

CEMVS-PD-E

MEMORANDUM FOR FILE

SUBJECT: Mark Twain Lake, Salt River, Missouri, Supplement No. 3, Design Memorandum No. 9, The Master Plan.

1. Reference:

- a. ER 1130-2-550, Chapter 3: Project Master Plans and Operational Master Plans, approved 15 August 2002
- b. EM 1110-1-400, Engineering and Design: Recreation Facility and Customer Services Standards, 1 November 2004. All proposed facilities will be in accordance with these standards.
- c. Mark Twain Lake Master Plan, Design Memorandum No. 9, Salt River, Missouri, 2004
- d. ER 1105-2-100, Appendix E, Section VII, Recreation, paragraph E-48, 2002

2. Purpose: The purpose of this supplement is to request approval for the replacement of existing facilities and the addition of new facilities. These proposals will improve O&M efficiency, safety, sanitation, and customer service by providing facilities that meet current standards, visitor demand and operational needs. Visitation and user fees are projected to increase. This supplement also includes two updated actions that were approved in previous master plan documents: the Blackjack Marina breakwater and an accessible fishing pier in the Warren G. See Spillway Recreation Area.

3. Project Description: The proposed actions included in this supplement are described in the following paragraphs. Plates graphically depicting the proposed actions are attached at the end of this supplement.

a. Vault Toilet Replacement: This action includes the replacement of three (3) vault toilets in the Frank Russell Campground and two (2) vault toilets in the Indian Creek Campground. The existing wood construction vault toilets are approximately 30 years old and are deteriorating from extensive use and normal wear and tear. The replacement vault toilets would be located adjacent to the location of the existing toilets and would enable the project to continue to provide safe and sanitary facilities and reduce maintenance costs. The new vault toilets are low maintenance, pre-fabricated Americans with Disabilities Act (ADA) accessible concrete units with unisex capability. The estimated replacement cost for the 5 vault toilets is \$320,000.

b. Facility Consolidation / Shower Building Replacement - Ray Behrens Recreation Area: This action includes consolidation of facilities by removing a comfort station and shower building and constructing a large pre-fabricated shower building in the Deer Run Camp loop. The existing buildings to be removed are 33 years old and do not meet the current accessibility requirements of the ADA. Many public complaints have been received regarding the lack of modern, accessible facilities in the Ray Behrens Campground. Additionally, the two buildings do not meet the facility load requirements required for the utilization levels of the campground. The Ray Behrens Recreation Area is one of the most popular and cost efficient Corps of Engineer recreation areas in the nation and supports approximately 500,000 visitors annually.

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The new shower building will be located within the same foot-print of the existing shower building utilizing existing parking and utilities and will feature additional toilet and shower facilities. The new shower building will be a prefabricated concrete design, and will meet current ADA and "green" building requirements. The consolidation of facilities will meet public health and safety requirements and significantly decrease future O & M costs. The cost estimate for this action is \$750,000.

c. Ray Behrens Boat Ramp Modification: This action proposes modification of the existing four (4) lane boat ramp and maneuvering area to allow public access at higher pool levels. The modification includes removal of concrete steps along the sides of the ramp to widen user lanes and to allow for an additional courtesy dock, elevation of the top of the ramp and maneuvering area from 619 NGVD to 625 NGVD, relocation of the access trail from the parking lot to the ramp, removal of the pedestrian bridge and replacement with a culvert, and extension of the tie-down lane.

These actions are necessary to accommodate existing public demand and improve the safety and usability of the most heavily utilized boat ramp on Mark Twain Lake. Currently, there is room for only one courtesy dock due to the concrete steps located on either side of the ramp. The one courtesy dock is not able to safely service the load of users at this location, which causes long ingress and egress lines at the ramp and severe congestion in the bay. The ramp and maneuvering area need to be elevated approximately six (6) feet to be useable during the majority of high pool elevations and visitors can safely launch their boats. Additionally, the tie-down lane will need to be extended, the access trail will need to be relocated to a higher elevation and the pedestrian bridge removed and replaced with a culvert to provide safe access to the ramp from the parking lot during high pool elevations.

The Ray Behrens Recreation Area and boat ramp are among the most heavily used in the nation with approximately 500,000 visitors annually. This modification will significantly improve visitor safety and use of the ramp. It should be noted that numerous complaints have been received about the usability of the Ray Behrens Ramp during elevated pool elevations and the lack of courtesy dock space. The general cost estimate for this action is \$1,000,000.

d. Ray Behrens Fee Booth Replacement: This action includes replacement of the wooden fee booth and a rerouting of the exit lane of traffic. The existing wooden fee booth is 33 years old and does not have any sanitary facilities. The existing fee booth was designed with ingress and egress lanes against each side of the building and there is no accommodation for walkup registration at the booth. Fee attendants are required to tend the booth for long periods of time without breaks and this has caused many issues over the years with the booth having to be closed for attendants to leave and use a restroom.

The new fee booth that includes sanitary facilities will be placed adjacent to the location of the existing booth so the sanitary facilities can be hooked into an existing adjacent waste-water line. The new structure will be a prefabricated design, and will meet current ADA and "green" building requirements. Additionally, the exit lane from the campground will be re-routed away from the booth to significantly improve visitor safety.

The Ray Behrens Recreation Area is among the most heavily utilized in the nation with approximately 500,000 visitors annually. This modification will accommodate walkup registration, provide sanitary facilities for fee attendants and provide ADA accessibility. The cost estimate for this action is \$300,000.

e. Frank Russell Shelter: This action includes the installation of a new picnic shelter thru a Challenge Partnership Agreement with the Northeast Missouri Environmental Stewardship Consortium (NMESC).

The 24 ft. x 36 ft. ADA accessible shelter will be situated adjacent to the Frank Russell Pond, ADA accessible fishing pier and environmental demonstration area. The shelter will be a pre-engineered kit of laminate beam and truss structure that is similar to designs typically found in parks. The shelter will be constructed in partnership with the NMESC.

The shelter will serve an expanding variety of outdoor recreation and environmental stewardship activities occurring within the Frank Russell Area. Activities include disabled and public fishing activities, special events such as the Annual Mark Twain Lake Kids Fishing Day, group picnicking and family gatherings, organized group activities, environmental education and stewardship programs, and various programs and workshops that will be hosted by the partners of this facility.

The Mark Twain Lake Project Office and the Northeast Missouri Environmental Stewardship Consortium were recently selected as one of 11 nationwide recipients to receive a Handshake Agreement Grant in the amount of \$17,000 for the construction of this shelter. A Challenge Partnership Agreement with the NMESC is being prepared to install the shelter. The approximate cost basis of the agreement is as follows; 47% Handshake Agreement Grant, 30% NMESC, and 23% Corps of Engineers. The NMESC has agreed to perform long term maintenance activities to support the structure thru its volunteer efforts reducing Corps O&M expenses. This project sustains the Corps' recreation and environmental stewardship mission and supports the national initiative of "No Child Left Inside". This action is in compliance with the project Master Plan and cost share regulations for installation of new recreation structures. The shelter will be listed in Reserve America and will be available to be reserved for use by the public. The cost estimate for this action is \$36,500.

f. ADA Campsites and Parking: This action includes converting 10 existing campsites in the Indian Creek and Ray Behrens campgrounds (five in each) into ADA accessible campsites and 3 campsites in the Frank Russell Campground. This action also includes adding up to three additional asphalt parking spaces adjacent to each comfort station and shower building in the Ray Behrens and Indian Creek Campgrounds.

The accessible campsites are necessary to meet the growing demand from our aging population for universally accessible facilities for those who camp and enjoy outdoor recreation activities at the Mark Twain Lake Project. The additional parking spaces are necessary to help relieve vehicular congestion at restroom facilities by providing safe, adequate parking. Numerous complaints have been received regarding the lack of disabled campsites at the campgrounds at Mark Twain Lake. This action will satisfy the need for additional ADA accessible campsites and additional parking within campgrounds at Mark Twain Lake. The cost estimate for this action is \$100,000.

g. Playground Equipment Replacement: This action includes replacement of six (6) wooden outdated playground systems and impact areas at the Warren See Spillway (2), M.W. Boudreaux (John Briscoe Group Camp) (1), Frank Russell (2), and Ray Behrens (1) Recreation Areas. The existing play systems are over 20 years old and are beginning to deteriorate and are costing more to maintain. Currently, these playgrounds are not in compliance with the new modern CPSC Guidelines for playground safety.

The new systems will be constructed of low maintenance materials and fasteners, will be in compliance with the modern CPSC Guidelines and will be universally accessible in accordance with Sec. 4.2 of EM 1110-1-400. The U.S. Access Board's, *A Guide to the ADA Accessibility Guidelines for Play Areas*, October 2005, will be consulted for implementation guidance. The new play systems will significantly improve child safety and reduce O & M costs. The cost estimate for this action is \$360,000.

h. Equipment Storage Building: This action includes the installation of a pre-engineered, three (3) sided equipment storage building with ancillary electrical hook-ups. The building will be approximately 3200 square feet (100 ft. x 32 ft.) and will be located along the west fence inside the existing Mark Twain Lake Project Office compound. The storage building will be constructed with a metal frame and exterior providing a minimum of 50 years of life expectancy. The facility will provide much needed shelter and protection for project owned equipment. The ability to shelter the equipment will extend the life of the equipment reducing maintenance, repairs and premature deterioration of expensive assets. The cost estimate for this action is \$350,000.

i. Floating Wave Attenuator: This action includes the installation of a floating wave attenuator (breakwater) at the Blackjack Marina to protect facilities and boats from wave action. Blackjack Marina, located in the Ray Behrens Recreation Area, was constructed in 1983 and was the first commercial concession on Mark Twain Lake. The facility features approximately 290 slips of various sizes, lakeside fuel dispensing and an on-the-water convenience store. A breakwater was proposed in the Master Plan, Design Memorandum No. 9, 2004 as part of the development for the Ray Behrens Recreation Area. Several congressional and individual complaints have been received regarding the necessity for this structure to protect the marina. Corps policy for provision of this type of facility requires that it be closely and directly related to enjoyment of the natural resource itself. A marina breakwater would qualify for this type of expenditure and be important for a marina's continued financial viability. The Real Estate Lease will be amended for the breakwater to become the responsibility of Blackjack Marina to operate and maintain. The cost estimate for this action is \$1,000,000. Annual payments over a 25-year period would total \$66,600 at the current interest rate of 4.375. It is conceivable that average annual damages prevented to marina infrastructure and boats by the breakwater would exceed this amount.

j. ADA Accessible Fishing Pier: An ADA accessible fishing pier was approved for the Warren G. See Recreation Area in the Master Plan, Design Memorandum No. 9, 2004. The public has continued to make numerous complaints about the lack of ADA accessible fishing facilities. An accessible fishing pier located in the Warren G. See Spillway Recreation Area would help satisfy the long standing demand for disabled fishing opportunities at the Mark Twain Lake Project. The cost estimate for this action is \$270,000.

4. Cost Estimate: The preliminary estimated cost of the proposed and approved projects described above is \$5,608,125. Cost of proposed new facilities is \$2,070,625. A field estimate of costs for the proposed actions is included in Appendix A.

5. Environmental Compliance: All environmental compliance requirements will be accomplished before initiation of work or installation of any project. The required project environmental checklists have been completed and submitted by CO-J for each of the new, proposed, and previously approved actions. The status of environmental compliance is discussed below for each item listed above:

a. Vault Toilet Replacement – Frank Russell and Indian Creek Recreation Areas: These facilities are located in previously disturbed areas and have been surveyed for cultural resources.

b. Facility Consolidation / Shower Building Replacement - Ray Behrens Recreation: This project is located in a previously disturbed area and has been surveyed for cultural resources.

c. Ray Behrens Boat Ramp Modification: This project is in a previously disturbed area and has been surveyed for cultural resources.

d. Ray Behrens Fee Booth Replacement: This project is located in a previously disturbed area and has been surveyed for cultural resources.

e. Frank Russell Shelter: This project is located in a previously disturbed area and has been surveyed for cultural resources.

f. Disabled Campsites and Parking – Indian Creek, Ray Behrens, and Frank Russell Recreation Areas: These facilities are located in previously disturbed areas and have been surveyed for cultural resources.

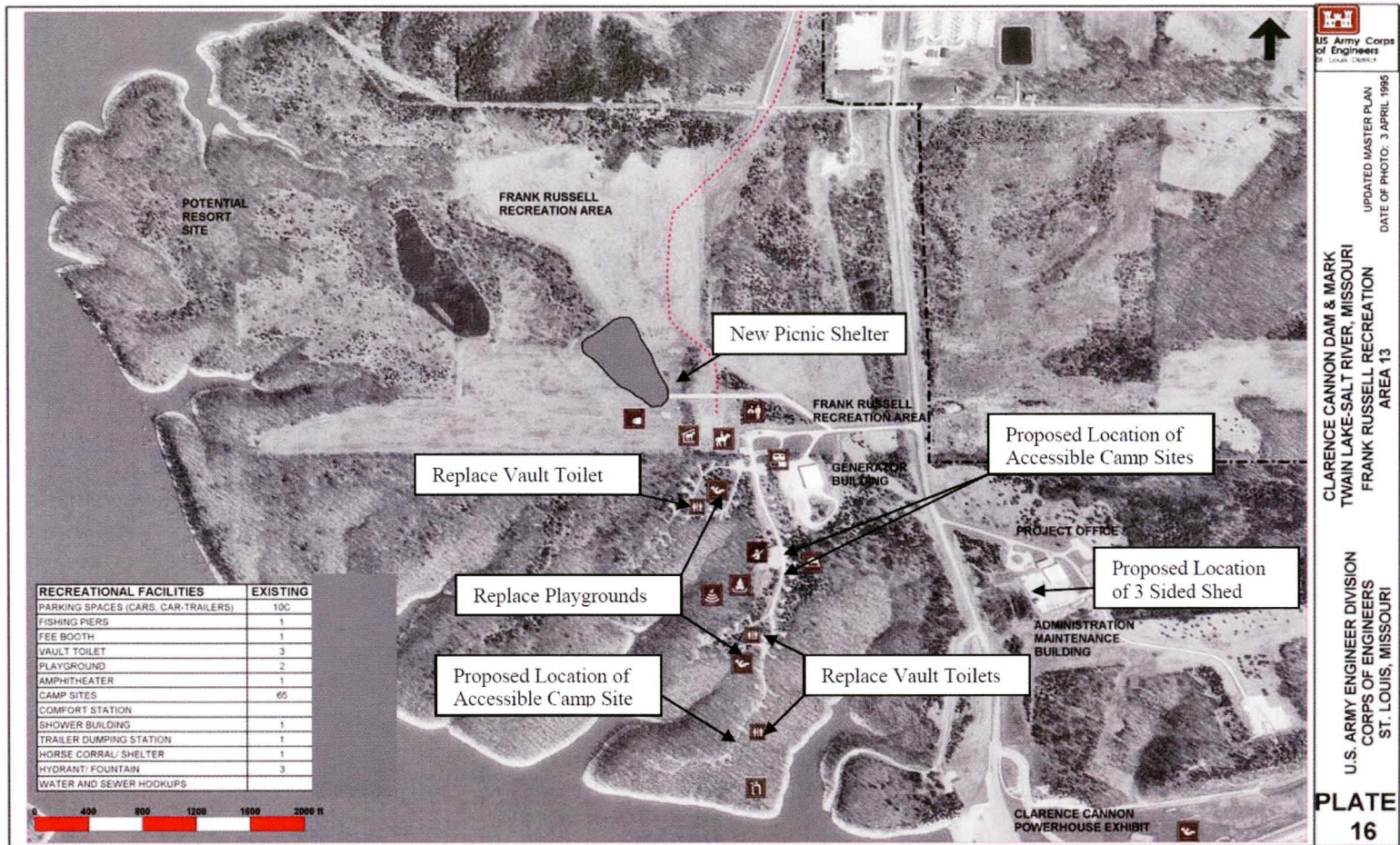
g. Playground Equipment Replacement – Warren G. See Spillway, M.W. Boudreaux (John Briscoe Group Camp), Frank Russell, and Ray Behrens Recreation Areas: These facilities are located in previously disturbed areas and have been surveyed for cultural resources.

h. Equipment Storage Building – Mark Twain Lake Project Office Compound: This project is located in a previously disturbed area and has been surveyed for cultural resources.

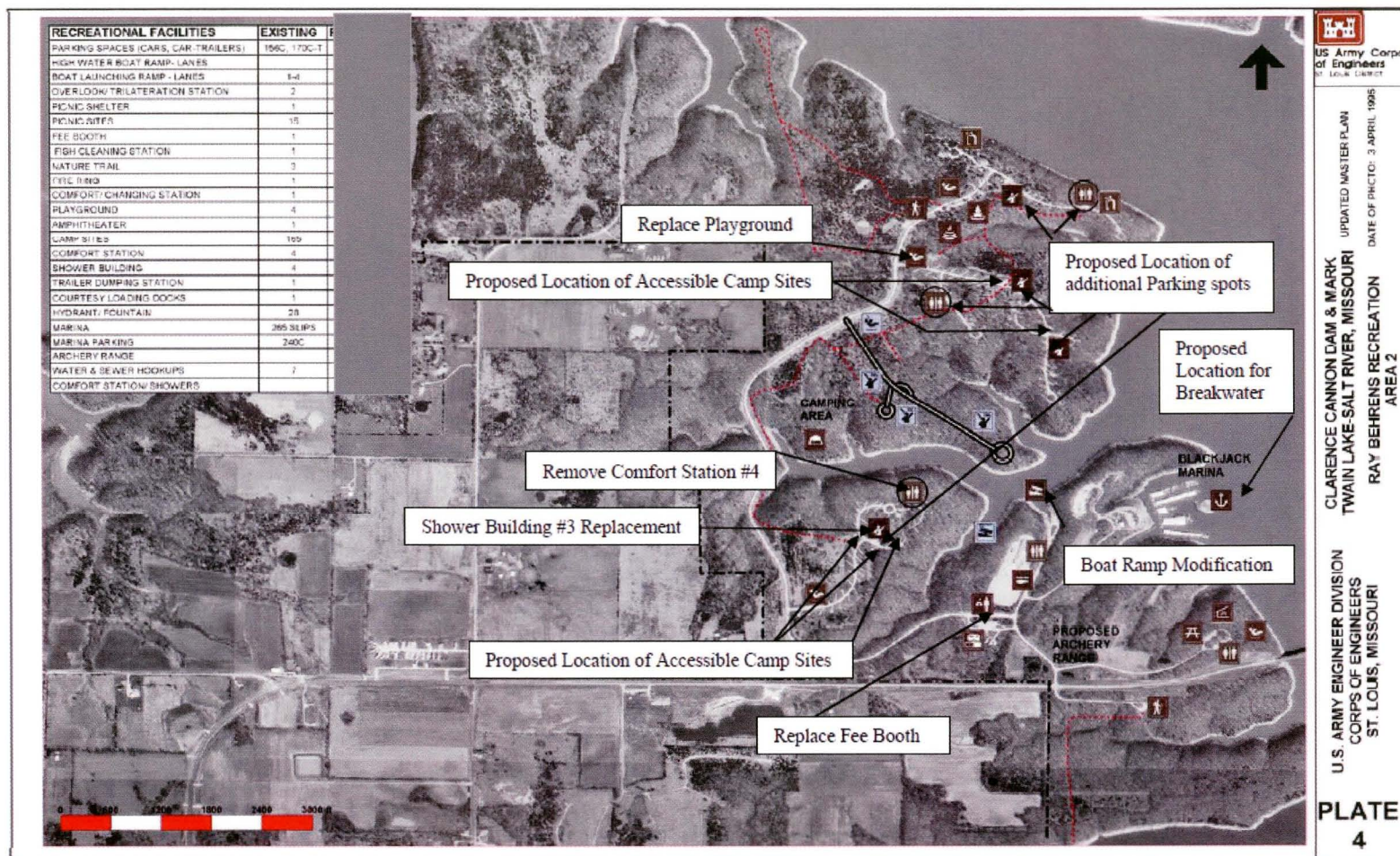
i. Floating Wave Attenuator – Ray Behrens Recreation Area (Blackjack Marina): This site has been surveyed for cultural resources, but is currently underwater and will require further review. Additionally, a regulatory review will be necessary for determination of a 404 permit requirement and a review, determination, and permit will have to be obtained from the Missouri State Water Patrol for the structure to be placed in the lake.

j. ADA Accessible Fishing Pier – Warren G. See Spillway Recreation Area: This facility is located in a previously disturbed area and has been surveyed for cultural resources.

6. Conclusions: The proposed and previously approved projects address the identified needs at Mark Twain Lake and are an appropriate proposal to meet the demand for recreational facilities and operational needs. The proposed and previously approved actions are in accordance with the Mark Twain Lake Master Plan and Corps regulations and policies. Approval of this supplement is recommended.



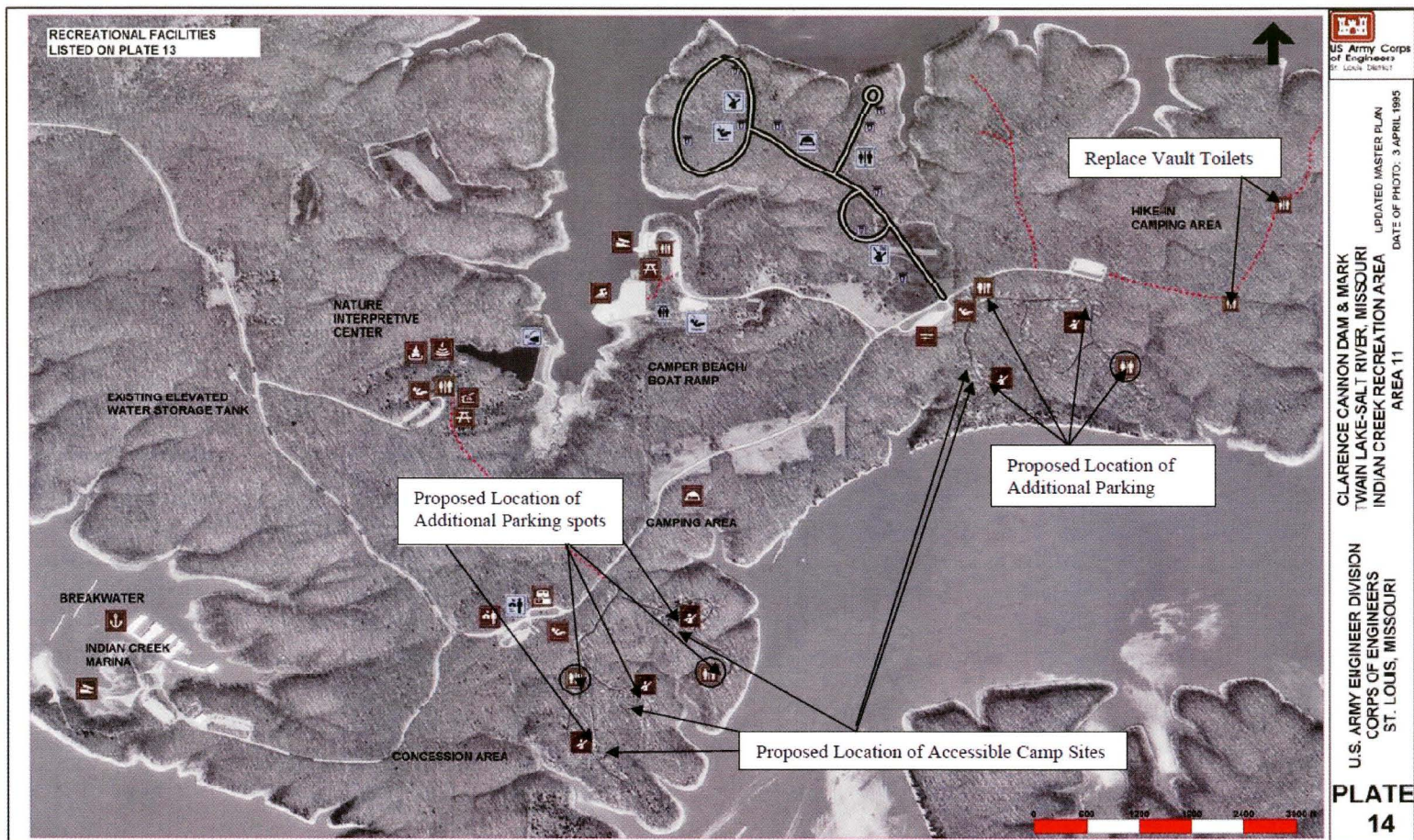
Frank Russell Recreation Area



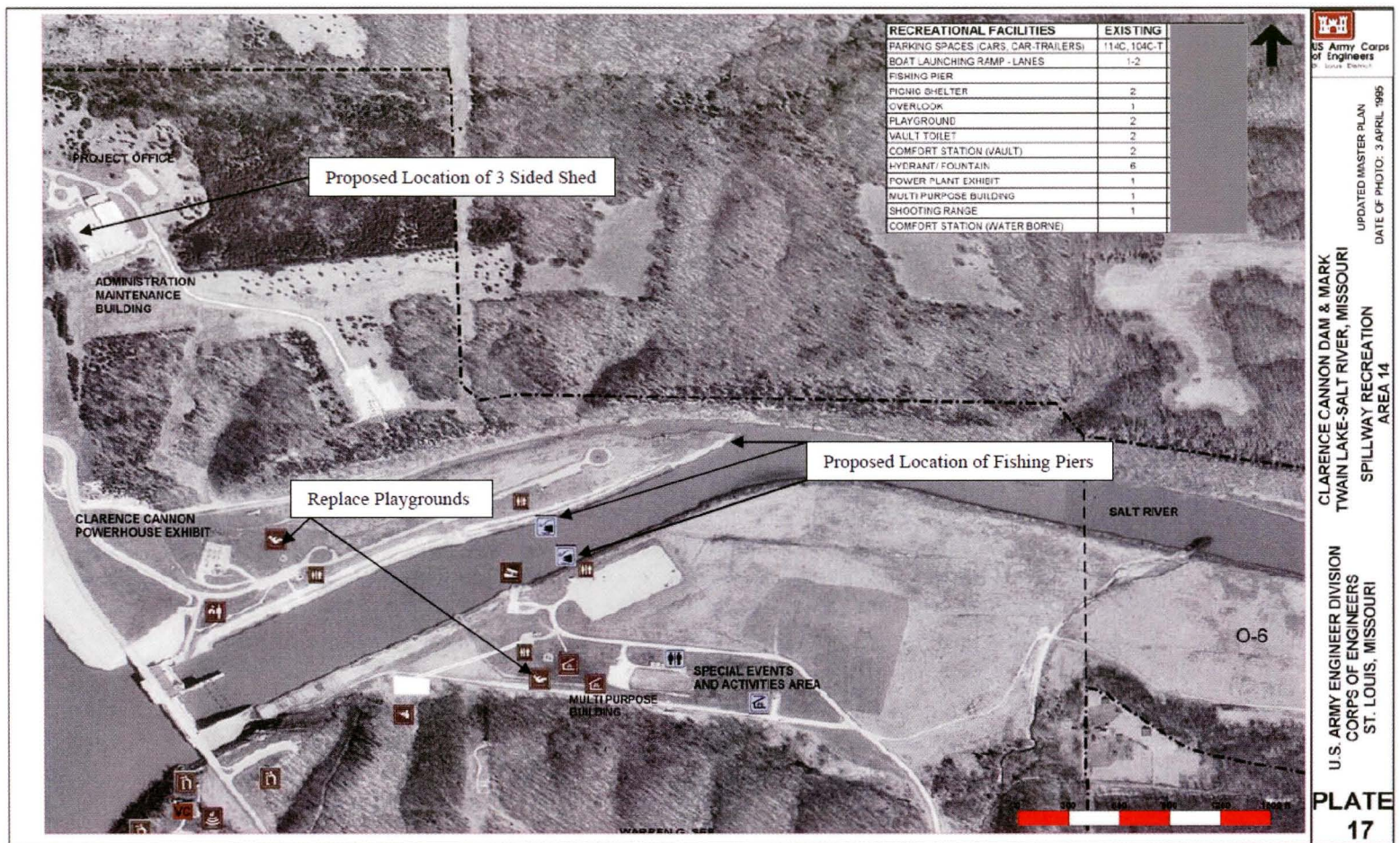
Ray Behrens Recreation Area



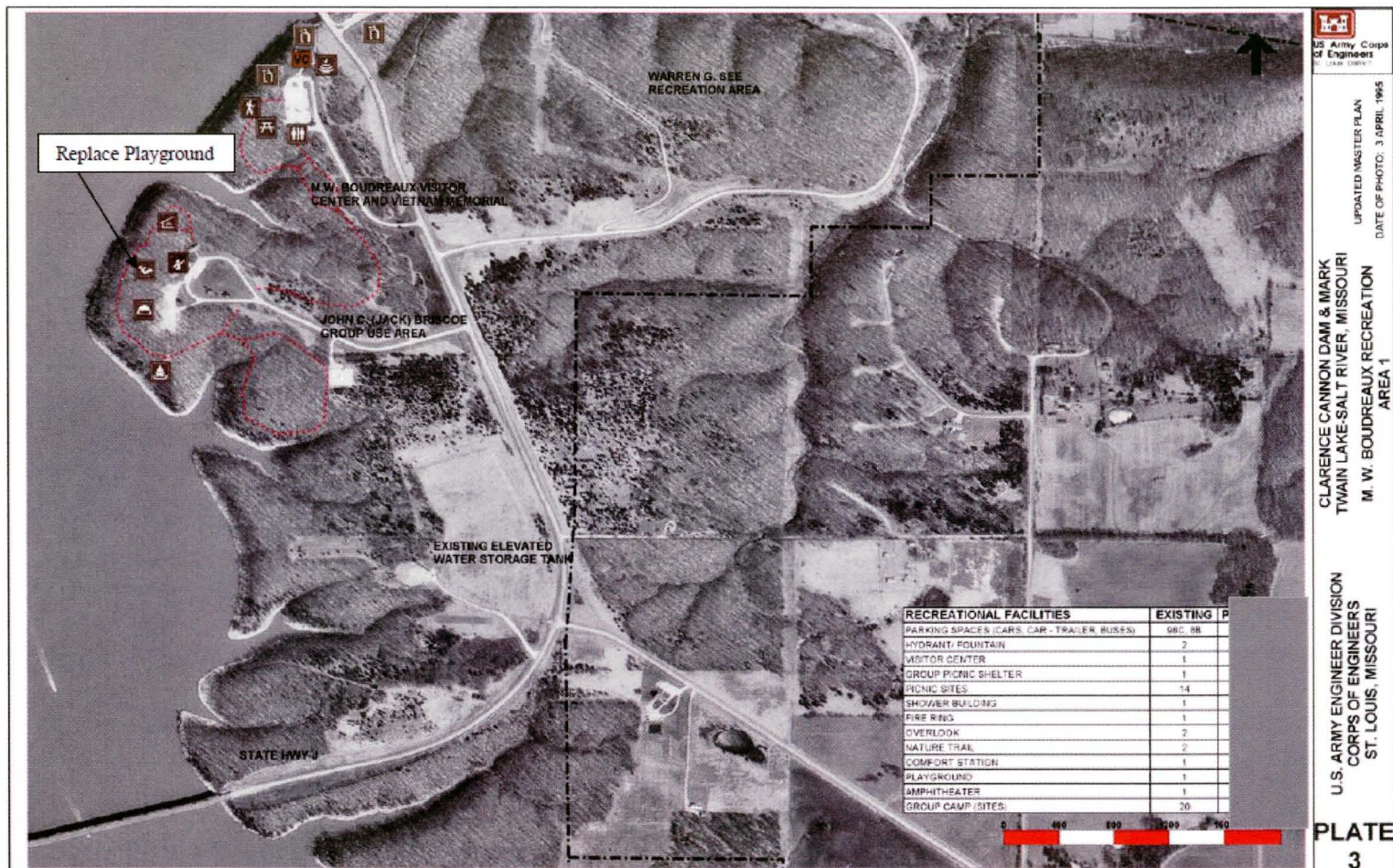
Indian Creek Recreation Area



Indian Creek Recreation Area



Warren G. See Spillway Recreation Area



John C. Briscoe Group Use Area

Appendix A – Field Estimate of Cost

Location	Proposed Action	Purpose	Qty	Unit	Cost	Total Cost	Cost (w/ 25% contingency)	Funding Source	Environmental Compliance
Indian Creek	Vault Toilet Replacement	O&M	2	Each	\$64,000	\$128,000	\$160,000.00	Corps	Environmental Checklist in Progress
Frank Russell	Vault Toilet Replacement	O&M	3	Each	\$64,000	\$192,000	\$240,000.00	Corps	Environmental Checklist in Progress
	Add Picnic Shelter	New	1	Each	\$36,500	\$36,500	\$45,625.00	Handshake Agreement, NMESC, Corps	Environmental Checklist in Progress
	Playground Replacement	O&M	2	Each	\$60,000	\$120,000	\$150,000.00	Corps	Environmental Checklist in Progress
Ray Behrens	Shower Building and Comfort Station Replacement	O&M	1	Job	\$750,000	\$750,000	\$937,500.00	Corps	Environmental Checklist in Progress
	Boat Ramp Modification	O&M	1	Job	\$1,000,000	\$1,000,000	\$1,250,000.00	Corps	Environmental Checklist in Progress
	Add Floating Breakwater	New	1	Job	\$1,000,000	\$1,000,000	\$1,250,000.00	Corps	Environmental Checklist in Progress
	Fee Booth Replacement	O&M	1	Job	\$300,000	\$300,000	\$375,000.00	Corps	Environmental Checklist in Progress
	Playground Replacement	O&M	1	Each	\$60,000	\$60,000	\$75,000.00	Corps	Environmental Checklist in Progress
Warren G. See Spillway	Playground Replacement	O&M	2	Each	\$60,000	\$120,000	\$150,000.00	Corps	Environmental Checklist in Progress
	Add ADA Accessible Fishing Pier	New	1	Job	\$270,000	\$270,000	\$337,500.00	Corps	Environmental Checklist in Progress
John Briscoe Group Use	Playground Replacement	O&M	1	Each	\$60,000	\$60,000	\$75,000.00	Corps	Environmental Checklist in Progress
Project Office	Add Equipment Storage Shed	New	1	Each	\$350,000	\$350,000	\$437,500.00	Corps	Environmental Checklist in Progress
Indian Creek, Ray Behrens, and Frank Russell	Disabled Campsites Indian Creek=5	O&M	1	Job	\$100,000	\$100,000	\$125,000.00	Corps	Environmental Checklist in Progress
	Ray Behrens=5								
	Frank Russell=3								
	Disabled Parking Spaces add 3 at each comfort and shower building in Ray Behrens and Indian Creek								
Total Costs New Items							\$2,070,625.00		
Total Costs O&M Items							\$3,537,500.00		

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Date: 2/16/10

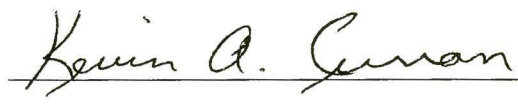
MEMORANDUM FOR RECORD - TECHNICAL REVIEW COMPLETE

SUBJECT: Quality Control Review, Mark Twain Lake Supplement 3, February 2010

In accordance with the District's Quality Control Management Plan, the Quality Control Review for the Mark Twain Lake Master Plan Supplement has been completed and all comments are resolved. We certify the completion of this review.



Francis Walton,
Outdoor Recreation Planner
Technical Reviewer



Kevin Curran,
Assistant Operations Manager, Rend Lake
Technical Reviewer

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Technical Review Checklist

Project: Mark Twain Lake Master Plan Supplement 3

Date 2/16/10

Item	Yes	No	N/A	Comments
GENERAL				
1. AUTHORITY:				
a. Does the activity/project conform with authorized project purposes?	X			
2. SCOPE:				
a. Have all significant resources been adequately considered?	X			
b. Have all foreseeable short-term and long-term needs been adequately considered?	X			
c. Have implications outside the activity/project area been properly addressed?	X			
3. OBJECTIVE OF MASTER PLAN:				
a. Are master plan objectives clearly stated?	X			
4. COORDINATION:				
a. Was there adequate coordination with stakeholders; and State, local, and Federal agencies, and were their views considered in formulating the recommended plan?	X			
b. Has coordination conformed with law, executive orders, and agreements between agencies; and, if not, has the departure been satisfactorily explained?	X			
c. Have the proper preservation, conservation, historical, and scientific interests been consulted, and were their views given adequate consideration during plan development?	X			
5. PUBLIC INVOLVEMENT:				
a. Was the scoping process in accordance with EP 1130-2-550, Sect. 3-4 d.?	X			
b. Was adequate public involvement conducted during the planning process to fully inform interested parties and to ascertain their views?	X			
c. Have implications associated with the recommended plan been properly addressed?	X			
d. Has there been adequate response to public concerns?	X			
e. Has the public involvement process been documented, and a discussion of the process prepared?			N/A	No formal public input is required. Public was consulted on a number of occasions

Technical Review Checklist Cont'd

Item	Yes	No	N/A	Comments
6. POLICY ASPECTS:				
a. Does the proposed project conform to policies established in ER 1165-2-400 (Water Resource Policies and Authorities)	X			
8. LEGAL/INSTITUTIONAL:				
a. Have the legal and institutional obstacles to project implementation been considered and has a plan been developed to overcome them?	X			
9. REPORT REVIEW:				
a. Does the report format follow the most recent guidance?	X			
b. Have all major technical review issues and resolutions been documented?	X			
c. Is the technical review certification signature page included?	X			
10. FINANCIAL ANALYSIS				
a. If applicable, does the report state the benefit-cost ratio (BCR) for proposed actions assuming existing conditions prevail over the period of analysis?			X	The proposed and previously approved projects will reduce future O&M costs.
b. Has the economic evaluation of recreational development been adequately determined?	X			
11. RECREATION/AESTHETIC				
a. Have the necessary recreational coordination been conducted in accordance with the NFCA of 1944, FFWA of 1965, and the WRDA of 1986, the Land and Water Conservation Fund Act, and appropriate Corps regulations?	X			
b. Has the assessment of adverse effects dealing with recreation and aesthetic conditions been considered in each alternative plan?	X			
c. Has coordination with the State Department of Culture, Recreation, and Tourism been conducted, and the State Comprehensive Outdoor Recreation Plan been consulted concerning proposed recreational development?			N/A	
d. Has appropriate NED unit day values been assessed via Economic Guidance Memorandum, Unit Day Values for recreation? Are current fiscal year rates being used?			N/A	

CEMVS-DE (1105)

Date:

MEMORANDUM FOR CEMVS-PD-E

SUBJECT: Supplement No. 3, Mark Twain Lake Master Plan, Design Memorandum
No. 9, Salt River, Missouri.

Supplement No. 3 to the Mark Twain Lake Master Plan, February 2010:

Approved X Disapproved _____


THOMAS E. O'HARA, JR.
COL, EN
Commanding

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