

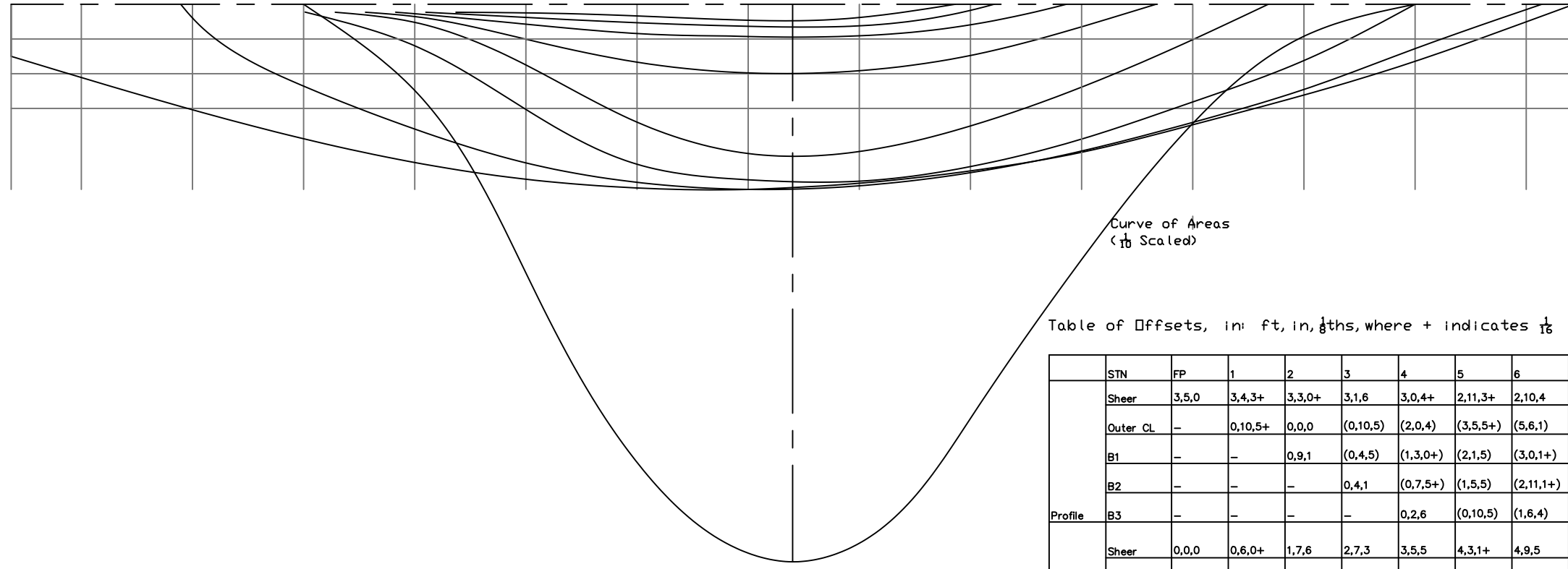
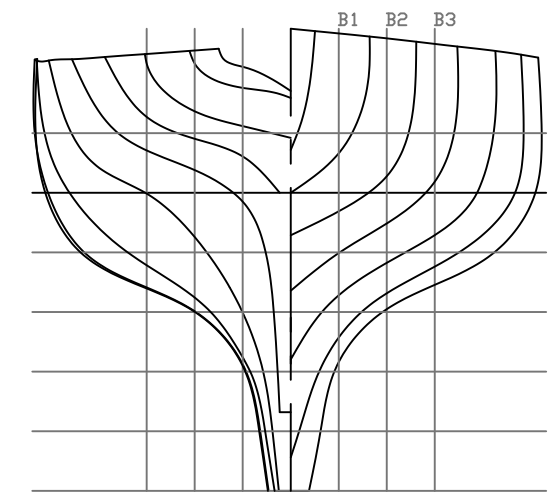
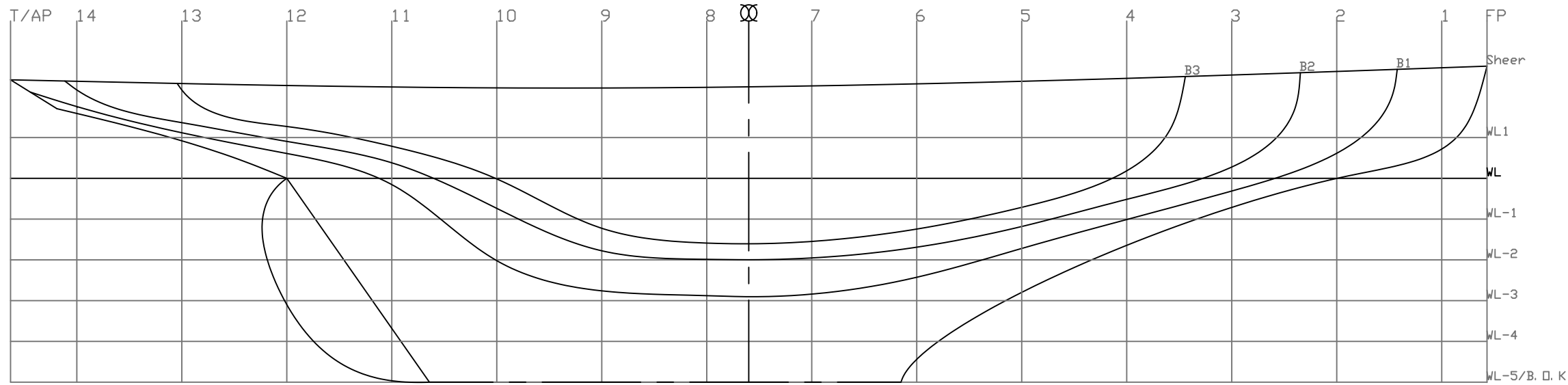
MAR3036 – Yacht Design Project

Henry Dawson – 220170682

45' Classic Yacht

Preliminary Design



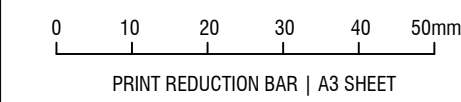


Curve of Areas
($\frac{1}{16}$ Scaled)

Table of Offsets, in: ft, in, $\frac{1}{8}$ ths, where + indicates $\frac{1}{16}$

	STN	FP	1	2	3	4	5	6	7	MS	8	9	10	11	12	13	14	T/AP
Profile	Sheer	3,5,0	3,4,3+	3,3,0+	3,1,6	3,0,4+	2,11,3+	2,10,4	2,9,6+	2,9,3+	2,9,2	2,9,0	2,9,0+	2,9,8	2,9,7+	2,10,5	2,11,3+	3,0,0
	Outer CL	-	0,10,5+	0,0,0	(0,10,5)	(2,0,4)	(3,5,5+)	(5,6,1)	(6,2,4)	(6,2,4)	(6,2,4)	(6,2,4)	(6,2,4)	(4,6,6+)	0,0,0	1,1,6	1,11,5+	2,1,3+
	B1	-	-	0,9,1	(0,4,5)	(1,3,0+)	(2,1,5)	(3,0,1+)	(3,6,2+)	(3,7,2)	(3,6,7)	(3,5,1)	(2,6,0+)	(0,2,2)	0,9,0+	1,4,5+	2,2,2	2,7,4
	B2	-	-	-	0,4,1	(0,7,5+)	(1,5,5)	(2,11,1+)	(2,5,0+)	(2,5,6)	(2,5,5)	(2,2,4)	(0,11,0)	0,5,5+	1,1,4	1,8,3	2,8,2+	-
Half Breadths	B3	-	-	-	-	0,2,6	(0,10,5)	(1,6,4)	(1,11,0+)	(1,11,7+)	(1,11,5+)	(1,6,2)	(0,0,1+)	0,11,6	1,6,7+	2,8,2+	-	-
	Sheer	0,0,0	0,6,0+	1,7,6	2,7,3	3,5,5	4,3,1+	4,9,5	5,1,7	5,3,8	5,4,0	5,3,4+	5,0,4	4,6,5+	3,10,4	3,0,4	2,11,2+	1,6,0
	WL1	-	0,1,6+	1,3,2+	2,5,3+	3,4,6+	4,2,6	4,10,2	5,2,6	5,3,7+	5,4,0	5,1,4+	4,6,6+	3,7,1	2,4,2+	0,4,6	-	-
	WL	-	-	0,0,0	1,7,3+	2,9,6	3,10,4+	4,8,1	5,1,1	5,1,3	5,0,5+	4,7,2+	3,0,3	1,2,3	0,2,6	-	-	-
	WL-1	-	-	-	-	1,0,2	2,4,5	3,6,0+	4,2,7	4,4,4+	4,3,5	3,4,6	1,9,0	0,6,2	-	-	-	-
	WL-2	-	-	-	-	-	0,7,6+	1,5,5+	1,10,7+	1,11,7+	1,11,6	1,8,0	1,0,0+	0,4,2	-	-	-	-
	WL-3	-	-	-	-	-	-	0,7,1	0,10,7	0,11,3	0,11,1	0,10,1	0,6,7	0,3,2	-	-	-	-
	WL-4	-	-	-	-	-	-	0,2,1	0,7,3+	0,7,7	0,7,5	0,6,3	0,4,4+	-	-	-	-	-
WL-5/BOK	-	-	-	-	-	-	-	0,4,4+	0,5,5+	0,5,4	0,4,0+	0,3,0	-	-	-	-	-	

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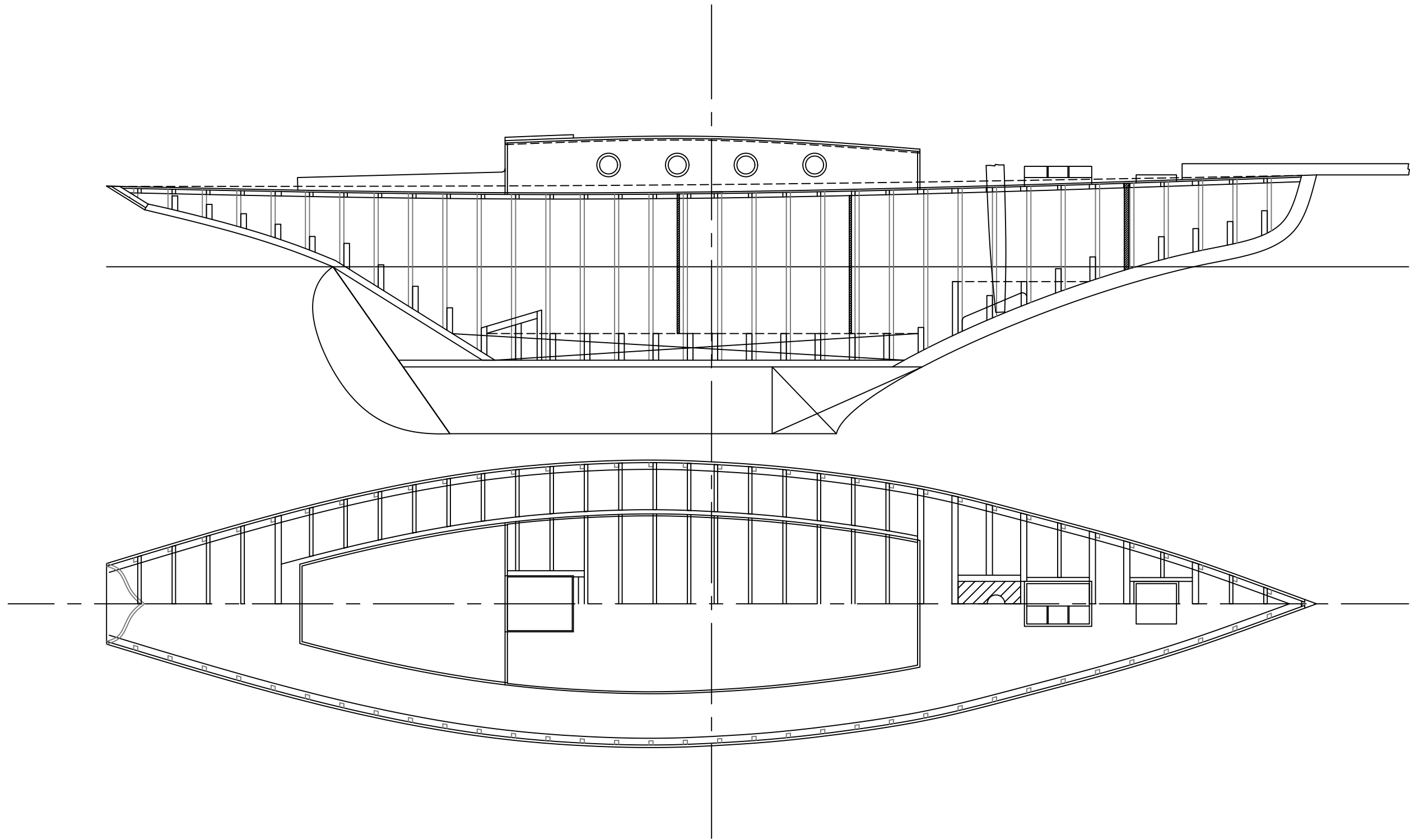
Henry Dawson
Student - Naval Architecture
m: h.dawson4@newcastle.ac.uk

Rev.	AMENDMENT DESCRIPTION	DATE

45' Classic Yacht
Preliminary Design
Linesplan & Offsets

SCALE 1/4=1'
DRAWN H.DAWSON

JOB-DRAWING No. **1** REVISION **A**



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Rev.	AMENDMENT DESCRIPTION	DATE

45' Classic Yacht
 Preliminary Design
 Construction Plan

SCALE 1/4" = 1'

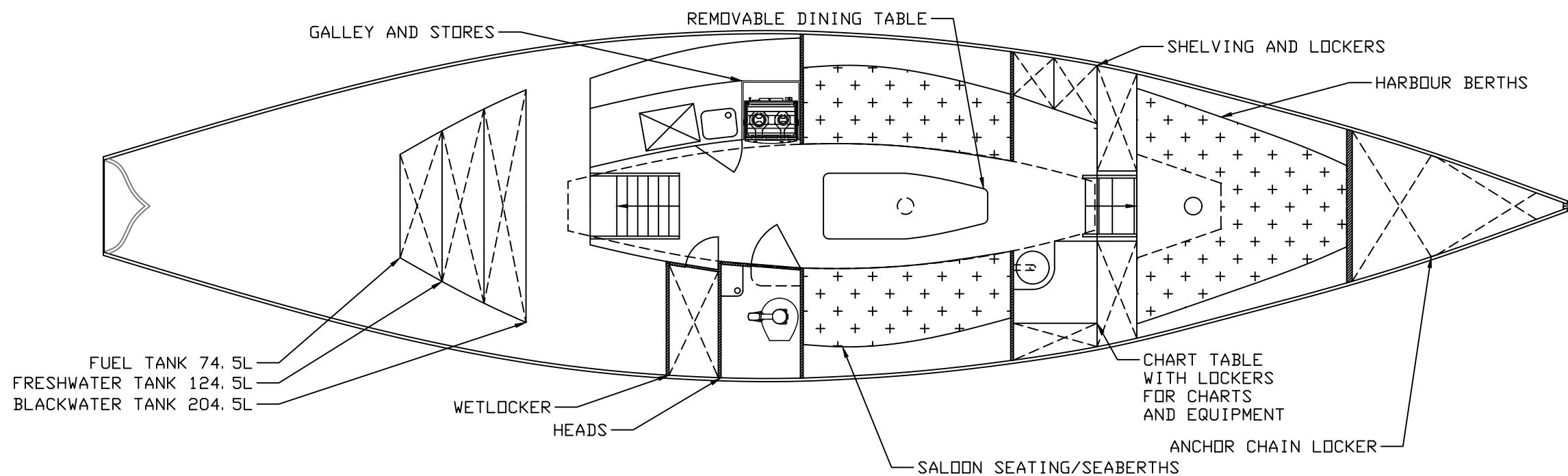
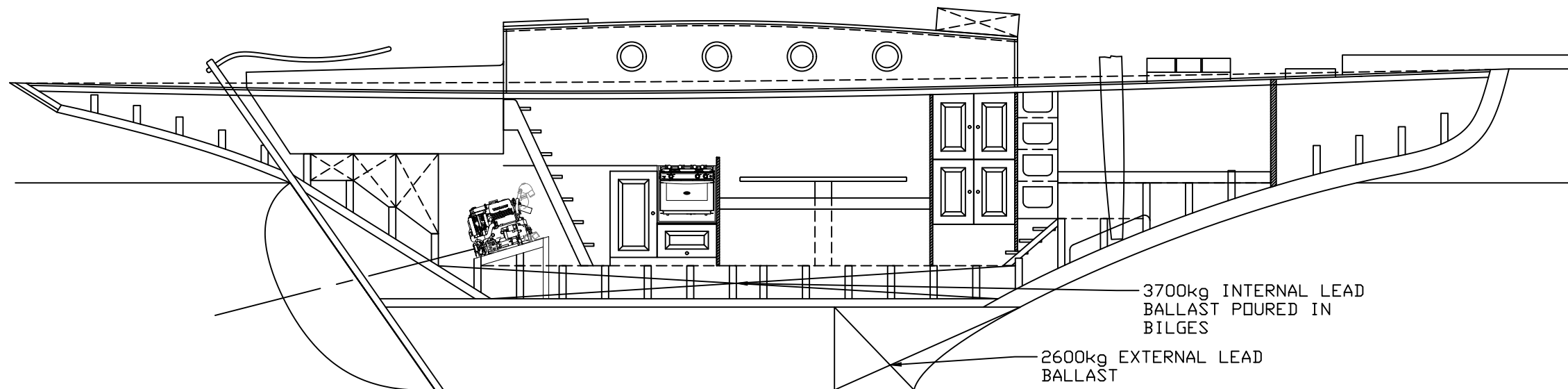
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2

REVISION

A



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0 10 20 30 40 50mm

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Henry Dawson
Student - Naval Architecture
m: h.dawson4@newcastle.ac.uk

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Rev.	AMENDMENT DESCRIPTION	DATE

45' Classic Yacht
Preliminary Design
General Arrangement - Port & Cabin

SCALE 1/4"=1'

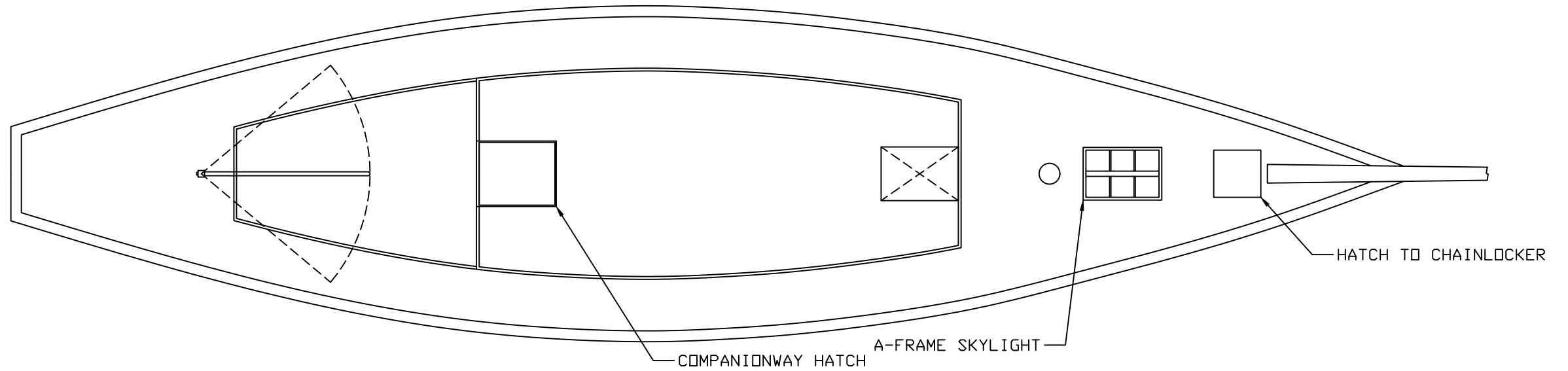
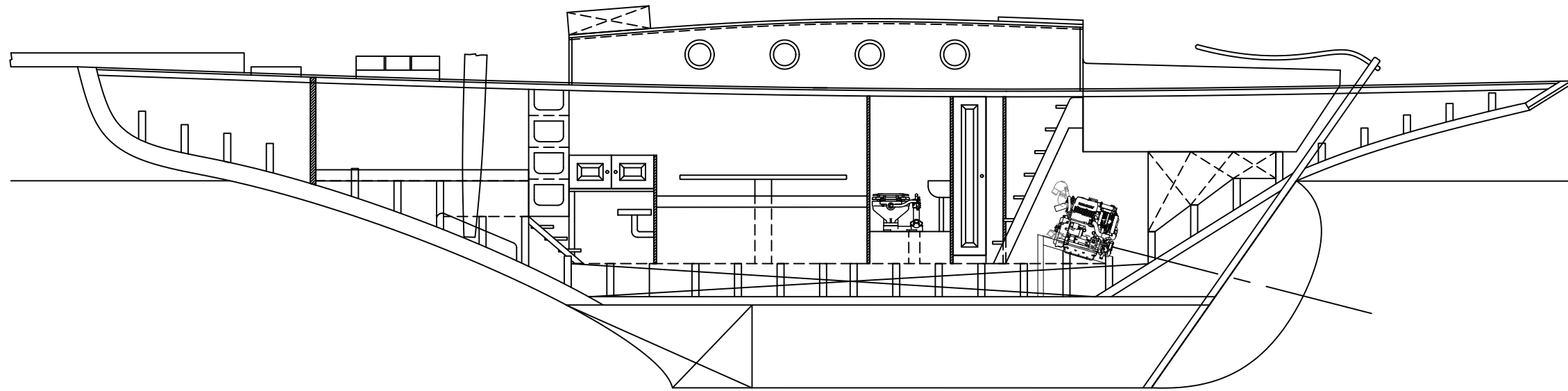
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3

REVISION

1



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Student - Naval Architecture
m: h.dawson4@newcastle.ac.uk

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Rev.	AMENDMENT DESCRIPTION	DATE

45' Classic Yacht
Preliminary Design
General Arrangement - Starboard & Deck

SCALE 1/4"=1'

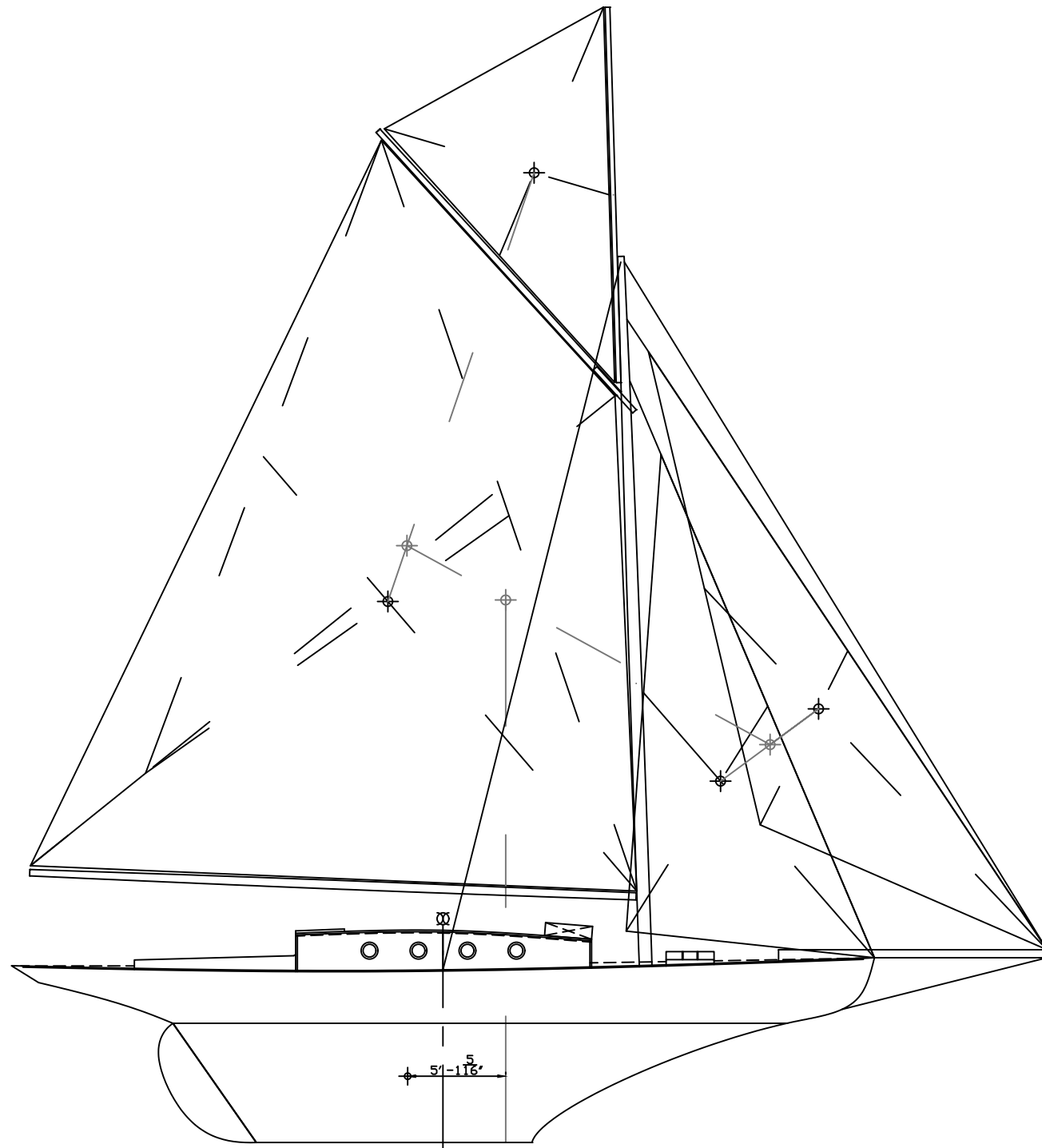
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4

REVISION

1



Key Particulars	
LOD	45' -0"
LOA	32' -0"
BEAM	10' -8"
DRAUGHT	6' -2 1/2"
SAIL AREA	1200 SQ. FT.
DISPLACEMENT	12.2t
BALLAST RATIO	0.52
PRISMATIC COEFF	0.49
AREA AT MIDSHIPS	26.768 SQ. FT.

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Student - Naval Architecture
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Rev.	AMENDMENT DESCRIPTION	DATE

45' Classic Yacht
Preliminary Design
Sail Plan and Key Particulars

SCALE 1/8" = 1'

DRAWN H.DAWSON

JOB-DRAWING No.

5

REVISION

1

Table 1: Hull Scantlings

Scantling		Units	Value	Material
Frame Spacing		in	13 1/2	
Keel	Depth	in	3 1/16	Oak
	Width	in	0	
Stem	Sided	in	4 9/16	Oak
	Moulded	in	6 7/16	
Transom	Thickness	in	1 1/16	Oak
	Reinforcing Thickness	in	1 15/16	
Timbers	At head (square)	in	1 13/16	Oak
	Maximum (square)	in	2 3/16	
	Length of taper	in	66	
	taper	per ft	1/16	
Floor Timbers	Plank floor thickness	in	1 11/16	
	Crook floor thickness	in	2 9/16	
	depth	in	2 15/16	
Outside planking	Thickness	in	1 1/8	Khaya
Clamps	Before beveling	in	2 5/8	
	Chamfer	in	9/16	
Deck Beams	Moulded: max	in	2 5/16	
	Moulded: at ends	in	1 5/8	
	Sided	in	1 9/16	
	Sided: at mast	in	2 1/8	
	Sided: at hatches	in	2 3/4	
	Half beam: moulded	in	1 5/8	
	Half beam: sided	in	1 9/16	
Planksheer	Thickness	in	Same as Deck	Khaya
	Breadth: curved deck	in	4 1/8	
	Breadth: straight deck	in	4 9/16	
Main Deck	Thickness: Pine	in	1 1/8	Teak or Iroko
	Thickness: Teak	in	3/4	
	Thickness: Canvas	in	1 1/16	
Cabin Trunks	Solid Plank: softwood	in	1 3/16	
	Solid Plank: mahogany	in	1 1/16	
	Solid Plank: teak	in	1 1/16	
	Glass: frame	in	1 5/16	
	Glass: panel	in	5/8	
Mast Partners and Deck fittings	Thickness	in	1 5/8	
Inside Ceiling	Thickness	in	1/2	
Belt Timber	Square	in	2 1/8	
Cabin Floor or Sole	Thickness:	in	9/16	
	Beam: sided	in	13/16	
	Beam: depth	in	2	

Table 2: Spar Scantlings

Spars and Rigging		Units	Value	Material
Mast	Length	ft	41' - 9 11/16"	Sitka Spruce
	Min. D	in	6 3/4"	
	Max. D	in	10 1/4"	
Boom	Length	ft	31' - 7 7/16"	Sitka Spruce
	Min. D	in	4"	
	Max. D	in	5 3/4"	
Topmast	Length	ft	19' - 6 3/4"	Sitka Spruce
	Min. D	in	4 3/4"	
	Max. D	in	6 1/2"	
Gaff	Length	ft	18' - 11 5/16"	Sitka Spruce
	Min. D	in	3 3/8"	
	Max. D	in	4 1/2"	
Bowsprit	Length	ft	14'	Sitka Spruce
	Min. D	in	5"	
	Max. D	in	7 1/8"	

Intact Stability:

Table 3: Initial Stability Calculation

		L	T	V
Pre Ballast	CG:	-0.639	0.068412	1.24693
	CB:	0.484375	0	-1.60417
Post Ballast	CG:	0.404143	0.0328	-1.30312
KWL	74.5	in		
I	25482149	in ⁴		
V	724846.1	in ³		
BM T	35.15525	in		
KG	58.86257	in		
KB	55.25	in		
KM T	90.40525	in		
GM T	31.54268	in	2.628557	ft

