AND BIOLOGICAL INVESTIGATIONS OF THE MAIN 2/2
CHANNEL BORDER HABITAT. (U) CORPS OF ENGINEERS ST PAUL
MN ST PAUL DISTRICT D D ANDERSON ET AL. DEC 83

UNCLASSIFIED

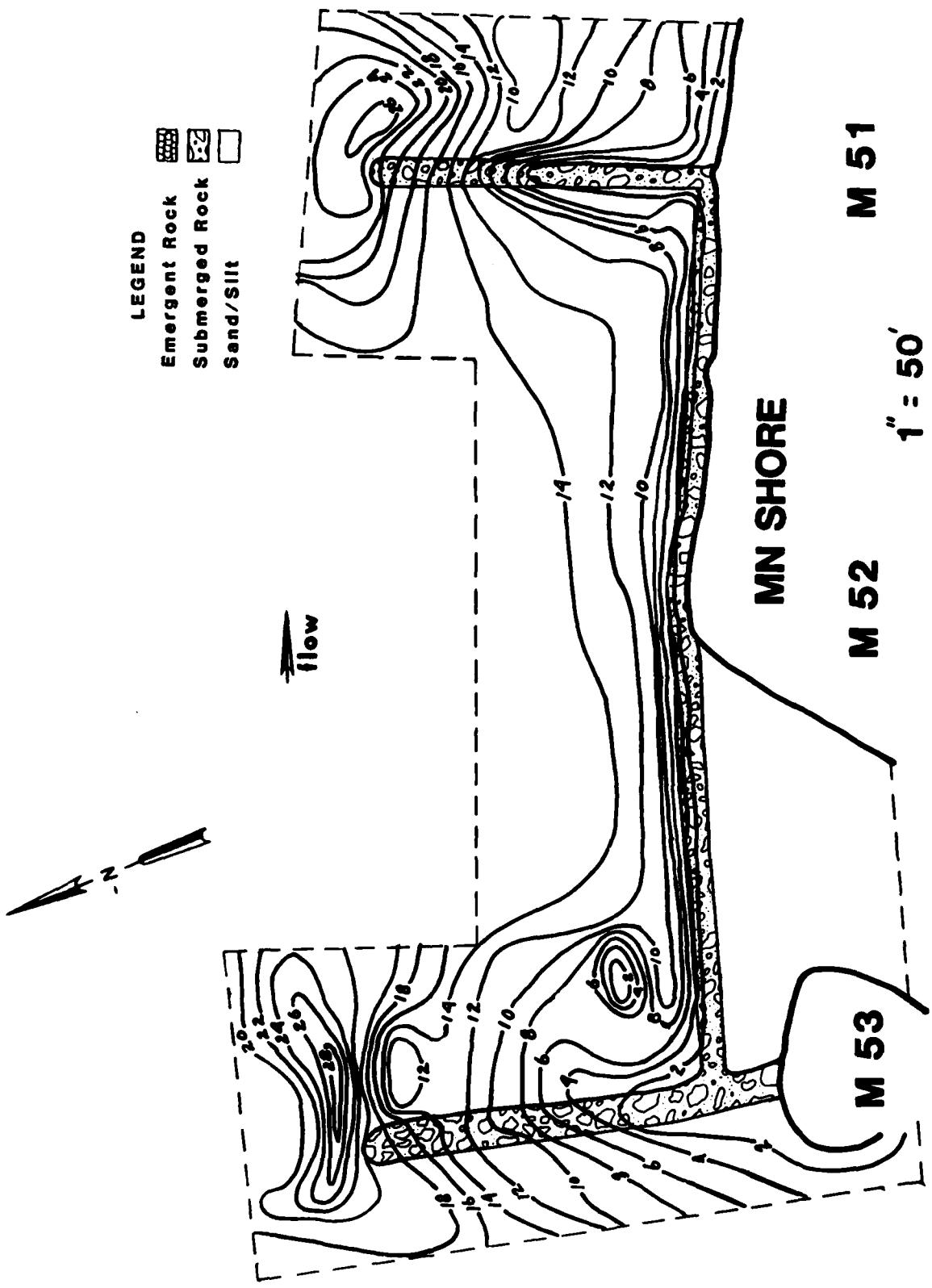
F/G 6/6

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



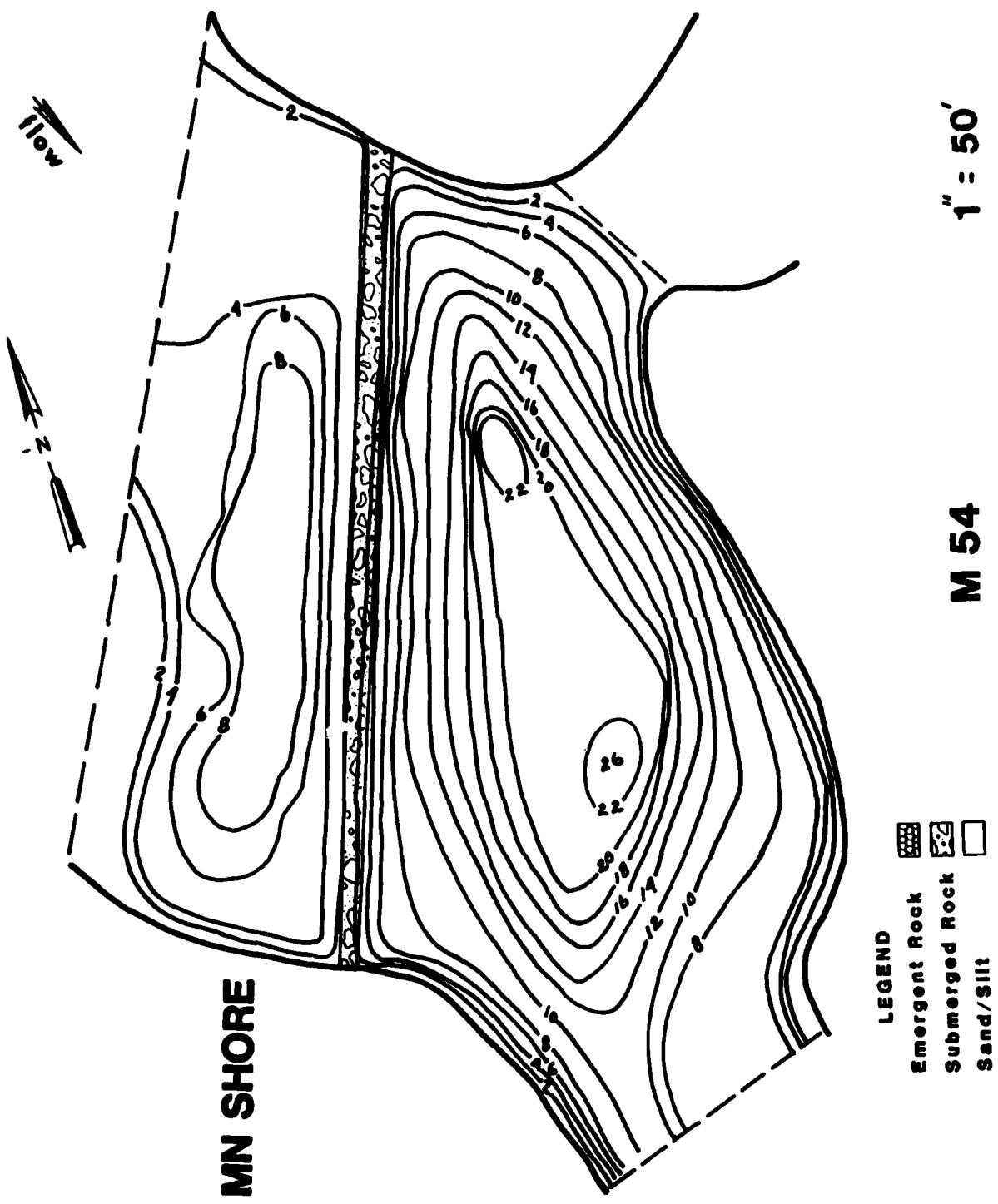


Figure D-54 General Bathymetric and Substrate Map of Closing Dam M54

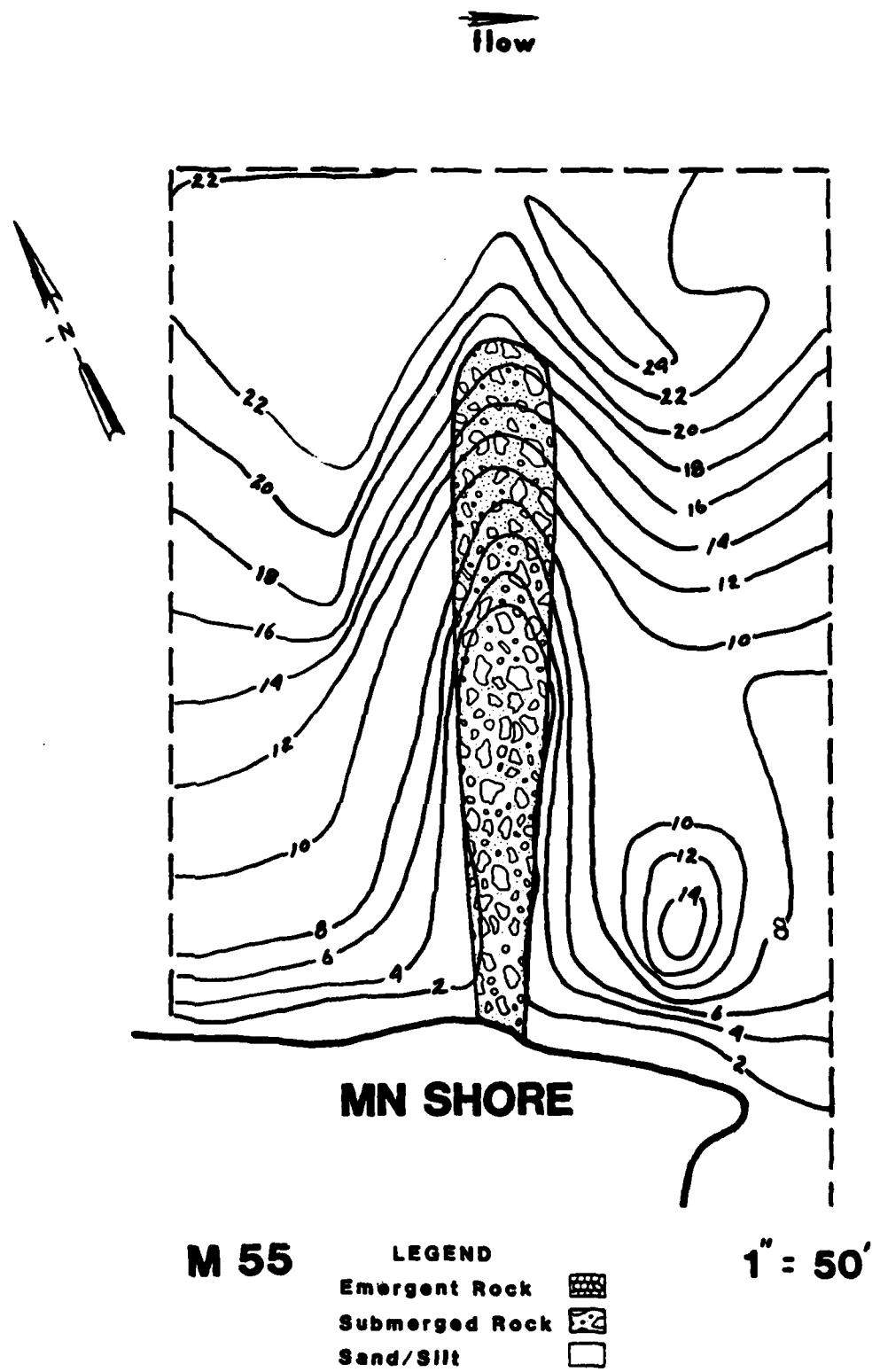


Figure D-55 General Bathymetric and Substrate Map of Wing Dam M55

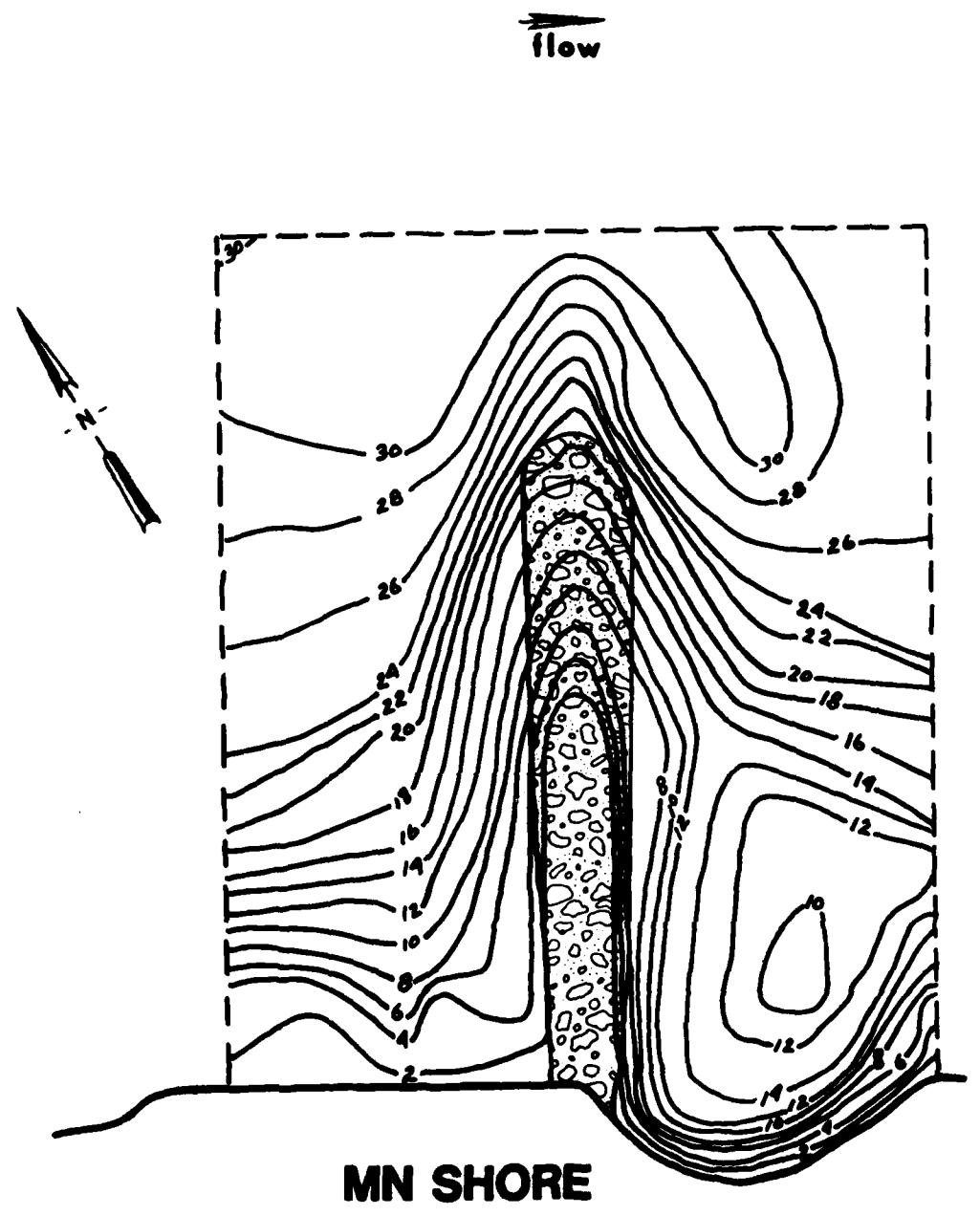


Figure D-56 General Bathymetric and Substrate Map of Wing Dam M56

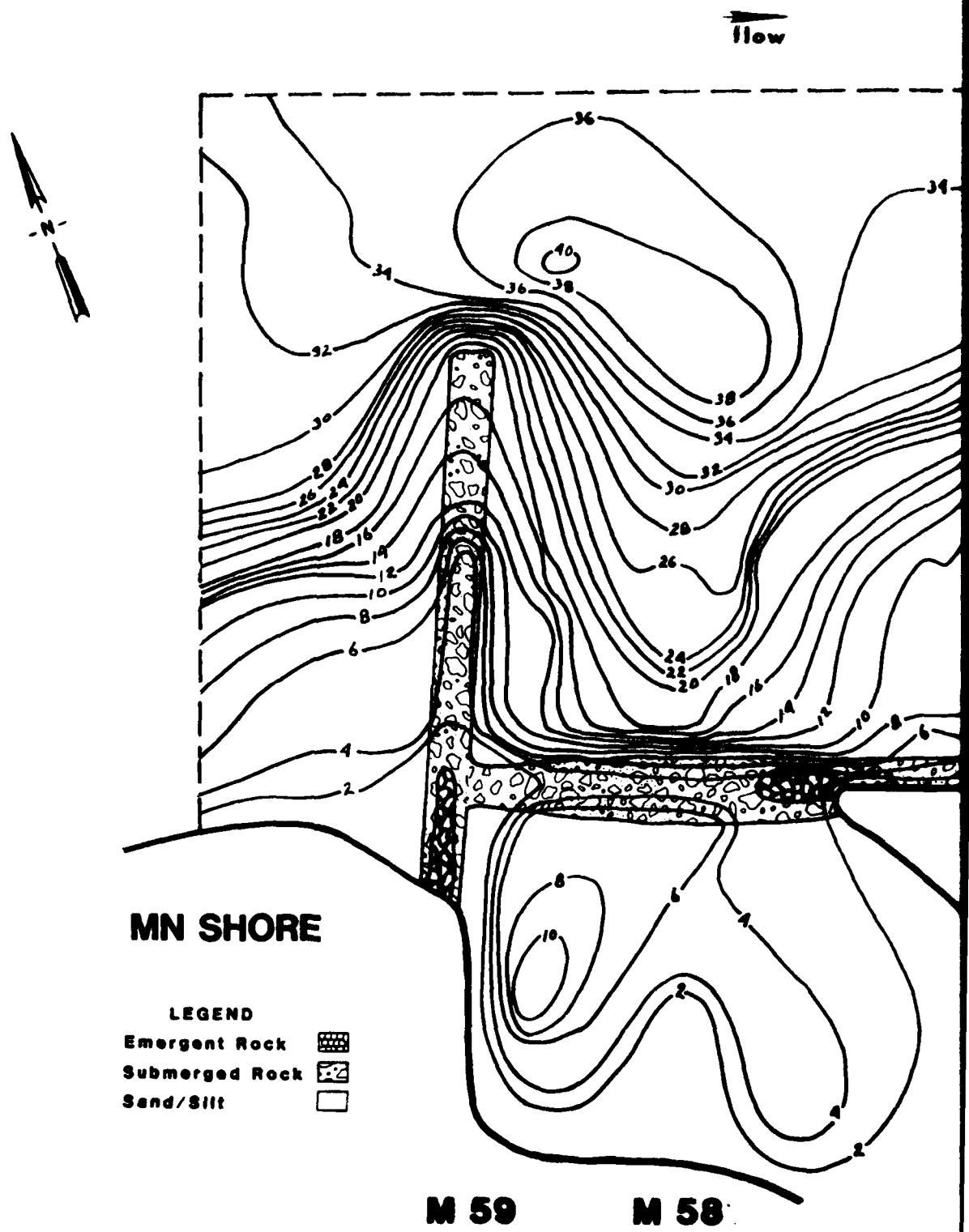
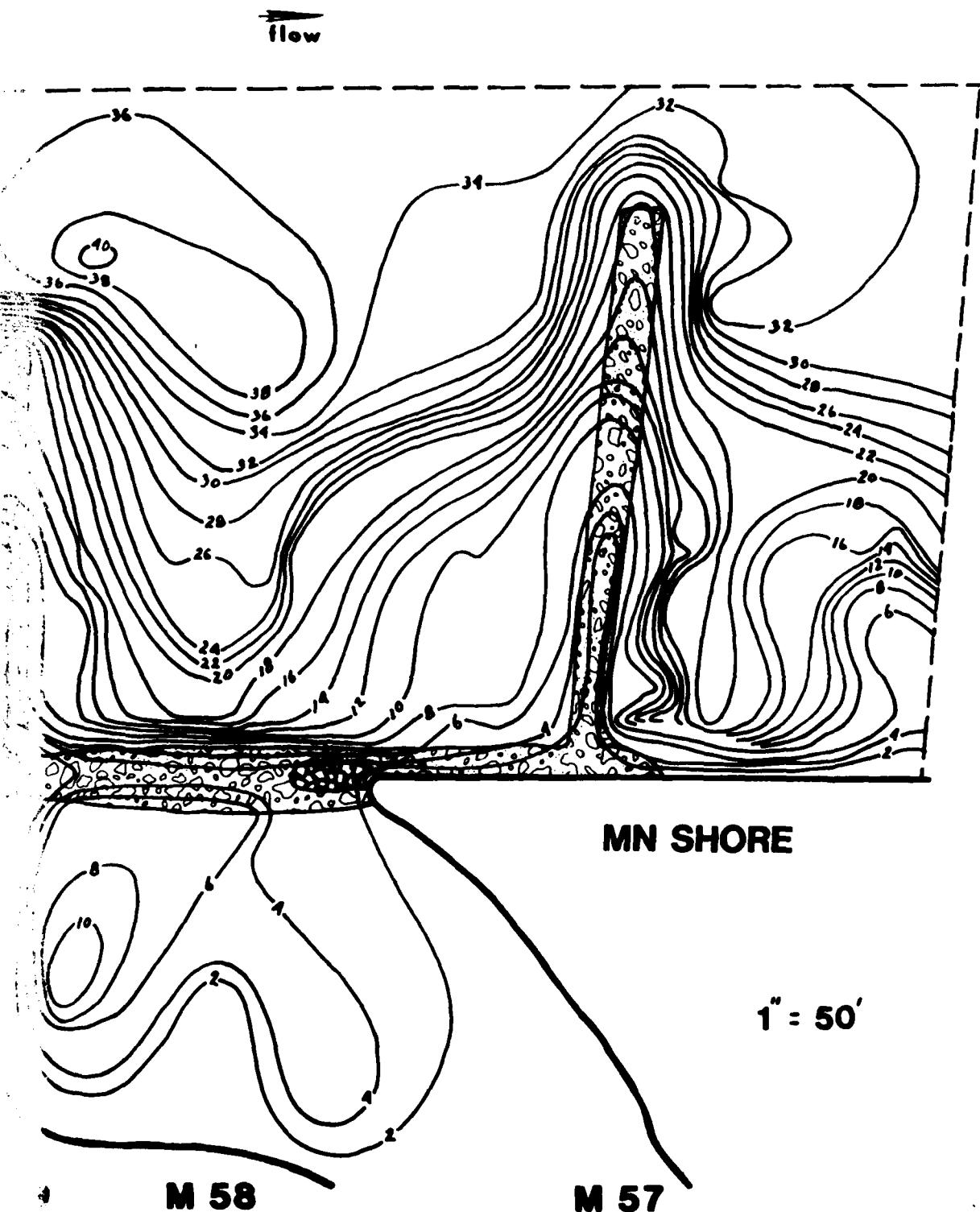
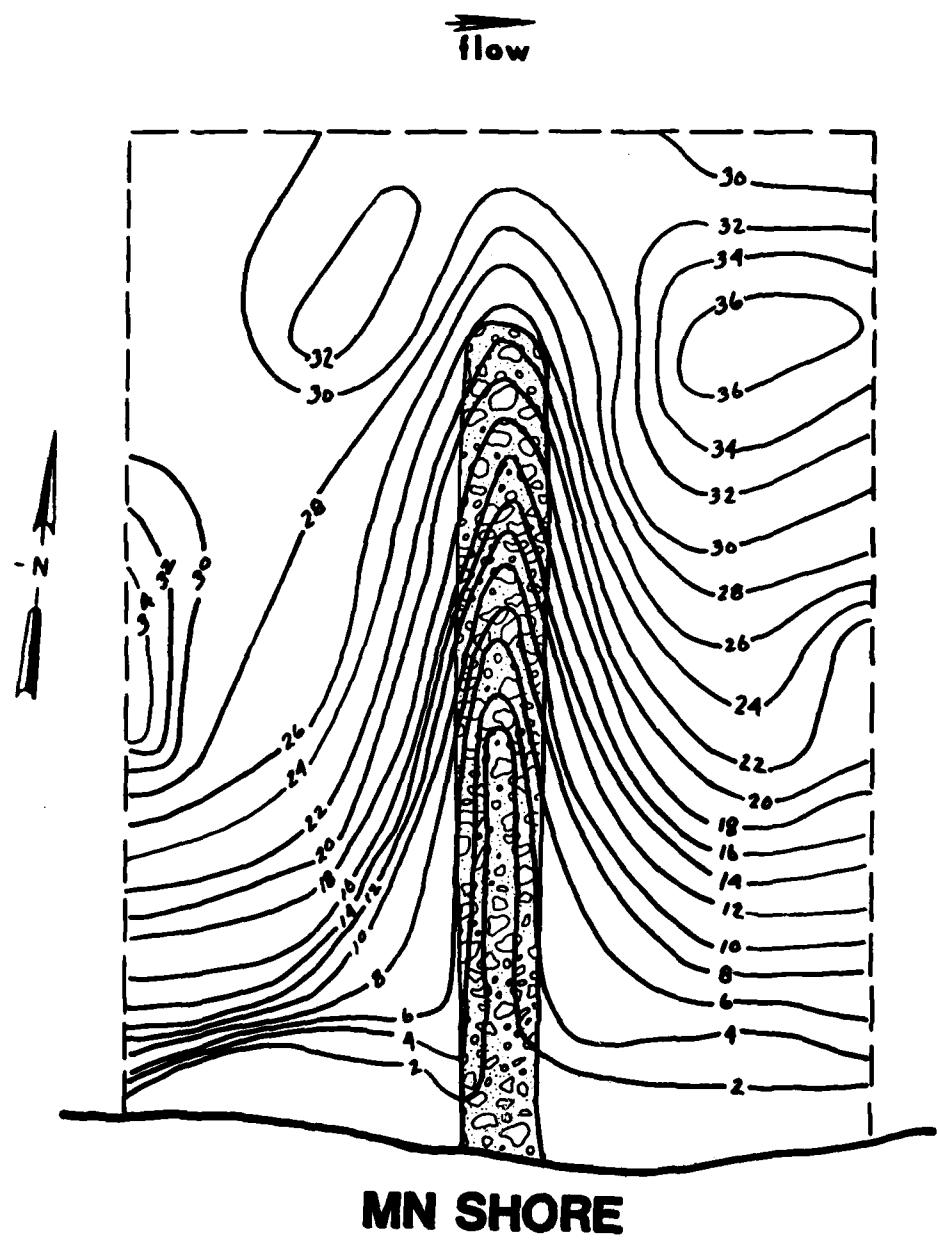


Figure D-57 General Bathymetric and Substrate Map of Wing Dam M57, Closing Dam M58

10f2



Map of Wing Dam MS7, Closing Dam M58 and Wing Dam M59

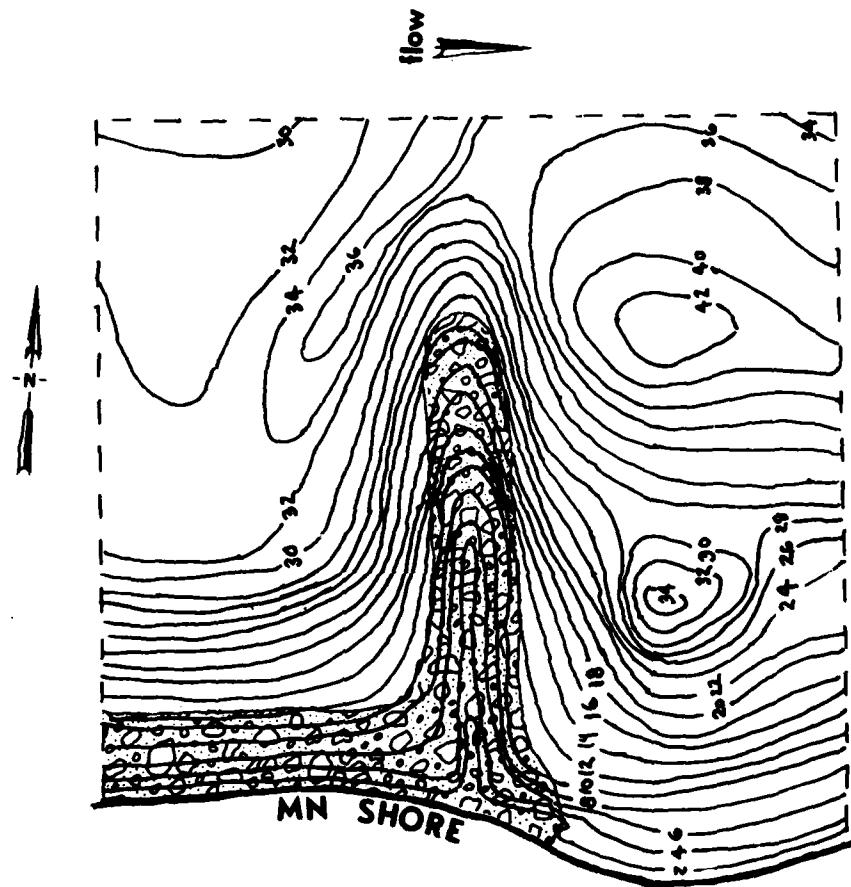


M 60

LEGEND
Emergent Rock
Submerged Rock
Sand/Silt

1" = 50'

Figure D-58 General Bathymetric and Substrate Map of Wing Dam M60



M 61

$1'' = 50'$

LEGEND

Emergent Rock

Submerged Rock

Sand/Silt

Figure D-59 General Bathymetric and Substrate Map of Wing Dam M61

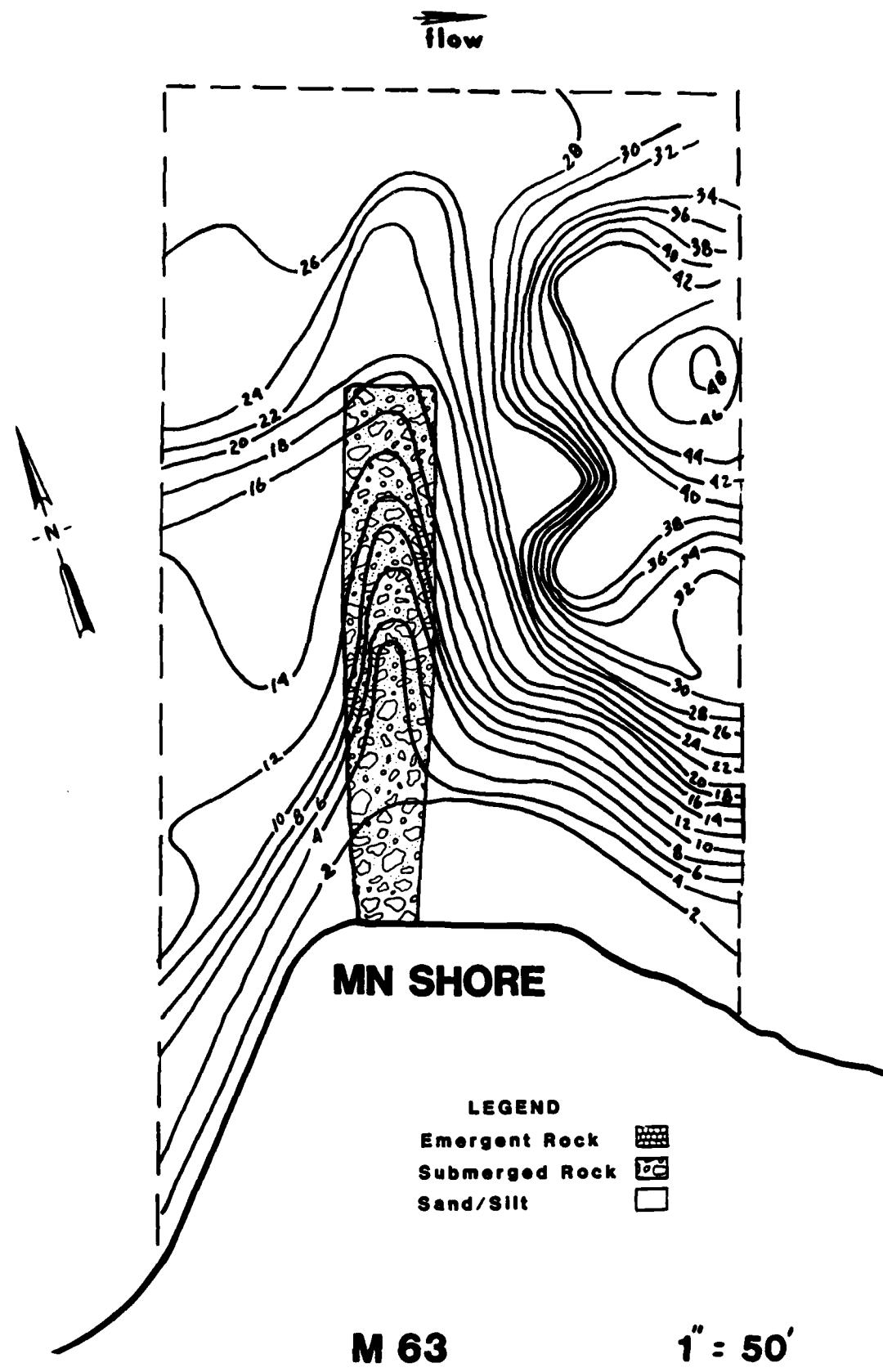


Figure D-60 General Bathymetric and Substrate Map of Wing Dam M63

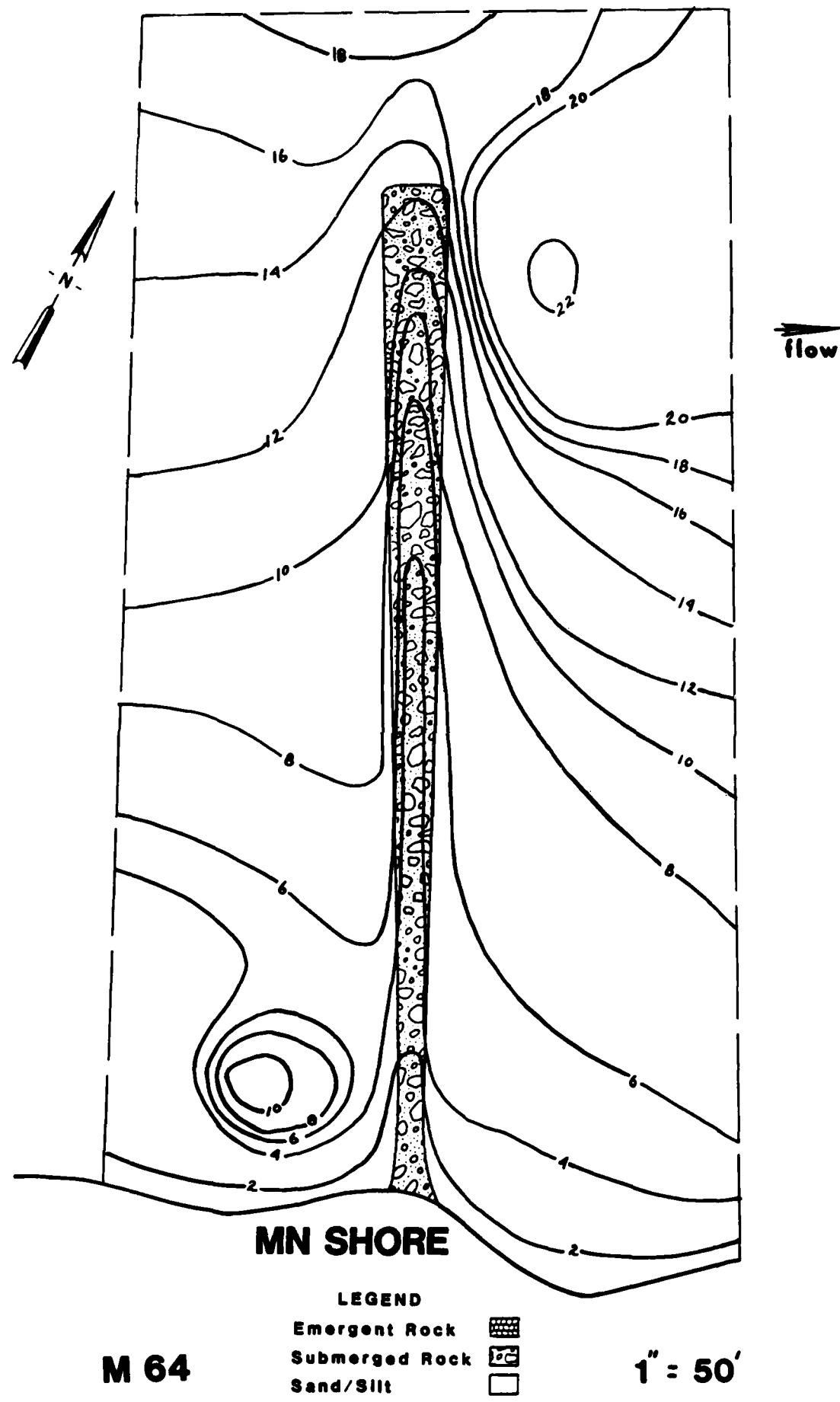


Figure D-61 General Bathymetric and Substrate Map of Wing Dam M64

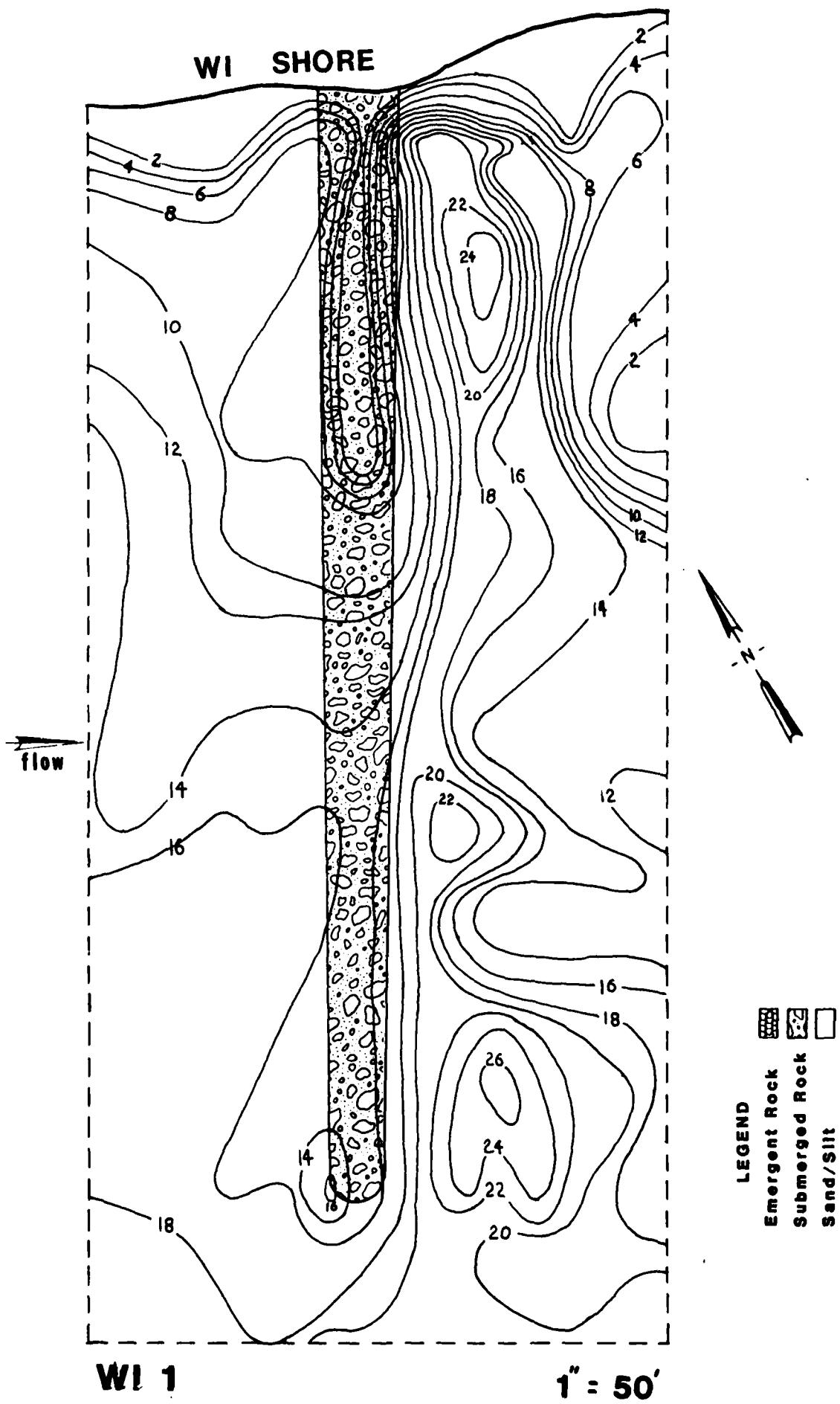
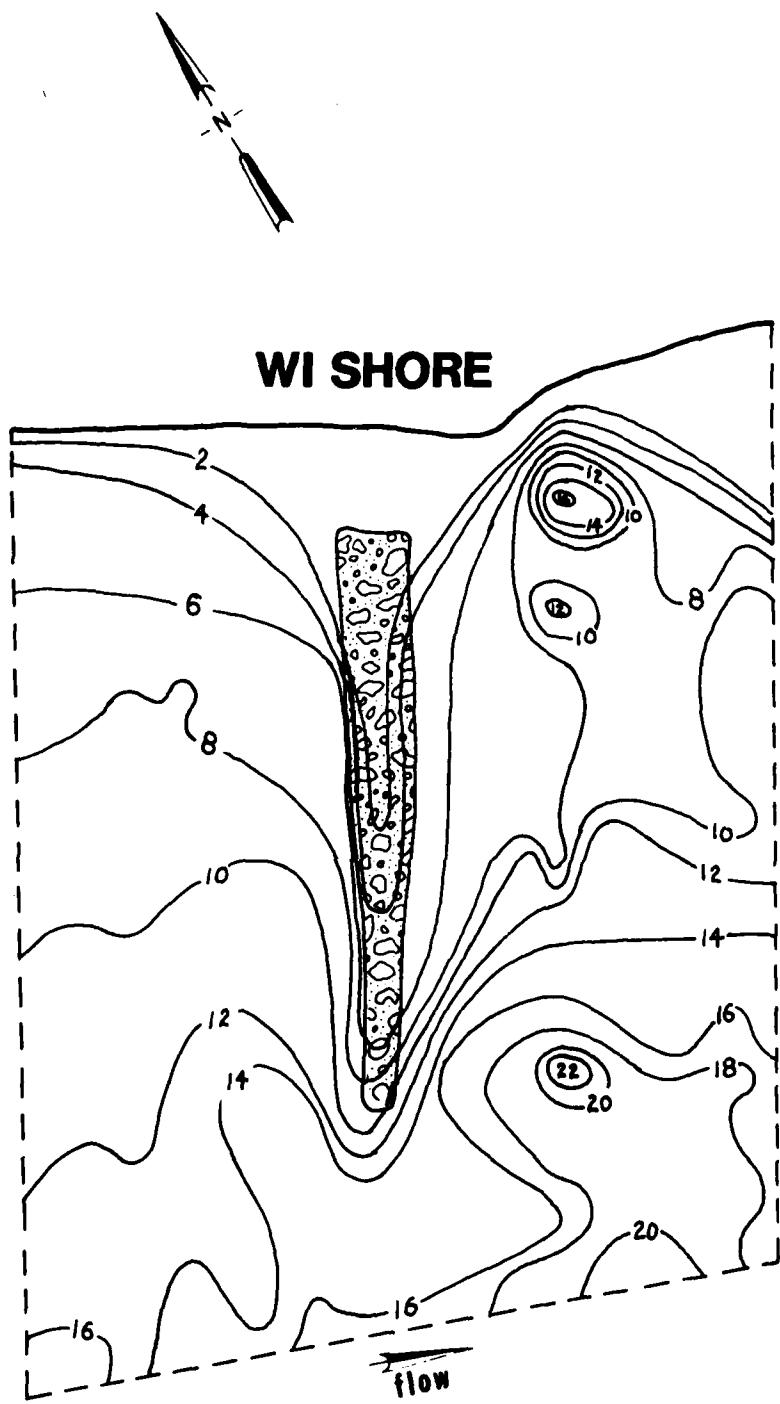


Figure D-62 General Bathymetric and Substrate Map of Wing Dam WI1



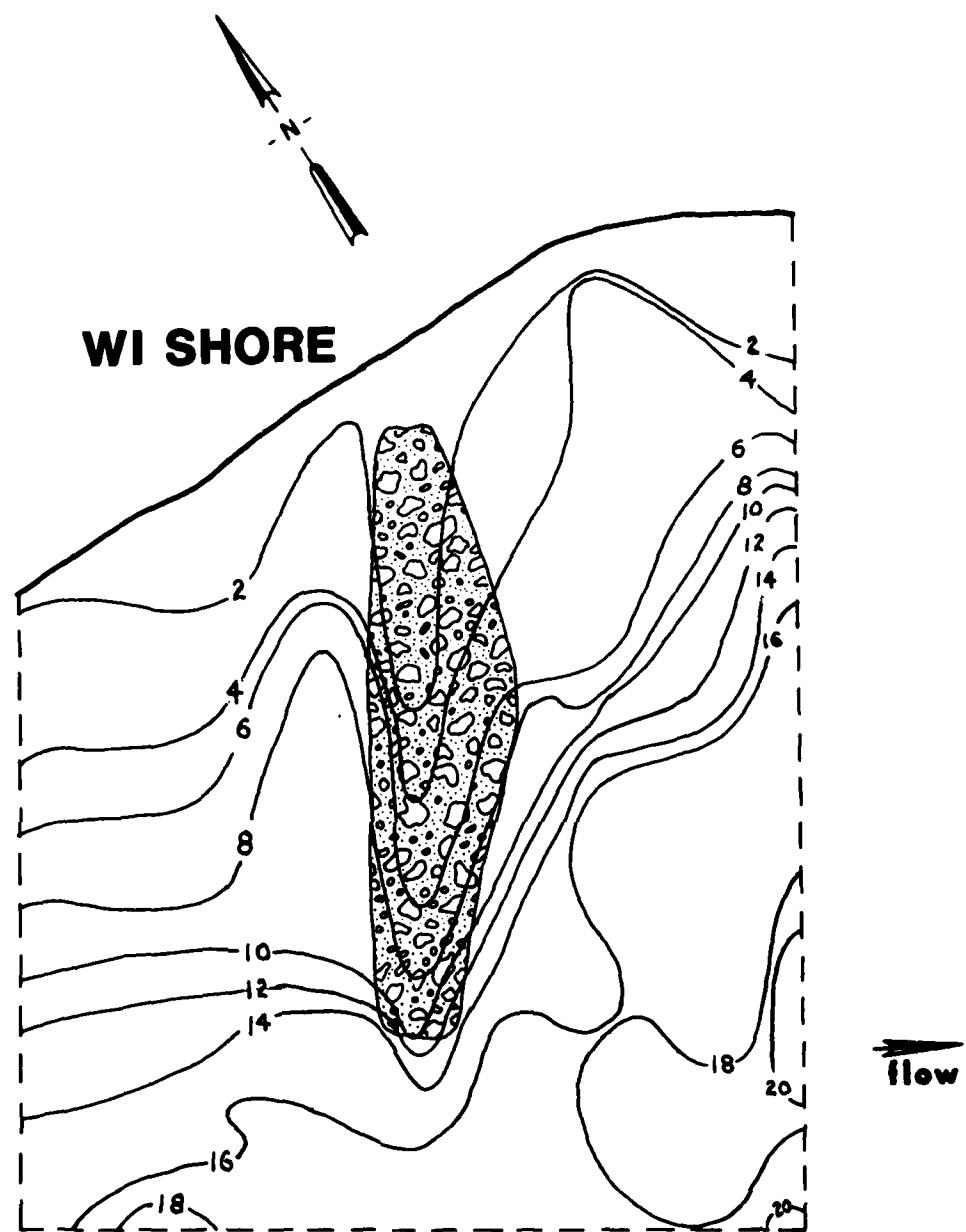
WI 2

LEGEND

1" = 50'

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-63 General Bathymetric and Substrate Map of Wing Dam WI2



WI 3

1" = 50'

LEGEND

Emergent Rock



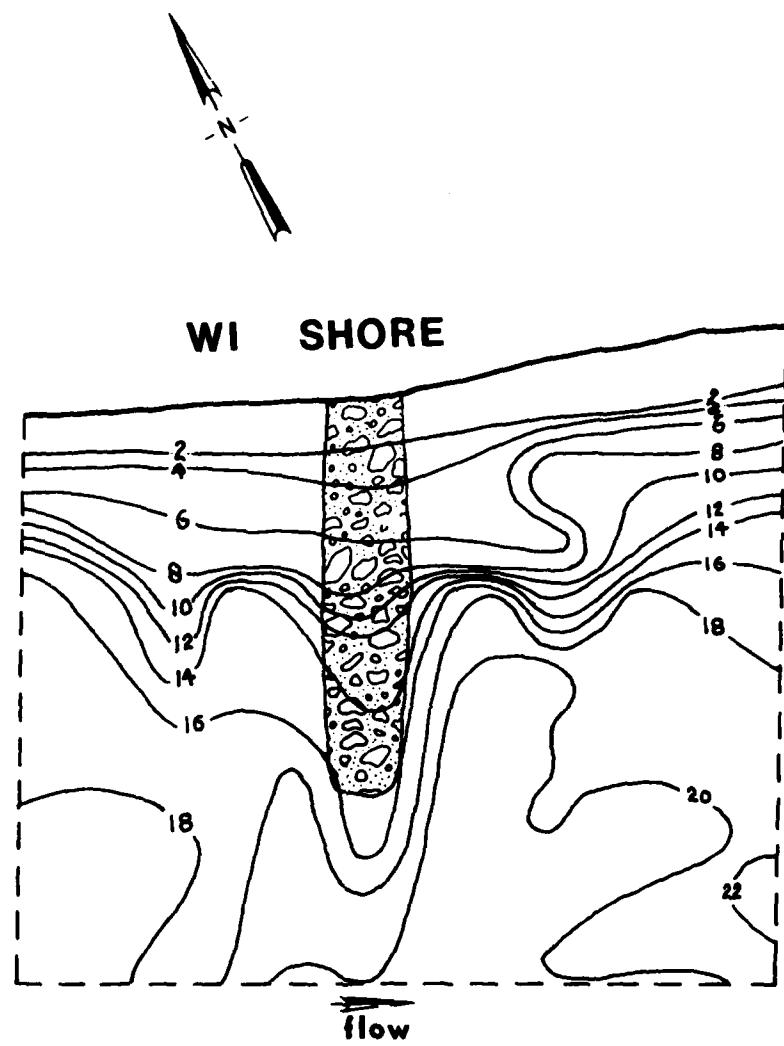
Submerged Rock



Sand/Silt



Figure D-64 General Bathymetric and Substrate Map of Wing Dam WI3

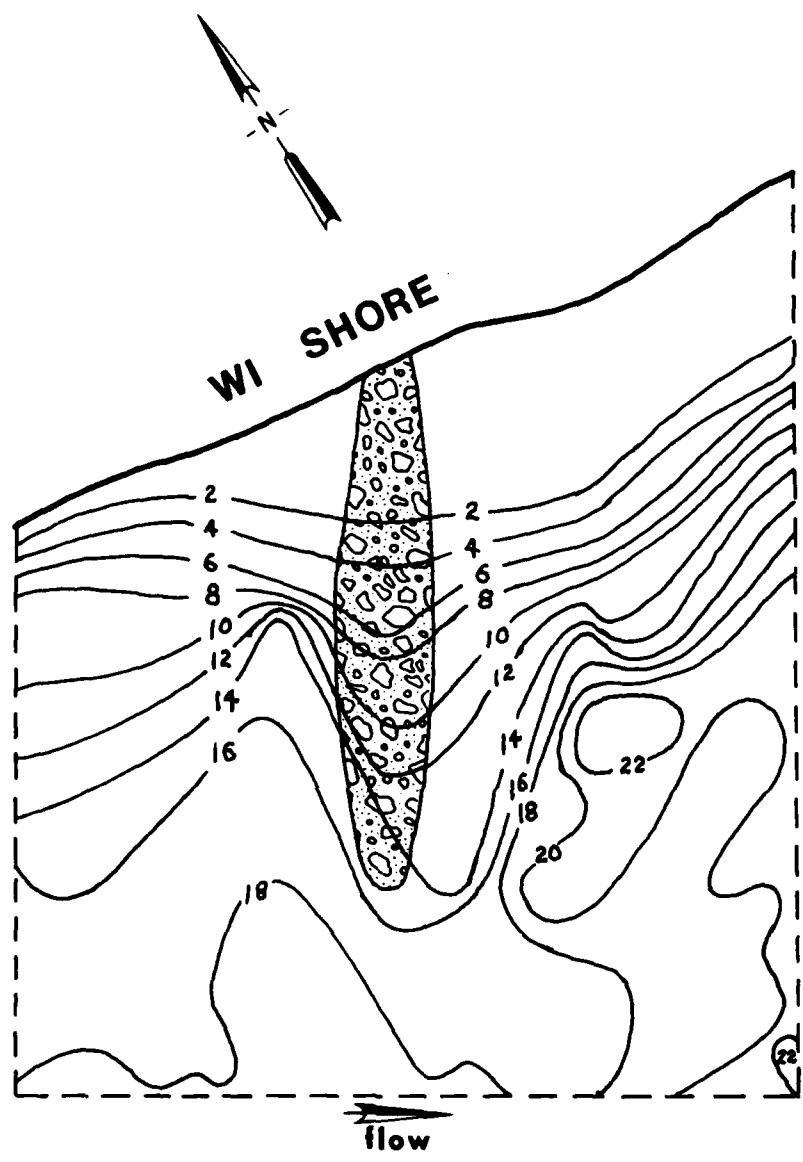


WI 4

1" = 50'

LEGEND	
Emergent Rock	[grid pattern]
Submerged Rock	[cross-hatch]
Sand/Silt	[empty square]

Figure D-65 General Bathymetric and Substrate Map of Wing Dam WI4



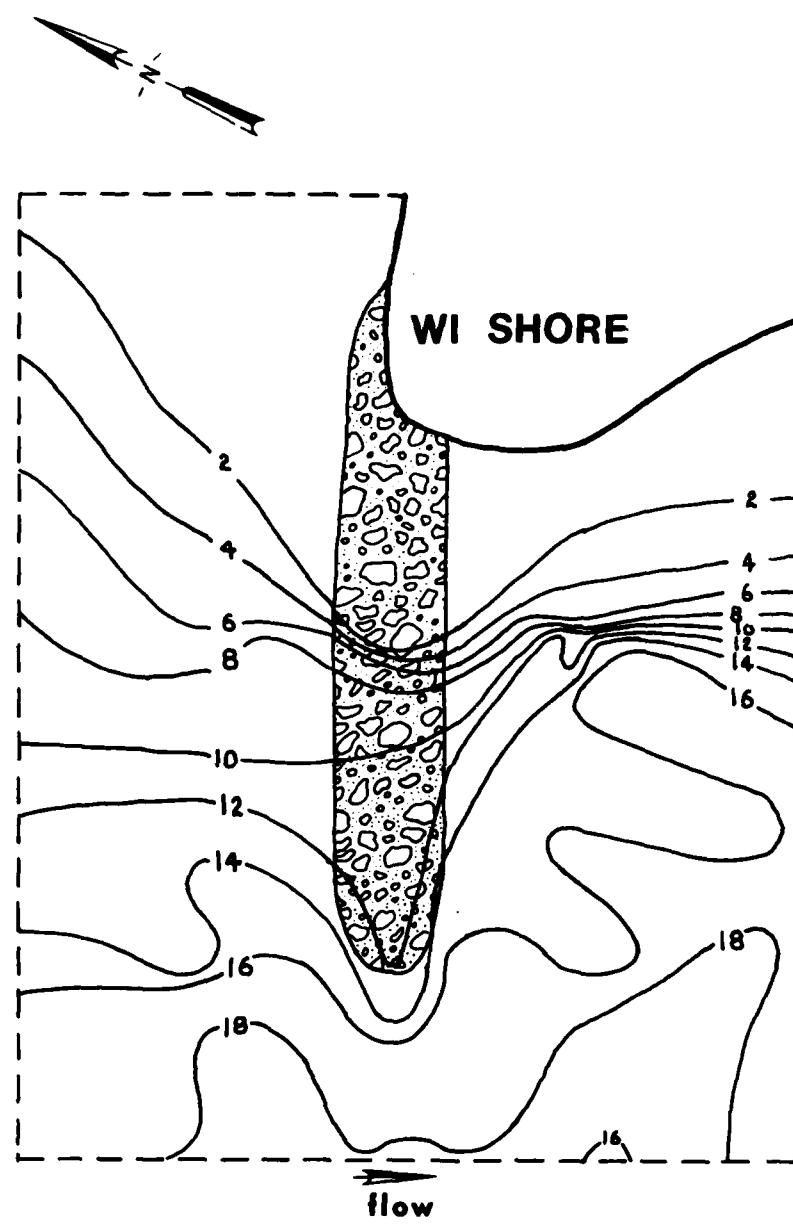
WI 5.

LEGEND

1" = 50'

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D- 66 General Bathymetric and Substrate Map of Wing Dam WI5

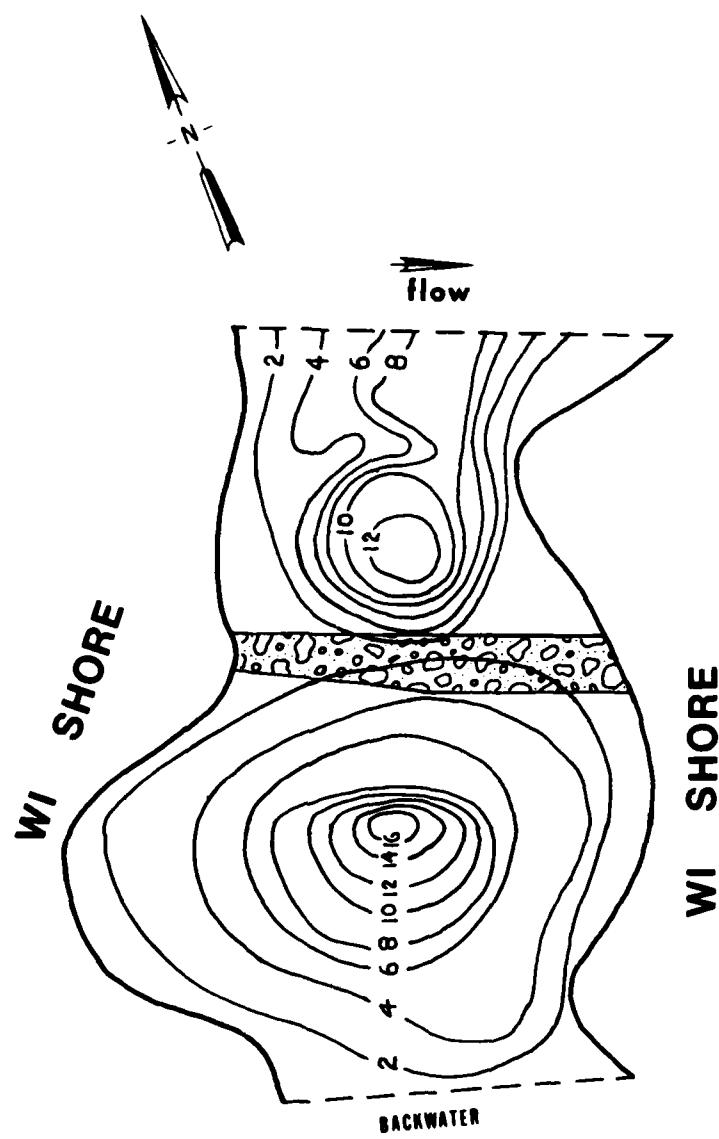


WI 6



1" = 50'

Figure D- 67 General Bathymetric and Substrate Map of Wing Dam WI6



WI 7

1" = 50'

LEGEND

- Emergent Rock**
- Submerged Rock**
- Sand/Silt**

Figure D-68 General Bathymetric and Substrate Map of Closing Dam WI7

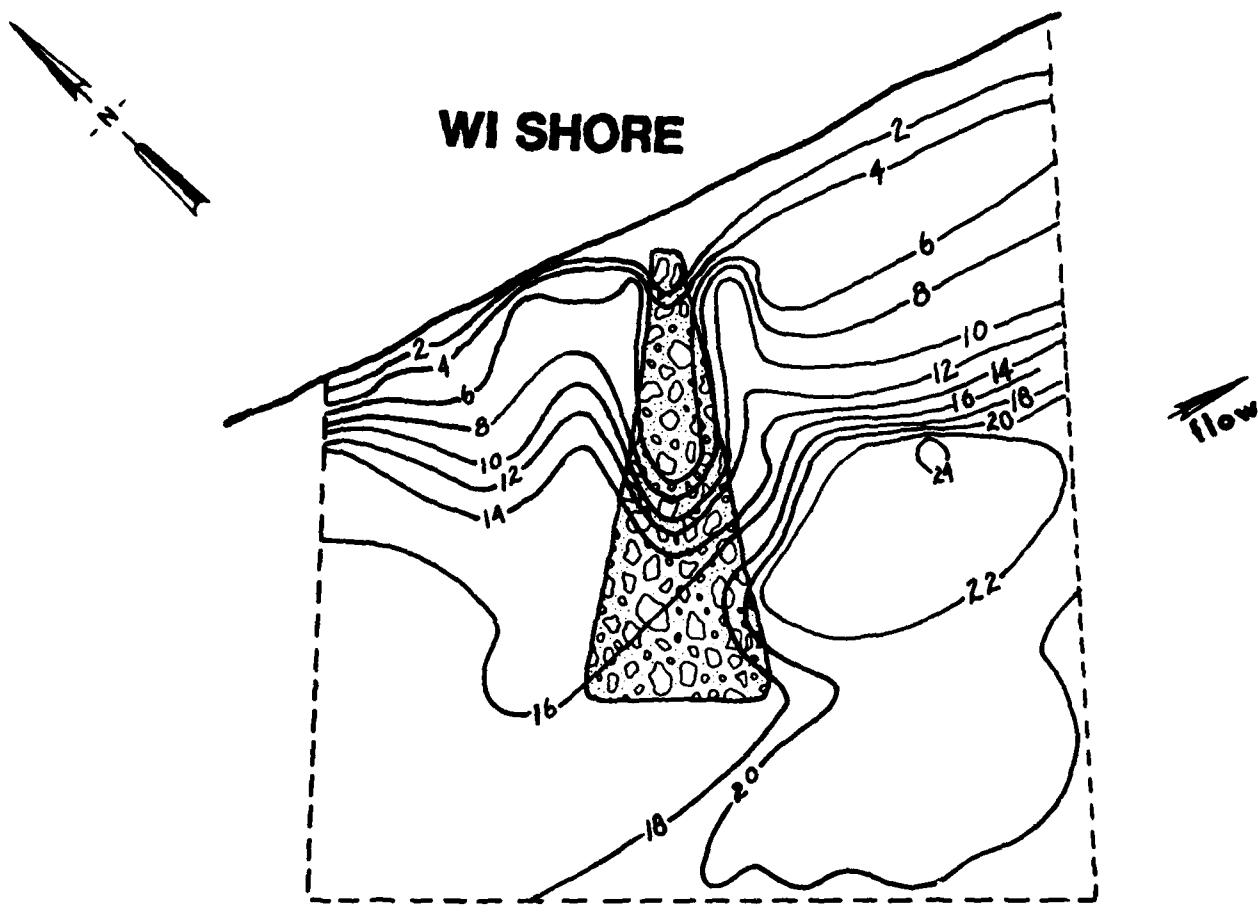
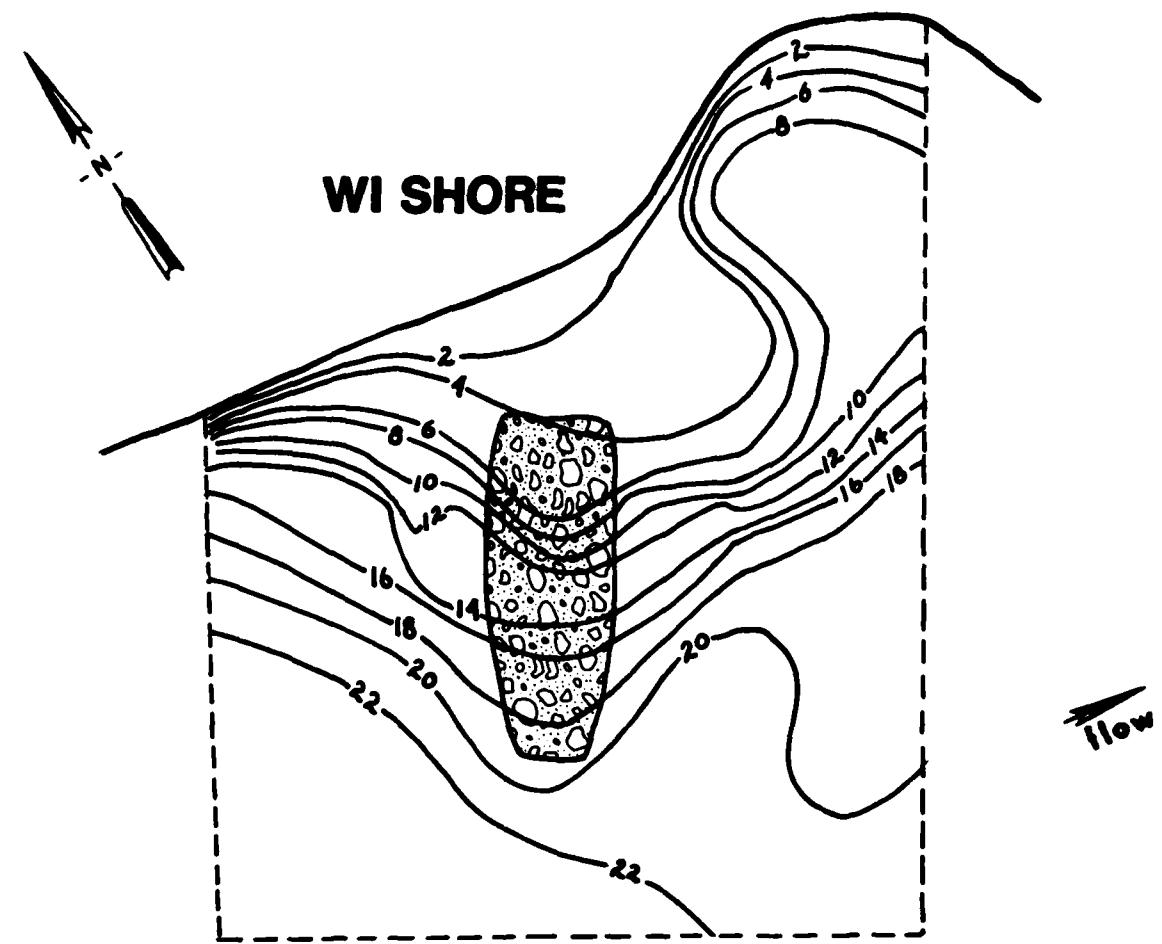


Figure D-69 General Bathymetric and Substrate Map of Wing Dam WI8



WI 10

1" = 50'

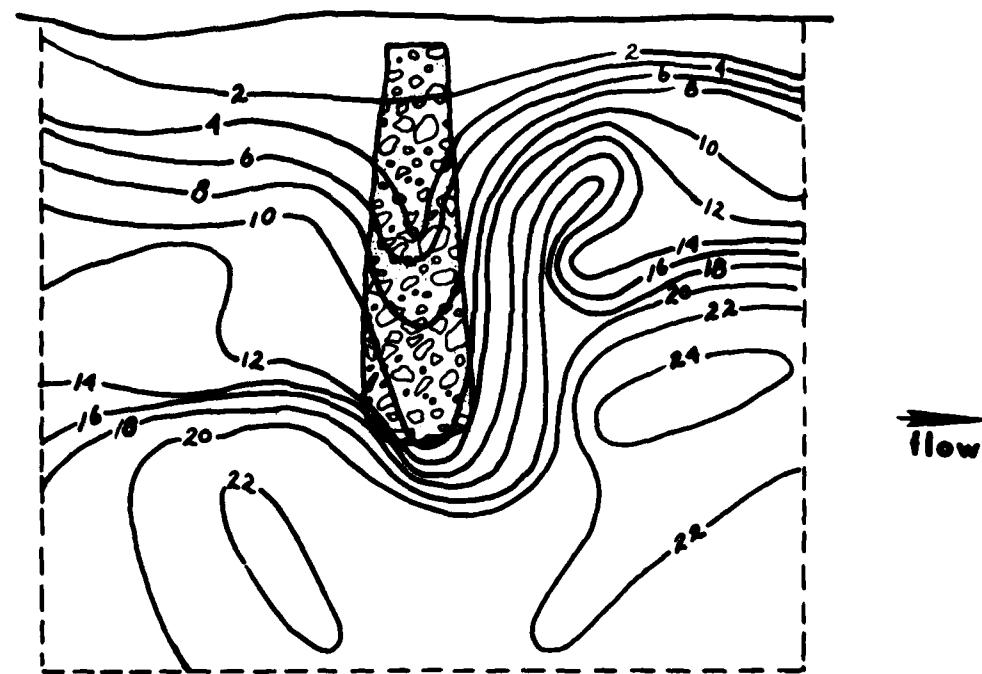
LEGEND

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-70 General Bathymetric and Substrate Map of Wing Dam WI10



WI SHORE



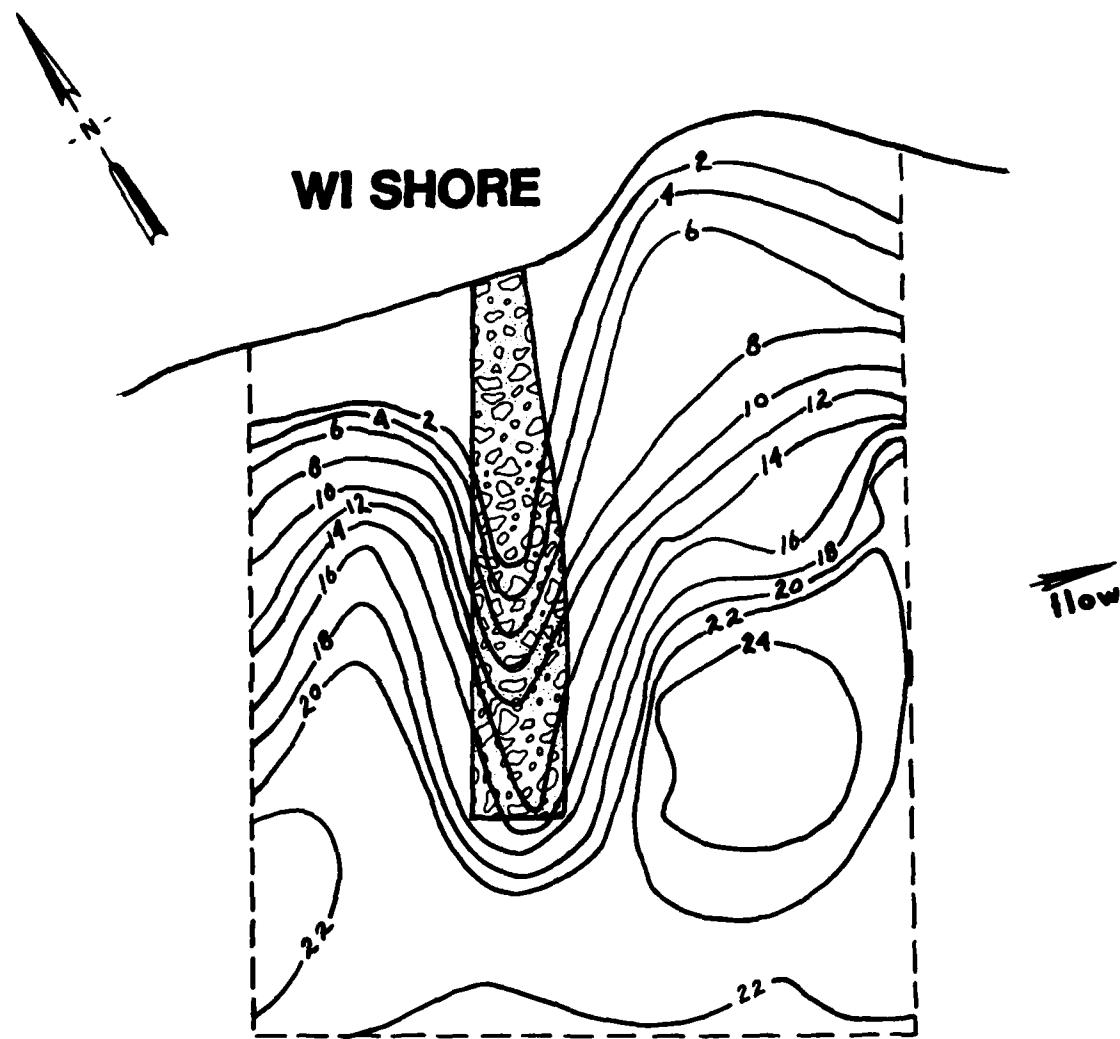
WI 11

LEGEND

- Emergent Rock
 - Submerged Rock
 - Sand/Silt
- | | | |
|--------------------|----------------|-------------|
| [Stippled Pattern] | [Rock Pattern] | [White Box] |
|--------------------|----------------|-------------|

1" = 50'

Figure D-71 General Bathymetric and Substrate Map of Wing Dam WI11



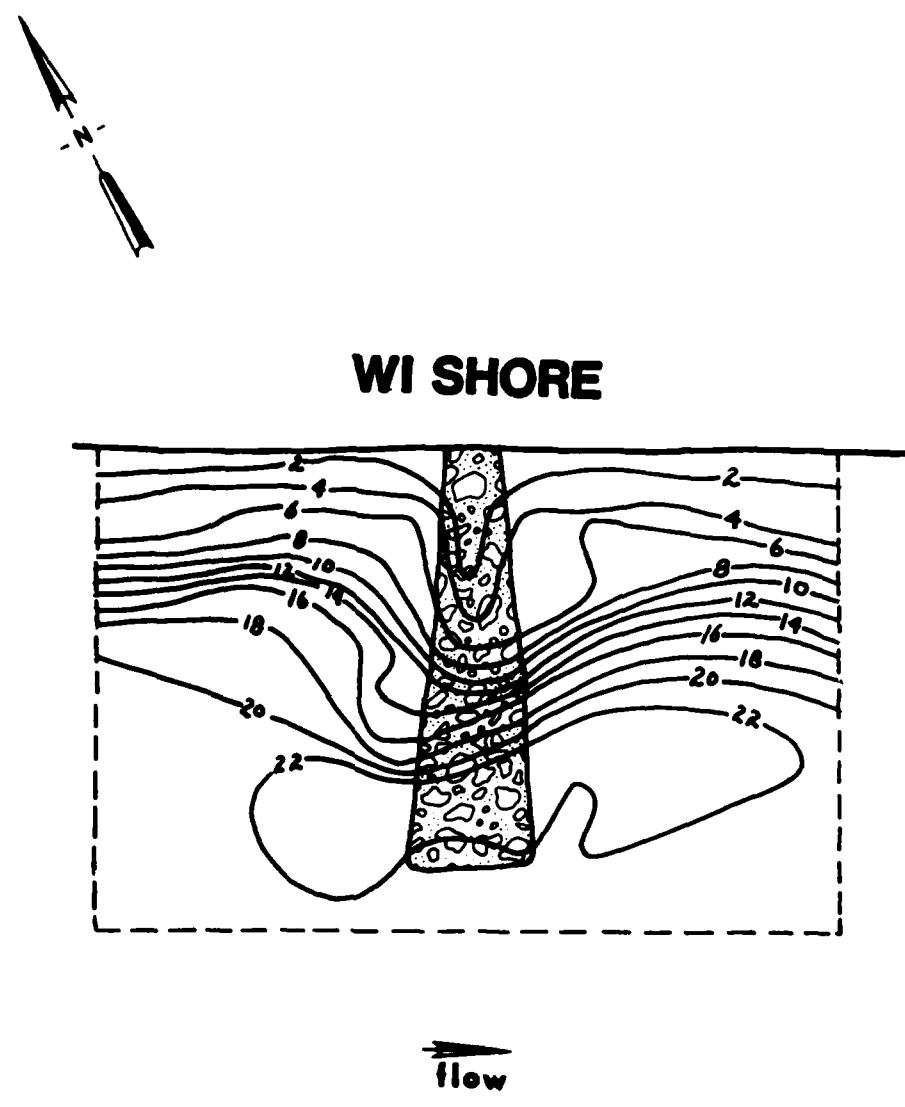
WI 12

1" = 50'

LEGEND

- | | |
|-----------------------|----------------|
| Emergent Rock | [Stippled Box] |
| Submerged Rock | [Hatched Box] |
| Sand/Silt | [Empty Box] |

Figure D-72 General Bathymetric and Substrate Map of Wing Dam WI12

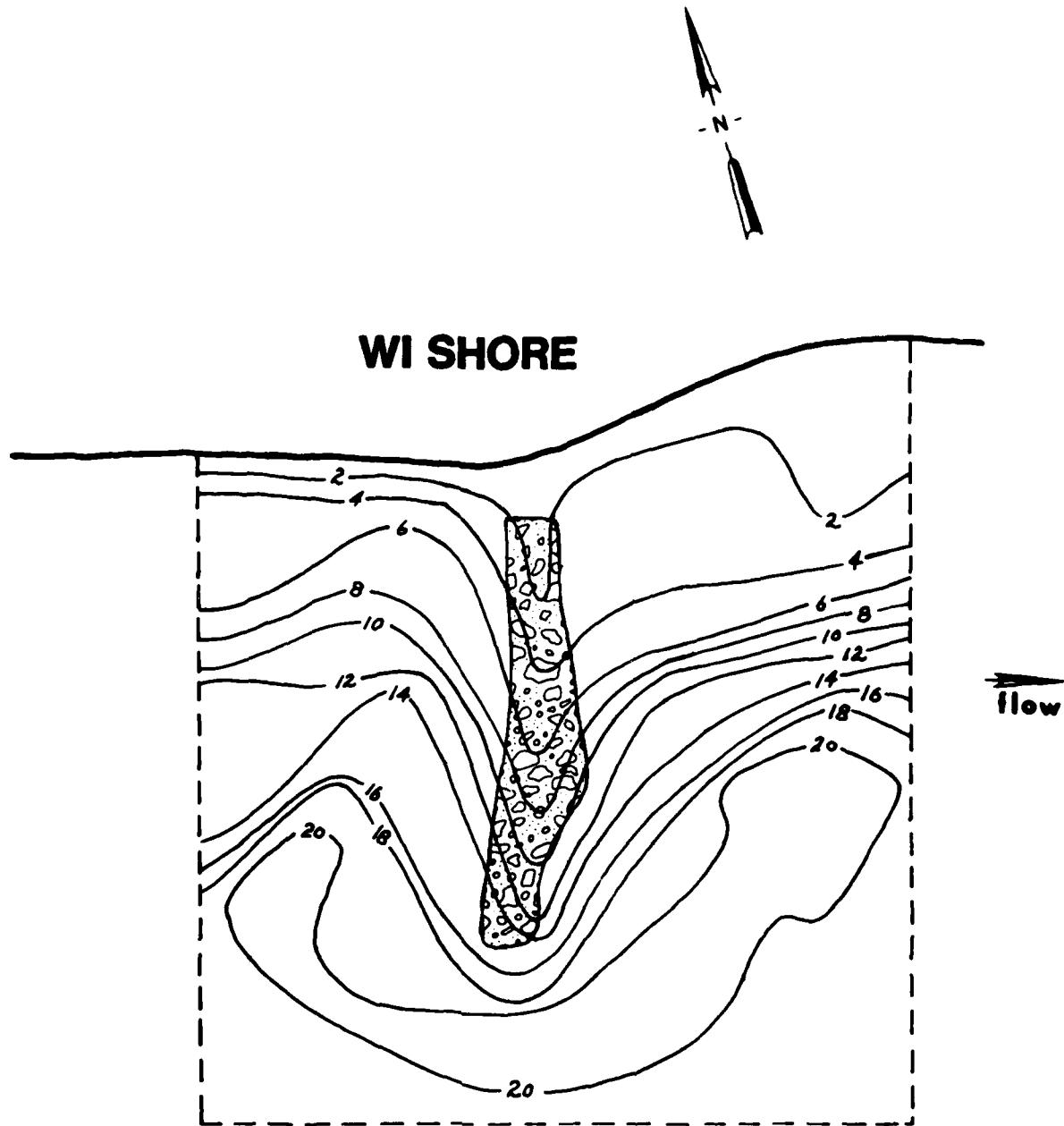


WI 13

1" = 50'

LEGEND	
Emergent Rock	[Stippled Pattern]
Submerged Rock	[Cross-hatch Pattern]
Sand/Silt	[White Box]

Figure D-75 General Bathymetric and Substrate Map of Wing Dam WI13

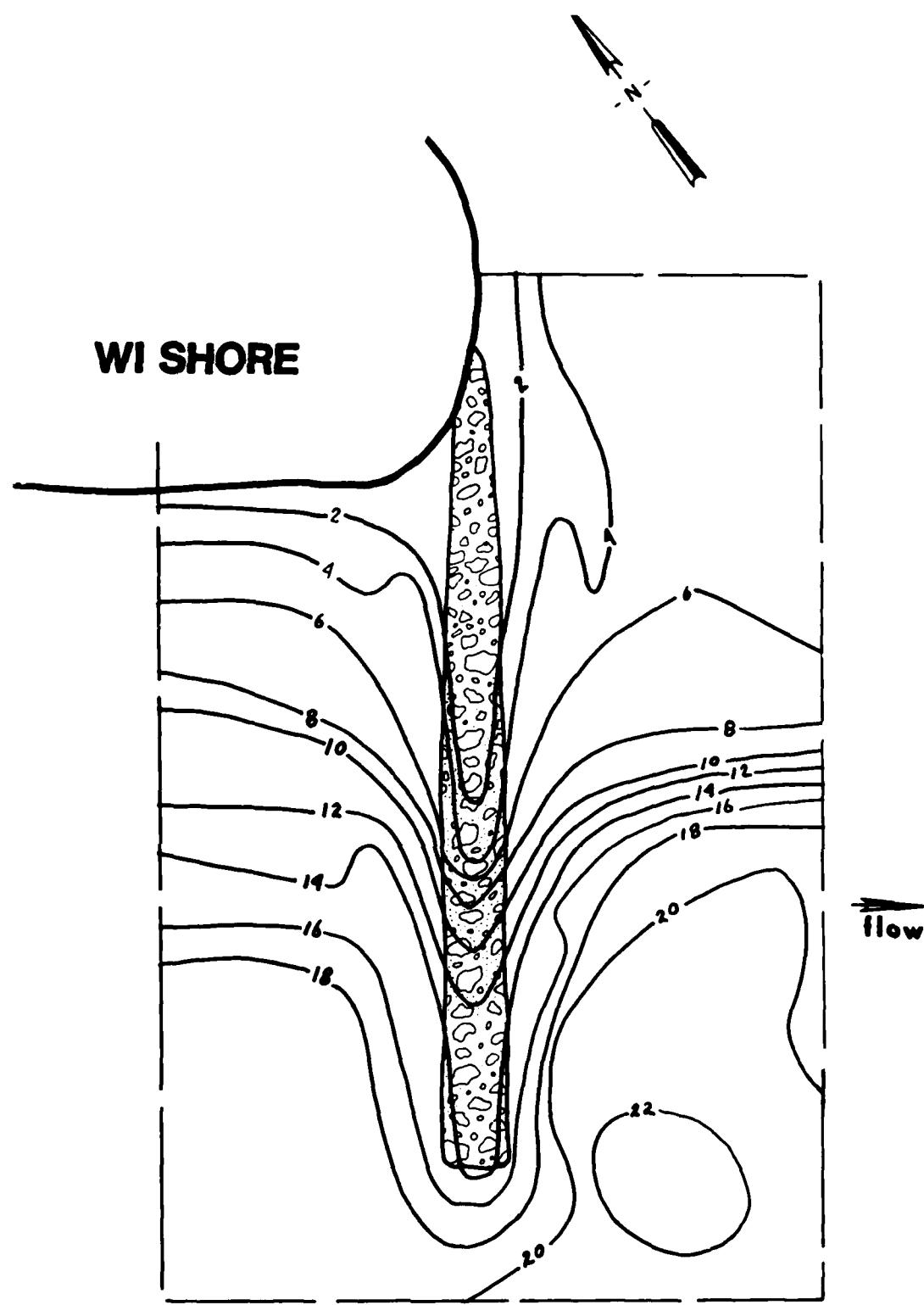


WI 14

1" = 50'

LEGEND	
Emergent Rock	[Cross-hatched square]
Submerged Rock	[Hatched square]
Sand/Silt	[Empty square]

Figure D-74 General Bathymetric and Substrate Map of Wing Dam WI14



WI 15

LEGEND	
Emergent Rock	[Dotted Pattern]
Submerged Rock	[Cross-hatch Pattern]
Sand/Silt	[Solid White]

1" = 50'

Figure D-75 General Bathymetric and Substrate Map of Wing Dam WI15

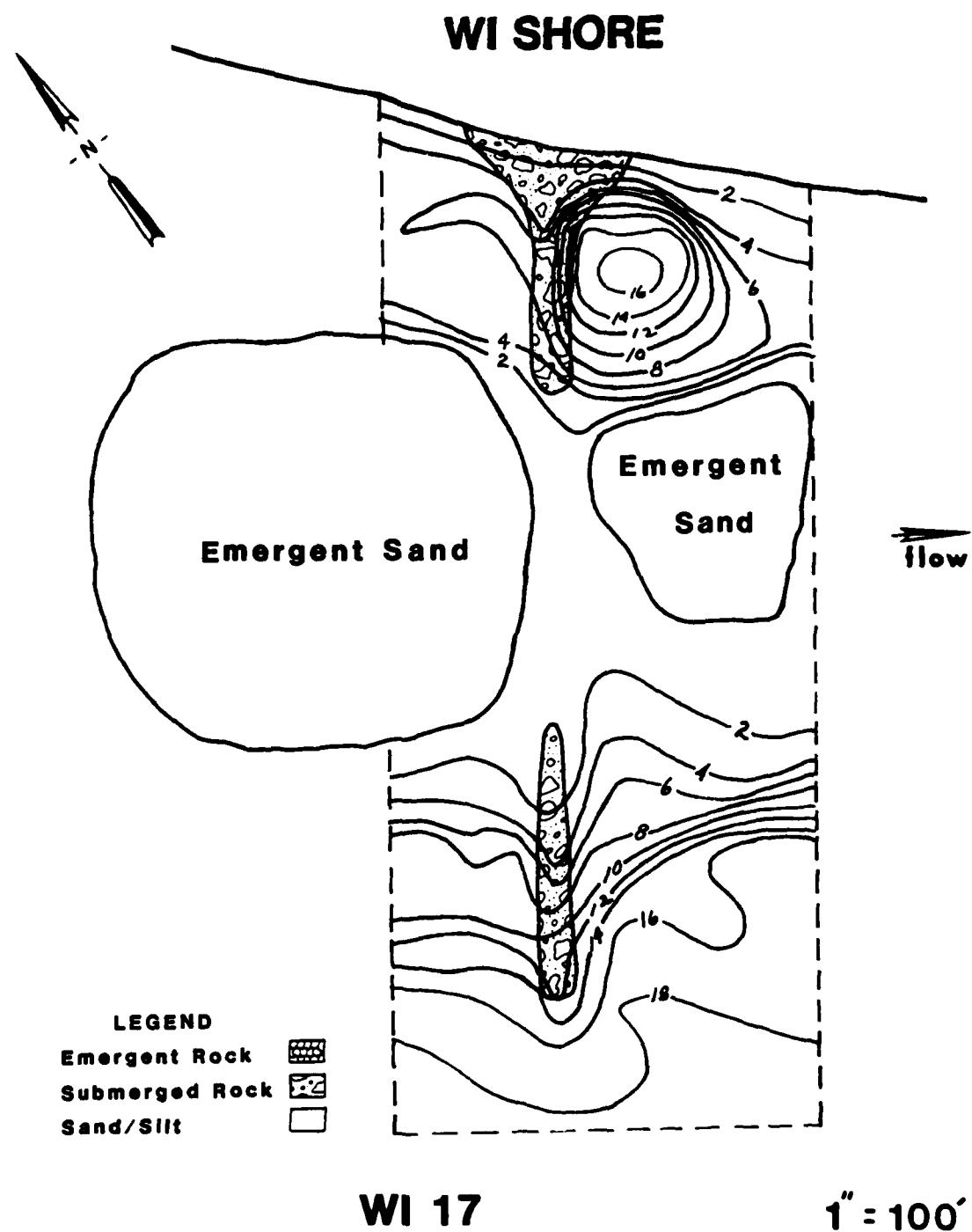
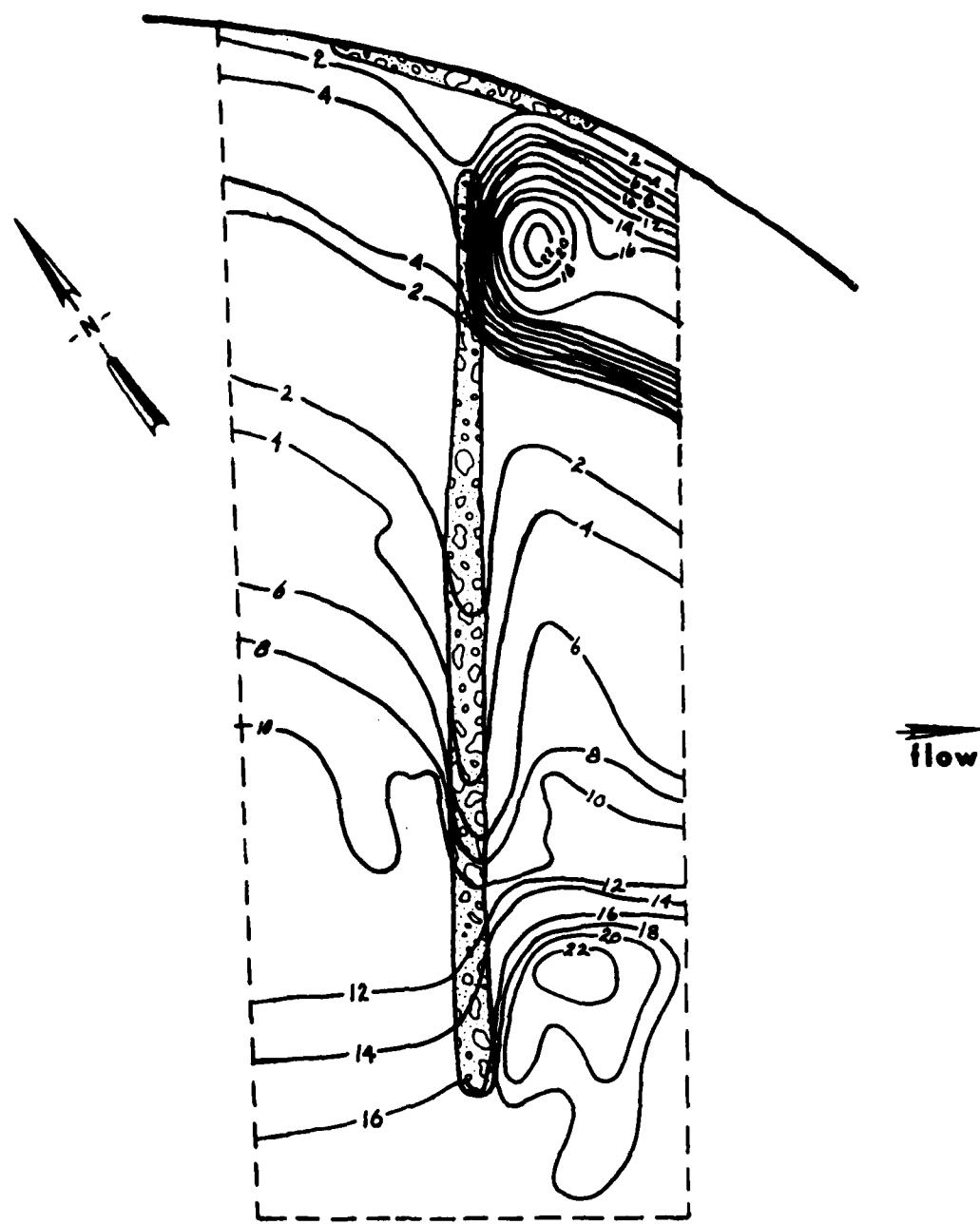


Figure D-76 General Bathymetric and Substrate Map of Wing Dam WI17

WI SHORE



WI 18

1" = 100'

LEGEND

- Emergent Rock
 - Submerged Rock
 - Sand/Silt
- ■ ■
- □ □

Figure D-77 General Bathymetric and Substrate Map of Wing Dam WI18

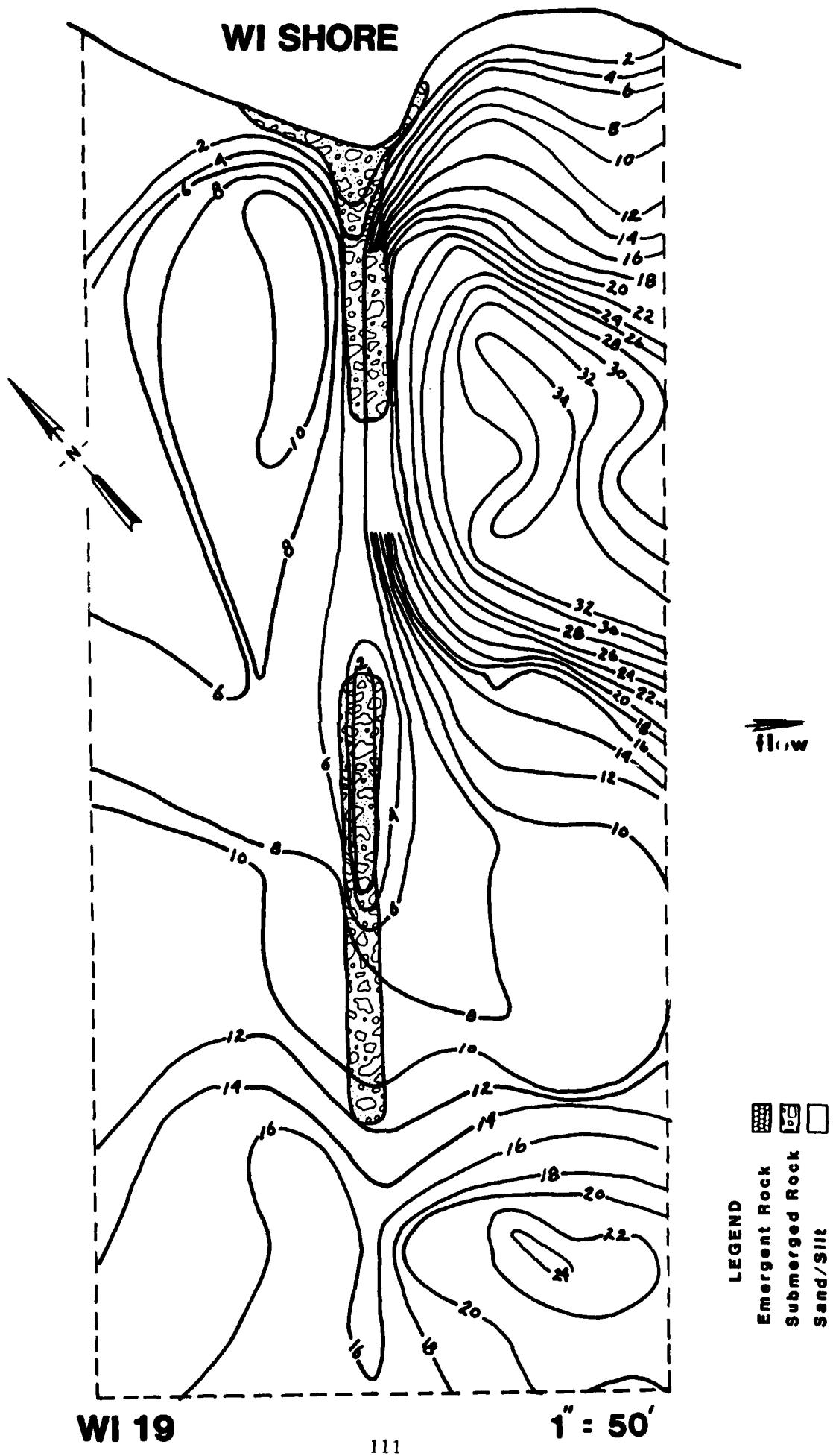
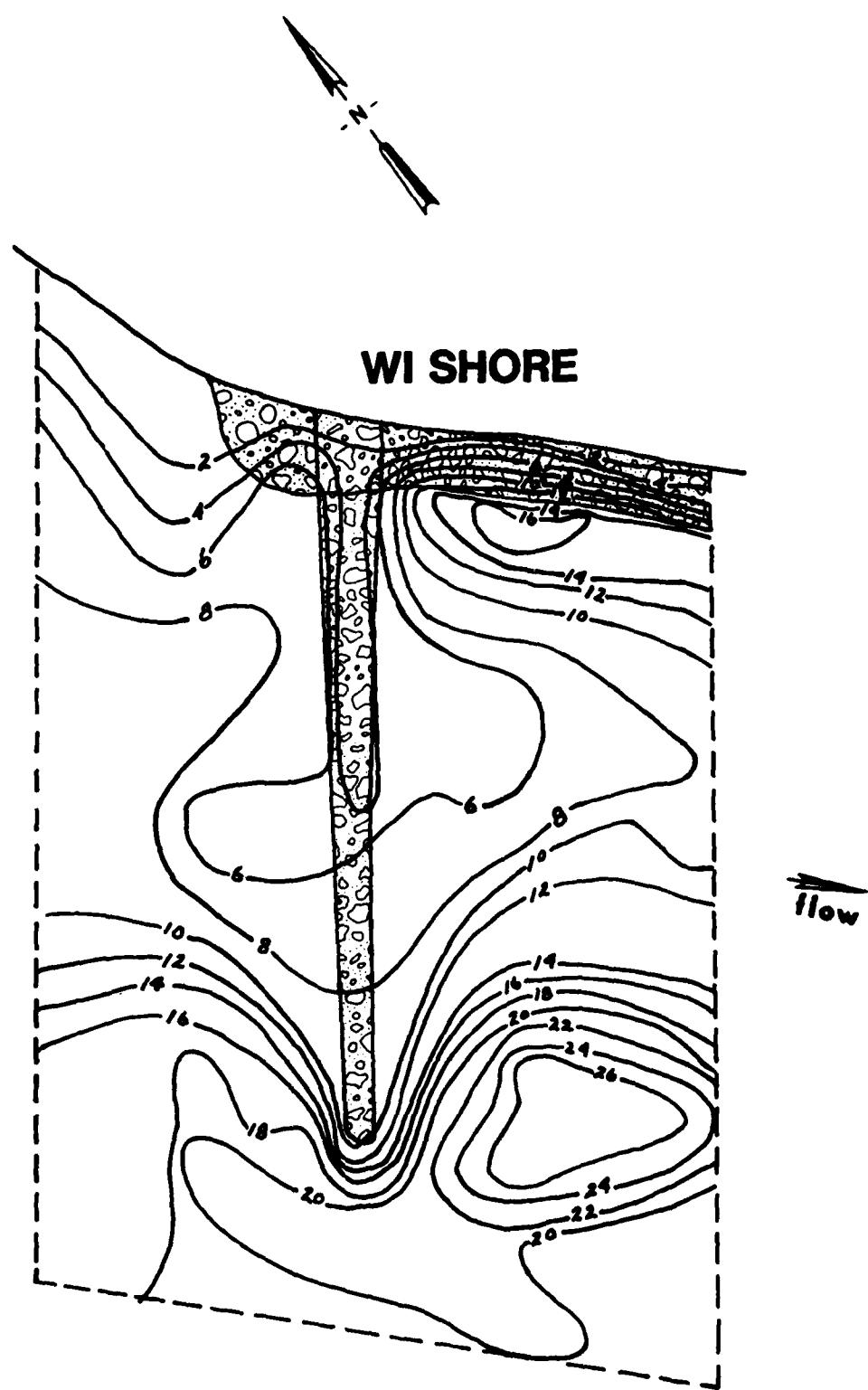


Figure D-78 General Bathymetric and Substrate Map of Wing Dam WI19



WI 20

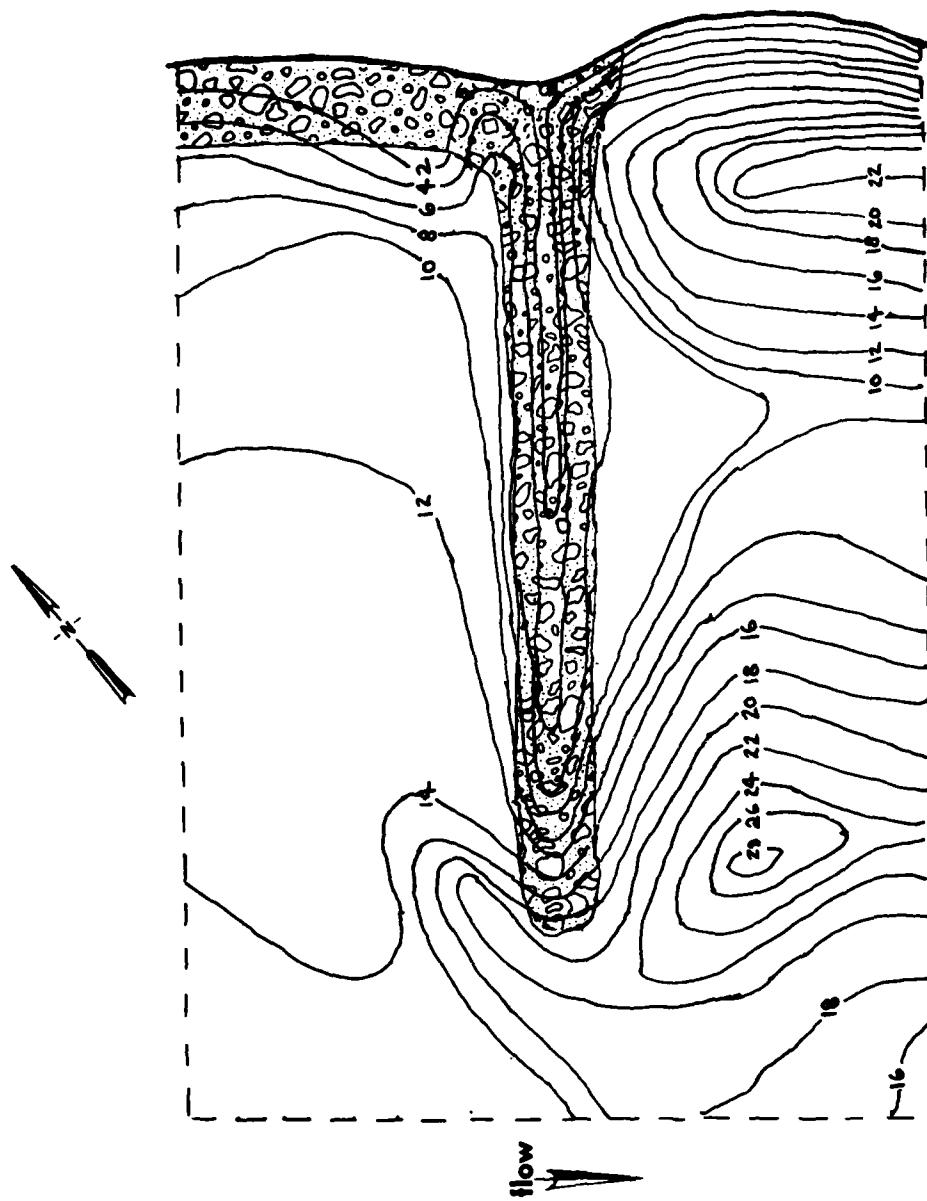
LEGEND

1" = 50'

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-79 General Bathymetric and Substrate Map of Wing Dam WI20

WI SHORE



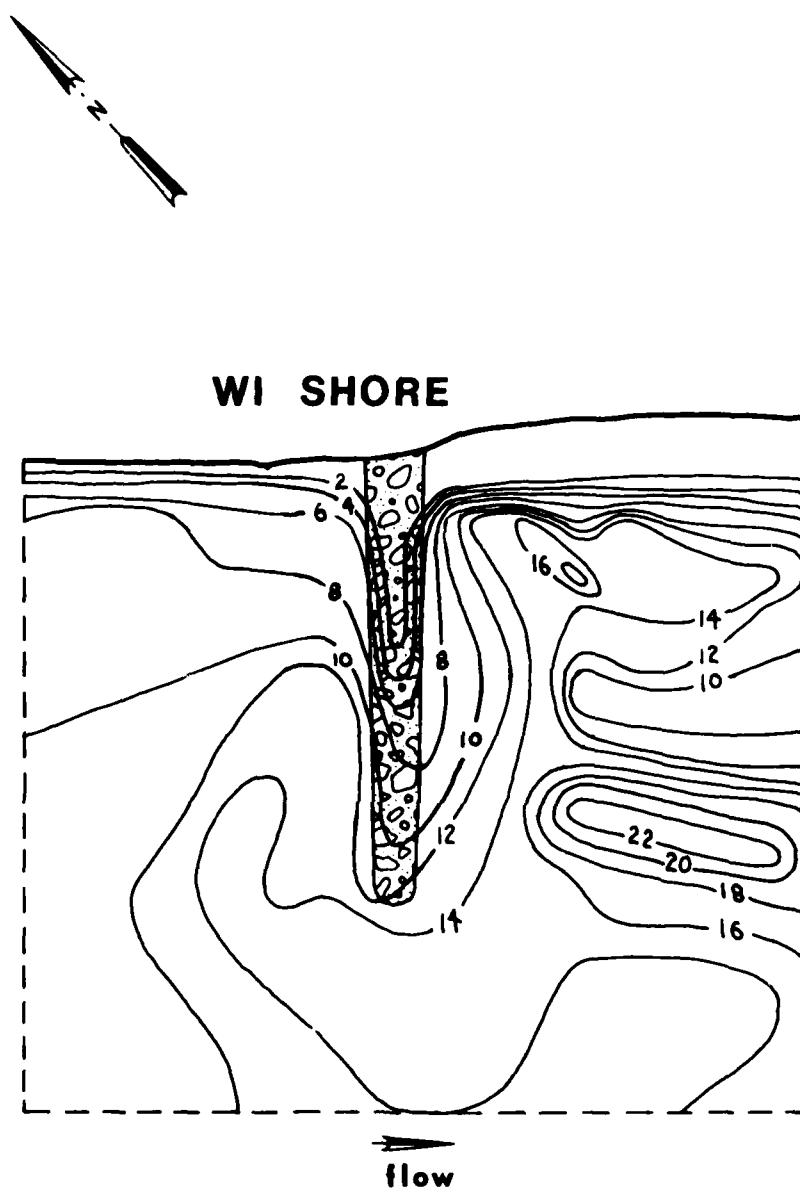
WI 22

LEGEND

Emergent Rock	[Hatched square]
Submerged Rock	[Cross-hatched square]
Sand/Silt	[Empty square]

1" = 50'

Figure D-80 General Bathymetric and Substrate Map of Wing Dam WI22



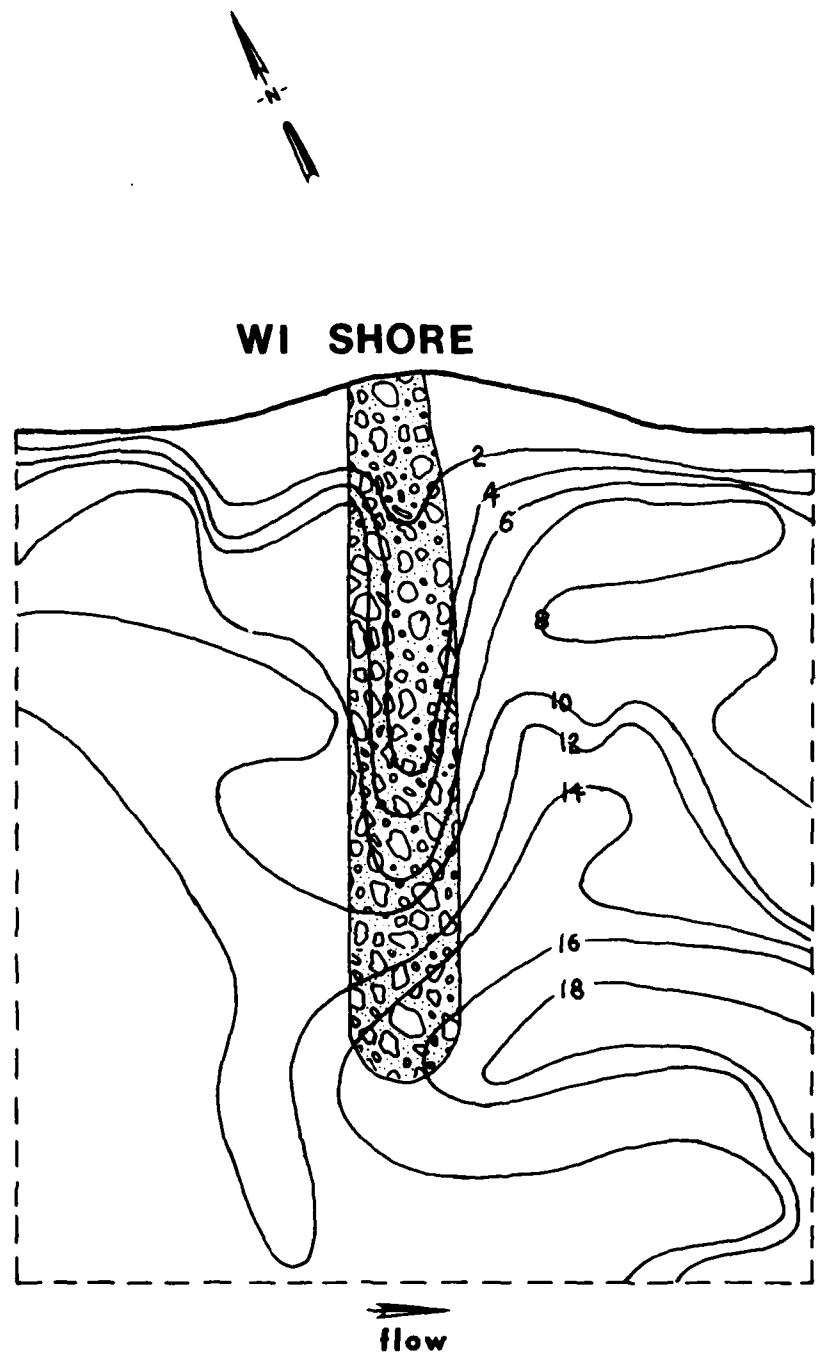
WI 23

1" = 50'

LEGEND

Emergent Rock	[Rock icon]
Submerged Rock	[Rock icon]
Sand/Silt	[Empty box icon]

Figure D-81 General Bathymetric and Substrate Map of Wing Dam WI23



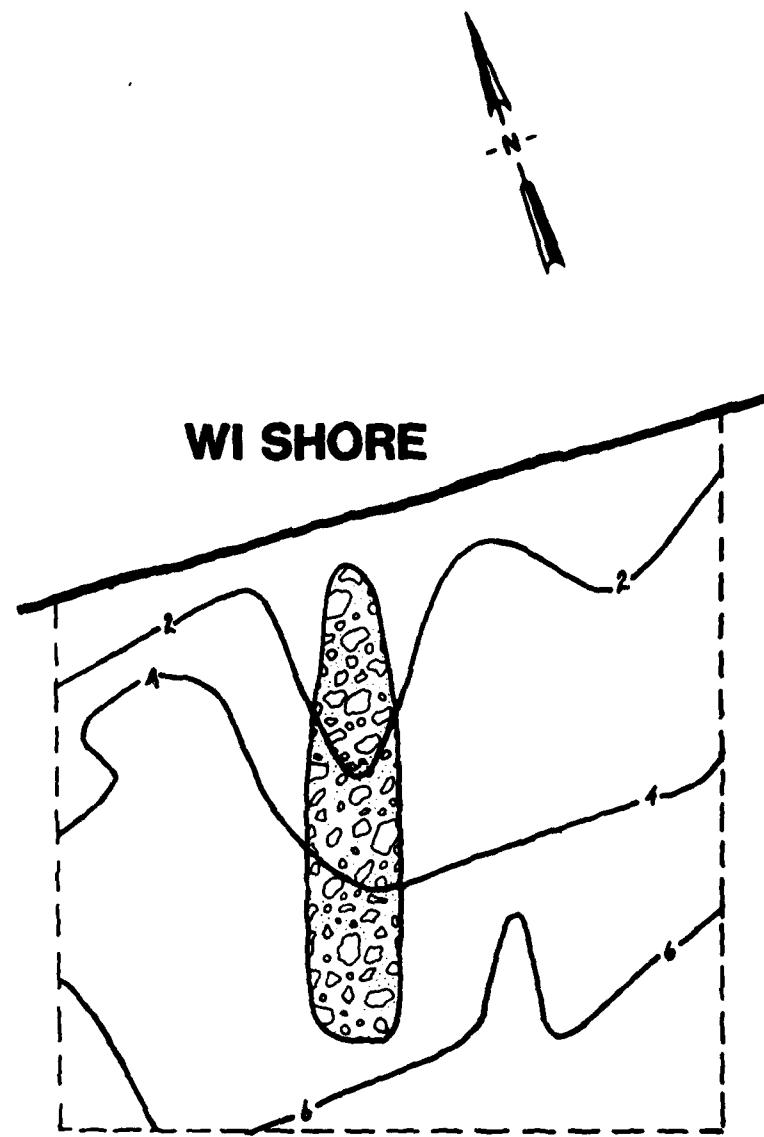
WI 25

LEGEND

1" = 50'

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-82 General Bathymetric and Substrate Map of Wing Dam WI25

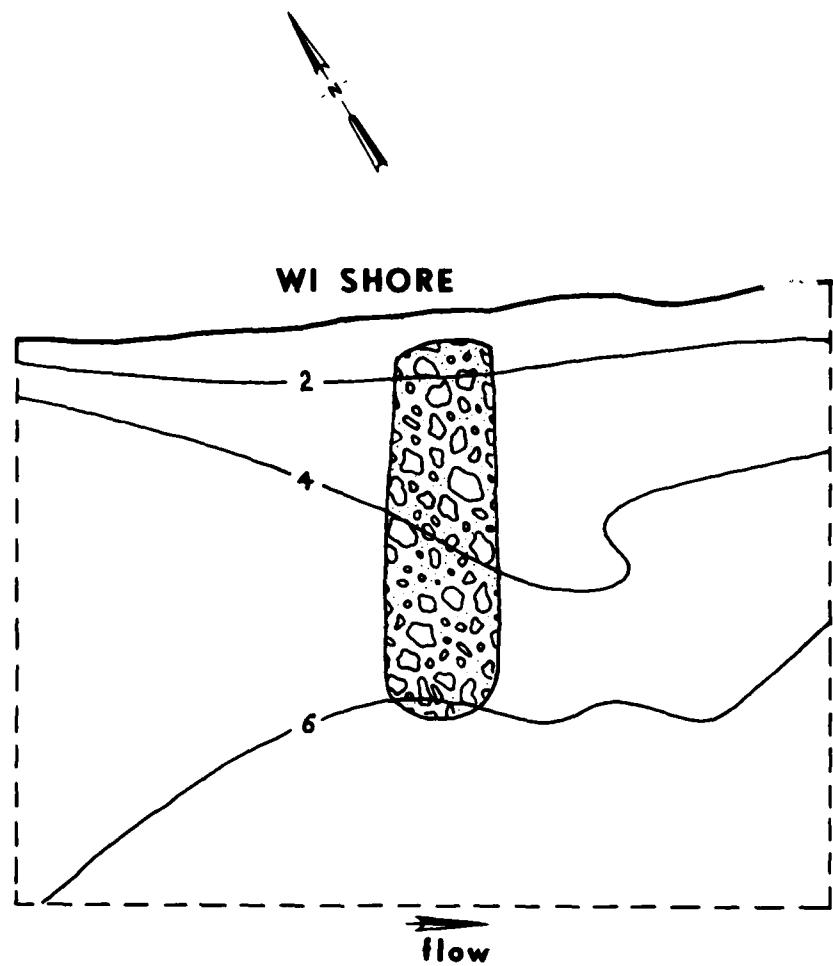


WI 26

1" = 50'

LEGEND	
Emergent Rock	[Stippled Box]
Submerged Rock	[Box with Holes]
Sand/Silt	[Empty Box]

Figure D-83 General Bathymetric and Substrate Map of Wing Dam WI26



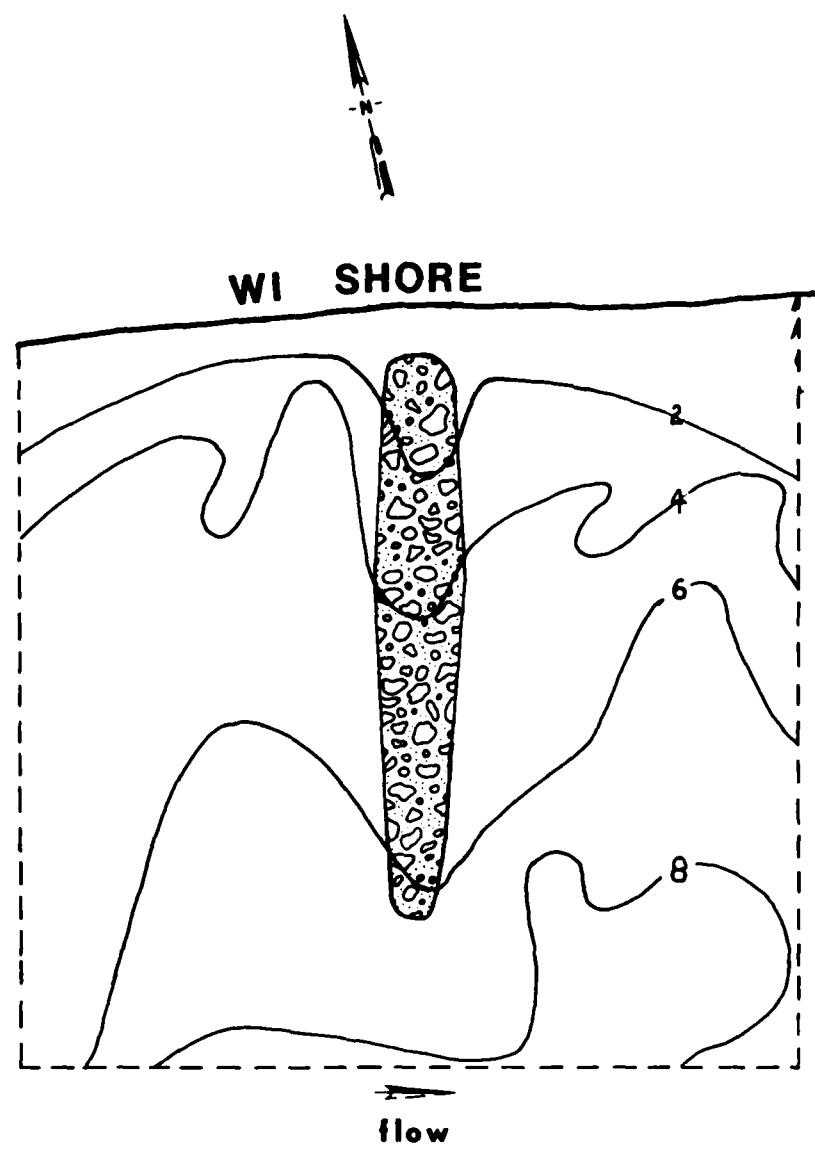
WI 27

LEGEND

Emergent Rock	[Stippled square]
Submerged Rock	[Cross-hatched square]
Sand/Silt	[Empty square]

1" = 50'

Figure D-84 General Bathymetric and Substrate Map of Wing Dam WI27



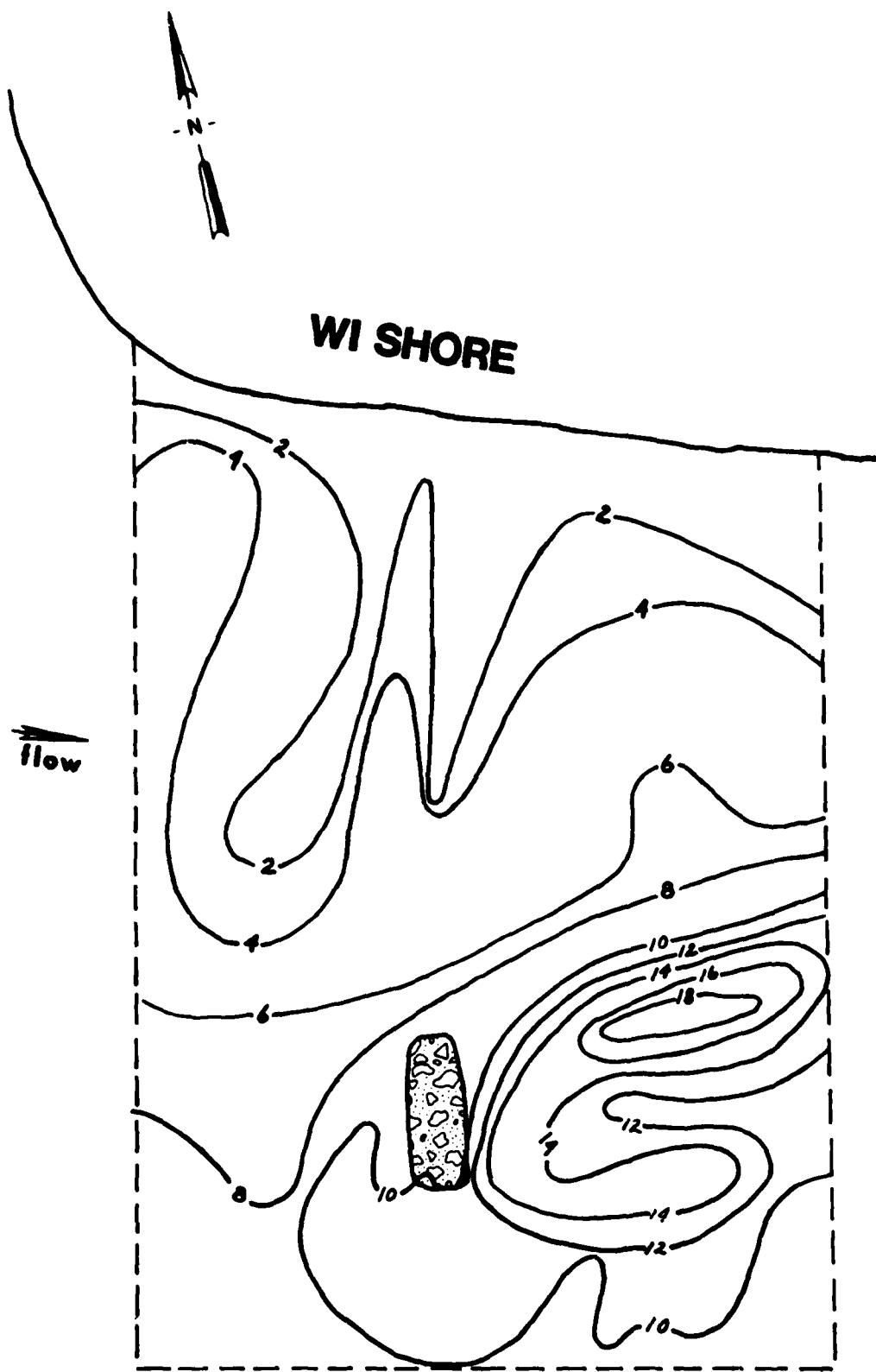
WI 28

LEGEND

1" = 50'

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-85 General Bathymetric and Substrate Map of Wing Dam WI28



WI 29

LEGEND
 Emergent Rock Submerged Rock Sand/Silt

1" = 50'

Figure D-86 General Bathymetric and Substrate Map of Wing Dam WI29

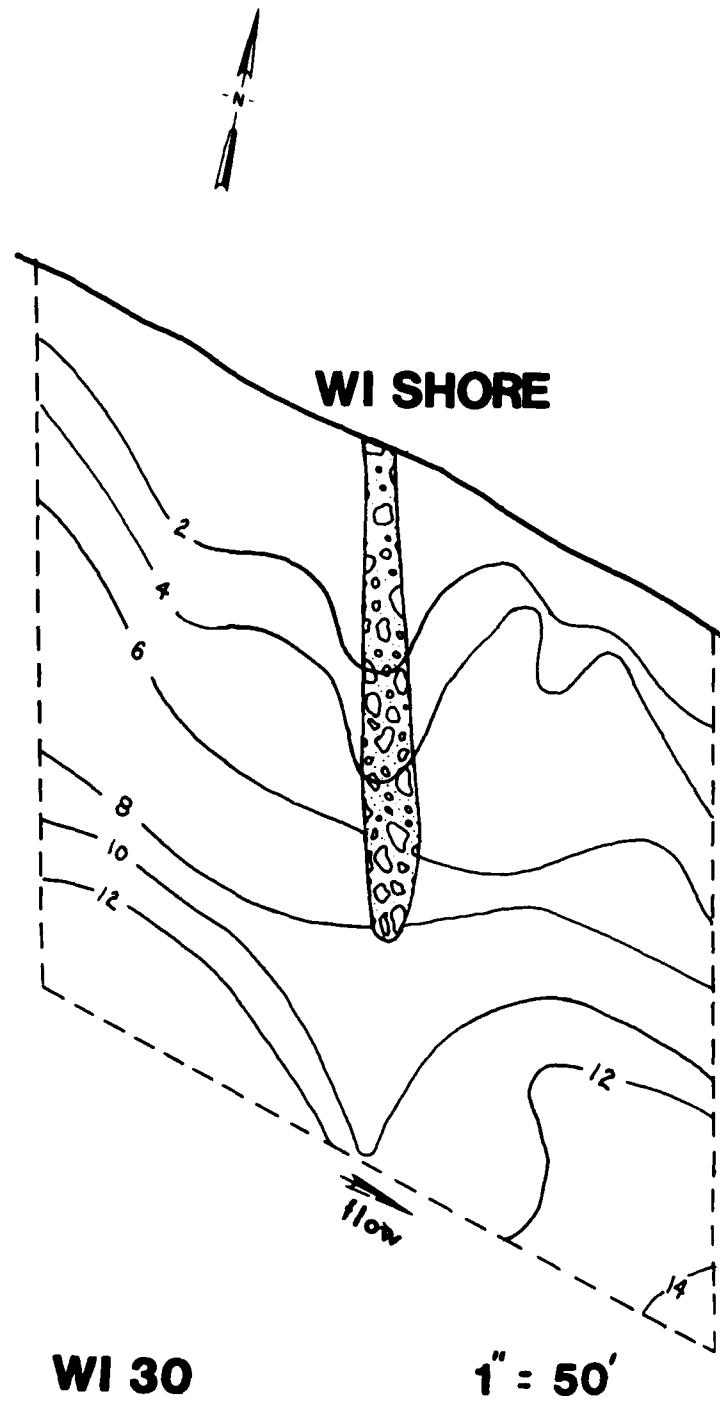
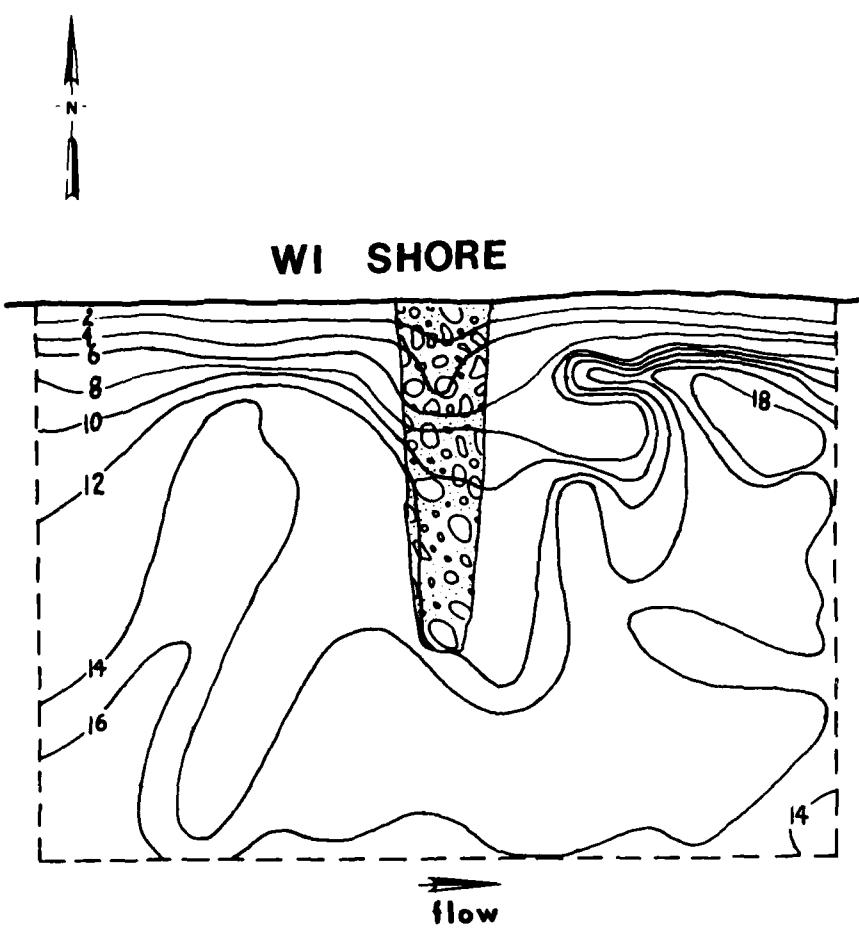


Figure D-87 General Bathymetric and Substrate Map of Wing Dam WI30



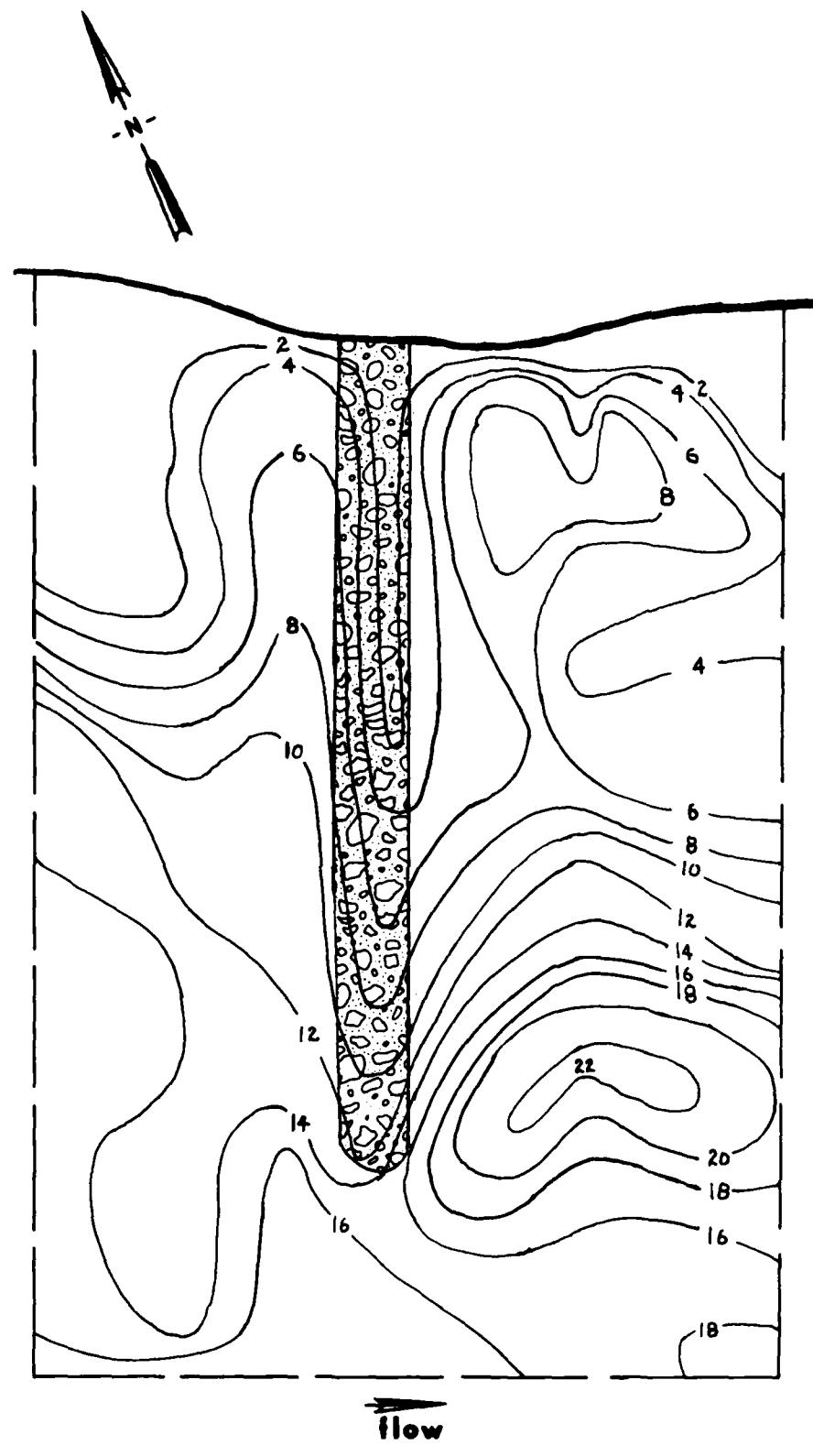
WI 32

1" = 50'

LEGEND

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-88 General Bathymetric and Substrate Map of Wing Dam WI32



WI 33



1" = 50'

Figure D-89 General Bathymetric and Substrate Map of Wing Dam WI33

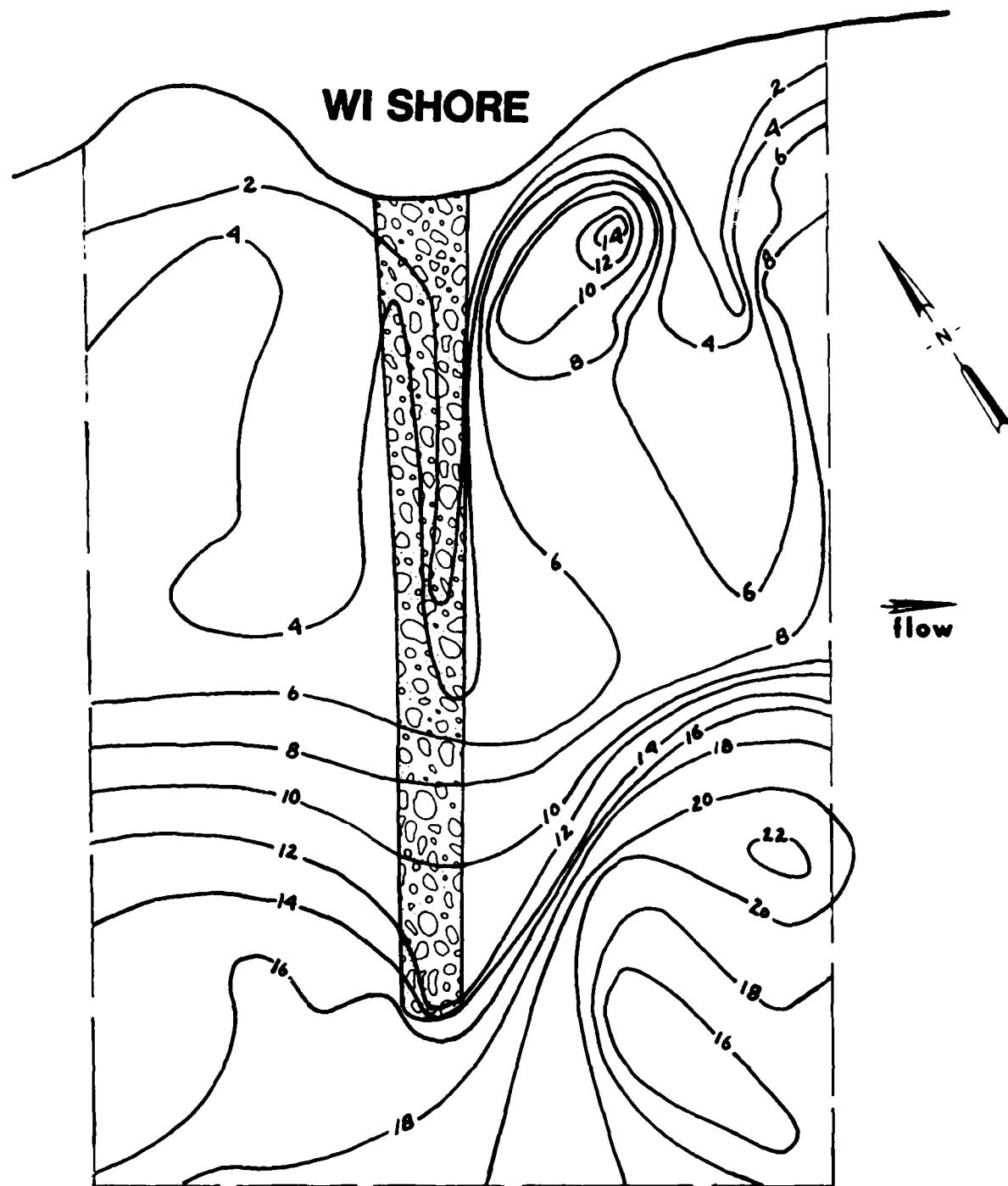


Figure D-90 General Bathymetric and Substrate Map of Wing Dam WI34

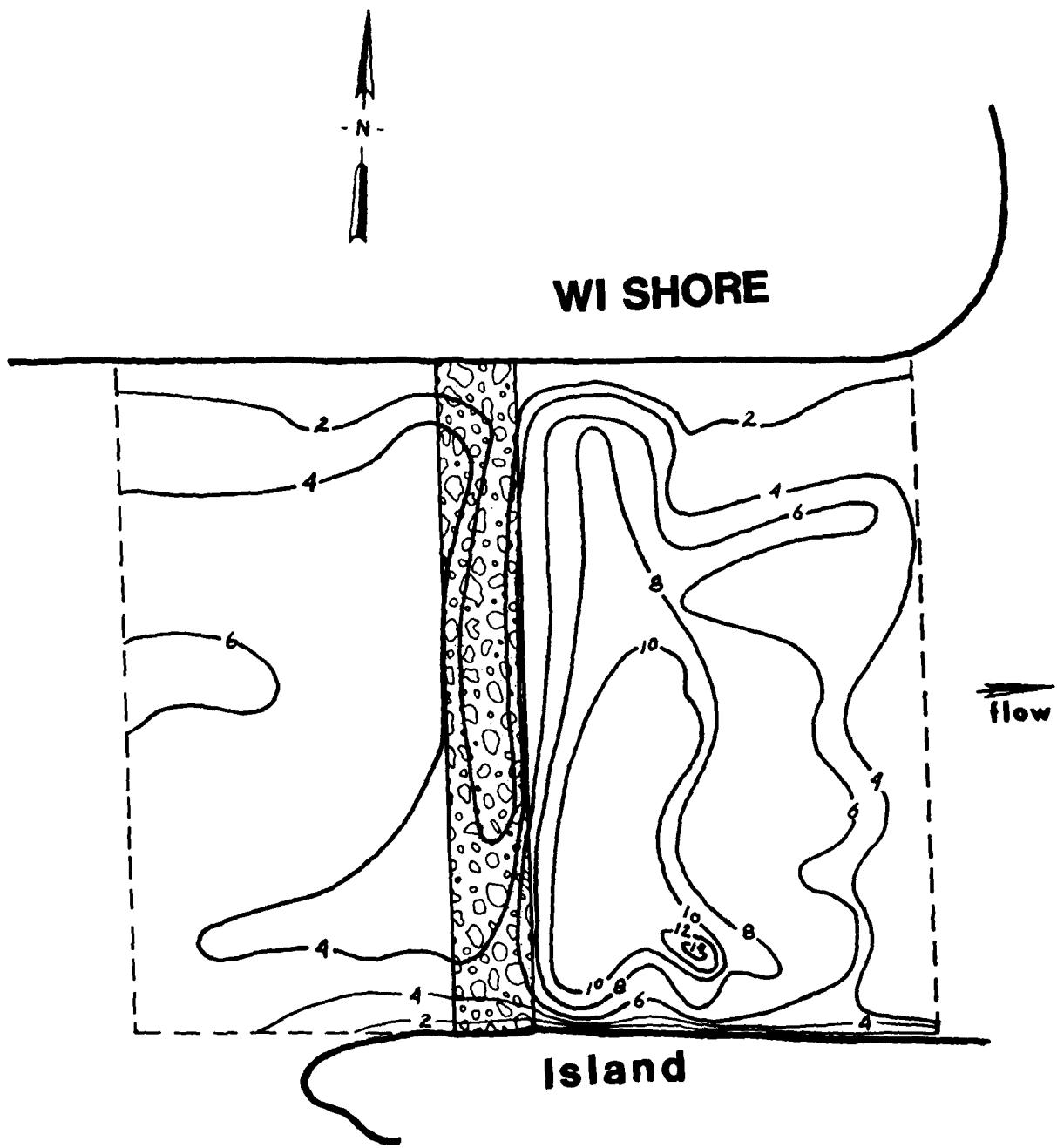
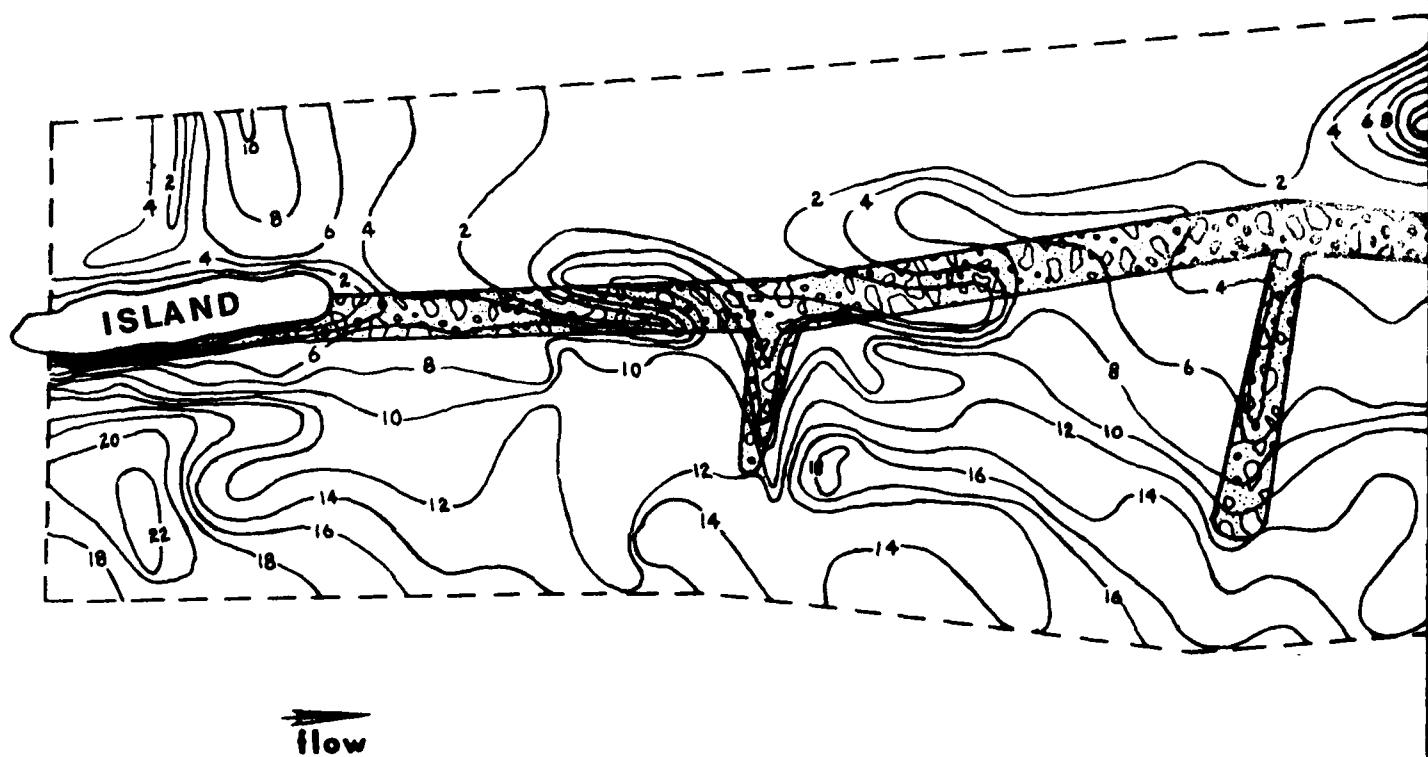


Figure D-91 General Bathymetric and Substrate Map of Closing Dam WI35

W39



LEGEND

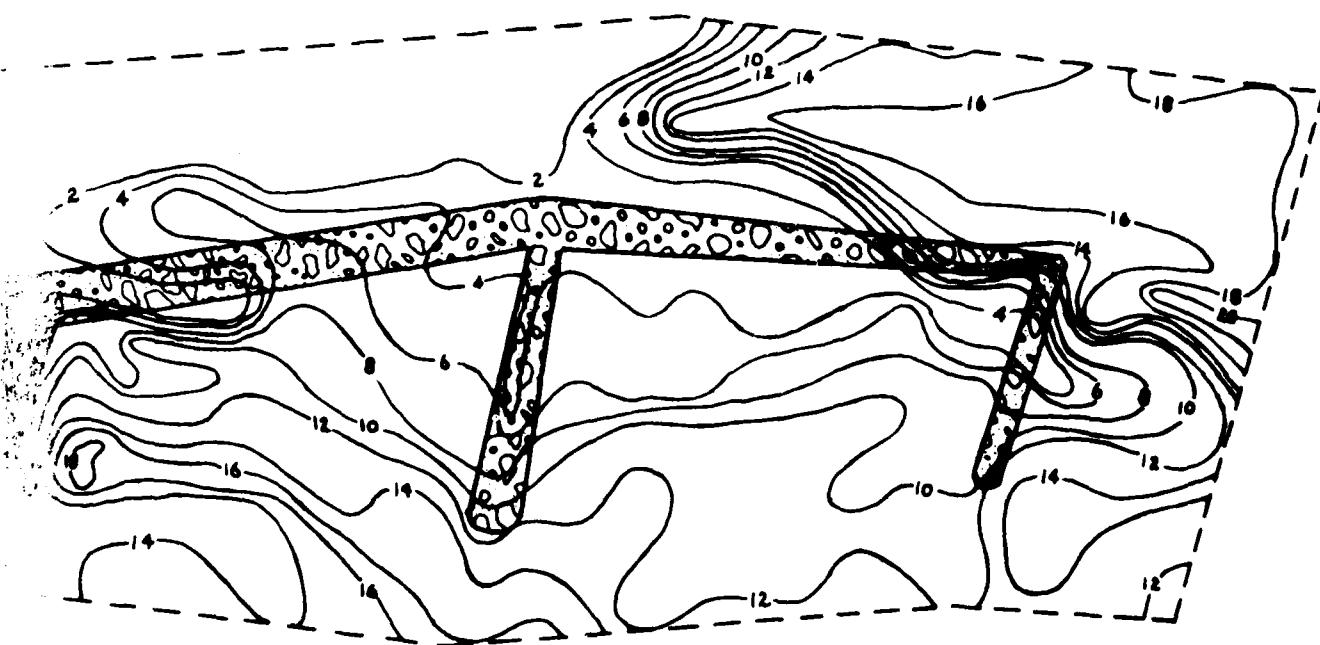
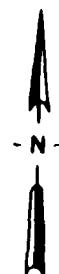
Emergent Rock	[Cross-hatched square]
Submerged Rock	[Diagonal hatching]
Sand/Silt	[White square]

W36

W37

Figure D-92 General Bathymetric and Substrate Map of Wing Dam WI36, WI37, WI38, and

W39



1" = 100'

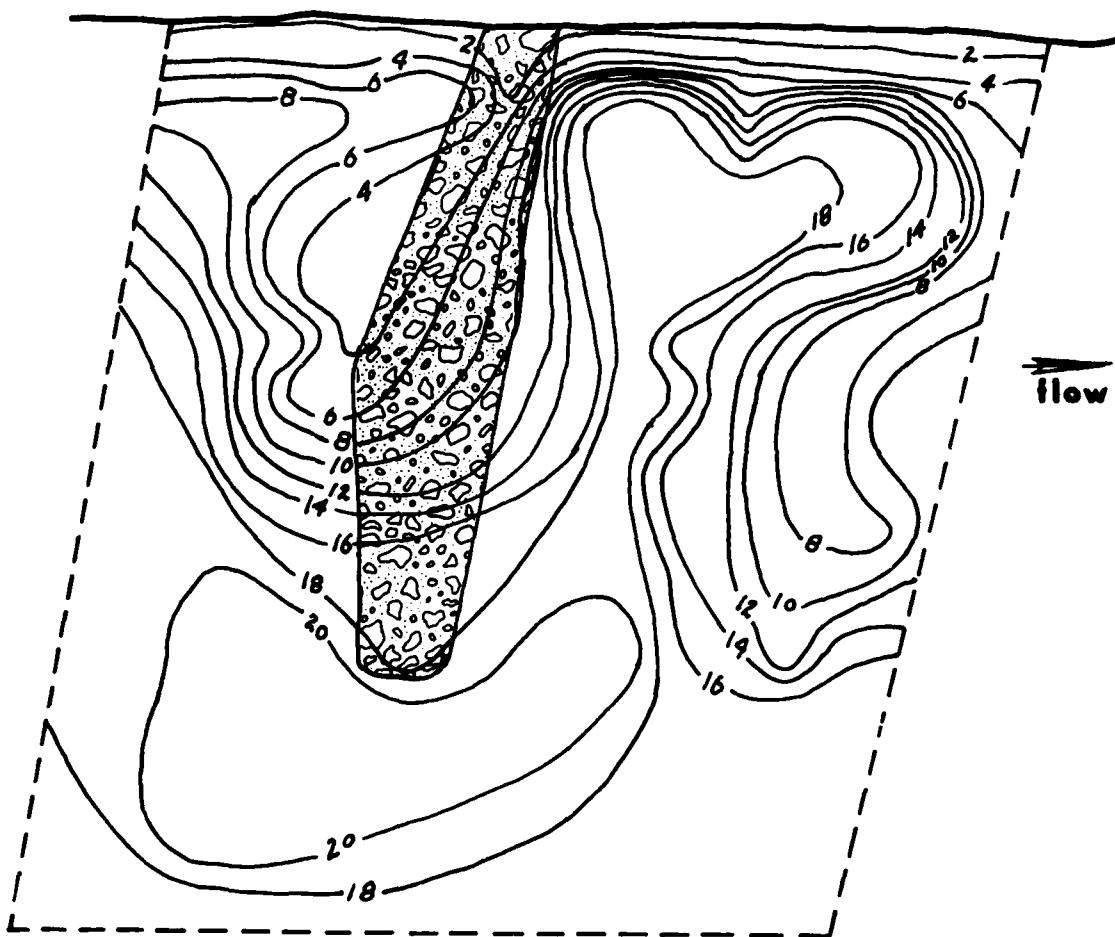
W37

W38

Map of Wing Dam WI36, WI37, WI38, and Closing Dam WI39

2a/r 125

WI SHORE



WI 41

LEGEND

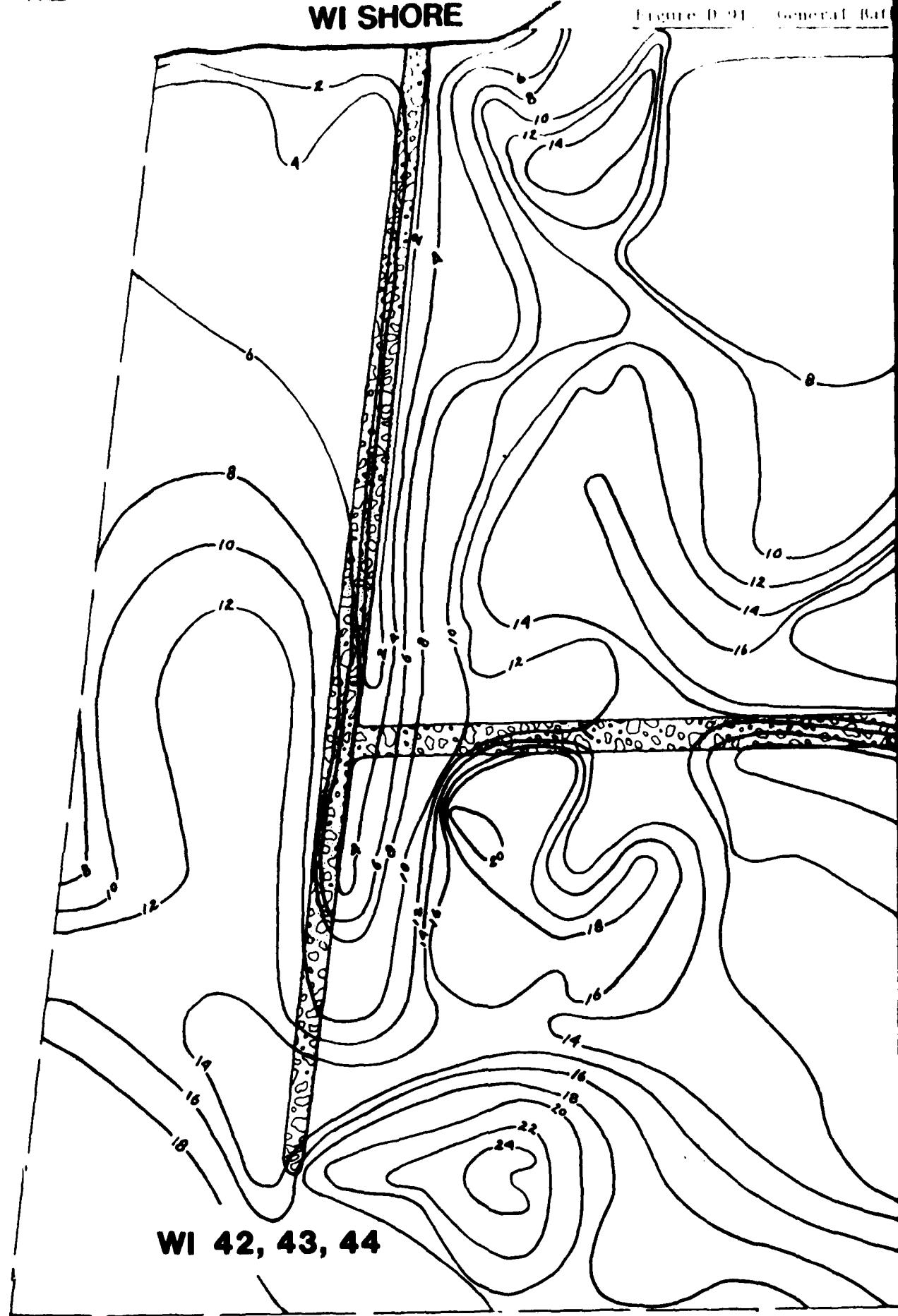
Emergent Rock	
Submerged Rock	
Sand/Silt	

1" = 50'

Figure D-93 General Bathymetric and Substrate Map of Wing Dam WI41

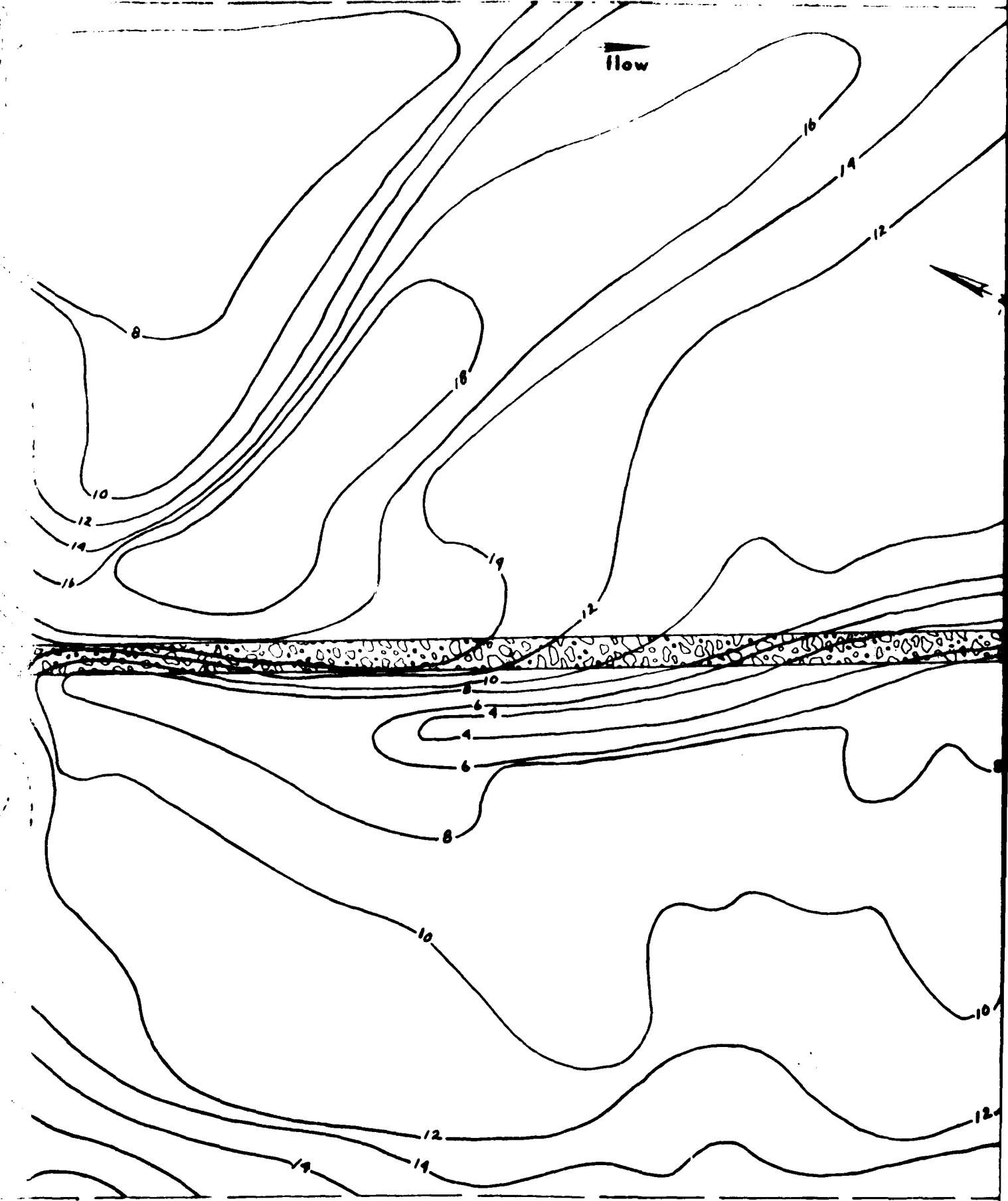
WI SHORE

Figure D-91 General Bathymetric

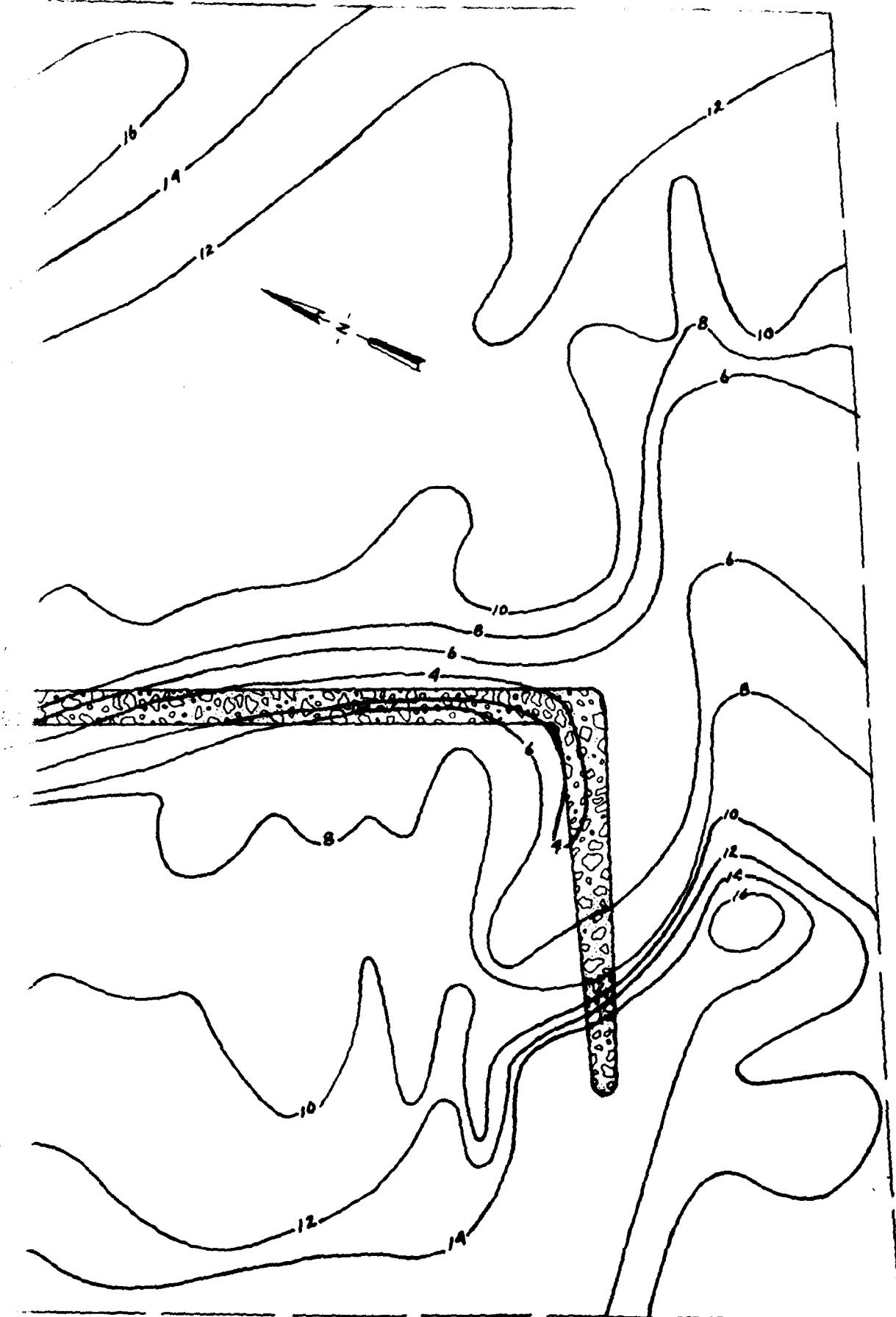


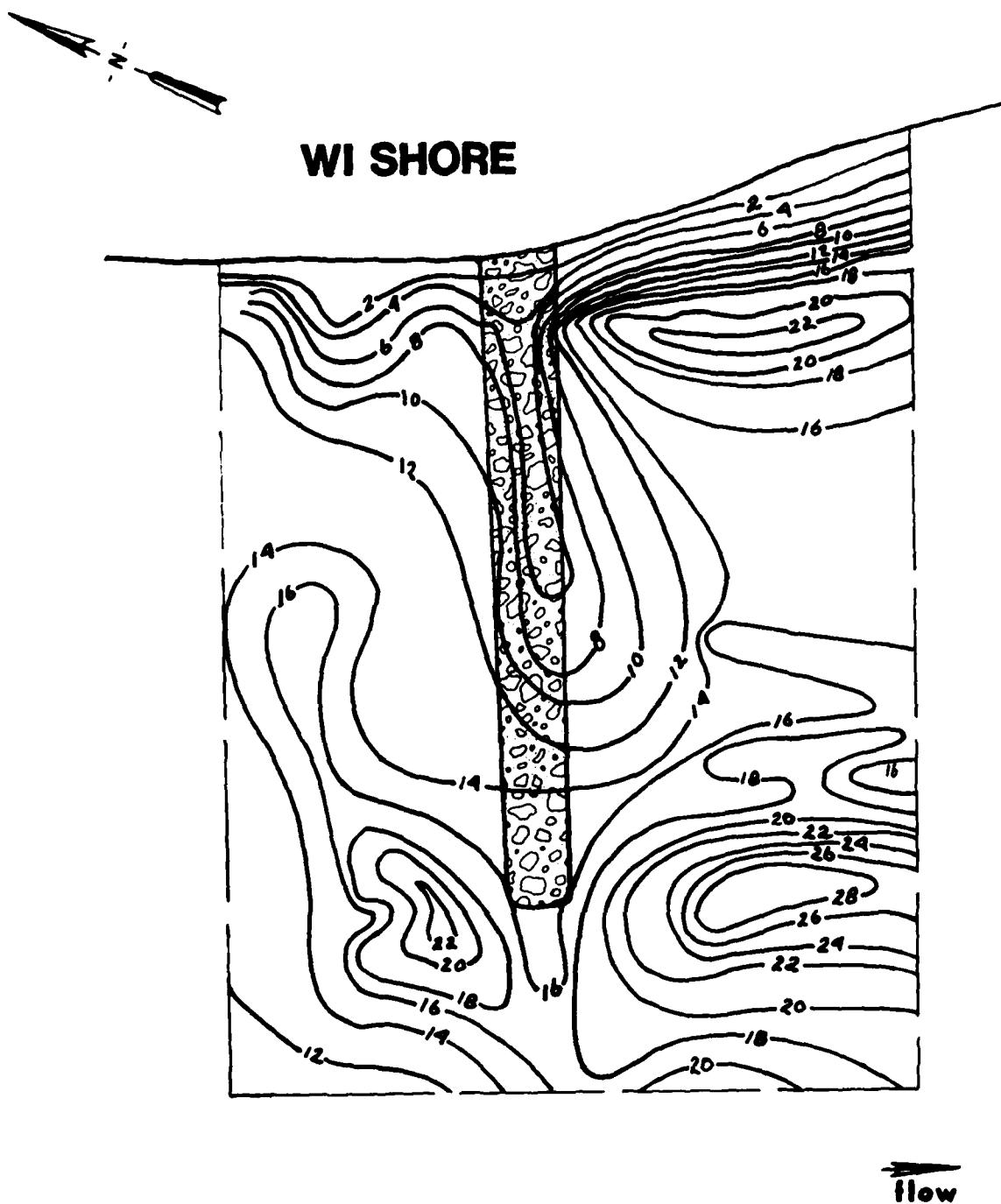
1 of 3

D-91 General Bathymetric and Substrate Map of Wing Dam West, Closing Dam W.E.S. and Wing Dam W.E.E.



from W.L.S. and Wing Dam N.I.I.



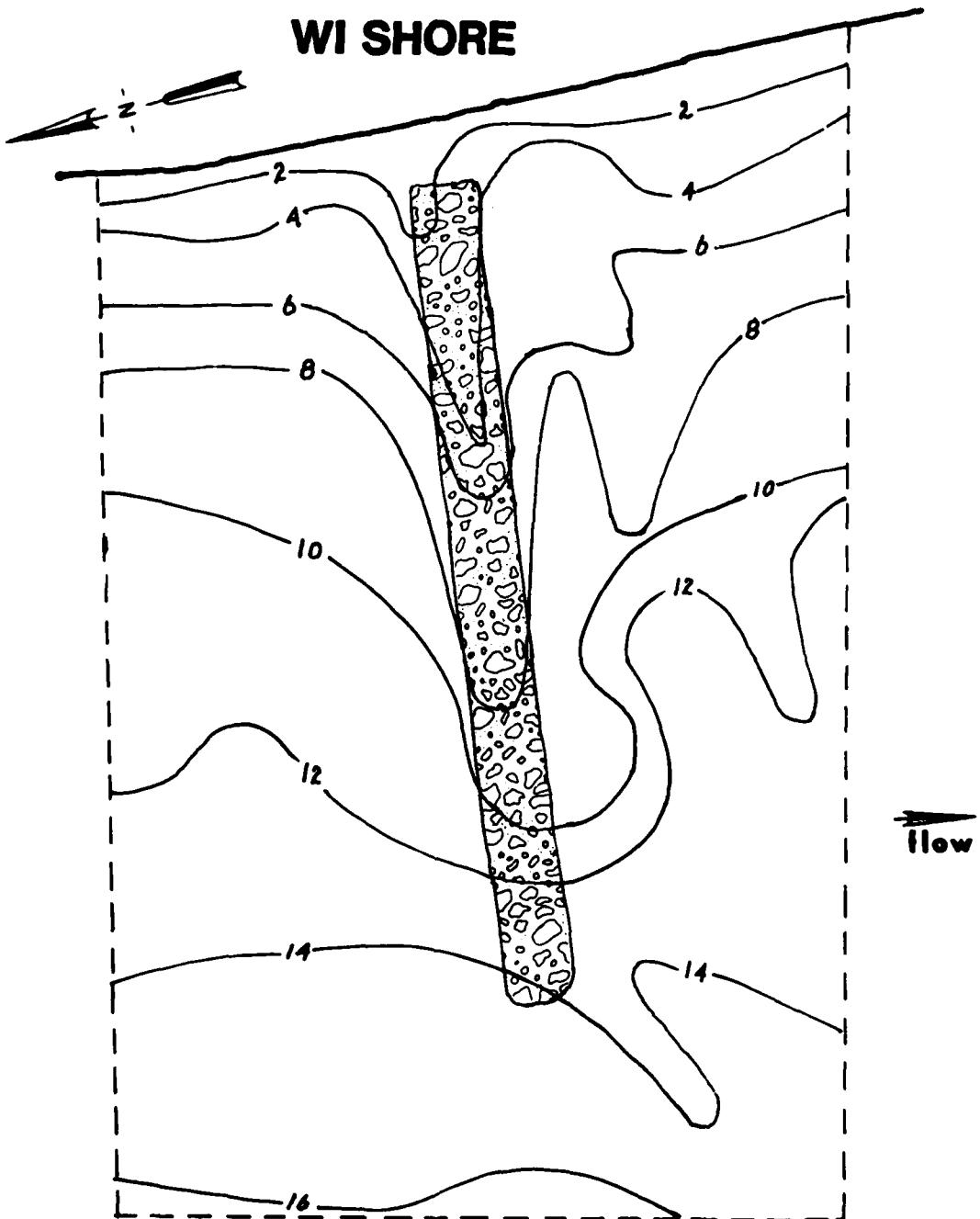


WI 45

1" = 50'

LEGEND	
Emergent Rock	[Hatched Pattern]
Submerged Rock	[Dotted Pattern]
Sand/Silt	[Solid White Square]

Figure D-95 General Bathymetric and Substrate Map of Wing Dam WI45



WI 48

LEGEND

1" = 50'

- Emergent Rock
- Submerged Rock
- Sand/Silt

Figure D-96 General Bathymetric and Substrate Map of Wing Dam WI48

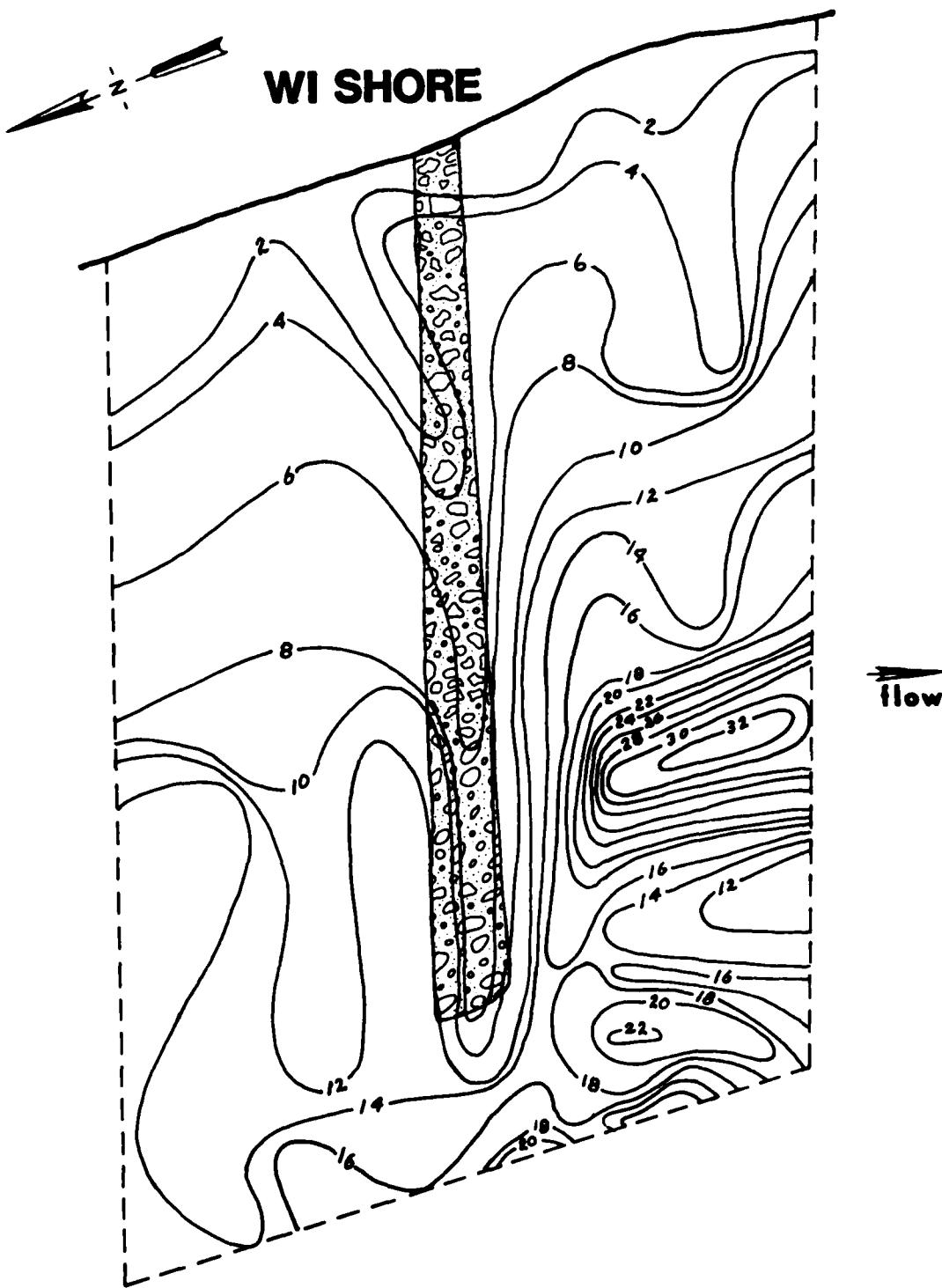


Figure D-97 General Bathymetric and Substrate Map of Wing Dam WI49

WI SHORE

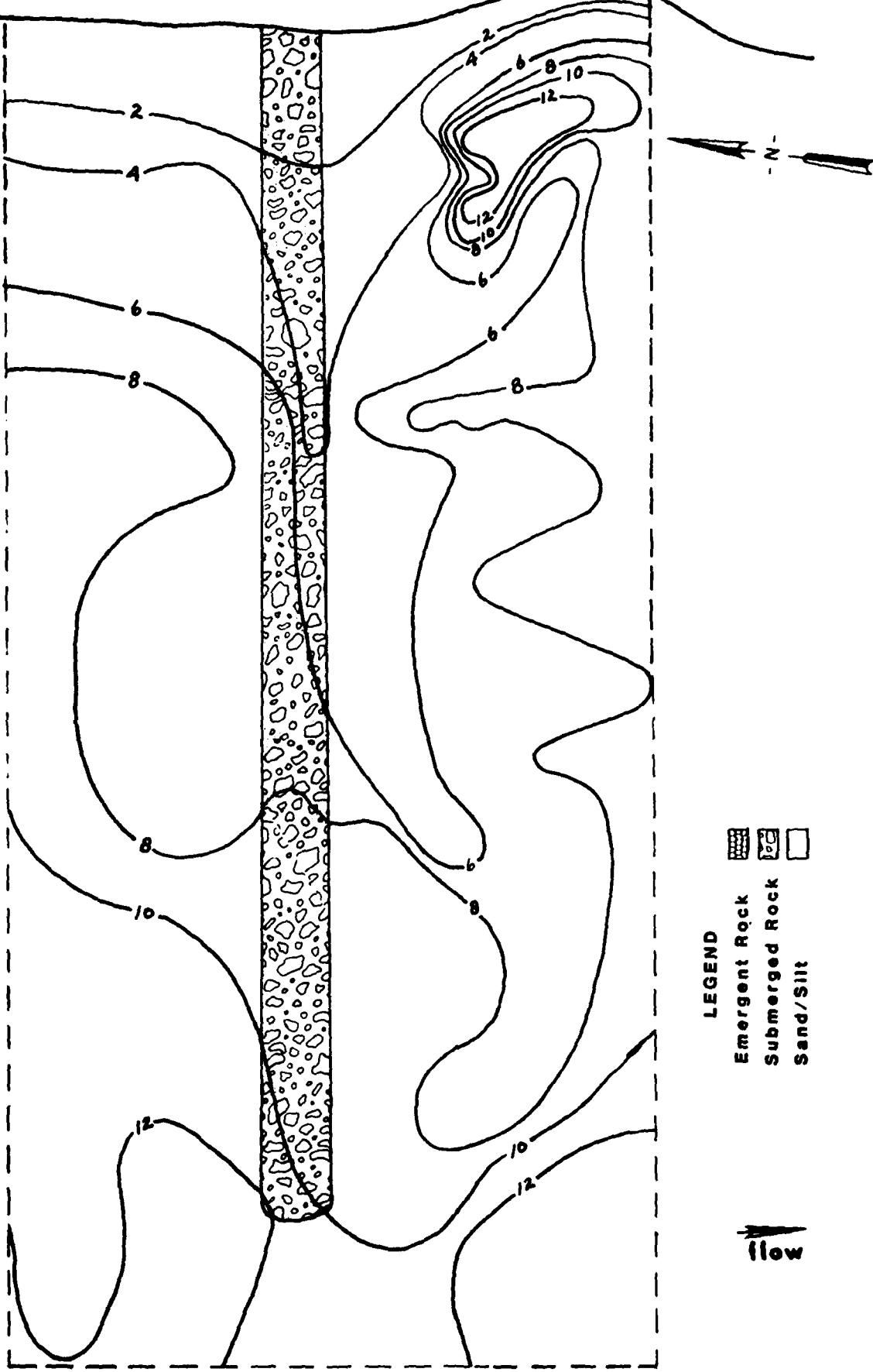
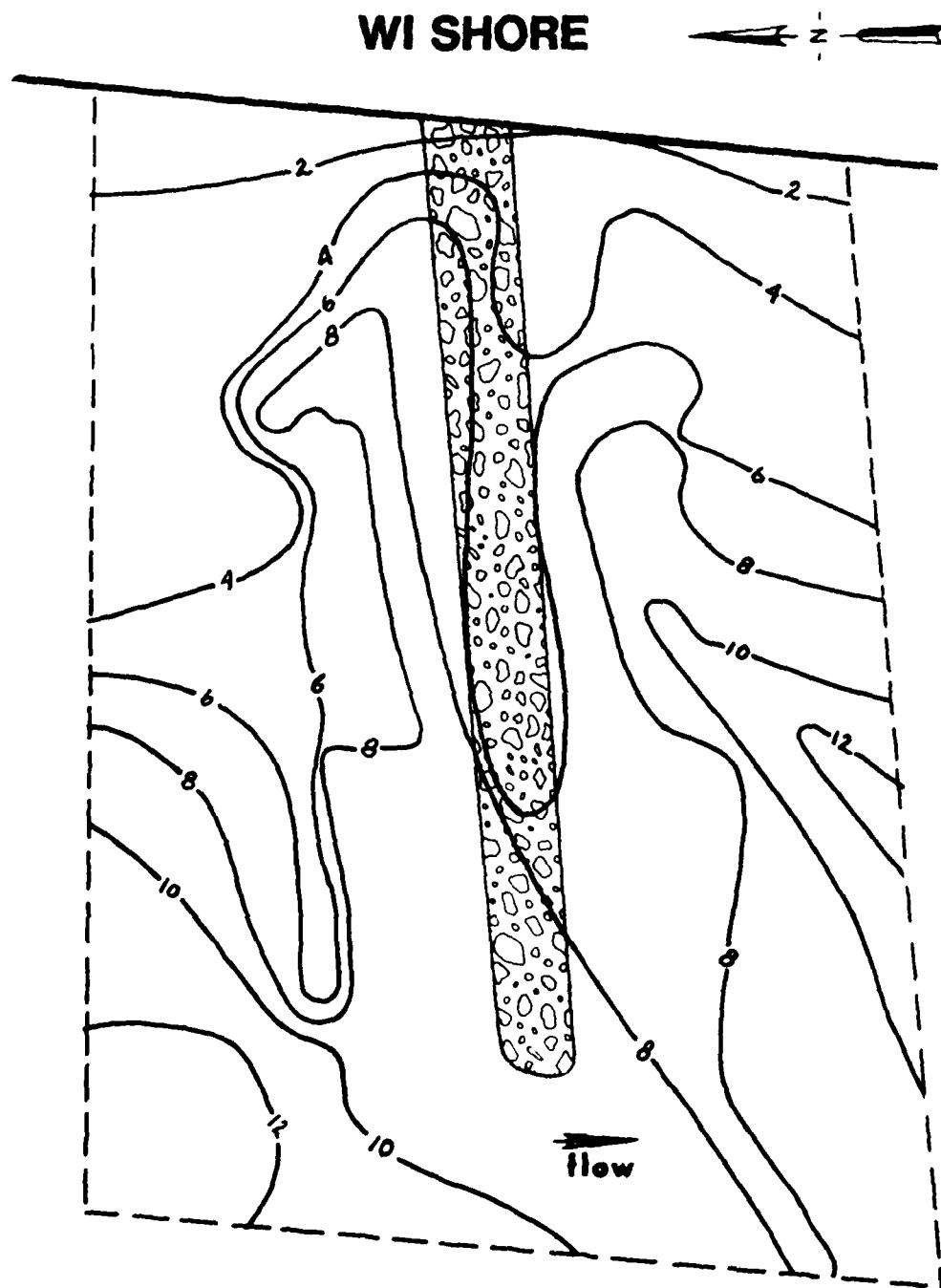
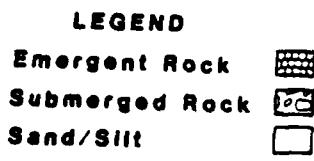


Figure D-98 General Bathymetric and Substrate Map of Wing Dam WI50



WI 51



1" = 50'

Figure D-99 General Bathymetric and Substrate Map of Wing Dam WI51

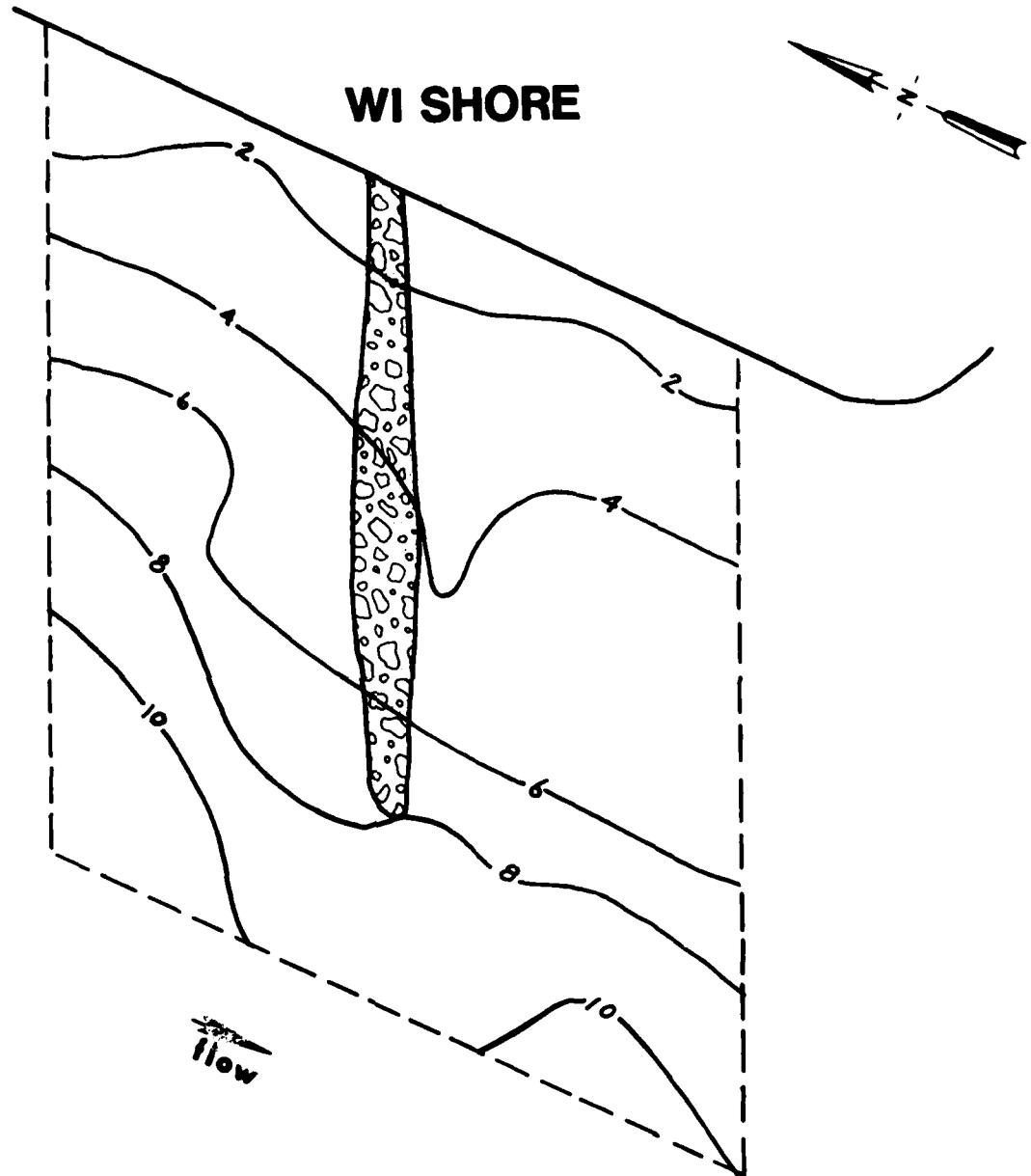
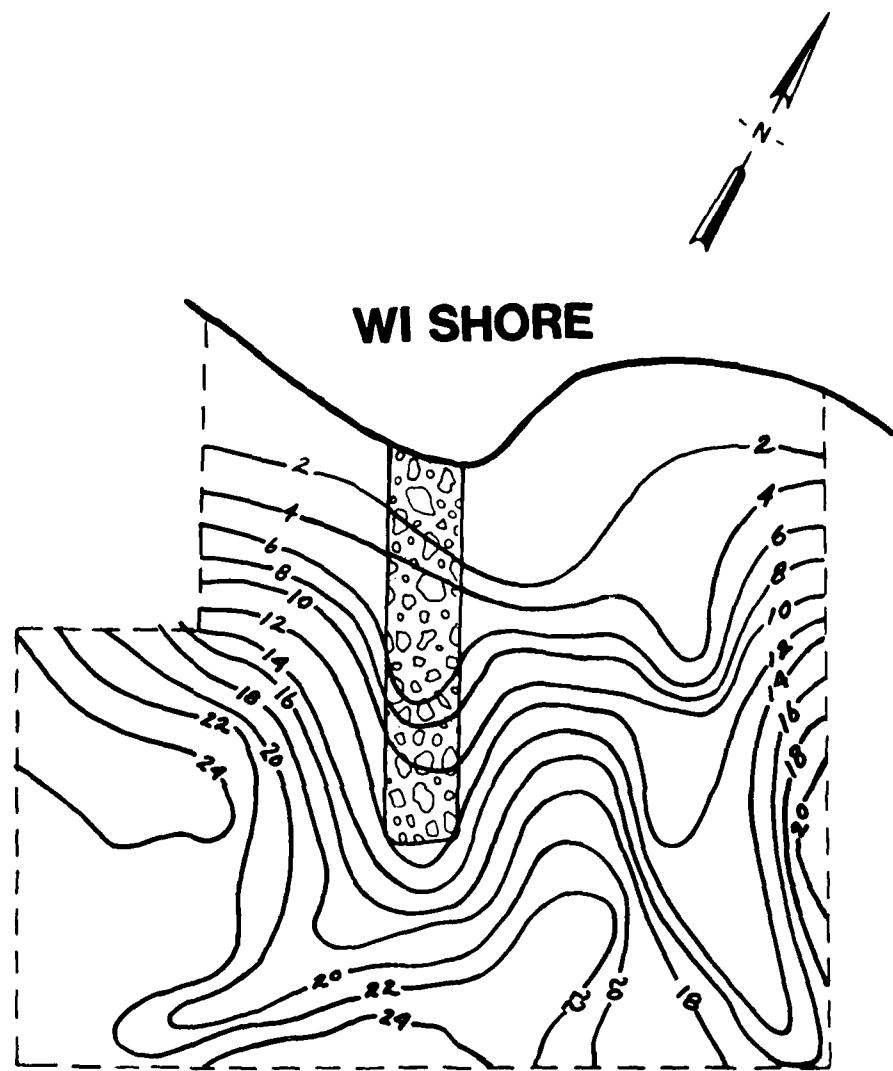


Figure D-100 General Bathymetric and Substrate Map of Wing Dam WI52



WI 55



1" = 50'



Figure D-101 General Bathymetric and Substrate Map of Wing Dam WI55

END

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9-85

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