Installing Day Boards may be a solution to waterways issues

At the Demopolis Site Office we have had a long term problem maintaining buoys above and below the locks and dams with the river fluctuation. There have been many different type buoys tried and most all are still washed out by the high rivers, leaving the project without an adequate warning system. Due to our buoy system problems, management has approved in the sign plan the use of a Day Board system that is mounted on the banks of the river and lock structures. These signs are mounted on steel beams to maintain the "boats keep out" zone even during high water. This has worked well for the project so far and we believe it would benefit other projects

For more information on installing Day Boards, see Chapter 15 of the Sign Standards Manual or contact the Sign MCX.

Day boards mounted on dam.

Day board installation on shore.

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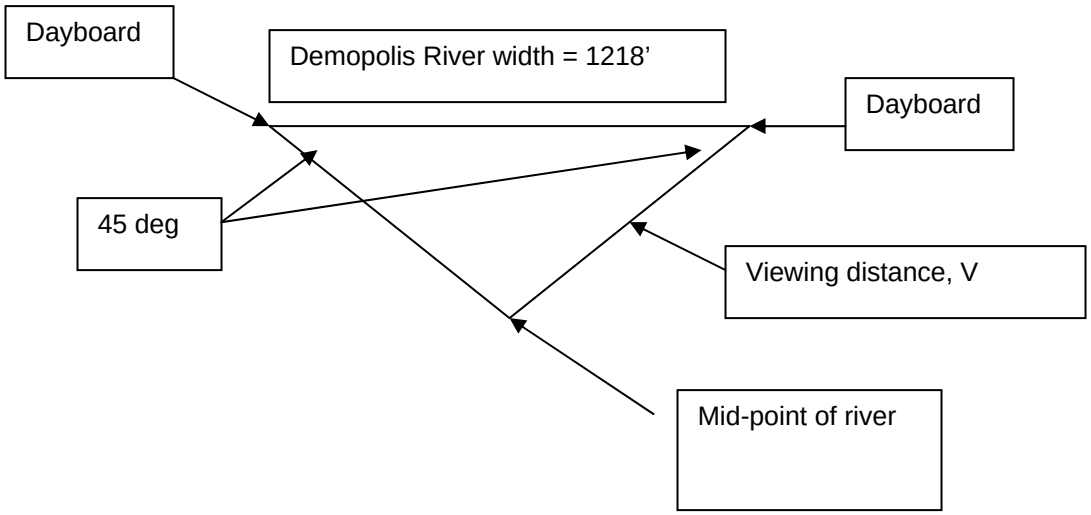


<u>Diagram for Calculation</u>

According the Section 15 that you sent to me, the following is required:

- Minimum daymark symbol size = 36"
- Viewing Distance (V) = 40 times the symbol size in inches
- View from mid-channel with a minimum angle of vision of 45 degrees

Therefore for <u>Demopolis</u>:

V = 0.5(1218)/cos 45
= 609/0.7071
= 861.26'

Required symbol size = V/40
= 861.26/40
= 21.5" ……..**<u>use minimum of 36"</u>**

Note that the above was calculated for Demopolis; however, if other project river/channel widths are less Demopolis, the 36" size would still be fine.

In fact a 36" a daymark size would be acceptable up to a viewing distance (V) of:

V = 40 times the symbol size
= 40(36)= 1440'……this would equate to a river width = cos45(V)2
= 0.7071(1440)2 = 2036'

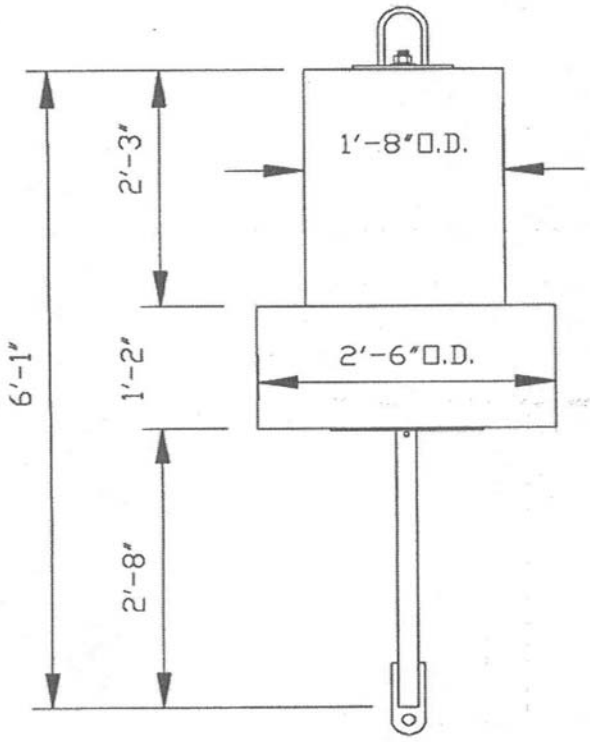
FINAL 23 AUG 2005

SUMMARY DAYBOARDS REQUIRED							
TYPE DAYBOARD	**COFFEVILLE L&D**	**DEMOPOLIS L&D**	**SELDEN L&D**	**OLIVER L&D**	**HOLT L&D**	**BANKHEAD L&D**	**TOTALS**
RESTRICTED 36" SYMBOL DAYBOARD W/DAYMARKS	5	2	4	4	4	3	**22**
DANGER 36" SYMBOL DAYBOARD W/DAYMARKS	2	3	0	2	0	0	**7**
DANGER 48" SYMBOL DAYBOARD W/DAYMARKS	0	0	0	0	0	0	**0**
TRUSS TOWER W/ALL HARDWARE	5	4	4	3	2	2	**20**

BUOY SIZING

2.K. 37. 5CFR. The 5CFR is designed and constructed for protected locations where unlighted lateral buoys are required. This buoy is constructed of concentrically-wrapped sheets of ionomer foam with a "densified" outer surface for abrasion resistance. The structural members are galvanized steel. The radar reflector is internal. This buoy is not suitable for use where ice is present, but performs very well in fast water.

a. Standard Buoy Arrangement. 1995 Type 5CFR.



Physical Characteristics. (no mooring)

Buoy Weight	115 lbs.
Buoy Draft	3 ft. 0 in.
Freeboard	10 in.
Minimum Freeboard	4 in.
Pounds-Per-Inch Immersion	26

Related Equipment.

Mooring Chain	1/2 in.
Sinker (concrete)	500 lbs.

Operational Characteristics. (nominal)

Daymark Visual Range	1.2 nm
Radar Range	0.5 nm
Mooring Depth (min)	6 ft.

Maximum Mooring Depth.

Chain Size	Max Mooring Depth
1/2"	40'

Reference Documents. (use latest rev.)
G-SEC Drawing No. 121169
G-SEC Specification No. 450

Assembly Instructions.

1. See general assembly guidelines in section 2.F.1.
2. Slide the foam flotation collar and then the foam daymark (retro up) onto the center pipe.
3. Push the lifting eye plate firmly against the daymark. Bolt the lifting eye plate to the top of the center pipe. Place a washer between the lock nut and the lifting eye plate.

Data Sheet 2.K.37. 5CFR buoy.

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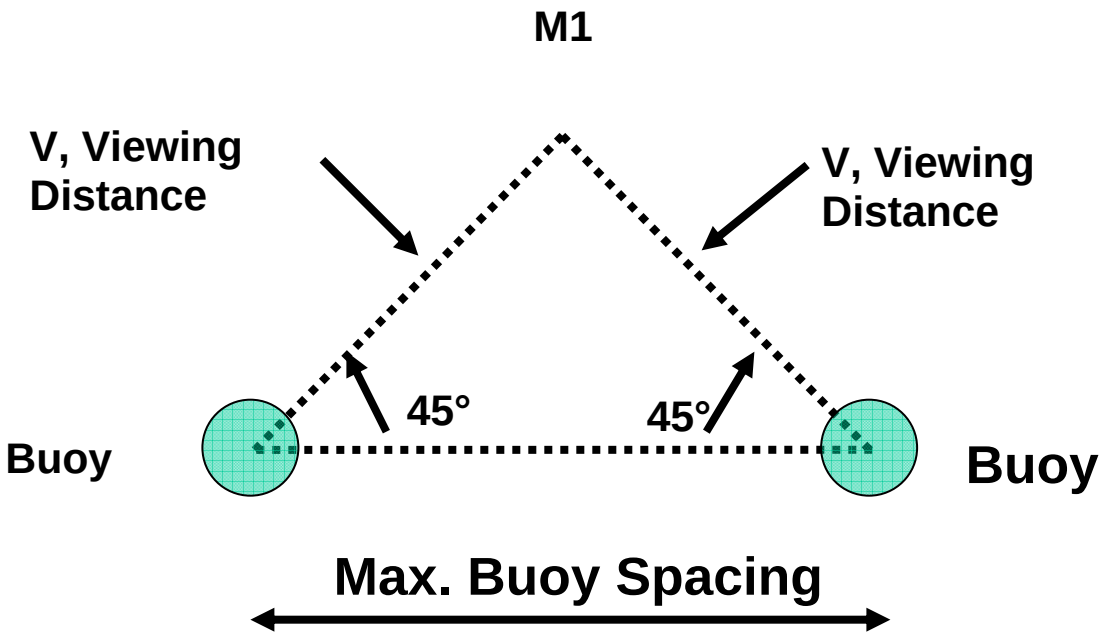
VIEWING DISTANCE



Max. Buoy Spacing = 2 x 0.707 x Viewing Distance

NOMINAL RANGER SIZING

Table 5-5

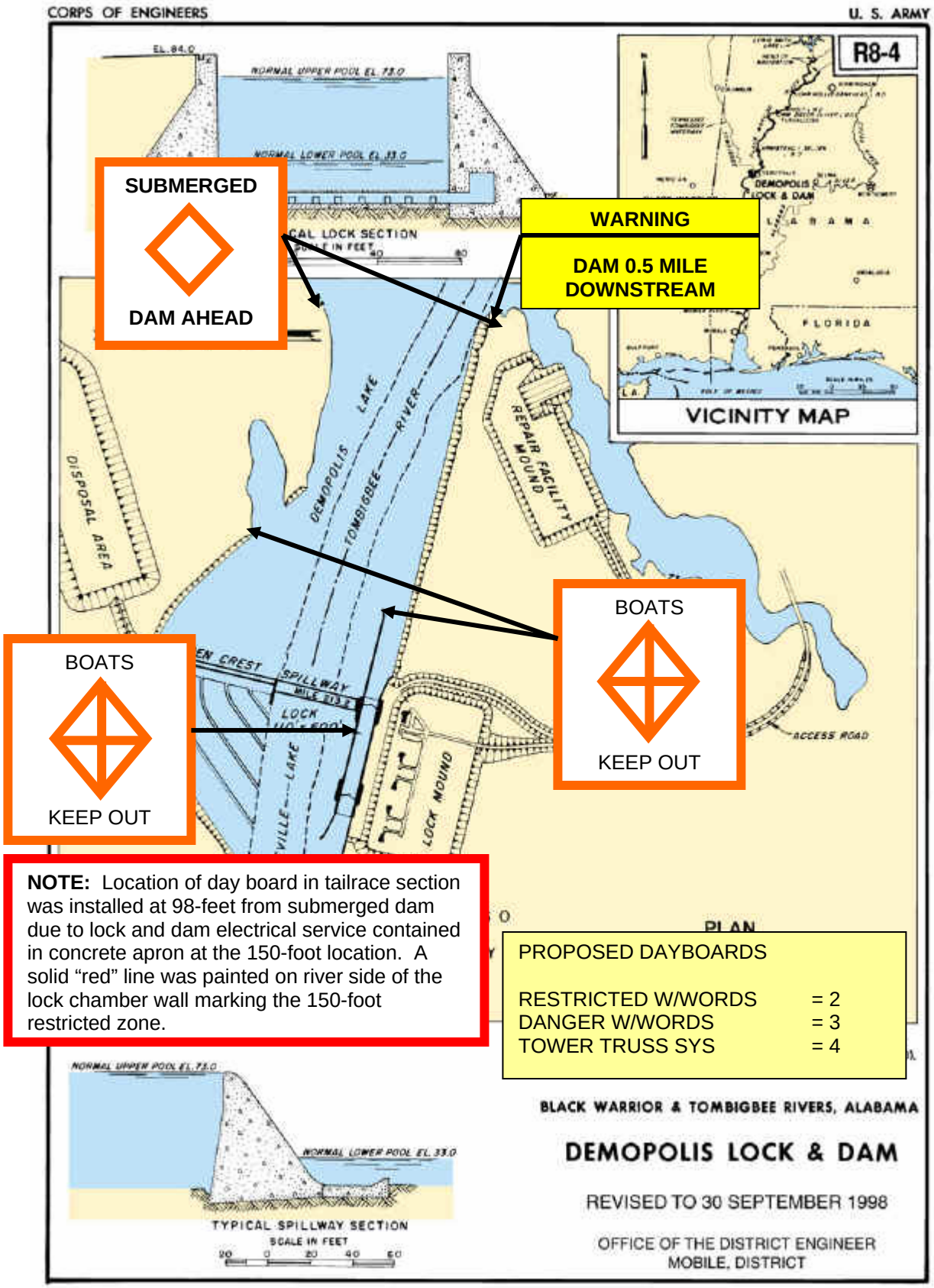
Dimensions for 1-, 2-, and 3-nm Nominal Range Dayboards
for all Waterways Special Marks

Mark	Nominal Range (nm)	H x W (in)	Retro* (R) (in)	Letter (L) (in)
3N_	1	36 x 36	2	8
4N_	2	48 x 48	3	12
6N_	3	72 x 72	4	16

*For Western Rivers, the square retroreflective patch should be 6" for the 3N_, 8" for the 4N_ and 12" for the 6N_.

Data Sheet 5-E(7), cont'd

FINAL 23 AUG 2005



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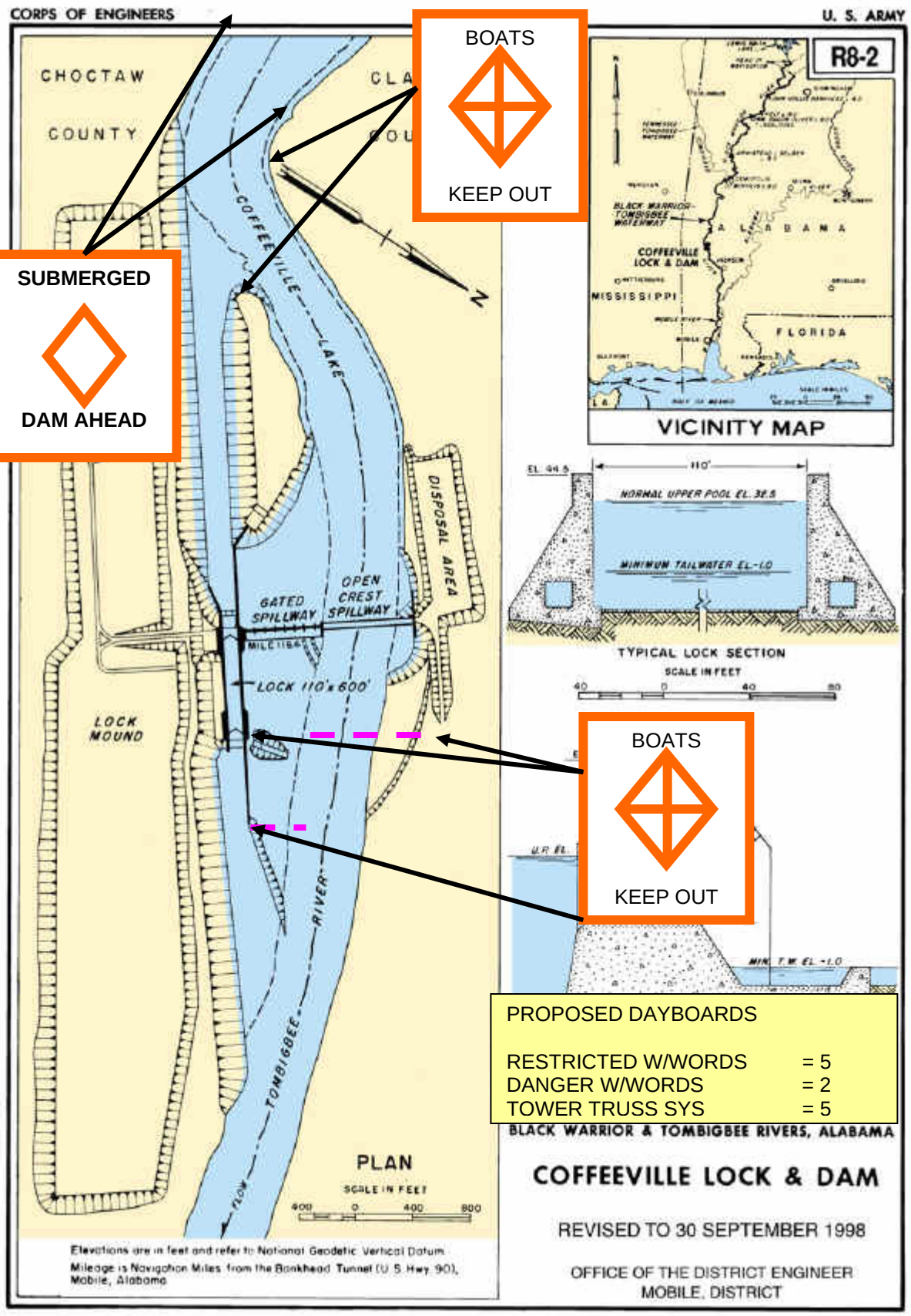

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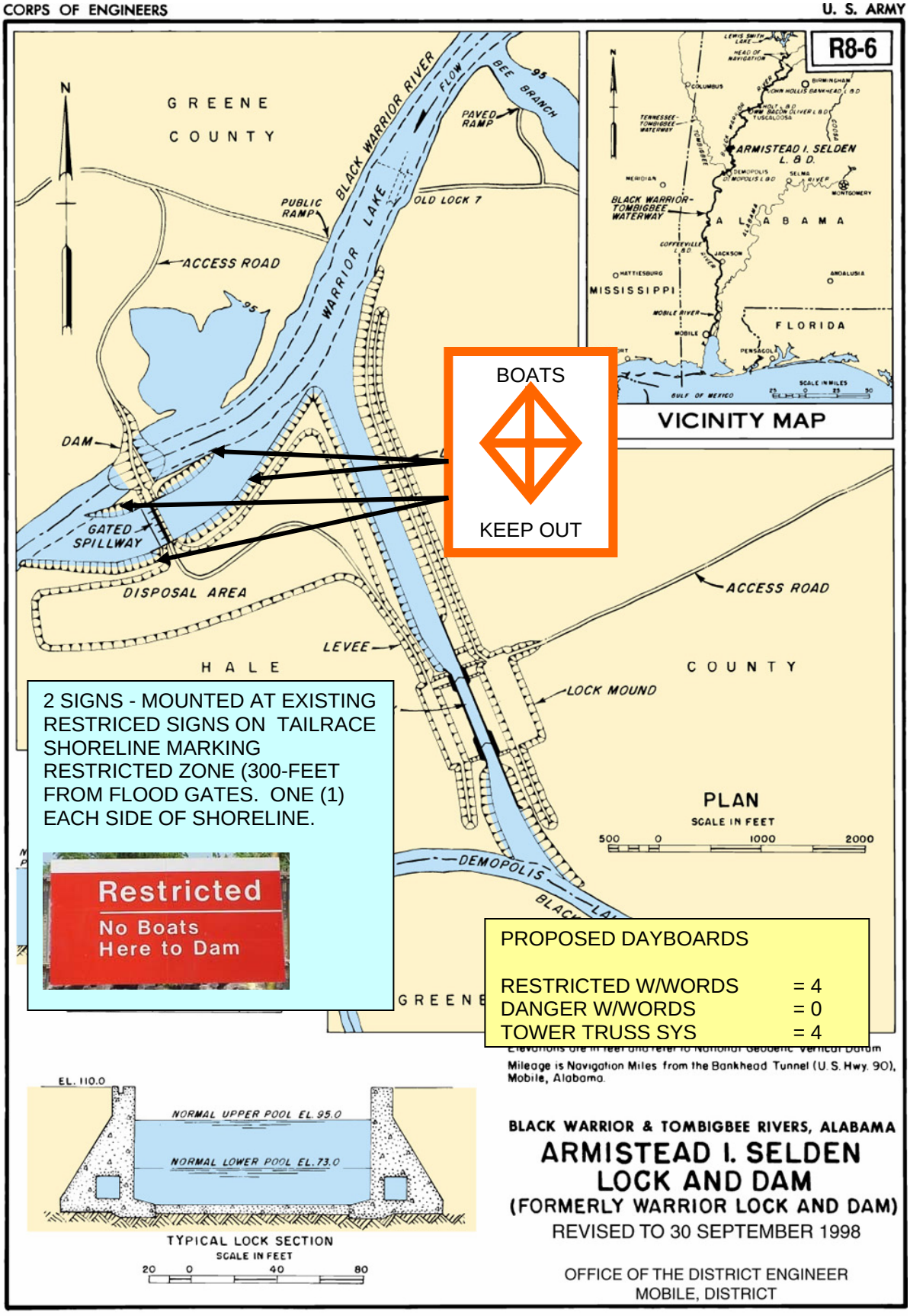

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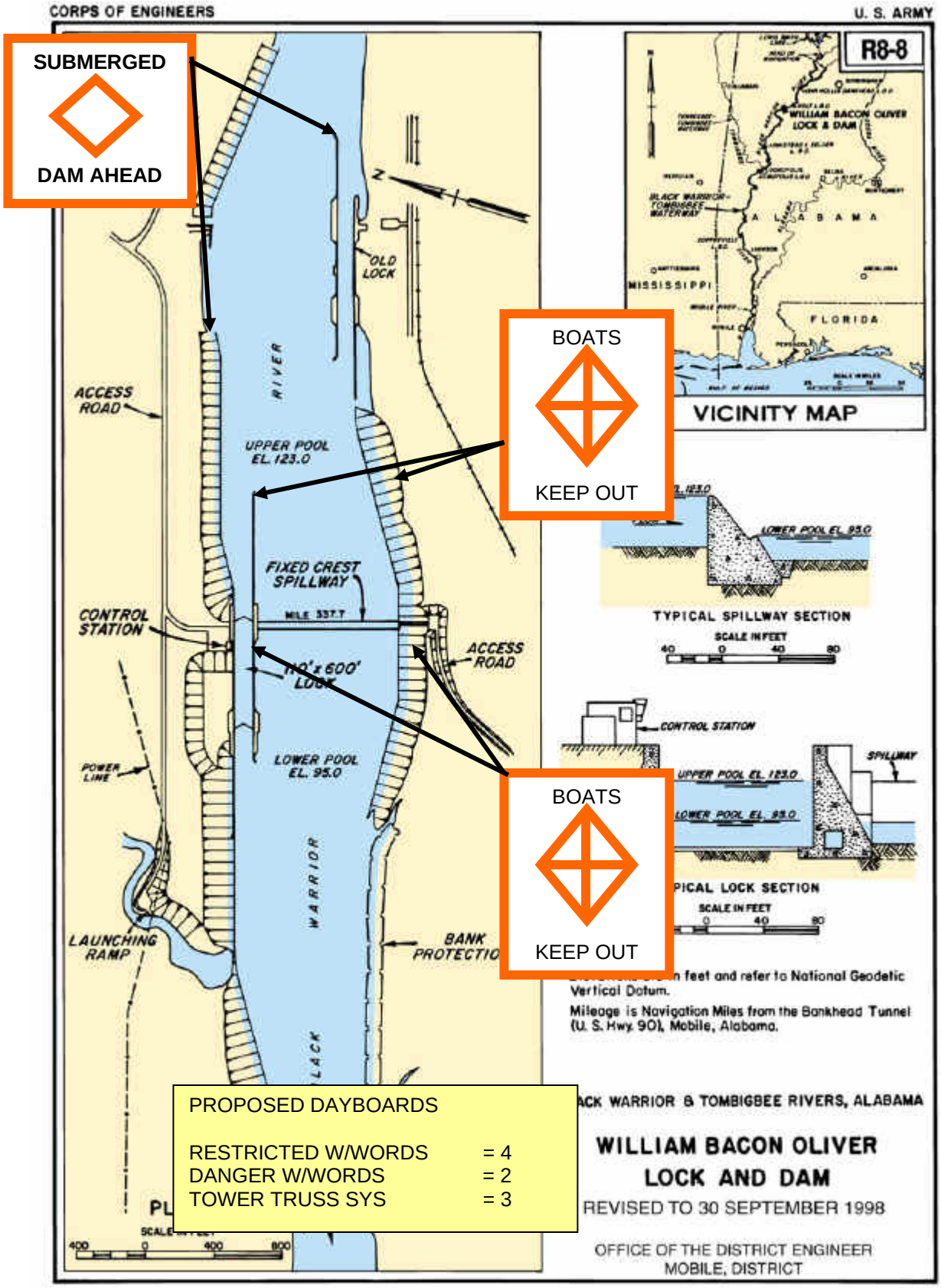

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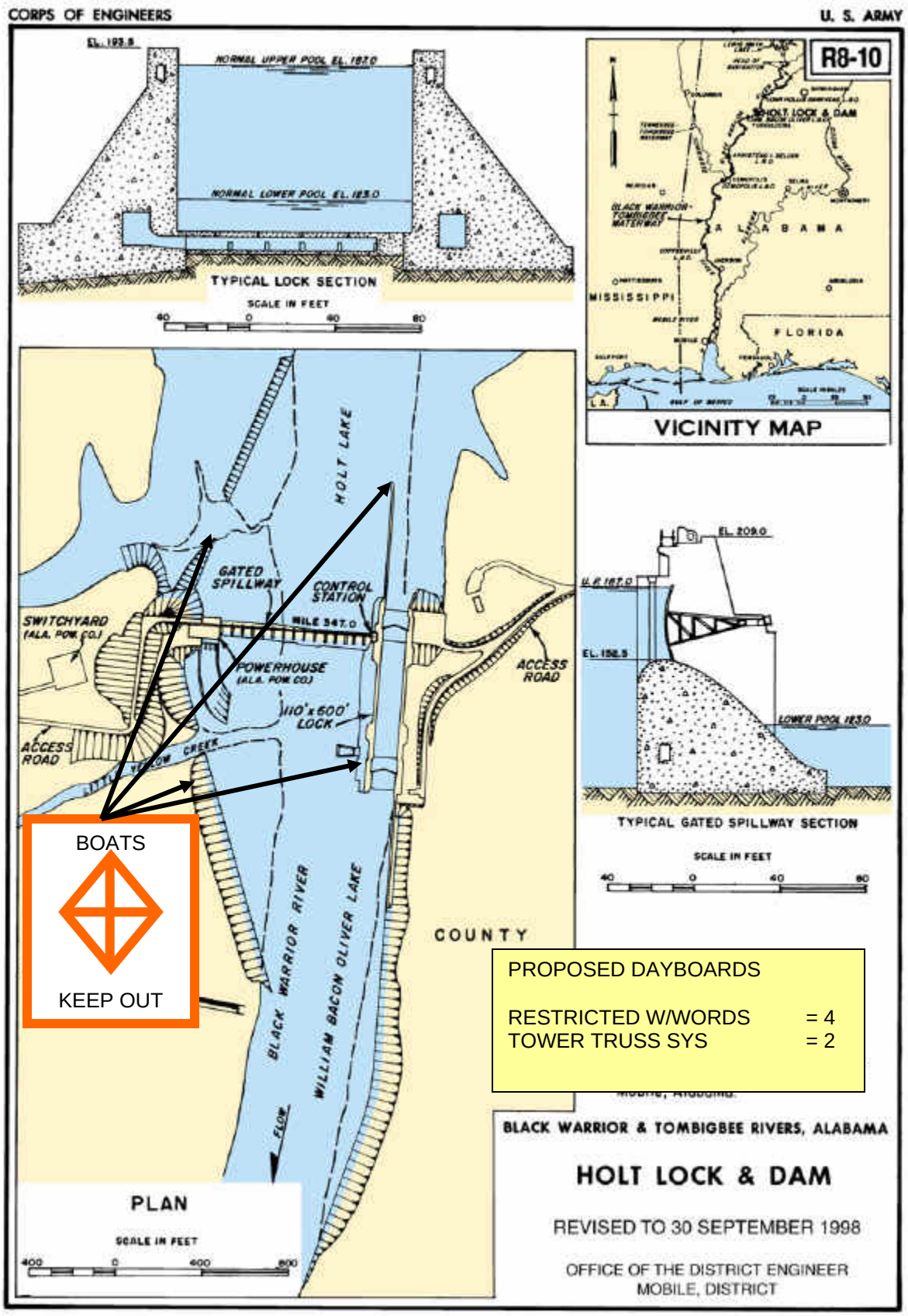

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