CHARLES RIVER WATERSHED STUDY

HYDRAULICS AND HYDROLOGY

INTERIM MEMO NO. 1

WATERSHED AREAS

Prepared by

New England Division, Corps of Engineers

Department of the Army

September 1967

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The Charles River Watershed, some 300 square miles, includes all or parts of 35 municipalities, and is divided into 34 drainage sub-areas, all mapped on Plate 1. Table 1 lists the total area and the Watershed area of each municipality. Table 2 lists the 34 drainage sub-areas of the Watershed, with local and cumulative totals to nearest 0.1 square miles. Plate 2 presents by graph the cumulative drainage areas of the Charles River from the sources upstream of Echo Lake to its mouth at Boston Inner Harbor.

By law, one-third of the runoff from the watershed upstream of the canal entrance to Mother Brook, an area of about 198 square miles, is to be diverted through Mother Brook to the Neponset River.

The Stony Brook sub-watershed in Lincoln, Lexington, Weston and Waltham is the principal source of domestic water for the City of Cambridge. During most of each year the entire runoff is diverted through a pipeway to Fresh Pond, Cambridge.

Dashed lines on Plate 2 indicate the effective cumulative drainage area downstream of Mother Brook, allowing for the Mother Brook and Stony Brook diversions.

CHARLES RIVER WATERSHED STUDY
WATERSHED AREA BY COMMUNITY
Prepared By
New England Division, Corps of Engineers

City or Town	Total Area(4) (sq. mi.)	Estimated Sq. Mi. Area in Watershed 'A' Above Chas. R. Dam	'B' Above Warren Av. Dam Site	'C' Above Mouth of Chas. R.
1. Ashland (2)	12.96	0.56	Same as A	Same as B
2. Arlington (2)	5.58	0.35	"	"
3. Bellingham	18.86	7.93	"	"
4. Belmont	4.66	1.87	"	"
5. Boston (3)	45.40	24.81	25.38	25.97
6. Brookline (1)	6.82	6.82	Same as A	Same as B
7. Cambridge (3)	7.14	4.40	4.61	"
8. Dedham	10.79	7.21	Same as A	"
9. Dover	15.31	13.11	"	"
10. Foxboro (2)	20.80	0.02	"	"
11. Franklin	27.00	24.50	"	"
12. Holliston	19.10	19.02	"	"
13. Hopedale	5.27	0.99	"	"
14. Hopkinton	27.92	2.86	"	"
15. Lexington	16.63	4.91	"	"
16. Lincoln	14.92	9.14	"	"
17. Medfield	14.52	11.36	"	"
18. Medway (1)	11.66	11.66	"	"
19. Mendon (2)	17.94	0.29	"	"
20. Milford	14.99	12.93	"	"
21. Millis (1)	12.26	12.26	"	"
22. Natick	15.99	8.83	"	"
23. Needham (1)	12.75	12.75	"	"
24. Newton (1) (3)	18.33	18.33	"	"
25. Norfolk	15.35	15.31	"	"
26. Sherborn	15.39	12.84	"	"
27. Somerville (3)	4.12	0.00	1.40	"
28. Walpole (2)	21.09	2.06	Same as A	"
29. Waltham (1) (3)	13.52	13.52	"	"
30. Watertown	4.17	3.60	"	"
31. Wayland (2)	15.88	0.42	"	"
32. Wellesley (1)	10.51	10.51	"	"
33. Weston	17.36	15.80	"	"
34. Westwood	11.24	3.82	"	"
35. Wrentham	22.68	9.83	"	"
Total - Sq. Mi.	528.91	304.62	306.80	307.39
Total - Acres	338,503	194,957	196,352	196,730

(1) Wholly in Watershed; (2) Only small portion of town in Watershed;
(3) City government; (4) From Mass. Dept. of Commerce published areas.

TABLE 2

DRAINAGE AREA
CHARLES RIVER WATERSHED

Prepared by
Department of the Army, New England Division, Corps of Engineers

August 1967

Map Symbol	River Mile	Location	Drainage Areas (0.1 Sq. Mi.) Tributary	Local	Main River (Cumulative)
1	78.94	Echo Lake Dam		1.4	1.4
2		Local-Echo Lake to Milford W.W. Dam		0.9	
	77.3	Charles River at Milford W.W. Dam			2.3
3		Local-Milford W.W. Dam to Cedar Swamp Pond Dam		5.5	
	75.51	Charles River at Cedar Swamp Pond Dam			7.8
4		Local-Cedar Swamp Pond Dam to Box Pond Dam		6.4	
	70.28	Charles River at Box Pond Dam			14.2
5		Local-Box Pond Dam to Caryville Dam		10.6	
	64.66	Charles River at Caryville Dam			24.8
6	64.26	Hopping Brook	11.5		
7	63.20	Mine Brook	15.7		
8		Local-Caryville Dam to West Medway Dam		0.6	
	63.00	Charles River at West Medway Dam			52.6

Map Symbol	River Mile	Location	Tributary	Local	Main River (Cumulative
9	62.97	Chicken Brook	7.0		
10		Local-W. Medway Dam to Medway Dam		5.4	
	60.86	Charles River at Medway Dam			65.0
11	57.60	Mill River	16.3		
12		Local-Medway Dam to Rt. #115		3.9	
	56.11	Charles River at Rt. #115			85.2
13	51.80	Stop River	17.1		
14		Local-Rt. #115 to Rt. #109		6.4	
	51.2	Charles River at Rt. #109			108.7
15	48.35	Bogastow Brook	25.5		
16		Local-Rt. #109 to Old Rt. #27		7.1	
	47.3	Charles River at Old Rt. #27			141.3
17		Local-Old Rt. #27 to So. Natick Dam		14.8	
	41.14	Charles River at So. Natick Dam			156.1
18	39.39	Waban & Fuller Brooks	16.1		
19	37.20	Trout Brook	4.6		
20		Local-So. Natick Dam to Cochrane Dam		7.1	
	34.53	Charles River at Cochrane Dam			183.9

Map Symbol	River Mile		Location	Tributary	Local	Main River (Cumulative
21	34.5		Local-Cochrane Dam to Gaging Station		0.1	
	34.31	*	Charles River at Charles River Village			184.0
22			Local-CRV Gaging Station to Long Ditch		8.7	
	29.88		Charles River @ Long Ditch			192.7
23			Local-Long Ditch to Mother Brook		5.5	
	26.52		Charles River @ Mother Brook			198.2
24			Local-Mother Brook to Gage @ Met. Cir. Dam		12.9	
	19.98	*	Charles River @ Gage-Met. Cir. Dam			211.1
25			Local-Gage @ Met. Cir. Dam to Moody St. Dam		15.9	
26	14.68		Stony Brook (Waltham)	23.6		
	12.6	*	Charles River @ Moody St. Dam			250.6
27	12.19		Beaver Brook	11.2		
28			Local-Moody St. Dam to Watertown Dam		7.5	
	9.77		Charles River @ Watertown Dam			269.3
29			Local-Watertown Dam to Exist. Charles River Dam		14.2	
30			Muddy River @ Sears Parking Lot (Incl. Jamaica Pond)	6.1		
31			Stony Brook (Boston)	13.9		

Map Symbol	River Mile	Location	Tributary	Local	Main River (Cumulative)
32	2.84	Muddy River Sears Parking Lot to Mouth		1.1	
	1.19	Charles River @ Existing Dam			304.6
33	0.76	Local-C. R. Dam to Proposed Dam (Warren Avenue)		2.2	306.8
34		Local-Proposed Dam to Mouth		0.6	307.4

* USGS Gaging Station

NOTES: Mile 0.00 Assumed as Intersection of Center Lines of Charles River and Boston Inner Harbor Channel

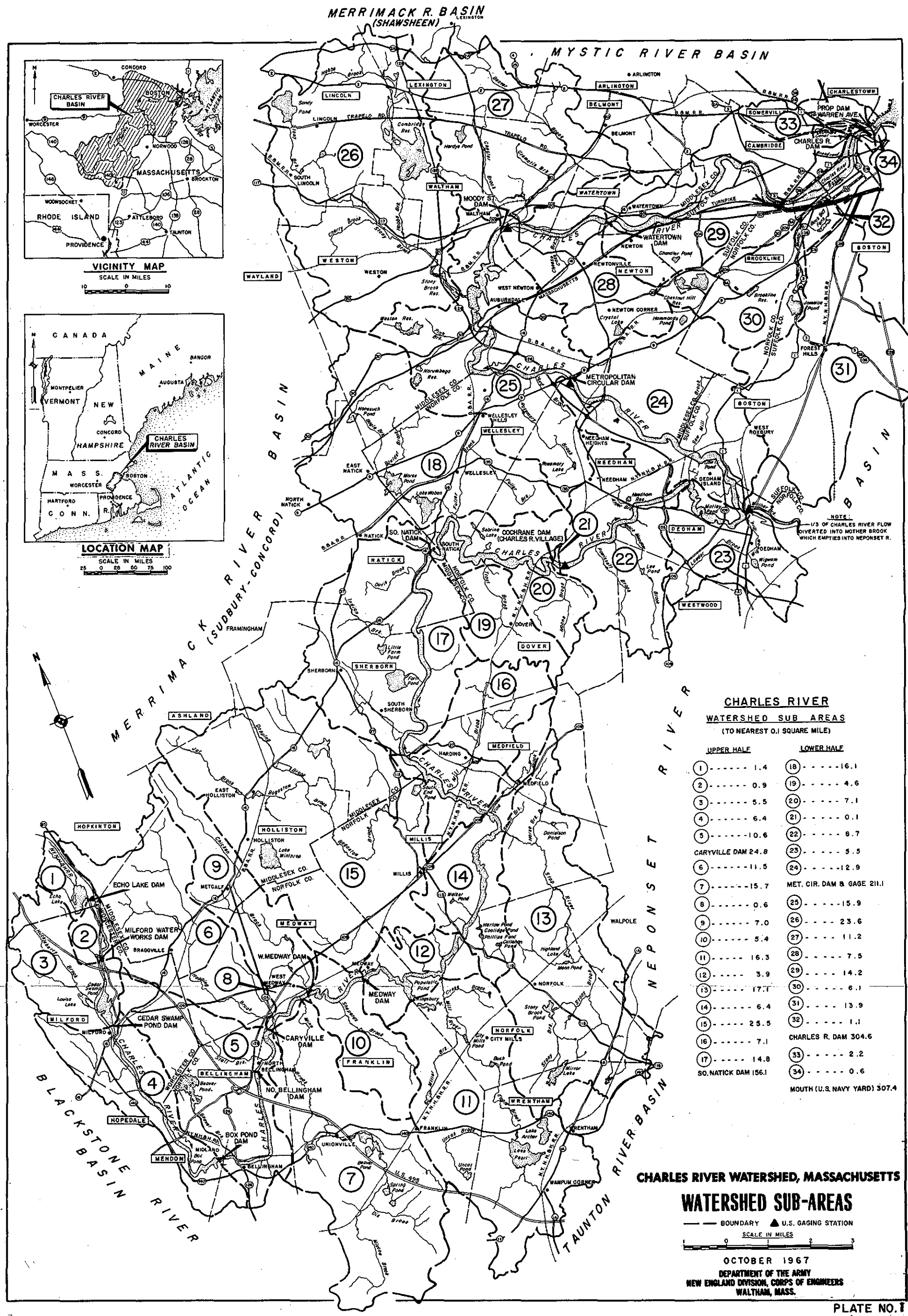
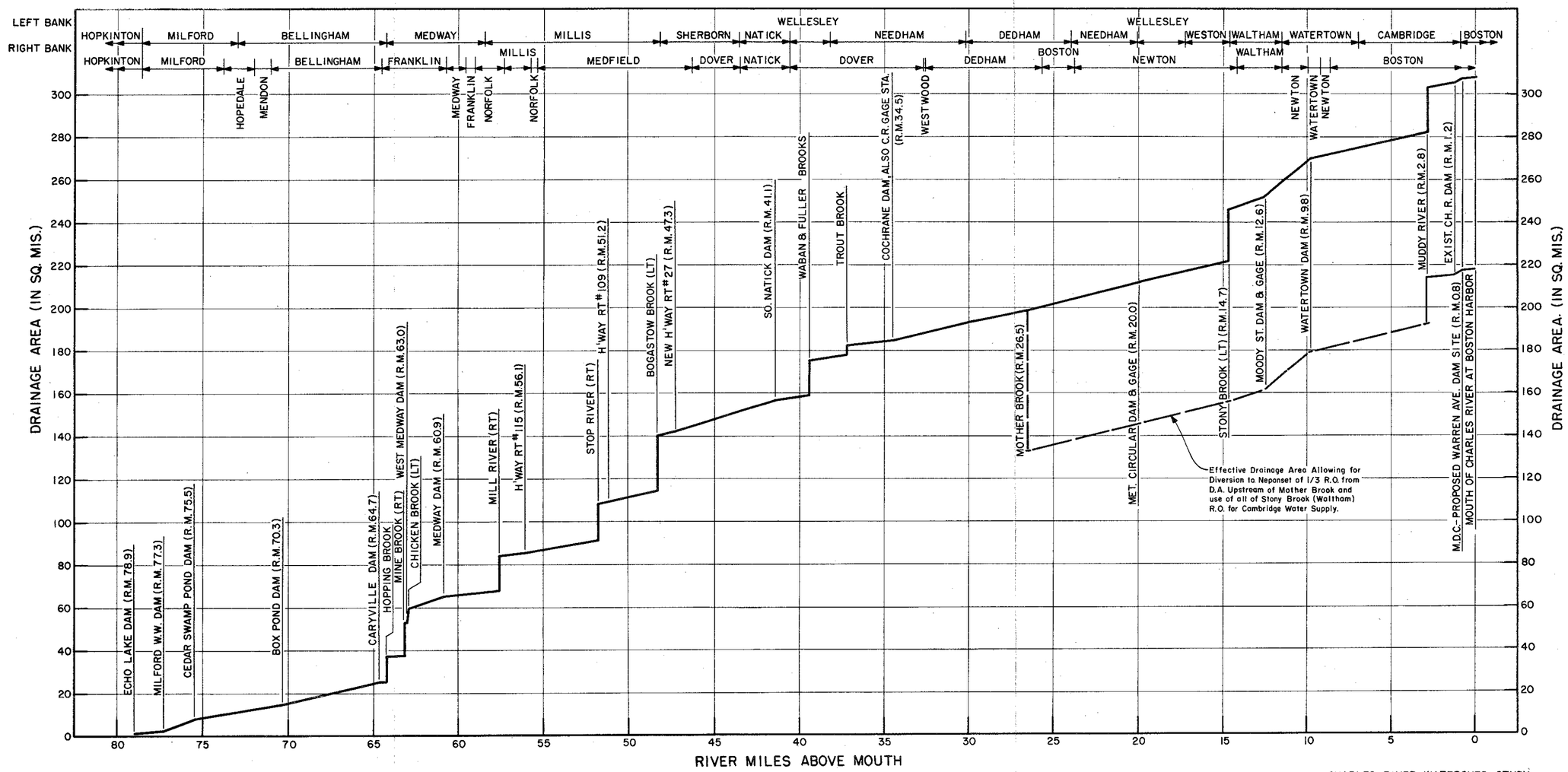

MERRIMACK R. BASIN (SHAWSHEEN)
MYSTIC RIVER BASIN
MERRIMACK RIVER BASIN (SUDBURY-CONCORD)
NEPONSET RIVER BASIN
BLACKSTONE RIVER BASIN
TAUNTON RIVER BASIN
VICINITY MAP
SCALE IN MILES
LOCATION MAP
SCALE IN MILES
CHARLES RIVER BASIN
ECHO LAKE DAM
MILFORD WATER WORKS DAM
CEDAR SWAMP POND DAM
CARYVILLE DAM
W. MEDWAY DAM
MEDWAY DAM
NO. BELLINGHAM DAM
BOX POND DAM
SO. NATICK DAM
COCHRANE DAM (CHARLES R. VILLAGE)
METROPOLITAN CIRCULAR DAM
MOODY ST. DAM
WATERTOWN DAM
CHARLES R. DAM
PROP DAM WARREN AVE.
NOTE: 1/3 OF CHARLES RIVER FLOW DIVERTED INTO MOTHER BROOK WHICH EMPTIES INTO NEPONSET R.
CHARLES RIVER
WATERSHED SUB AREAS
(TO NEAREST 0.1 SQUARE MILE)
UPPER HALF
1 - 1.4
2 - 0.9
3 - 5.5
4 - 6.4
5 - 10.6
CARYVILLE DAM 24.8
6 - 11.5
7 - 15.7
8 - 0.6
9 - 7.0
10 - 5.4
11 - 16.3
12 - 3.9
13 - 17.1
14 - 6.4
15 - 25.5
16 - 7.1
17 - 14.8
SO. NATICK DAM 156.1
LOWER HALF
18 - 16.1
19 - 4.6
20 - 7.1
21 - 0.1
22 - 8.7
23 - 5.5
24 - 12.9
MET. CIR. DAM & GAGE 211.1
25 - 15.9
26 - 23.6
27 - 11.2
28 - 7.5
29 - 14.2
30 - 6.1
31 - 13.9
32 - 1.1
CHARLES R. DAM 304.6
33 - 2.2
34 - 0.6
MOUTH (U.S. NAVY YARD) 307.4
CHARLES RIVER WATERSHED, MASSACHUSETTS
WATERSHED SUB-AREAS
BOUNDARY
U.S. GAGING STATION
SCALE IN MILES
OCTOBER 1967
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

PLATE NO. I



CHARLES RIVER WATERSHED STUDY

CUMULATIVE DRAINAGE AREA
CHARLES RIVER
AUGUST 1967

PREPARED BY
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS

PLATE NO. 2