

MCKENZIE RIVER DORY "GEM"
Grand Canyon Boats
Grand Canyon National Park
Grand Canyon Village
Coconino County
Arizona

HAER AZ-81
HAER AZ-81

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240

HISTORIC AMERICAN ENGINEERING RECORD

MCKENZIE RIVER DORY “GEM”

HAER No. AZ-81

Location:	Grand Canyon National Park, Grand Canyon vicinity, Coconino County, Arizona
	McKenzie River Dory “GEM” is located at latitude: 36.050189, longitude: -112.132891. The point represents the building housing the Grand Canyon National Park Museum Collection. It was obtained from Google Earth on April 22, 2021, and there is no restriction on its release to the public.
Date of Construction:	1952
Builder:	Stephen Moulton “Moulty” Babcock Fulmer
Original Owner:	Moulty Fulmer
Present Owner:	National Park Service
Significance:	McKenzie River Dory “GEM” is significant as the first McKenzie River dory to run through the Grand Canyon. It also has the distinction of being the first hard-hulled Colorado River boat with a steep-angled rocker.
Description:	“GEM” is nearly 14'-11" long with a 6'-2 ³ / ₄ " beam. ¹ It was constructed of plywood, ³ / ₈ " thick on the sides and ³ / ₄ " thick for the bulkheads and decking, with a tapered bow and square stern. Fulmer designed the boat to have air-tight chambers for buoyancy, which were sealed with caulk. It could hold two passengers, with side boxes for storage in the boatman’s footwell. The dory also featured a stern deck grab rope and splash board, rub rails, and scuppers on either side for drainage. “GEM” is in poor condition, with much of the top decking missing. The exterior paint and lettering are very worn, although remaining paint reveals that the bottom was red, the sides white, and the interior blue. In August-September 2006, Tom Martin, a boat historian, made a wheeled wooden cradle for the dory. ²

¹ McKenzie River Dory “GEM” has been accessioned as Catalog Number GRCA 32095.

² “Historic River Boats Afloat,” available online at <http://www.historicriverboatsafloat.org/home2/gem>, accessed April 2021; Tom Martin, “Chapter 10, Moulty Fulmer’s GEM,” on Vimeo: <https://vimeo.com/457346060>, accessed April 2021.

History:

River runner Stephen Moulton “Moulty” Babcock Fulmer constructed the dory in 1952. He had met Woodie Hindman, an Oregon boat builder known for his McKenzie River drift boat, in 1945 while stationed in Corvallis. This influenced Fulmer to build his own McKenzie River dory that mimicked the “continuous steep rocker bow to stern” of Hindman’s design. The first dory built by Fulmer was “MOJA” (named for Moulty and his wife) followed by “GEM” (named for his parents, George and Emma).

Moulty took “GEM” through the Grand Canyon on the Colorado River from Lee’s Ferry to Temple Bar in the summers of 1955 and 1956, teaming up with Plez Talmadge “Pat” Reilly and rowers Vernon “Brick” Mortenson and Martin Litton. In 1957, the water was running at over 120,000 cubic feet per second (cfs). Fulmer in “GEM,” Pat “PT” Reilly in “Susie R,” and VR “Brick” Mortenson in “Flavell” attempted a river run but had to leave their boats at Phantom Ranch and hike out of the canyon. They returned the following year to retrieve their boats and try again; this time the river flow was 85,000 cfs. At Lava Falls they faced a huge rapid. Having already lost “Flavell” in a flip upstream, the group again decided to abandon the effort. This time they set the two remaining boats free to float downstream and hiked out on the Lava Falls Trail. They caught a ride to Lake Mead, rented a power boat, and headed upstream where they found a half-sunk “Susie R.” They also caught up with famed river runner Georgie White, who was towing “Flavell” behind one of her commercial pontoon boats. “GEM” was not found until 1964, however, when receding waters exposed the dory and it caught the eye of a National Park Service ranger. By then all the top decking (except for a segment over the front flotation chamber) was missing as were the wooden oar locks.

Grand Canyon National Park acquired the boat on October 31, 1979, when it was transferred from Lake Mead National Recreation Area. “GEM” was first stored in the Kolb Studio garage, and in November 2008, it was moved to the Maintenance Warehouse. Tom Martin, along with volunteers and the park’s special collection staff stabilized and cleaned the boat. Martin also took measurements of the boat and built a replica, which he ran through the Grand Canyon in 2009 and following years. The Grand Canyon historic boat collection was then moved again to a new storage area in the Powell Building in December 2013.³

Sources:

The report is based on information from the Grand Canyon Museum Collection and the following additional sources.

³ “Historic River Boats Afloat”; Martin, “Chapter 10, Moulty Fulmer’s GEM.”

“An Historic Reunion.” November 10, 2009, *Williams-Grand Canyon News*. Available online at <https://www.williamsnews.com/news/2009/nov/10/an-historic-reunion/?templates=desktop>, accessed April 2021

“Historic River Boats Afloat.” Available online at <http://www.historicriverboatsafloat.org/home2/gem>, accessed April 2021.

Martin, Tom. “Chapter 10, Moulty Fulmer’s GEM.” Available on Vimeo: <https://vimeo.com/457346060>, accessed April 2021.

Project

Information:

McKenzie River Dory “GEM” was documented as part of the Historic American Engineering Record’s Maritime Recording Program. The Historic American Engineering Record (HAER) is part of Heritage Documentation Programs, a division of the National Park Service. Todd Croteau, HAER Architect, served as project manager. Ryan Pierce produced the measured drawings in 2012. Grand Canyon National Park staff provided the information for the historical report, which was formatted by Justine Christianson, HAER Historian, 2021.

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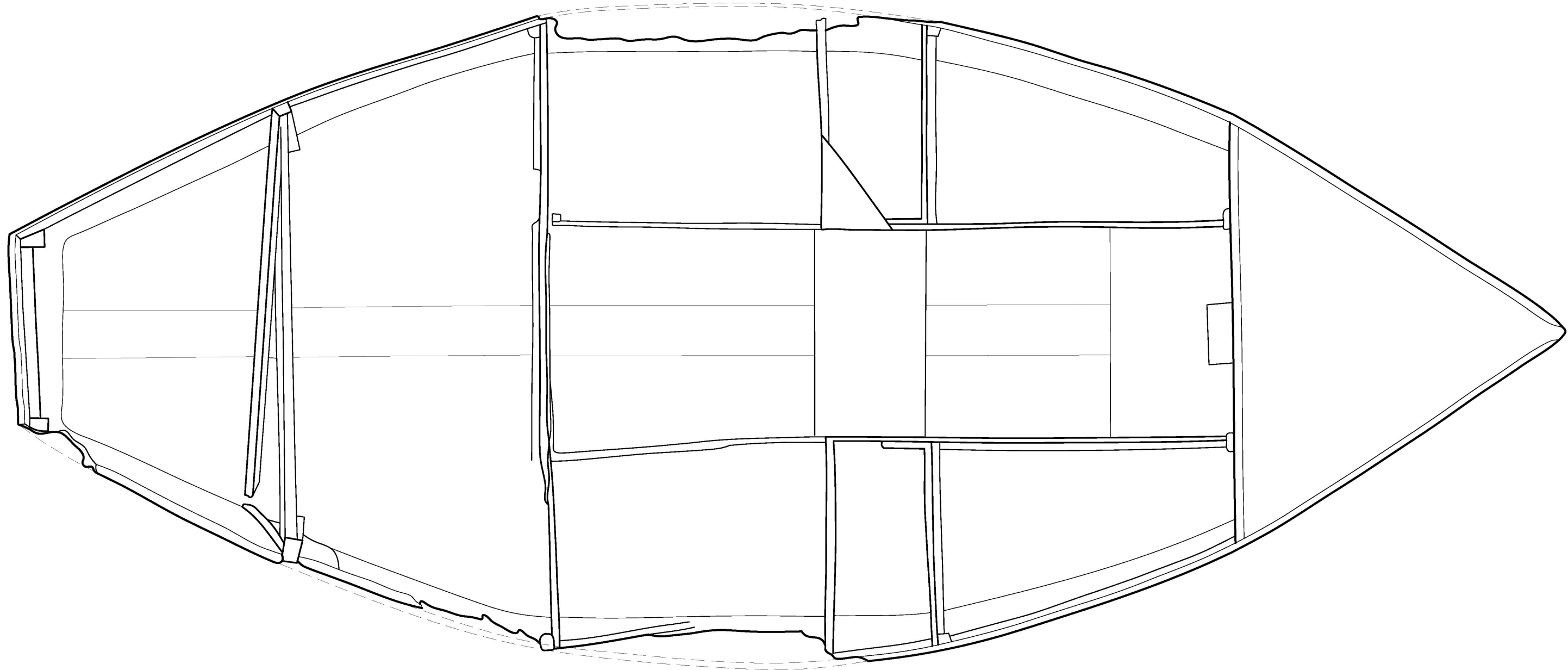
Michael C Quinn, photographer, 2012

AZ-81-1	3/4 view from the bow looking aft along the starboard side.
AZ-81-2	3/4 view from astern looking forward along the port side.
AZ-81-3	Port side view.
AZ-81-4	Starboard side view.
AZ-81-5	Transom elevation.
AZ-81-6	Detail of exposed framing at the bow.

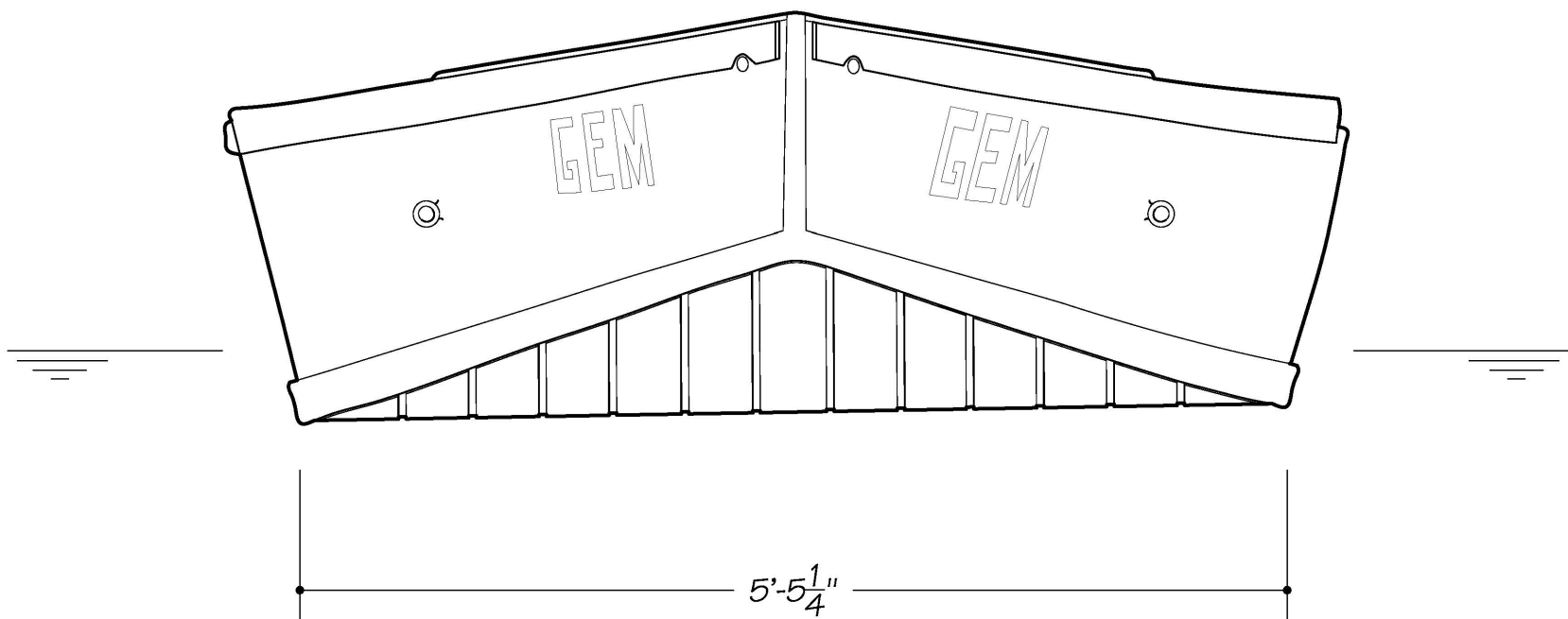
McKenzie River Dory GEM

Colorado River Boat

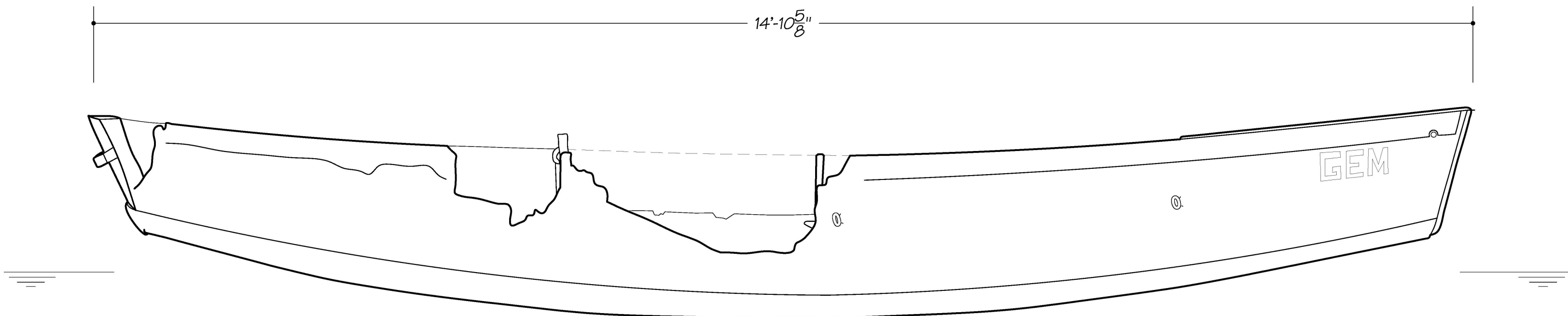
Existing Conditions - Plan/Elevations



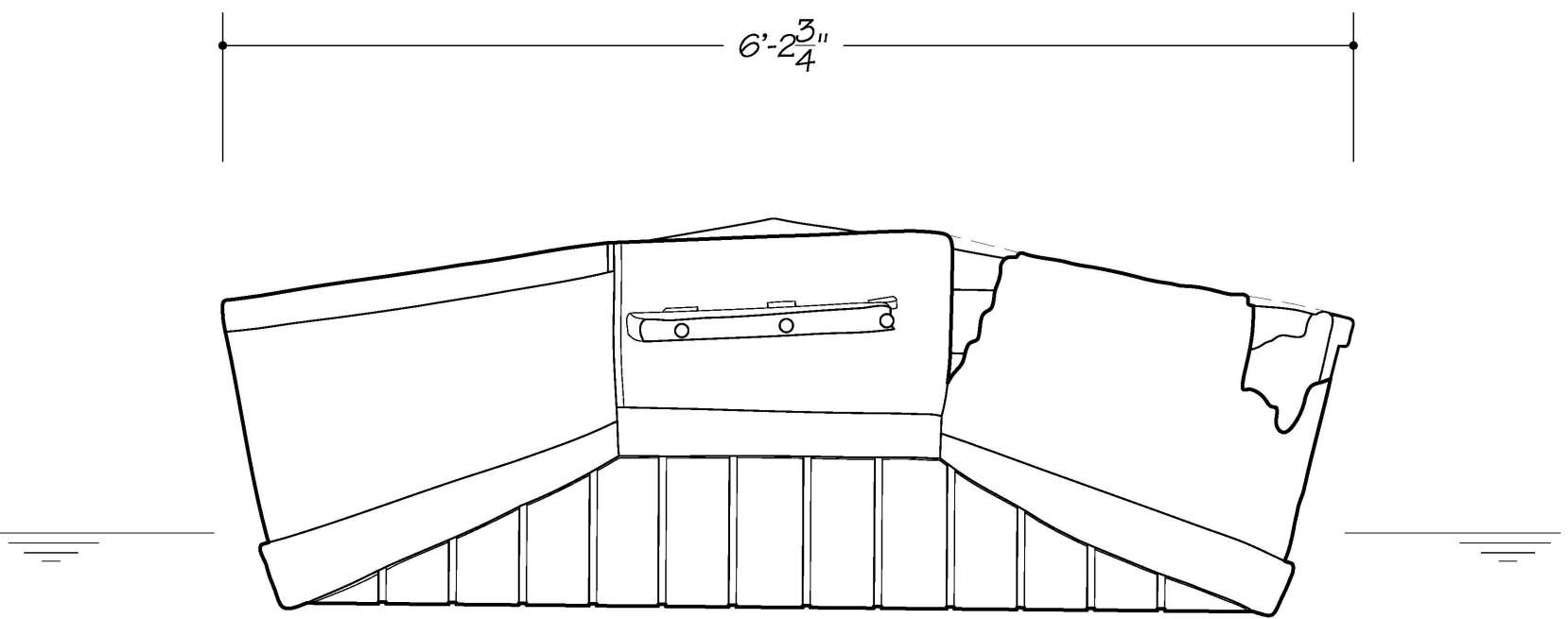
PLAN



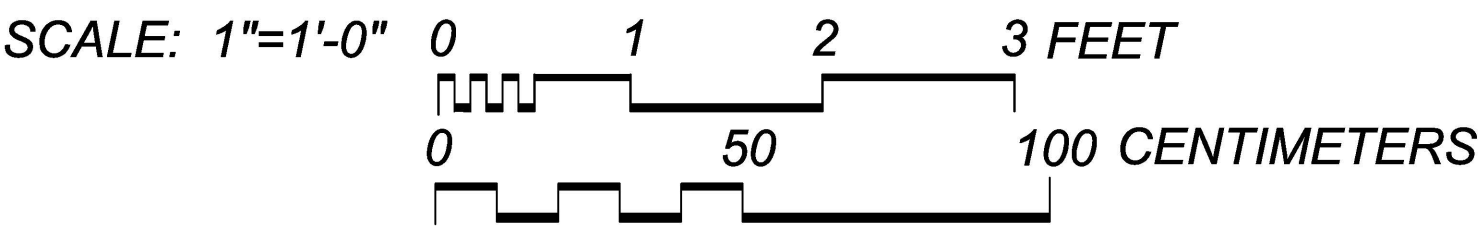
STERN ELEVATION



STARBOARD ELEVATION



BOW ELEVATION



Note: This boat was constructed of plywood and was in deteriorated condition. These drawings are based on the existing condition. Waterline is based on information provided by Tom Martin.

DELINEATED BY: RYAN PIERCE, 2012

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GRAND CANYON NATIONAL PARK
COCONINO COUNTY

ARIZONA

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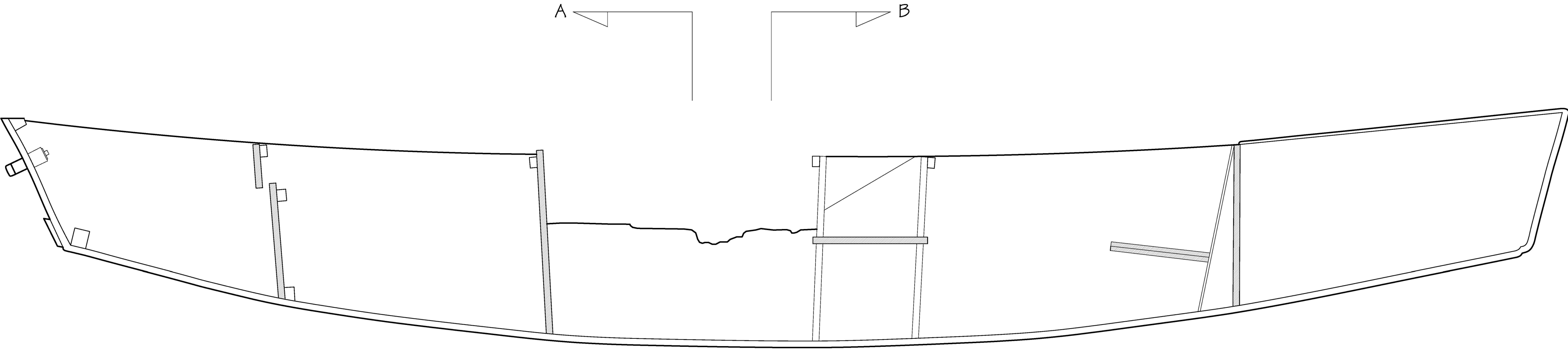
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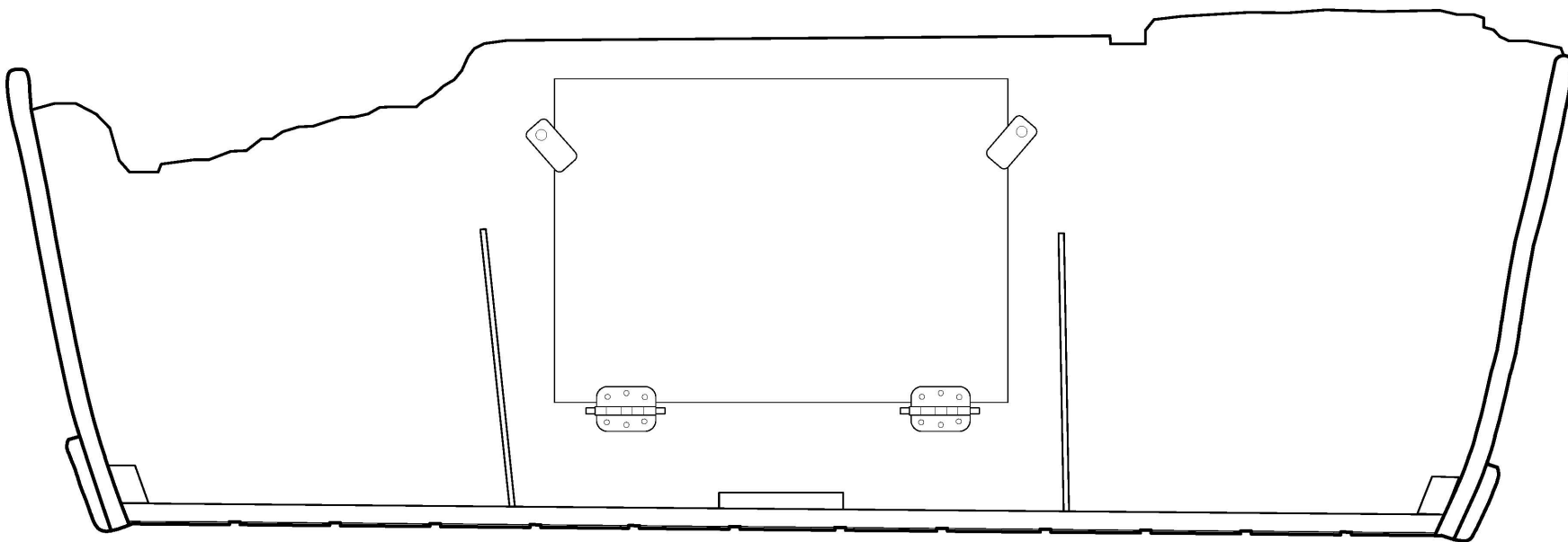
McKenzie River Dory *GEM*

Colorado River Boat

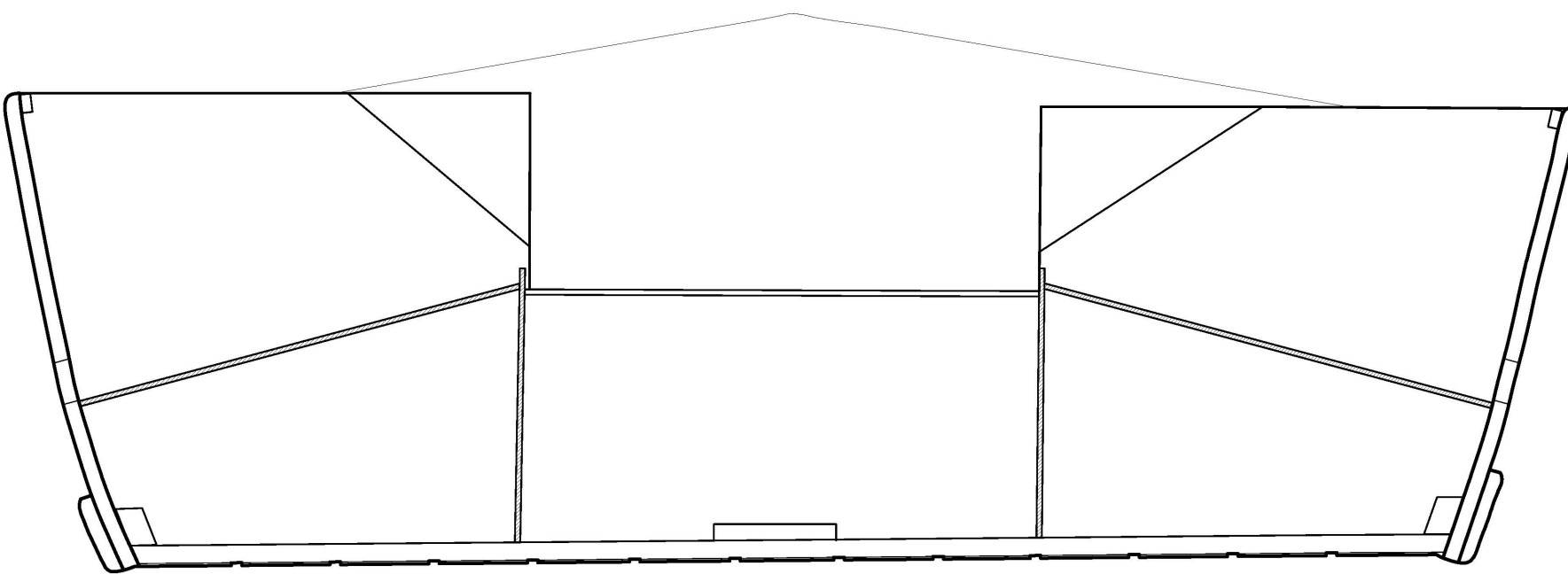
Existing Conditions - Sections



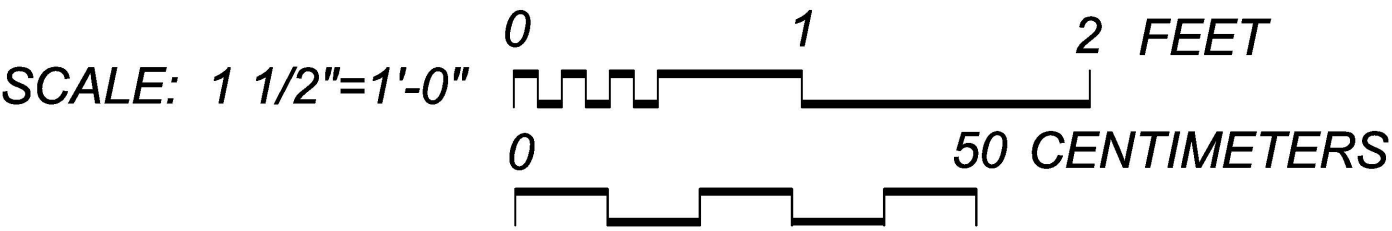
INBOARD PROFILE



SECTION A-A



SECTION B-B

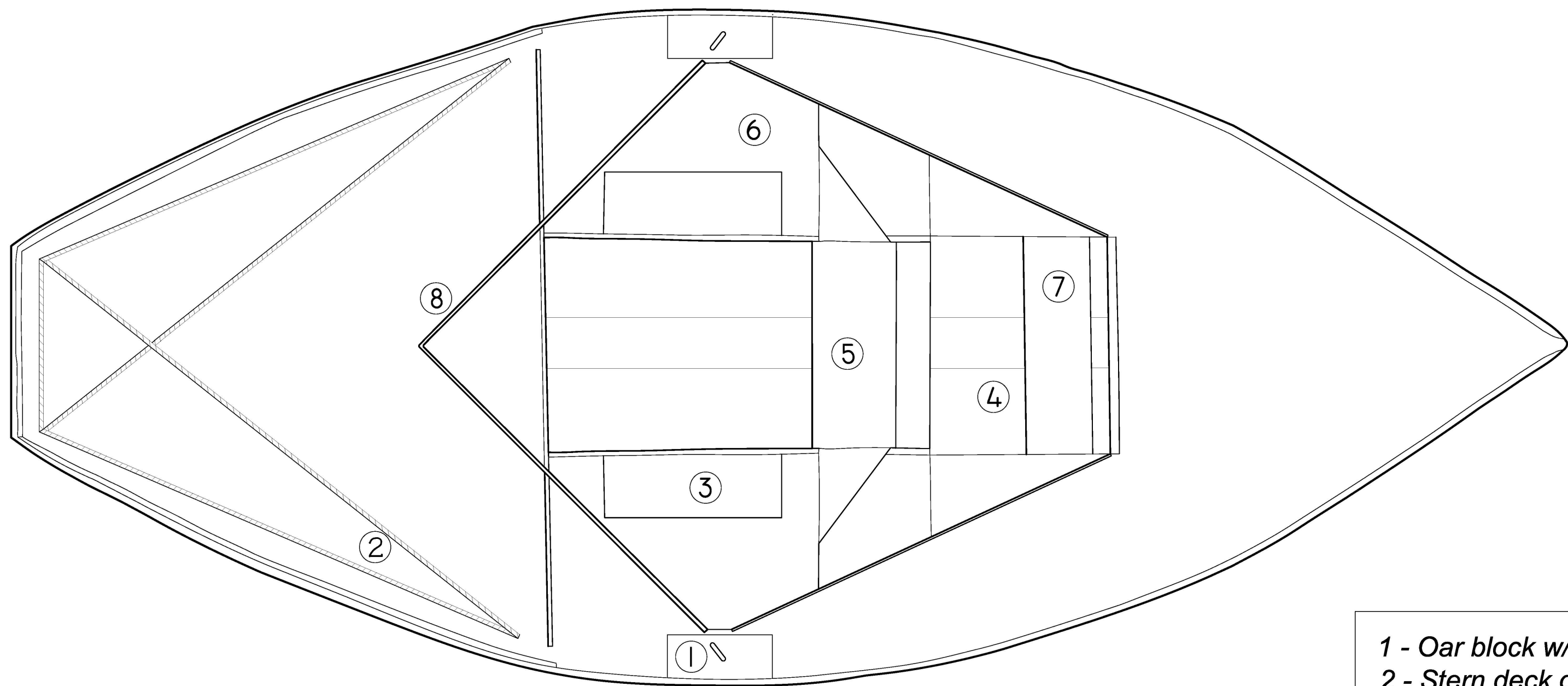


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McKenzie River Dory GEM

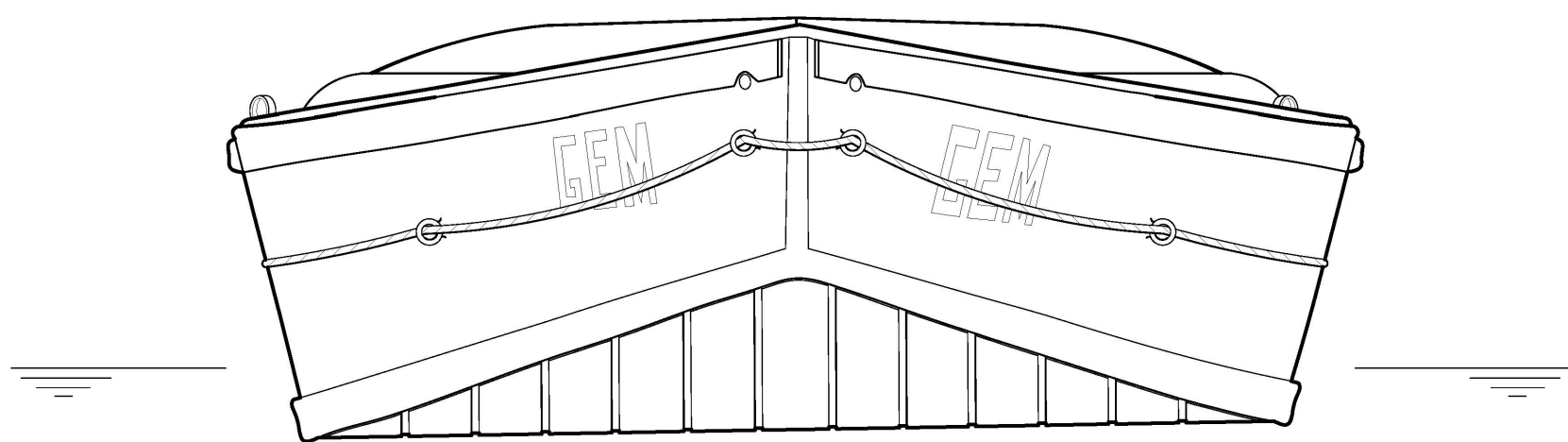
Colorado River Boat

Conjectural - Plan/Elevations

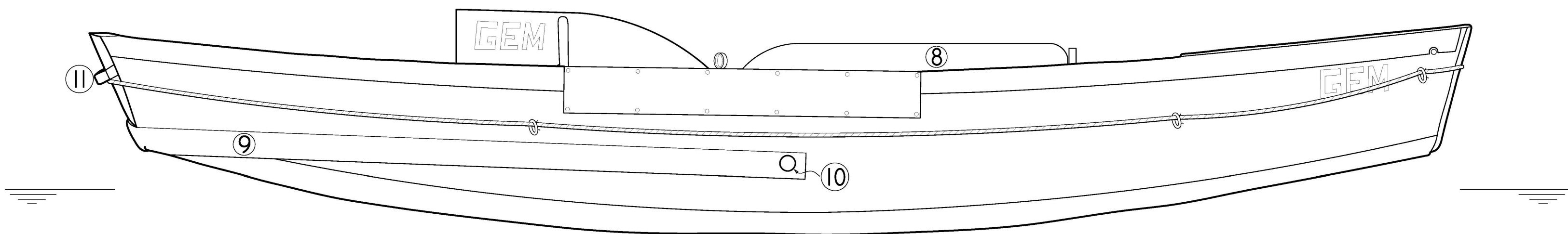


PLAN

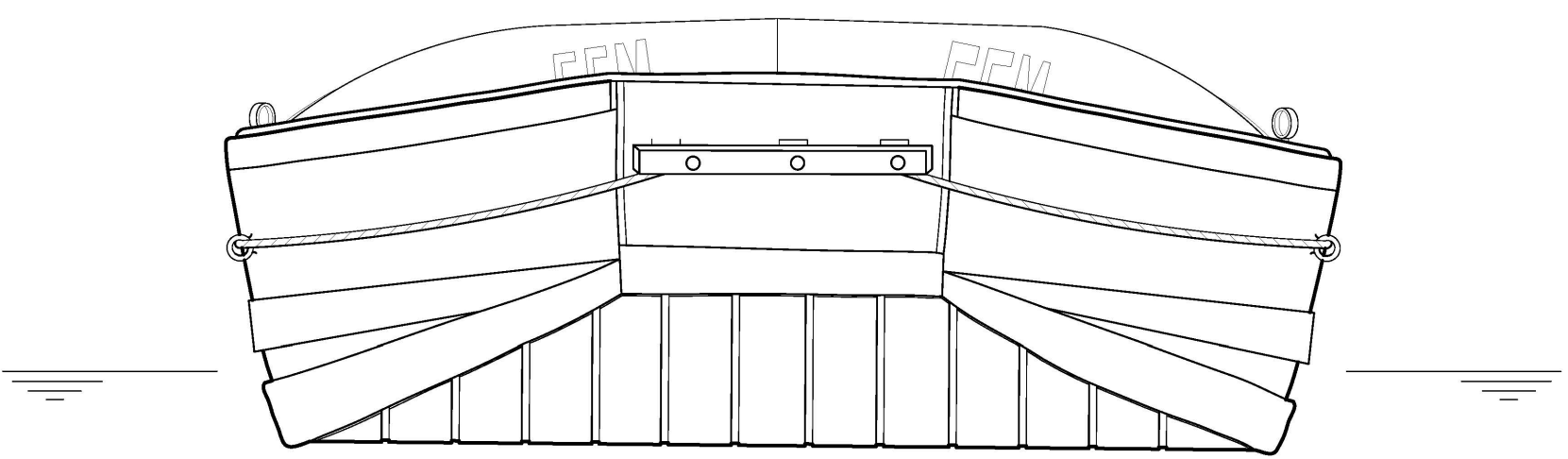
- 1 - Oar block w/ oar lock
- 2 - Stern deck grab rope
- 3 - Side hatch
- 4 - Footwell
- 5 - Boatman seat
- 6 - Side box
- 7 - Passenger seat
- 8 - Splash board
- 9 - Rub rails
- 10 - Scupper
- 11 - Stern lining grip



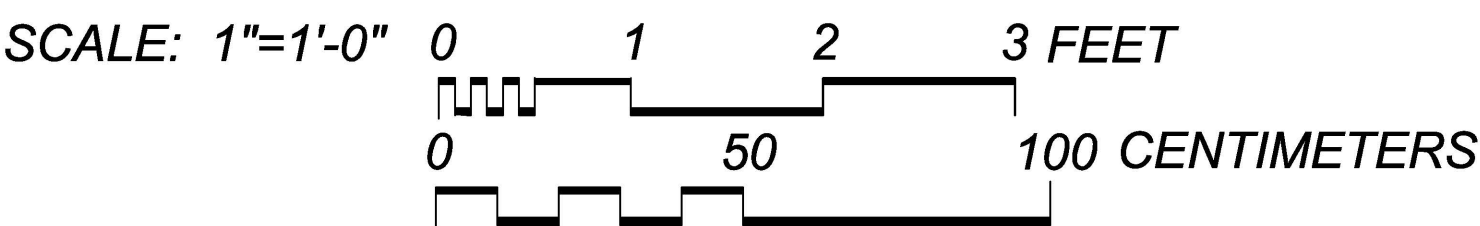
STERN ELEVATION



STARBOARD ELEVATION



BOW ELEVATION



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Colorado River Boat

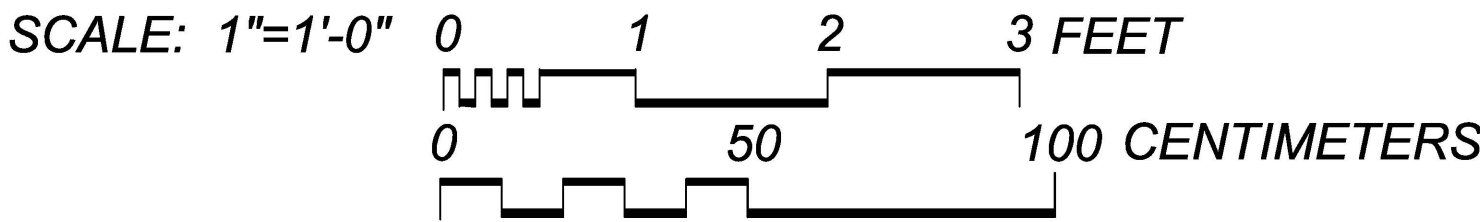
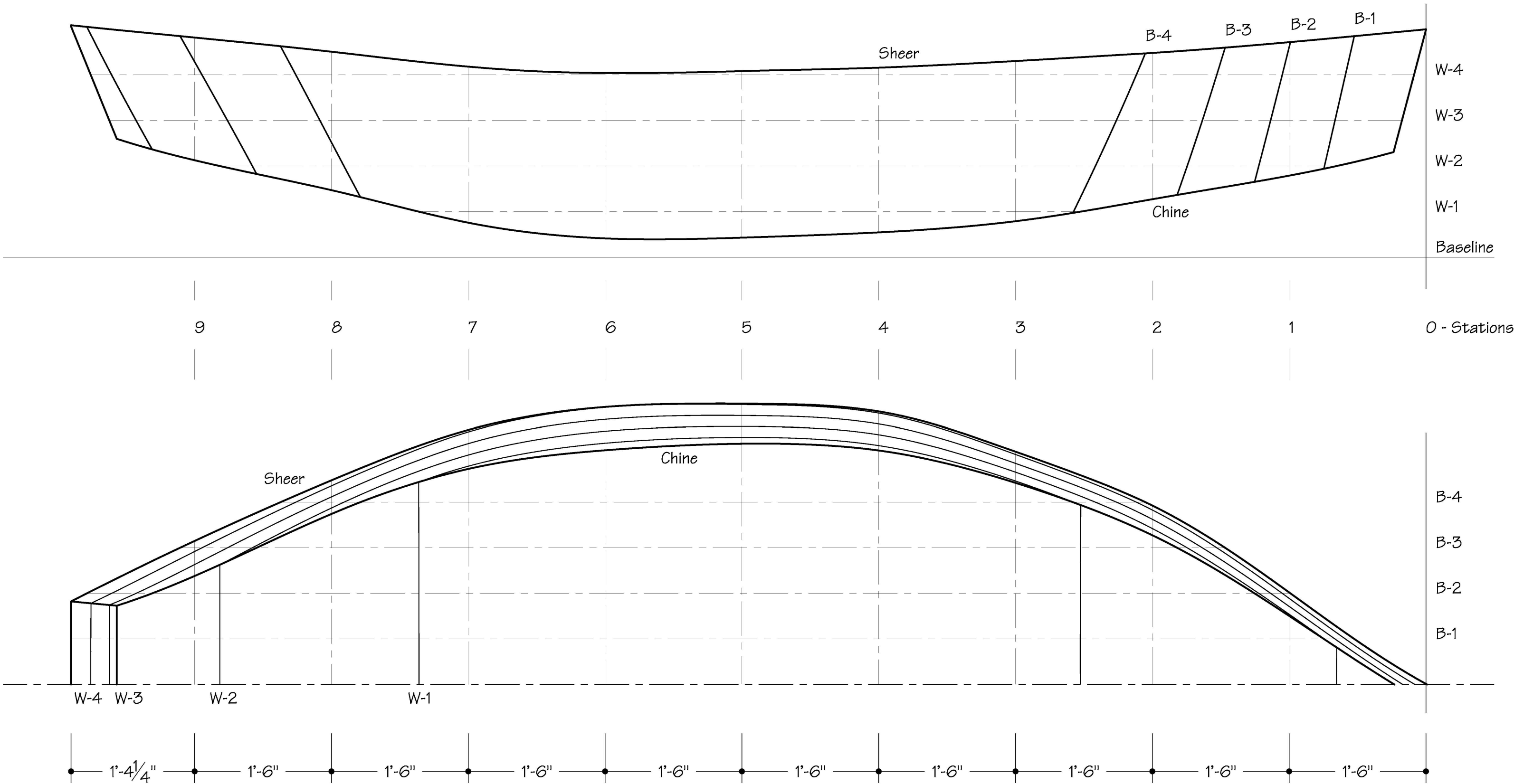
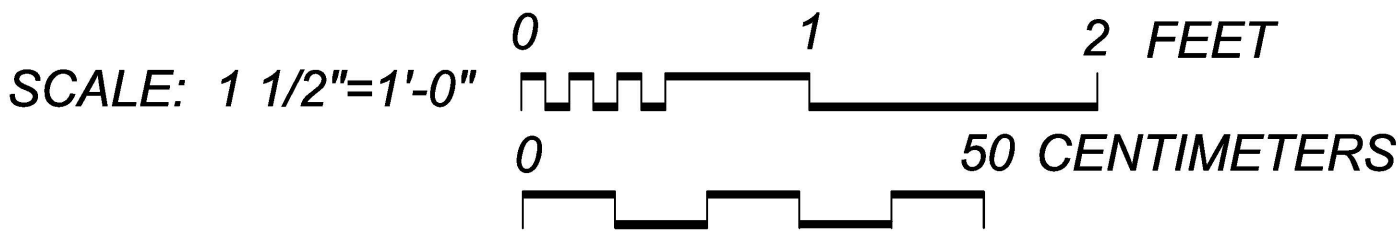
Lines

Table of Offsets

Offsets in Feet-Inches-Eighths Offsets are to outside of skin

	Stations	0.000	1.000	2.000	3.000	4.000	5.000	6.000	7.000	8.000	9.000	
	X-Positions	0-0-0	1-6-0	3-0-0	4-6-0	6-0-0	7-6-0	9-0-0	10-6-0	12-0-0	13-6-0	
Heights Above Baseline	Buttock 0-6-0		0-10-6	0-7-5	0-4-6	0-3-2	0-2-4+	0-2-4	0-4-4+	0-8-6+	1-0-6	
	Buttock 1-0-0			0-7-5	0-4-6	0-3-2	0-2-4+	0-2-4	0-4-4+	0-8-6+	1-0-6	
	Buttock 1-6-0			0-7-5	0-4-6	0-3-2	0-2-4+	0-2-4	0-4-4+	0-8-6+	2-1-5+	
	Buttock 2-0-0				0-4-6	0-3-2	0-2-4+	0-2-4	0-4-4+	1-3-1		
	Sheer	2-6-0	2-4-2+	2-2-7	2-1-6+	2-0-7+	2-0-4	2-0-2	2-1-1	2-3-0+	2-4-7+	
	Chine		0-10-6	0-7-5	0-4-6	0-3-2	0-2-4+	0-2-4	0-4-4+	0-8-6+	1-0-6	
	Sheer at Transom	2-6-4										
	Centerline at Transom Bottom	1-3-5										
	Chine at Transom	2-6-3										
	Centerline at Transom Bottom	1-3-5										
Half Breadths From Centerline	WL 2-0-0		0-11-2+	1-0-7+	2-6-2	2-11-5+	3-0-6+	3-0-3+	2-9-2	2-2-1	1-5-4	
	WL 1-6-0		0-10-2	1-9-6	2-5-1	2-10-2	2-11-3	2-10-7	2-7-5+	2-0-5+	1-3-6+	
	WL 1-0-0		0-9-2	1-8-4	2-3-7+	2-8-7	2-9-7+	2-9-2+	2-6-1+	1-11-2		
	WL 0-6-0				2-2-6+	2-7-3+	2-8-4	2-7-6	2-4-6			
	Sheer	0-0-0	1-0-1	1-11-4	2-6-5	2-11-7	3-0-7+	3-0-4	2-9-3+	2-2-7	1-6-7	
	Chine		0-9-0+	1-7-5	2-2-4+	2-6-6	2-7-5+	2-6-6+	2-4-3	1-10-3+	1-2-2+	

NOTES: Lines were taken from a LEICA ScanStation pointcloud.
Lines drawn "as is" with minimal or no fairing. Offset table created with AeroHydro MultiSurf.



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