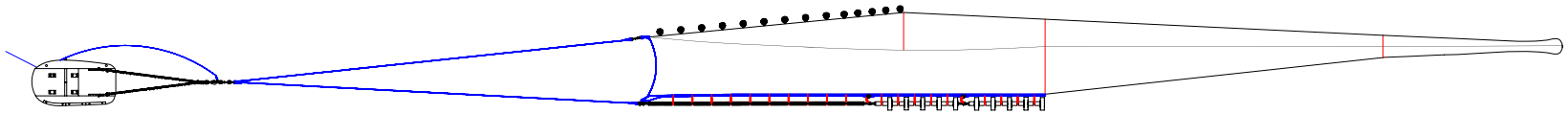
Appendix A

Ecosystems Surveys Branch
National Marine Fisheries Service
Northeast Fisheries Science Center
166 Water Street
Woods Hole, Massachusetts 02543 USA

Survey Trawl Reference Manual



Yankee - 36

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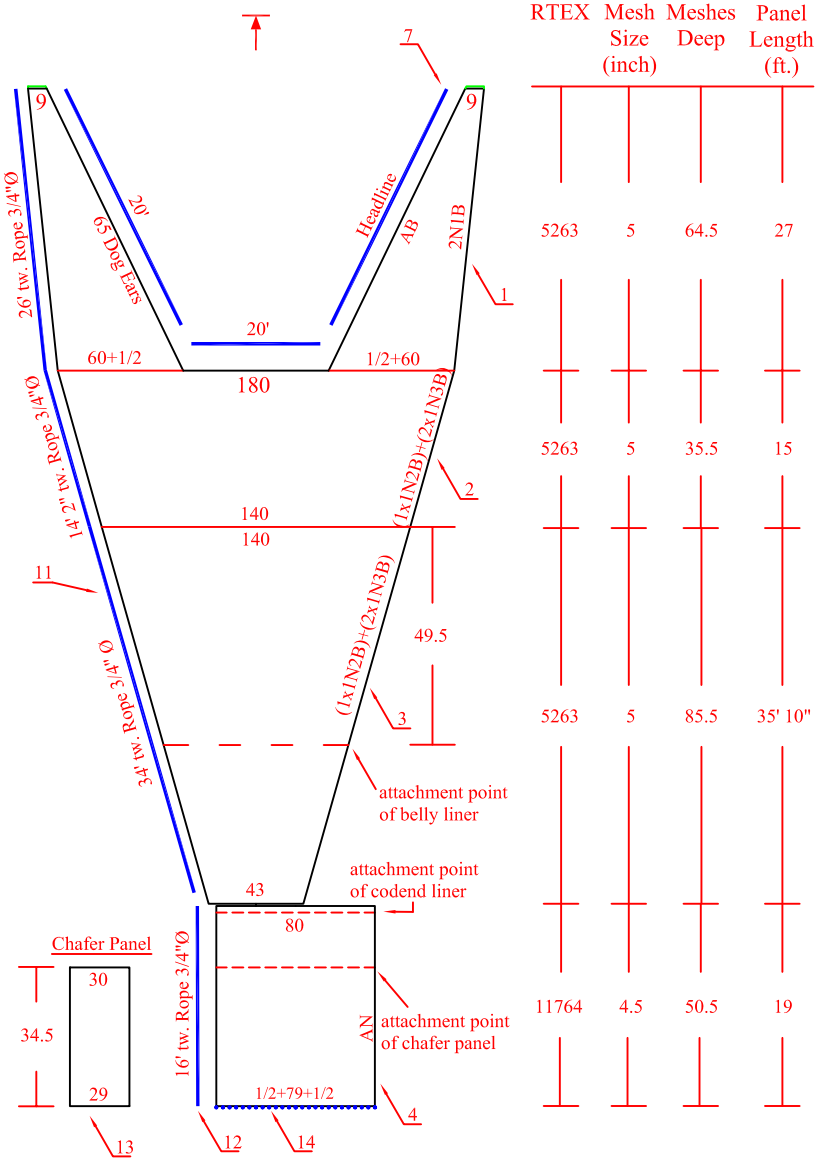
May 2006

SECTION 1 – NETTING

- ⇨ **YAN – 1** - TRAWL PLAN
- ⇨ **YAN – 2** - TOP WING DETAIL
- ⇨ **YAN – 3** - TOP WING HANGING DETAIL
- ⇨ **YAN – 4** - LOWER WING DETAIL
- ⇨ **YAN – 5** - LOWER WING HANGING DETAIL
- ⇨ **YAN – 6** - FOOTROPE TO SWEEP ATTACHMENT
- ⇨ **YAN – 7** - BELLY AND CODEND LINERS
- ⇨ **YAN – 8** - CHAFER ATTACHMENT TO CODEND

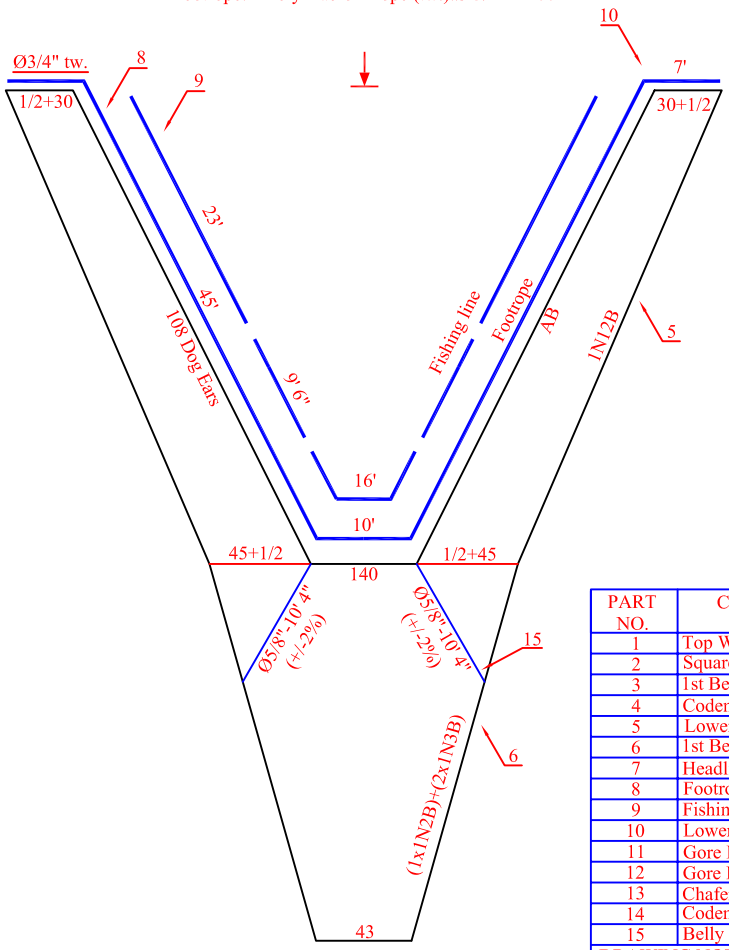
Headline: Combination Rope:Ø 7/8" - 60'



RTEX	Mesh Size (inch)	Meshes Deep	Panel Length (ft.)
5263	5	64.5	27
5263	5	35.5	15
5263	5	85.5	35' 10"
11764	4.5	50.5	19

Fishing line: Combination Rope:Ø 7/8" - 81'

Footrope: Poly Dacron Rope (tw.):Ø 3/4" - 100'



RTEX	Mesh Size (inch)	Meshes Deep	Panel Length (ft.)
5263	5	107.5	45

PART NO.	COMPONENT	MATERIALS	QTY	PAGE NO.
1	Top Wing	PA Netting	2	1 - 3
2	Square	PA Netting	1	1 - 3
3	1st Belly Top	PA Netting	1	1
4	Codend	PA Netting	1	1
5	Lower Wing	PA Netting	2	4 - 5
6	1st Belly Lower	PA Netting	1	4 - 5
7	Headline (3 pcs.)	Comb. Rope	1	1,3
8	Footrope	Poly Dacron Rope	1	1,5,6
9	Fishing Line (5 pcs.)	Comb. Rope	1	1,6
10	Lower Wingline	Poly Dacron Rope	2	1,5
11	Gore Line	Poly Dacron Rope	2	1
12	Gore Line	Poly Dacron Rope	2	1
13	Chafer	PA Netting	1	1,8
14	Codend Rings	Galvanized Steel	27	1,8,34
15	Belly Lines	Poly Dacron Rope	2	1

DRAWING NOTES:
- Panel depth (meshes deep) do not include joining rounds.
- Panel length includes joining rounds.
- Panel widths include selvedge meshes.
- Mesh sizes are knot center measurements.
- Six knots from each of the top and lower panels form the gore.
- Gore line measurements are taken from center of joining rounds
- Gore lines are seized to laceage at 18" intervals.
- Hammerlocks not included in headline or fishingline lengths.

NOAA Fisheries

TRAWL PLAN

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG.#:	PAGE #:	REV.	SCALE:
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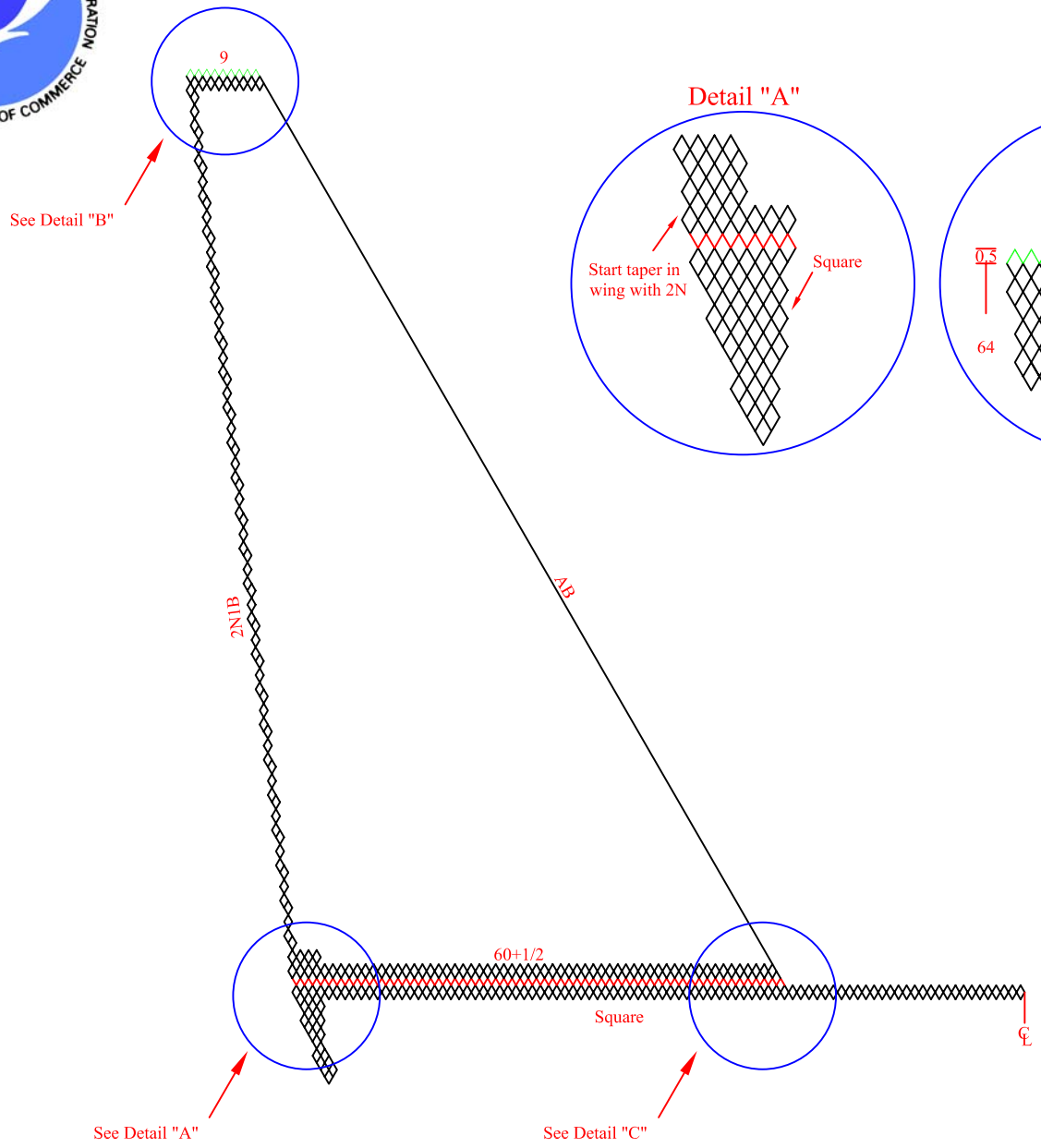

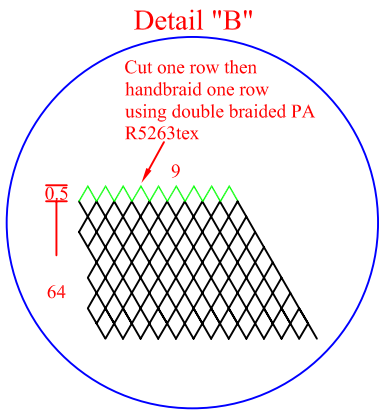

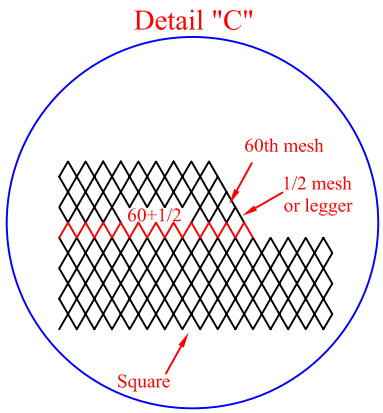

DRAWING NOTES:

A 1/2 mesh (1 row) of doubled orange twine is used to connect trawl sections together. This allows for easier section identification.

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TOP WING DETAIL

NEFSC YANKEE - 36 SURVEY TRAWL

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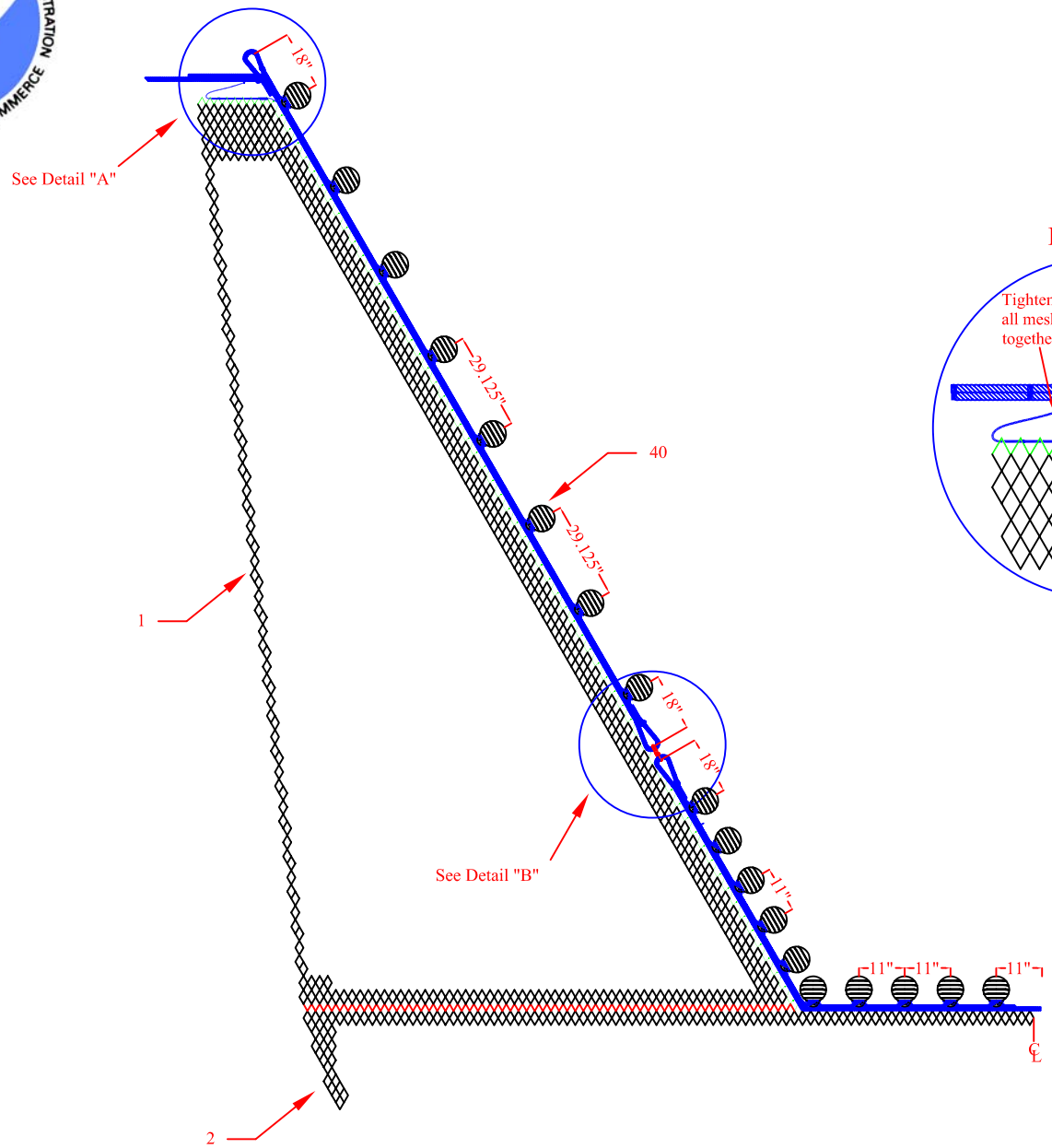
PART #	COMPONENT
1	Top Wing
2	Square
17	1/2" Hammerlock
40	8" Aluminum Becket Float



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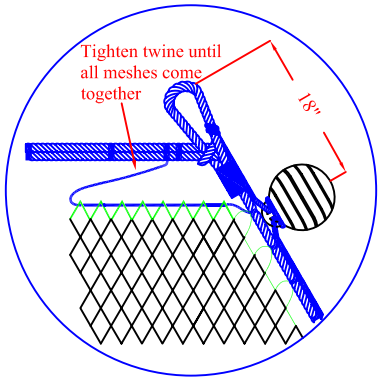
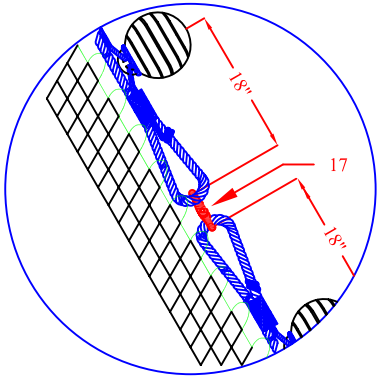


Detail "B"



DRAWING NOTES:

A 1/2 mesh (1 row) of doubled orange twine is used to connect trawl sections together. This allows for easier section identification.

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TOP WING HANGING DETAIL

NEFSC YANKEE - 36 SURVEY TRAWL

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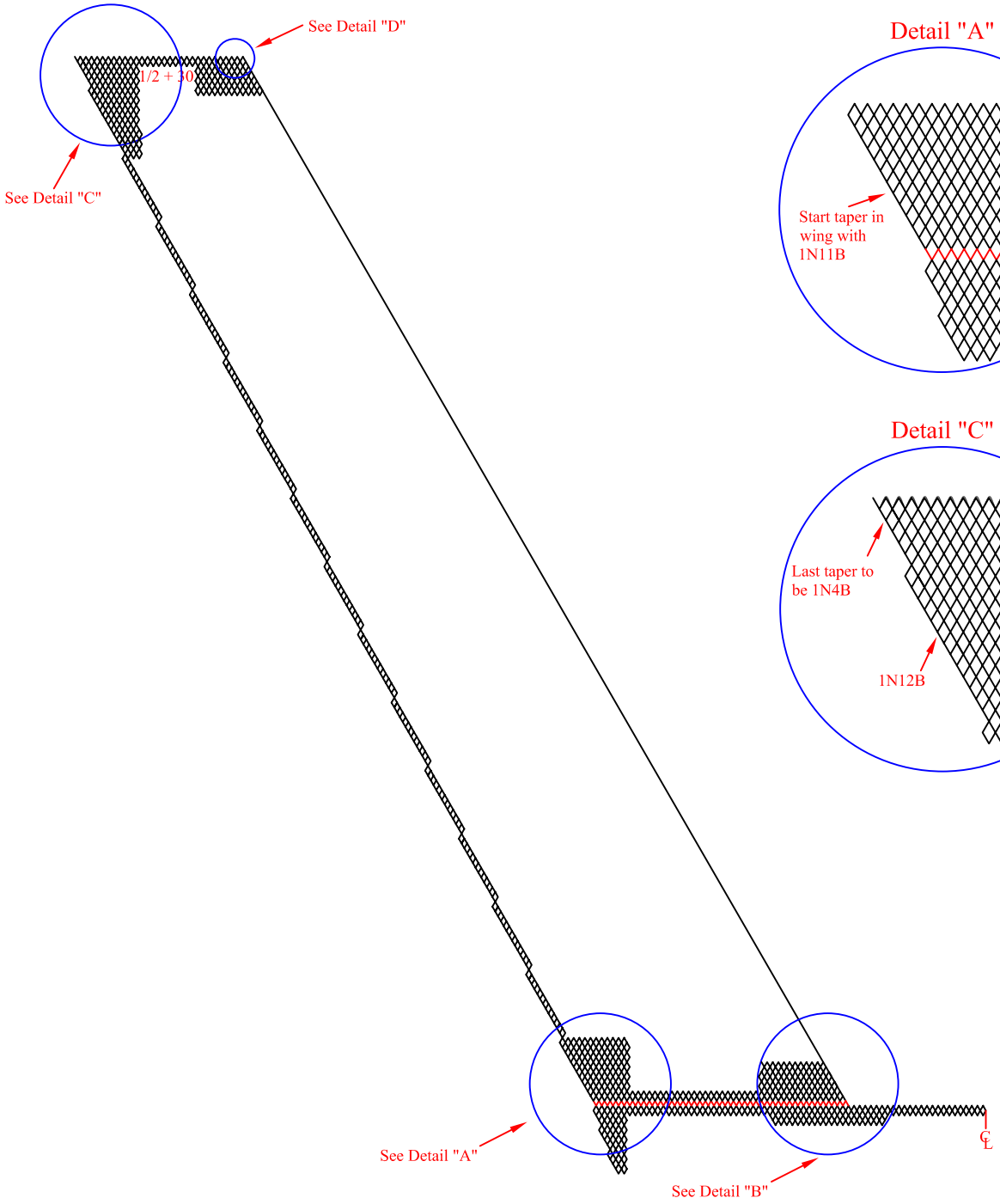

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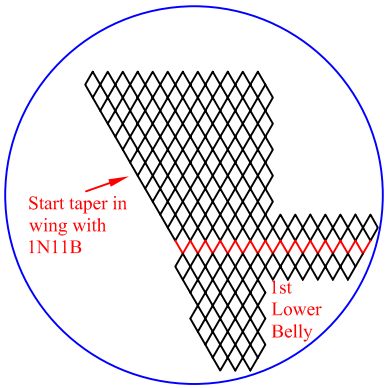

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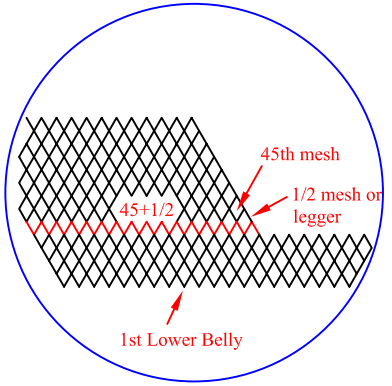
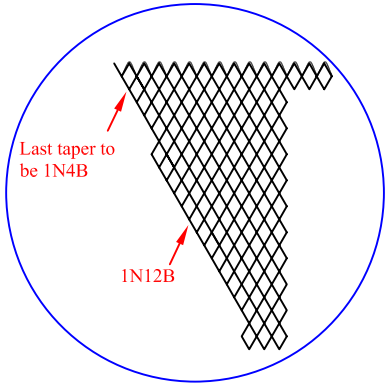
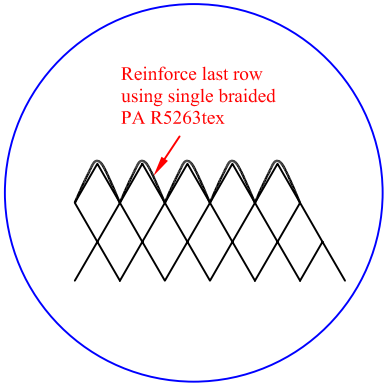


Detail "C"



Detail "D"



DRAWING NOTES:

A 1/2 mesh (1 row) of doubled orange twine is used to connect trawl sections together. This allows for easier section identification.

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LOWER WING DETAIL

NEFSC YANKEE - 36 SURVEY TRAWL

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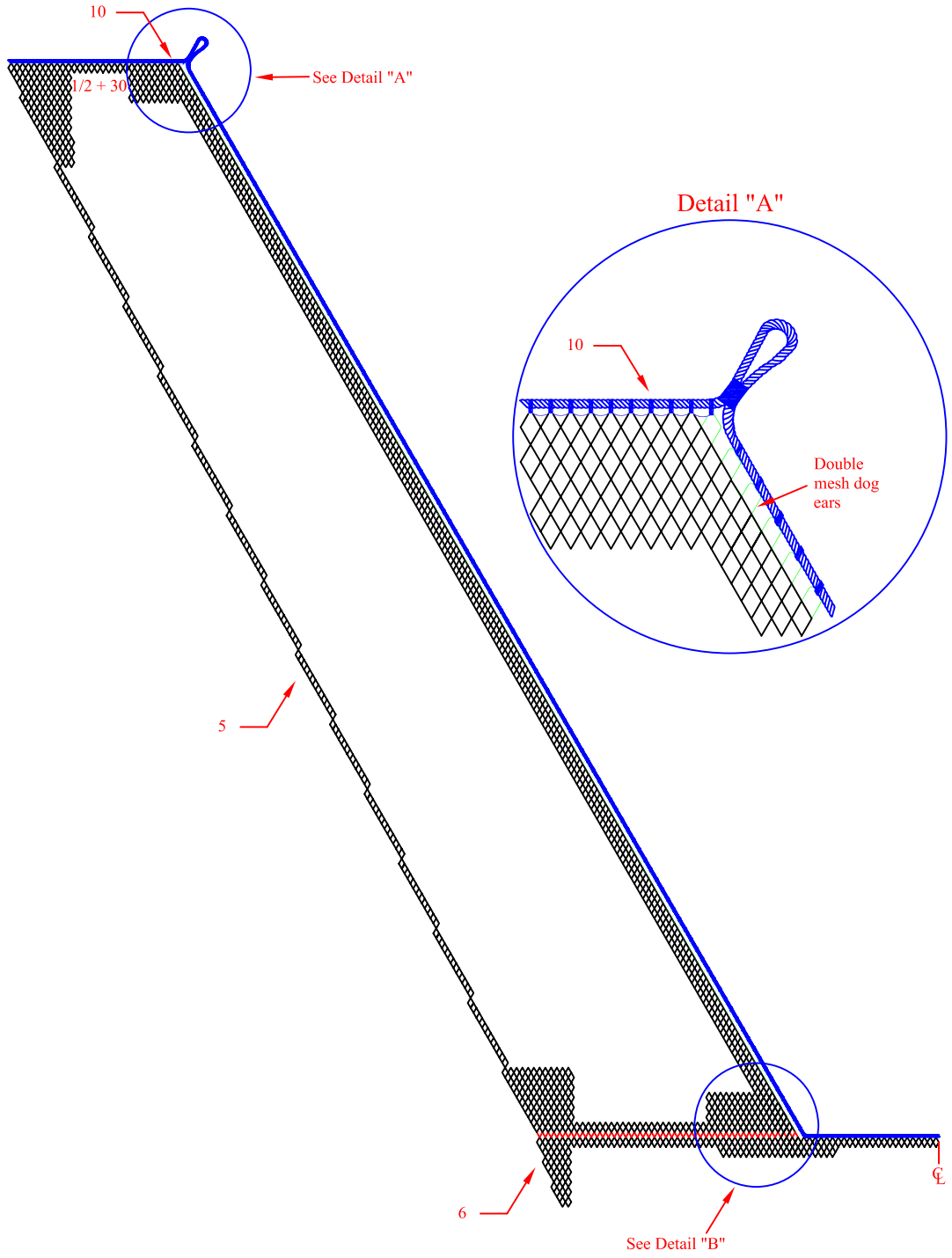
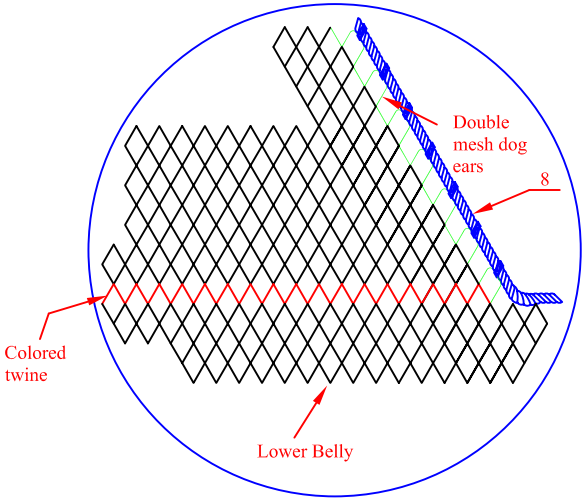


Drawing Notes:
See page 1 (Drawing # YAN-1) for more component information

PART #	COMPONENT
5	Lower Wing
6	Lower Belly
8	Footrope
10	Lower Wingline

Detail "A"

Detail "B"



DRAWING NOTES:

A 1/2 mesh (1 row) of doubled orange twine is used to connect trawl sections together. This allows for easier section identification.

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LOWER WING HANGING DETAIL

NEFSC YANKEE - 36 SURVEY TRAWL

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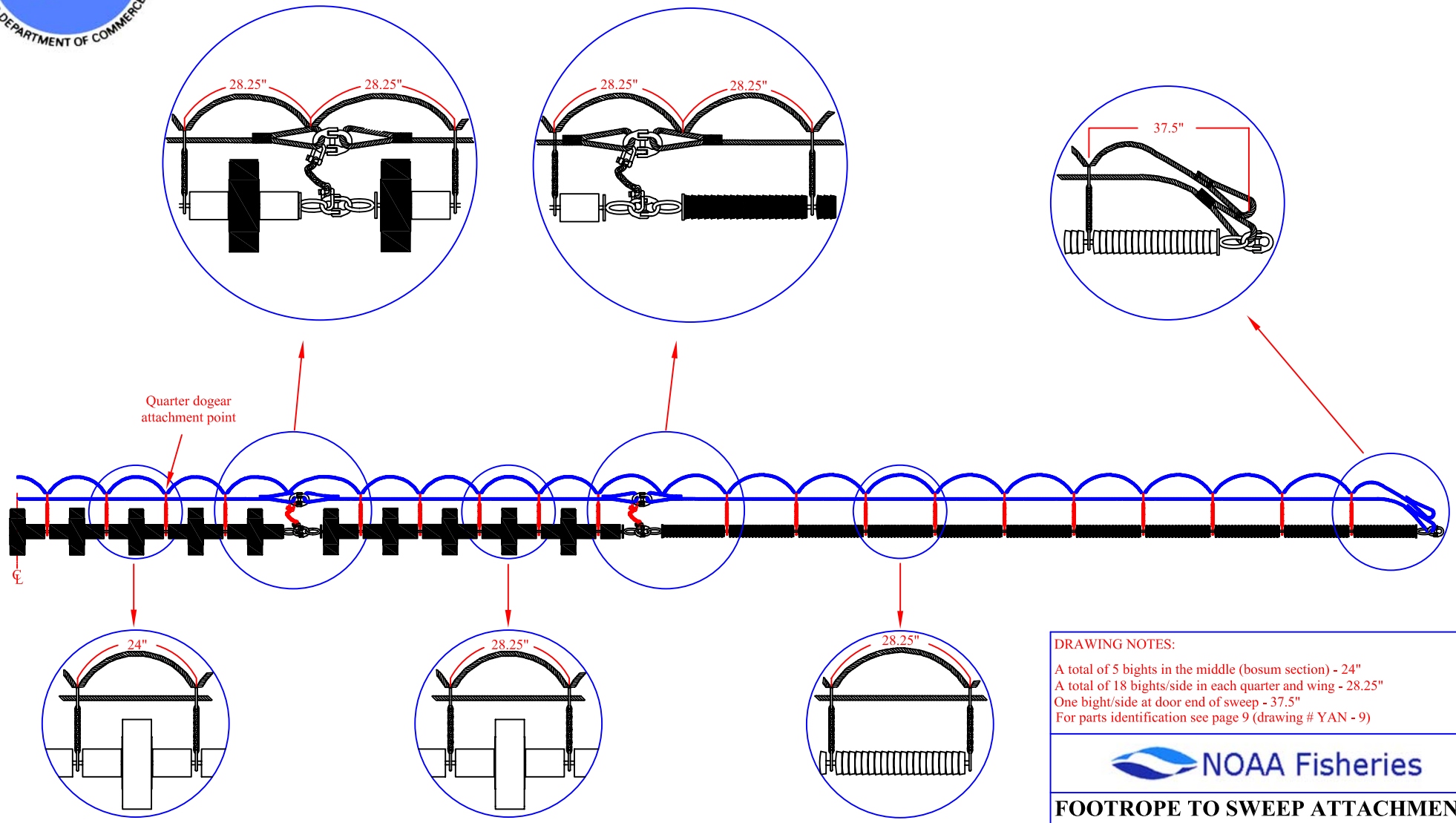

DRAWING NOTES:

A total of 5 bights in the middle (bosum section) - 24"
A total of 18 bights/side in each quarter and wing - 28.25"
One bight/side at door end of sweep - 37.5"
For parts identification see page 9 (drawing # YAN - 9)

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FOOTROPE TO SWEEP ATTACHMENT

NEFSC YANKEE - 36 SURVEY TRAWL

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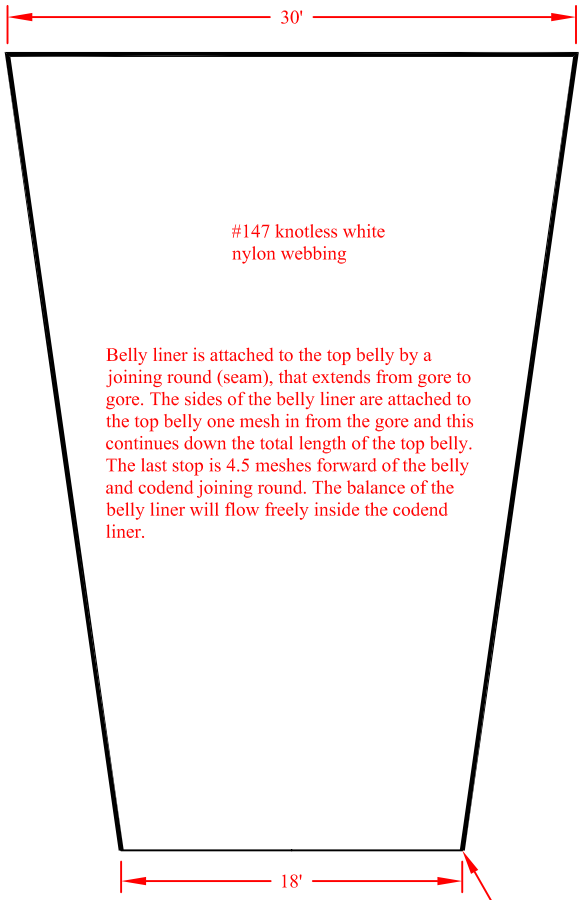
PART #	COMPONENT
59	Belly Liner (L1)
60	Codend Liner (L2)

BELLY LINER (L1)

Mesh Size (inch) 1/2"

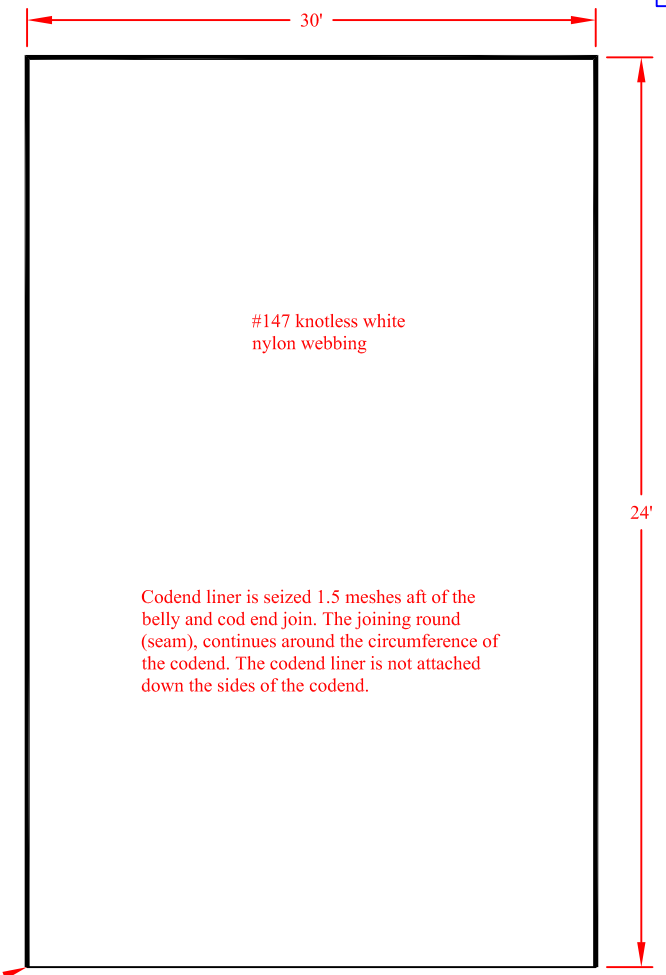
Panel Length (ft.) 21'



#147 knotless white nylon webbing

Belly liner is attached to the top belly by a joining round (seam), that extends from gore to gore. The sides of the belly liner are attached to the top belly one mesh in from the gore and this continues down the total length of the top belly. The last stop is 4.5 meshes forward of the belly and codend joining round. The balance of the belly liner will flow freely inside the codend liner.

CODEND LINER (L2)



#147 knotless white nylon webbing

Codend liner is seized 1.5 meshes aft of the belly and cod end join. The joining round (seam), continues around the circumference of the codend. The codend liner is not attached down the sides of the codend.

Gather material to form a 1/2" diameter roll of liner material. The roll is formed around the perimeter of the liner except for the trailing edge. Overhand Knots are placed every 8" along the roll of netting.

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BELLY AND CODEND LINERS

NEFSC YANKEE - 36 SURVEY TRAWL

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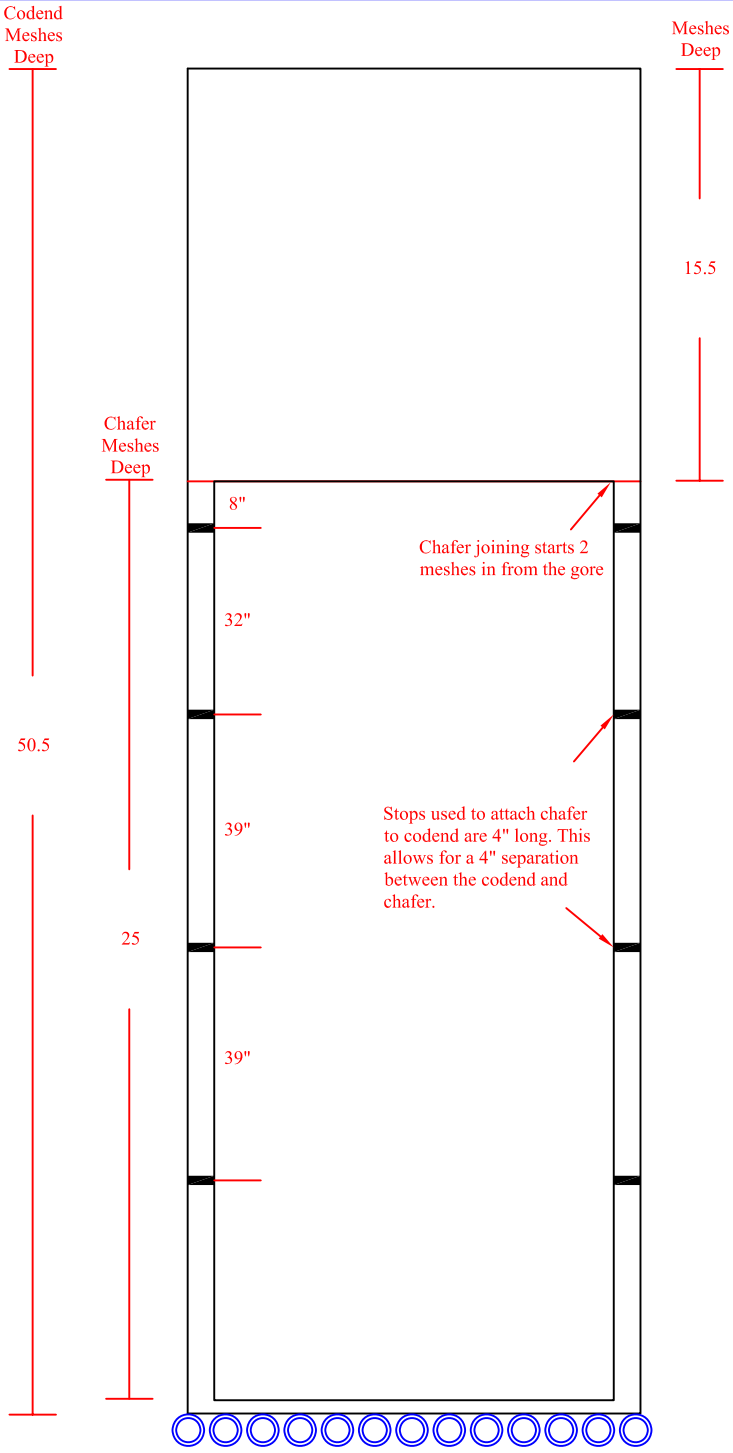

DRAWING NOTES:

Chafer must cover a minimum of 32 meshes from the bottom of the codend

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CHAFER ATTACHMENT TO CODEND

NEFSC YANKEE-36 SURVEY TRAWL

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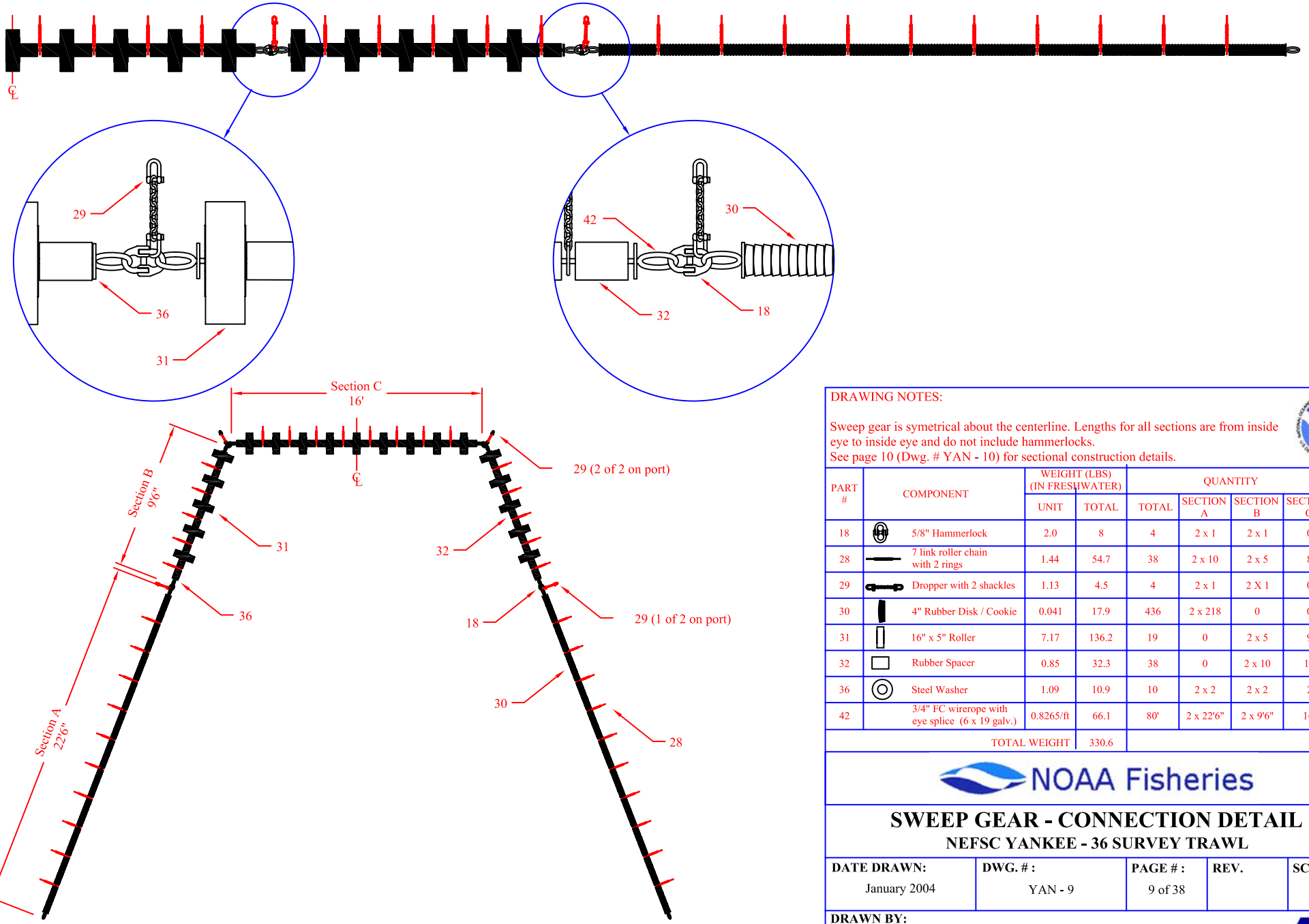
SECTION 2 – SWEEPS

- **YAN – 9** – SWEEP GEAR – CONNECTION DETAIL
- **YAN – 10** - SWEEP GEAR – SECTION DETAIL



DRAWING NOTES:

Sweep gear is symetrical about the centerline. Lengths for all sections are from inside eye to inside eye and do not include hammerlocks.
See page 10 (Dwg. # YAN - 10) for sectional construction details.

PART #	COMPONENT	WEIGHT (LBS) (IN FRESHWATER) UNIT	WEIGHT (LBS) (IN FRESHWATER) TOTAL	QUANTITY TOTAL	QUANTITY SECTION A	QUANTITY SECTION B	QUANTITY SECTION C	PAGE #
18	5/8" Hammerlock	2.0	8	4	2 x 1	2 x 1	0	16
28	7 link roller chain with 2 rings	1.44	54.7	38	2 x 10	2 x 5	8	26
29	Dropper with 2 shackles	1.13	4.5	4	2 x 1	2 X 1	0	27
30	4" Rubber Disk / Cookie	0.041	17.9	436	2 x 218	0	0	28
31	16" x 5" Roller	7.17	136.2	19	0	2 x 5	9	29
32	Rubber Spacer	0.85	32.3	38	0	2 x 10	18	30
36	Steel Washer	1.09	10.9	10	2 x 2	2 x 2	2	34
42	3/4" FC wirerope with eye splice (6 x 19 galv.)	0.8265/ft	66.1	80'	2 x 22'6"	2 x 9'6"	16'	NA
	TOTAL WEIGHT		330.6					

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SWEEP GEAR - CONNECTION DETAIL

NEFSC YANKEE - 36 SURVEY TRAWL

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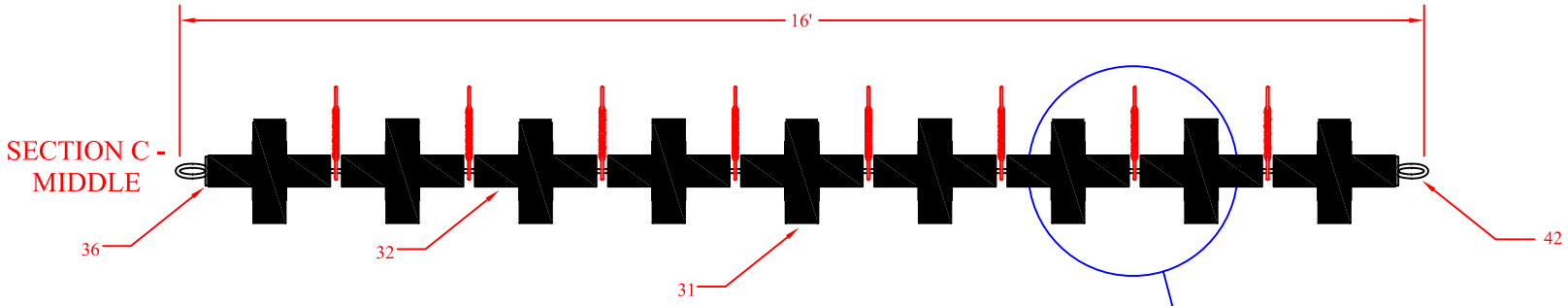

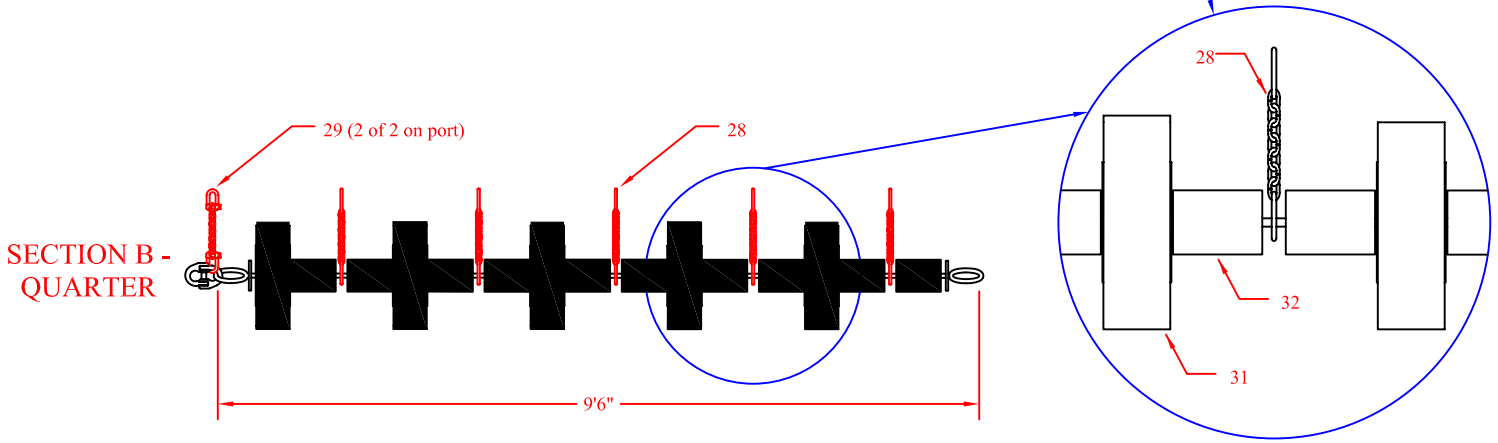

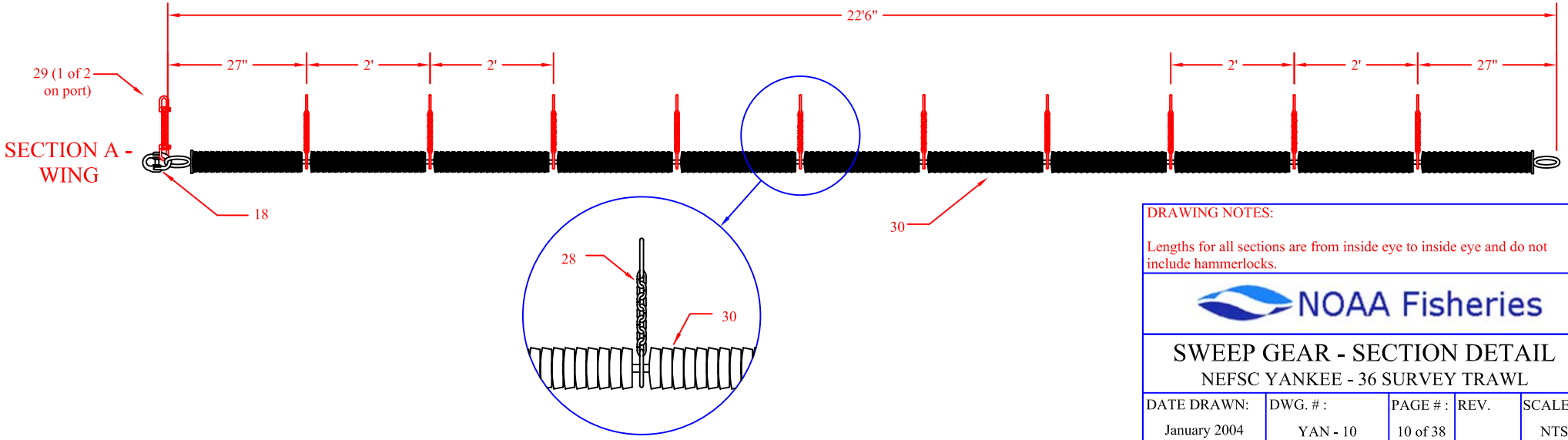

DRAWING NOTES:

See page 9 (Dwg. # YAN - 9) for more detailed component information.

PART #	COMPONENT
18	5/8" Hammerlock
28	7 link roller chain with 2 rings
29	Dropper with 2 shackles
30	4" Rubber Disk / Cookie
31	16" x 5"Roller
32	Rubber Spacer
36	Steel Washer
42	3/4" FC wirerope with eye splice (6 x 19 galv.)

DRAWING NOTES:

Lengths for all sections are from inside eye to inside eye and do not include hammerlocks.

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SWEEP GEAR - SECTION DETAIL

NEFSC YANKEE - 36 SURVEY TRAWL

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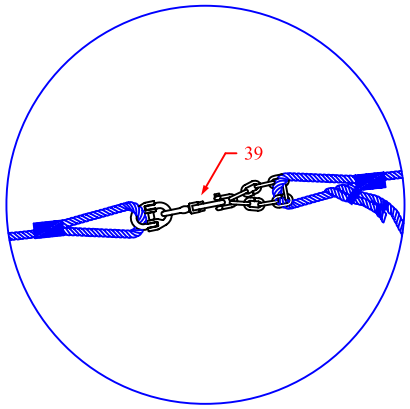
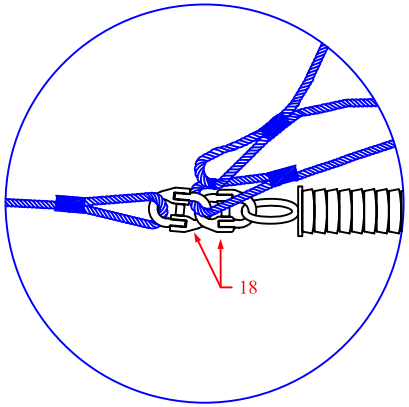
SECTION 3 – RIGGING

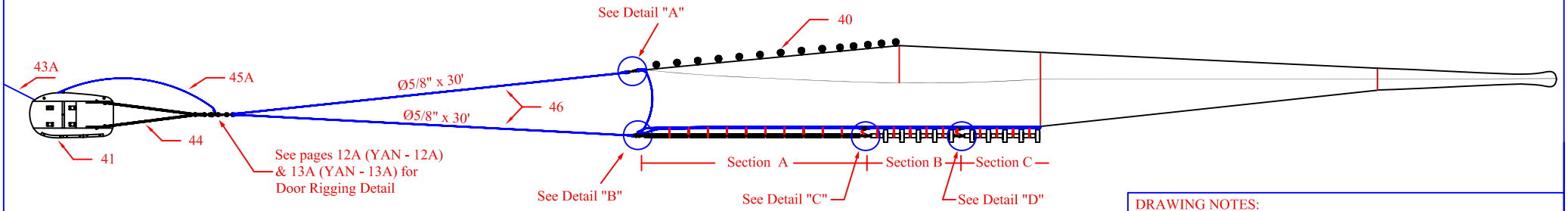
- **YAN – 11A** - RIGGING PROFILE – ALBATROSS IV
- **YAN – 11B** - RIGGING PROFILE – DELAWARE II
- **YAN – 12A** - DOOR RIGGING DETAIL – ALBATROSS IV
- **YAN – 12B** - DOOR RIGGING DETAIL – DELAWARE II
- **YAN – 13A** - DOOR RIGGING DETAIL – ALBATROSS IV
- **YAN – 13B** - DOOR RIGGING DETAIL – DELAWARE II

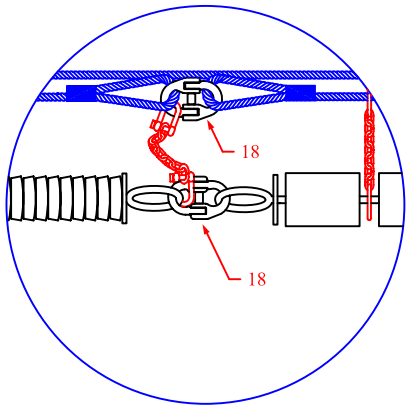


Detail "A" - Upper Leg Connection

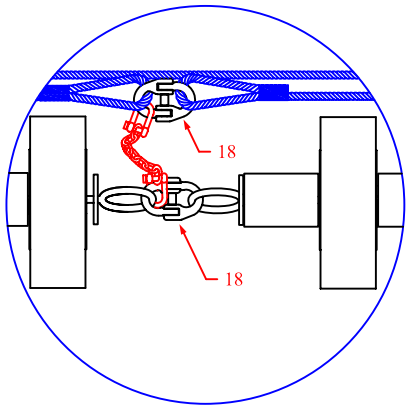


Detail "B" - Lower Leg Connection





Detail "C" - Wing to Quarter Connection



Detail "D" - Quarter to Middle Connection

DRAWING NOTES:

Sweep components are not included in the component list of this drawing, see page 9 (Dwg. # YAN - 9) for sweep component listing.

PART #	COMPONENT	MATERIALS	QTY	PAGE #
18	5/8" Hammerlock	Steel	12	16
39	Weak Link	Steel	2	36
40	8" Float with beckets	Aluminum	36	37
41	2.84 sqm. Trawl Door	990 lb Polyvalent	2	38
43A	Ø 7/8" Warp	6 x 26 Wire	2	NA
44	Chain backstrap	1/2" Chain	4	12A/13A
45A	Ø 9/16" x 17' Idler	6 x 37 Wire	2	12A/13A
46	Ø 5/8 x 30' Legs	6 x 19 Wire	4	NA
	Sweep Section A	Various	2	9 / 10
	Sweep Section B	Various	2	9 / 10
	Sweep Section C	Various	1	9 / 10

NOAA Fisheries

RIGGING PROFILE - ALBATROSS IV

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG.#:	PAGE #:	REV.	SCALE:
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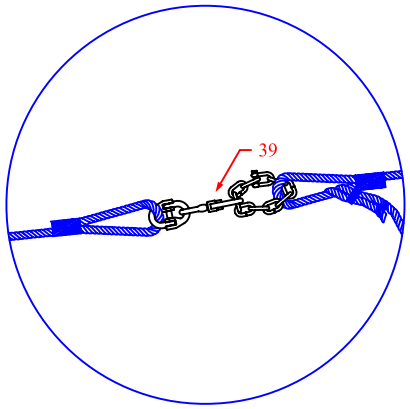
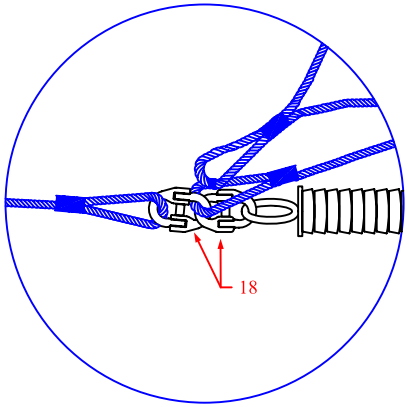
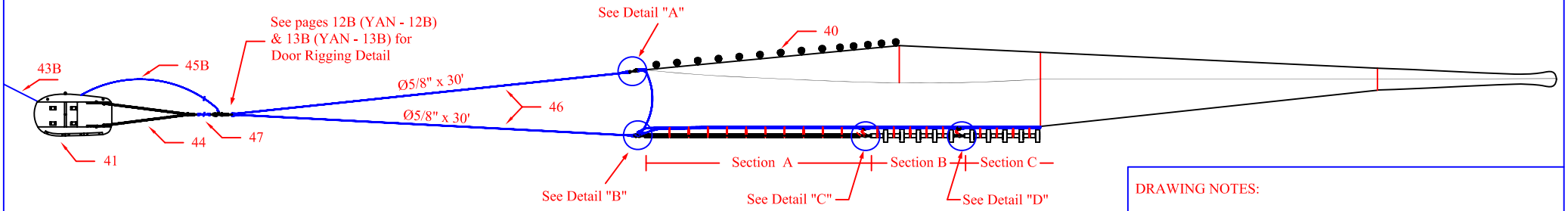
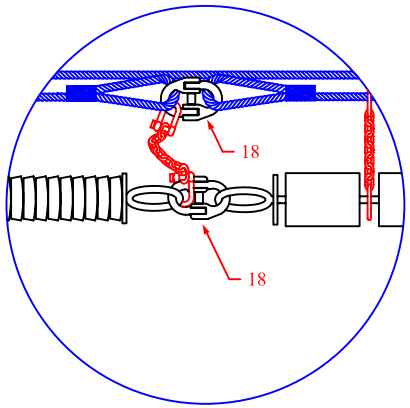


Detail "A" - Upper Leg Connection

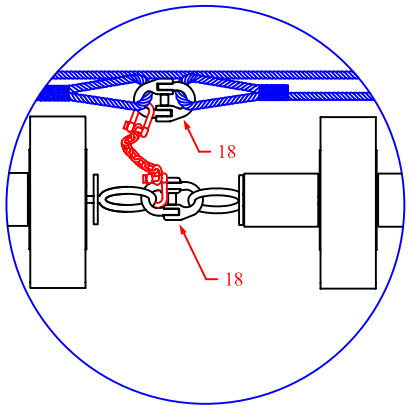


Detail "B" - Lower Leg Connection





Detail "C" - Wing to Quarter Connection



Detail "D" - Quarter to Middle Connection

DRAWING NOTES:

Sweep components are not included in the component list of this drawing, see page 9 (Dwg. # YAN - 9) for sweep component listing.

PART #	COMPONENT	MATERIALS	QTY	PAGE #
18	5/8" Hammerlock	Steel	12	16
39	Weak Link	Steel	2	36
40	8" Float with beckets	Aluminum	36	37
41	2.84 sqm. Trawl Door	990 lb Polyvalent	2	38
43B	Ø 1" Warp	6 x 25 Wire	2	NA
44	Chain backstrap	1/2" Chain	4	12B/13B
45B	Ø 9/16" x 33' Idler	6 x 19 Wire	2	12B/13B
46	Ø 5/8 x 30' Legs	6 x 19 Wire	4	NA
47	Ø 5/8" X 11' Extension	6 x 19 Wire	2	12B/13B
	Sweep Section A	Various	2	9 / 10
	Sweep Section B	Various	2	9 / 10
	Sweep Section C	Various	1	9 / 10

NOAA Fisheries

RIGGING PROFILE - DELAWARE II

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG.#:	PAGE #:	REV.	SCALE:
January 2004	YAN - 11B	11B of 38		NTS

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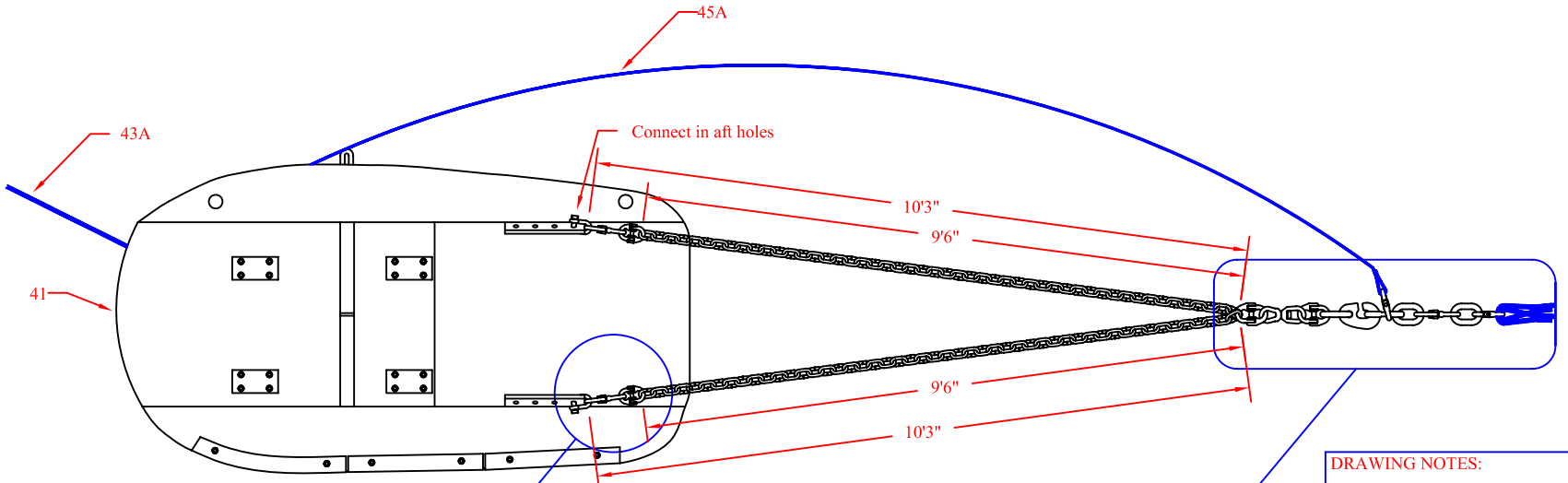
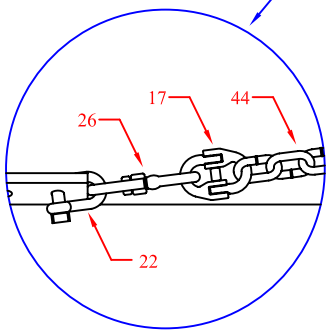
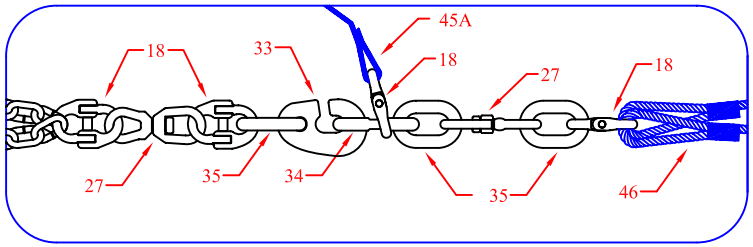


BACKSIDE VIEW OF DOOR





DRAWING NOTES:

See page 13A (Dwg. # YAN - 13A) for a detailed front view of the trawl door.

PART #	COMPONENT	MATERIALS	QTY	PAGE #
17	1/2" Hammerlock	Steel	2	15
18	5/8" Hammerlock	Steel	8	16
22	5/8" Trawl Shackle	Steel	4	20
26	5/8" Swivel	Steel	4	23
27	3/4" Swivel	Steel	4	24
33	G-hook	Steel	2	30
34	Flat link	Steel	2	31
35	Connecting Link	Steel	6	32
41	2.84 sqm. Trawl Door	990 lb Polyvalent	2	38
43A	Ø 7/8" Warp	6 x 26 Wire	2	NA
44	Chain backstrap	1/2" Chain	4	NA
45A	Ø 9/16" x 17' Idler	6 x 37 Wire	2	NA
46	Ø 5/8 x 30' Legs	6 x 19 Wire	4	NA

NOAA Fisheries

DOOR RIGGING DETAIL - ALBATROSS IV

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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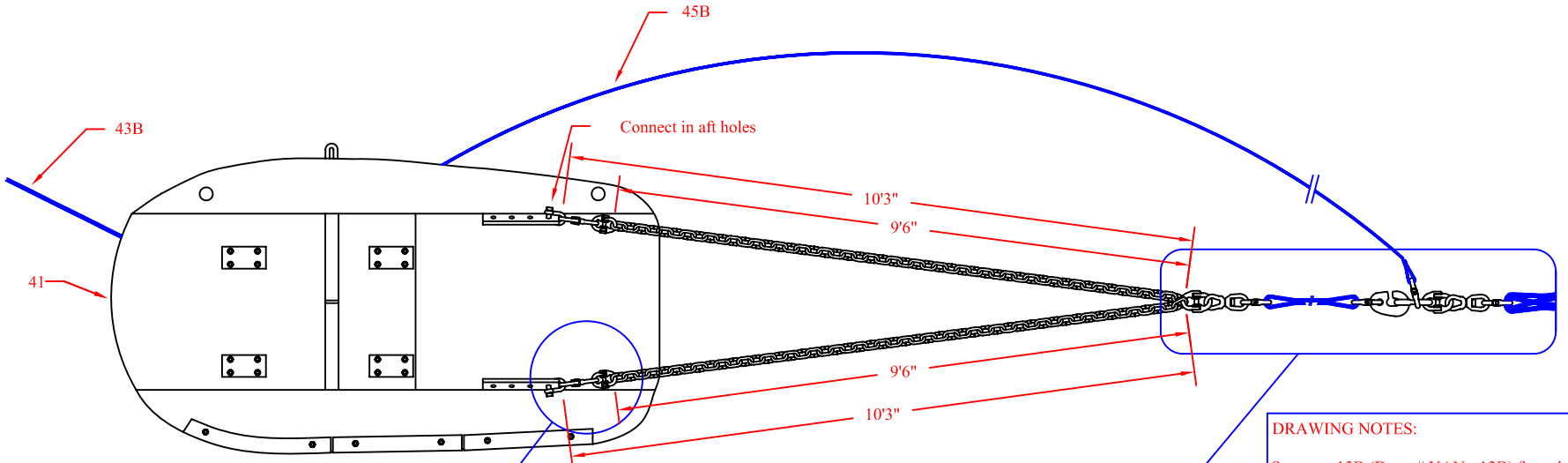
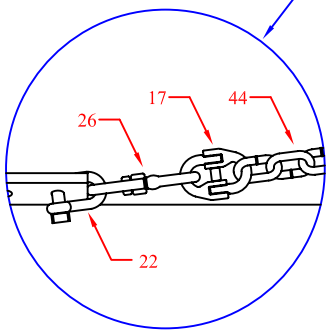
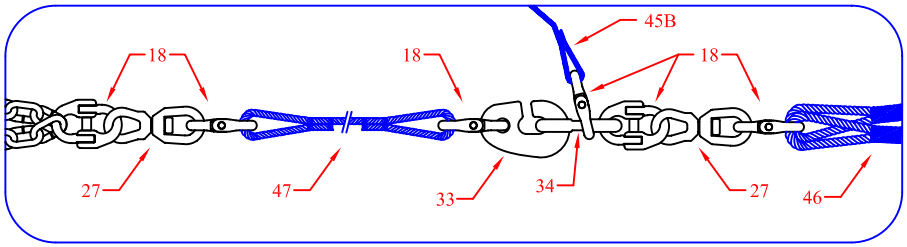


BACKSIDE VIEW OF DOOR





DRAWING NOTES:

See page 13B (Dwg. # YAN - 13B) for a detailed front view of the trawl door.

PART #	COMPONENT	MATERIALS	QTY	PAGE #
17	1/2" Hammerlock	Steel	2	15
18	5/8" Hammerlock	Steel	12	16
22	5/8" Trawl Shackle	Steel	4	20
26	5/8" Swivel	Steel	4	23
27	3/4" Swivel	Steel	4	24
33	G-hook	Steel	2	30
34	Flat link	Steel	2	31
41	2.84 sqm. Trawl Door	990 lb Polyvalent	2	38
43B	Ø 1" Warp	6 x 25 Wire	2	NA
44	Chain backstrap	1/2" Chain	4	NA
45B	Ø 9/16" x 33' Idler	6 x 19 Wire	2	NA
46	Ø 5/8" x 30' Legs	6 x 19 Wire	4	NA
47	Ø 5/8" x 11' Extension	6 x 19 Wire	2	NA

NOAA Fisheries

DOOR RIGGING DETAIL - DELAWARE II
NEFSC YANKEE - 36 SURVEY TRAWL

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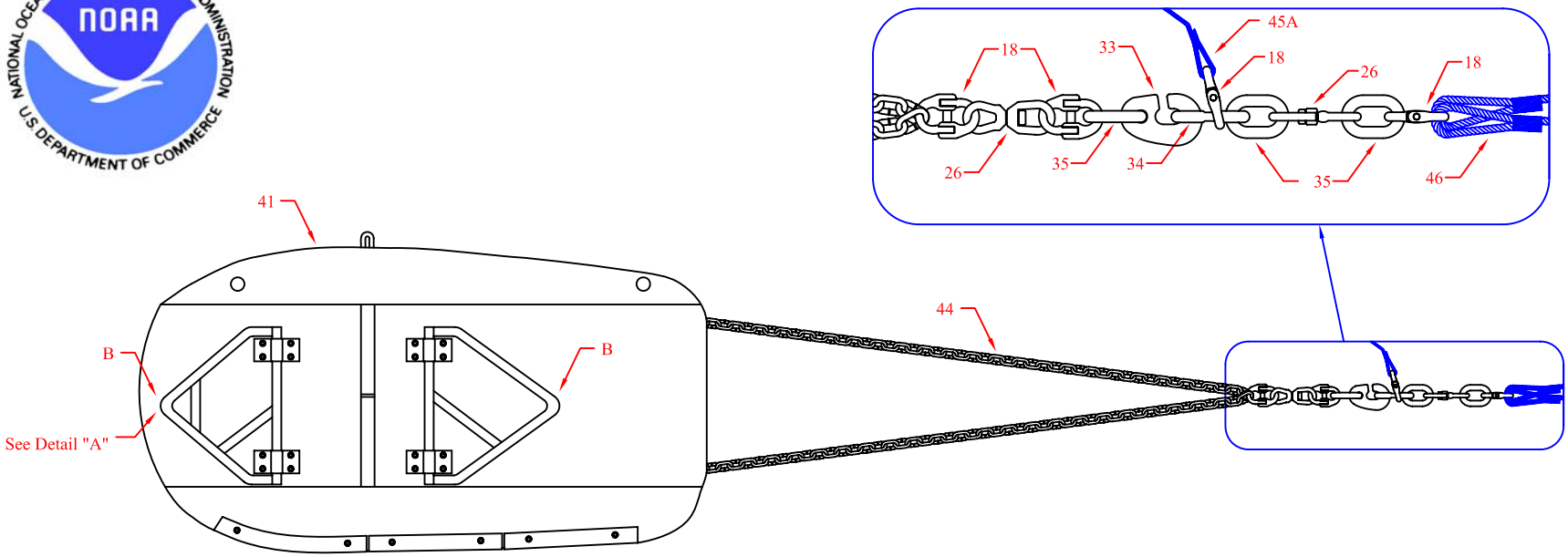
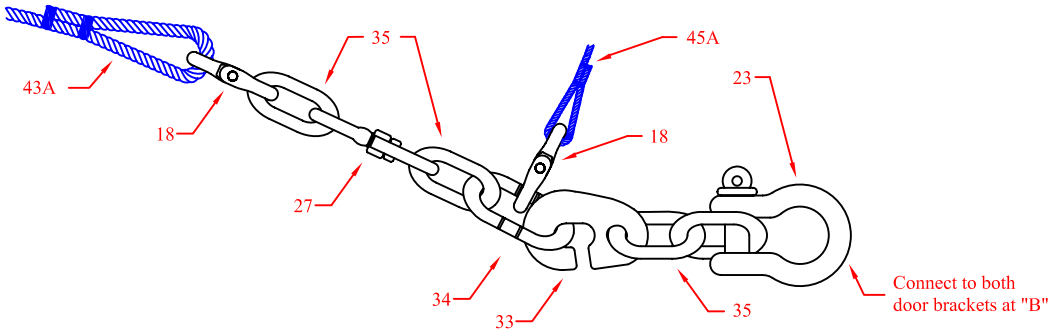


FRONTSIDE VIEW OF DOOR



Detail "A" - Warp/Idler
Connection Detail

DRAWING NOTES:

See page 12A (Dwg. # YAN - 12A) for a detailed rear view of the trawl door.

PART #	COMPONENT	MATERIALS	QTY	PAGE #
18	5/8" Hammerlock	Steel	12	16
23	Door Shackle	Steel	2	21
26	5/8" Swivel	Steel	4	23
27	3/4" Swivel	Steel	2	24
33	G-hook	Steel	4	30
34	Flat link	Steel	4	31
35	Link	Steel	14	32
41	2.84 sqm. Trawl Door	990 lb Polyvalent	2	38
43A	Ø 7/8" Warp	6 x 26 Wire	2	NA
44	Chain backstrap	1/2" Chain	4	NA
45A	Ø 9/16" x 17' Idler	6 x 37 Wire	2	NA
46	Ø 5/8 x 30' Legs	6 x 19 Wire	4	NA

NOAA Fisheries

DOOR RIGGING DETAIL - ALBATROSS IV
NEFSC YANKEE - 36 SURVEY TRAWL

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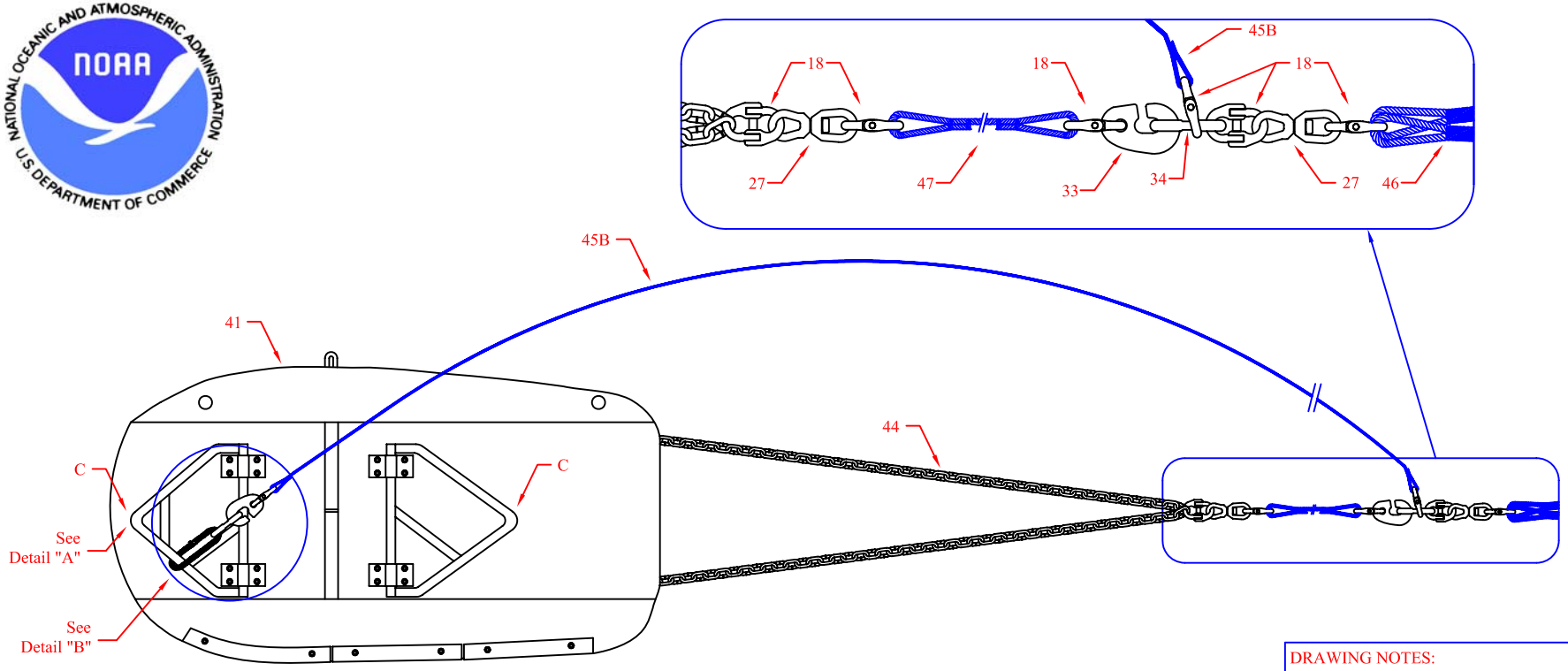
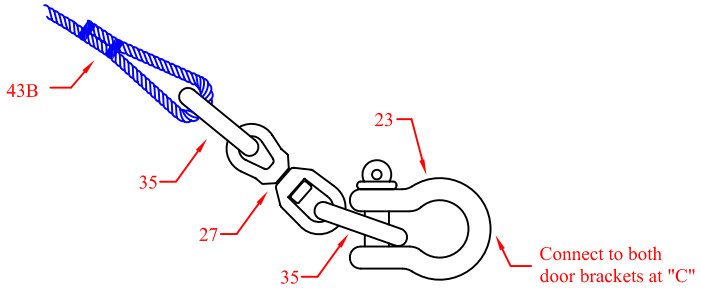
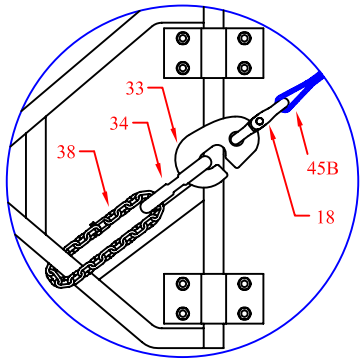


FRONTSIDE VIEW OF DOOR



Detail "A" - Warp
Connection Detail



Detail "B" - Idler
Connection Detail

DRAWING NOTES:

See page 12B (Dwg. # YAN - 12B) for a detailed rear view of the trawl door.

PART #	COMPONENT	MATERIALS	QTY	PAGE #
18	5/8" Hammerlock	Steel	14	16
23	Door Shackle	Steel	2	21
27	3/4" Swivel	Steel	6	24
33	G-hook	Steel	4	30
34	Flat link	Steel	4	31
35	Link	Steel	4	32
38	Idler Connection Chain	Steel	2	35
41	2.84 sqm. Trawl Door	990 lb Polyvalent	2	38
43B	Ø 1" Warp	6 x 25 Wire	2	NA
44	Chain backstrap	1/2" Chain	4	NA
45B	Ø 9/16" x 33' Idler	6 x 19 Wire	2	NA
46	Ø 5/8" x 30' Legs	6 x 19 Wire	4	NA
47	Ø 5/8" x 11' Extension	6 x 19 Wire	2	NA

NOAA Fisheries

DOOR RIGGING DETAIL - DELAWARE II
NEFSC YANKEE - 36 SURVEY TRAWL

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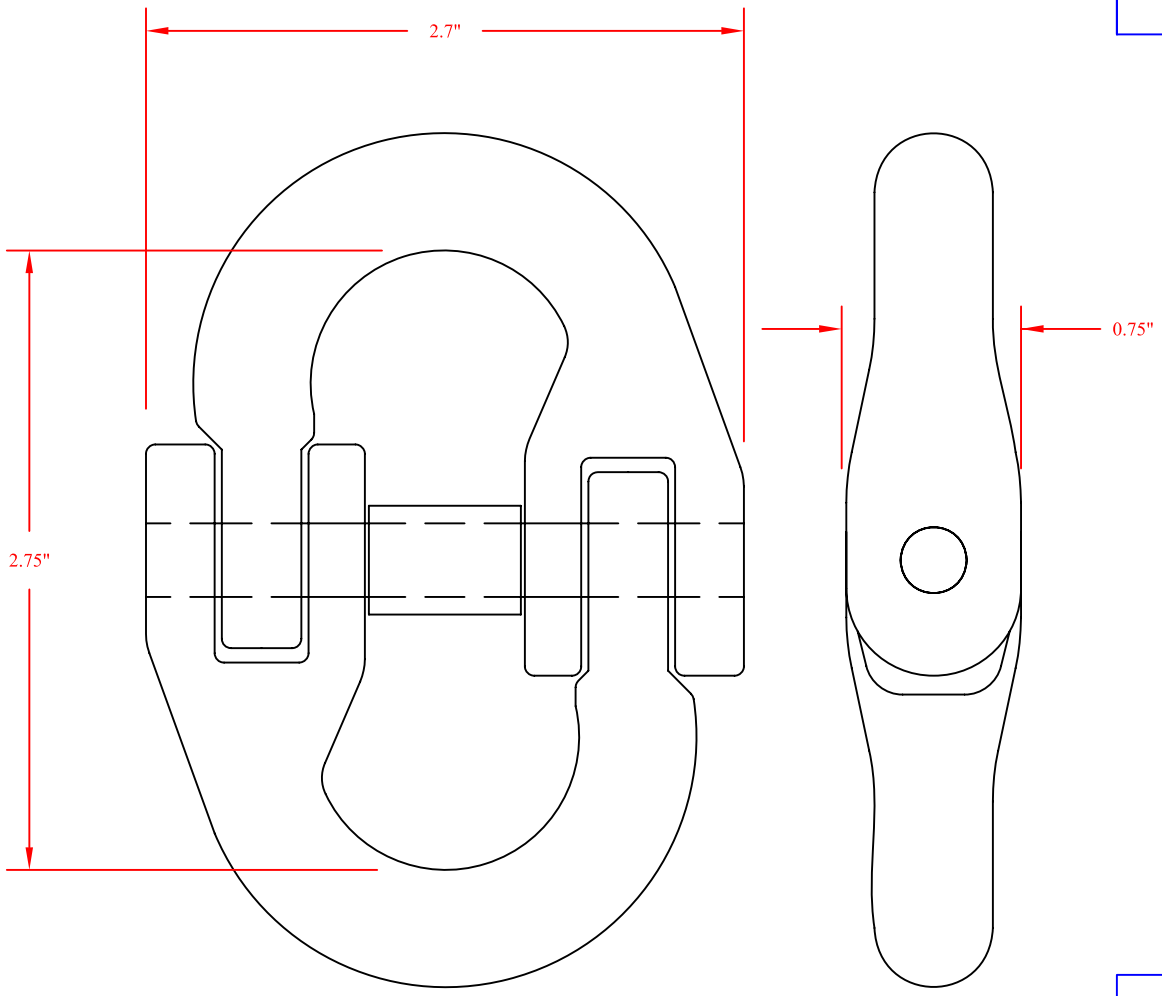
SECTION 4 – PARTS

- **YAN - 14 – 16** - 3/8” HAMMERLOCK
- **YAN - 15 - 17** - 1/2” HAMMERLOCK
- **YAN - 16 - 18** - 5/8” HAMMERLOCK
- **YAN - 17 - 19** - 5/16” TRAWL SHACKLE
- **YAN - 18 - 20** - 3/8” TRAWL SHACKLE
- **YAN - 19 - 21** - 1/2” TRAWL SHACKLE
- **YAN - 20 - 22** - 5/8” TRAWL SHACKLE
- **YAN - 21 - 23** - DOOR SHACKLE
- **YAN - 22 - 24** - 3/8” SWIVEL
- **YAN - 23 - 26** - 5/8” SWIVEL
- **YAN - 24 - 27** - 3/4” SWIVEL
- **YAN - 25 - 28** - 13.7” ROLLER CHAIN
- **YAN - 26 - 29** - DROPPER WITH 2 SHACKLES
- **YAN - 27 - 30** - 4” RUBBER DISK/COOKIE
- **YAN - 28 - 31** - 16” ROLLER
- **YAN - 29 - 32** - 4.8” x 6.7” RUBBER SPACER
- **YAN - 30 - 33** - G-HOOK
- **YAN - 31 - 34** - FLAT LINK
- **YAN - 32 - 35** - CONNECTING LINK
- **YAN - 33 - 36** - 4.5” STEEL WASHER
- **YAN - 34 - 14** - 2” CODEND RING
- **YAN - 35 - 38** - IDLER CONNECTION CHAIN
- **YAN - 36 - 39** - WEAK LINK
- **YAN - 37 - 40** - 8” ALUMINUM LUG FLOAT
- **YAN - 38 - 41** - TRAWL DOOR DETAILS

SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
16	0.77	0.69



NOAA Fisheries

3/8" HAMMERLOCK

NEFSC YANKEE - 36 SURVEY TRAWL

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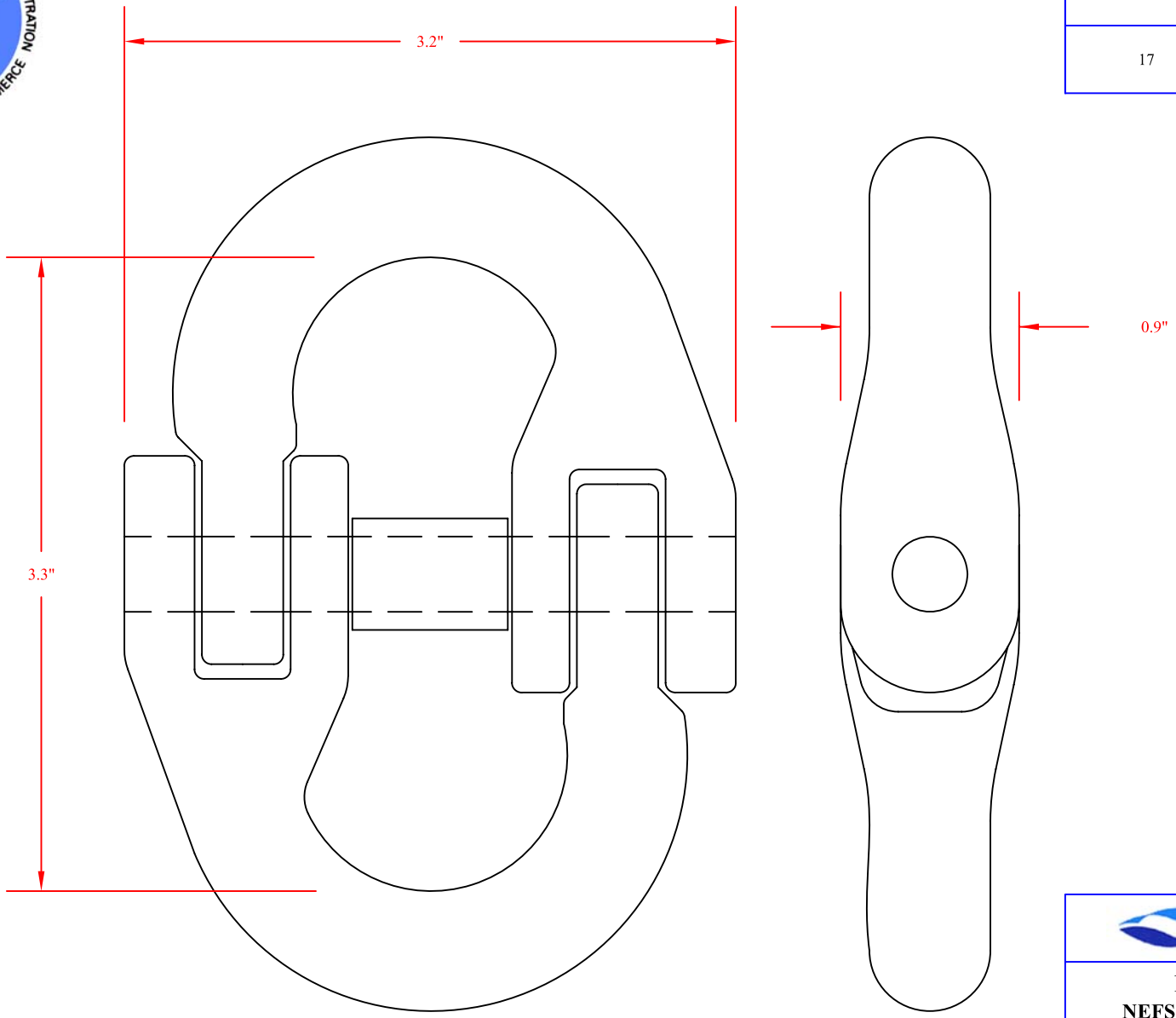

SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
17	1.35	1.17

NOAA Fisheries

1/2" HAMMERLOCK

NEFSC YANKEE - 36 SURVEY TRAWL

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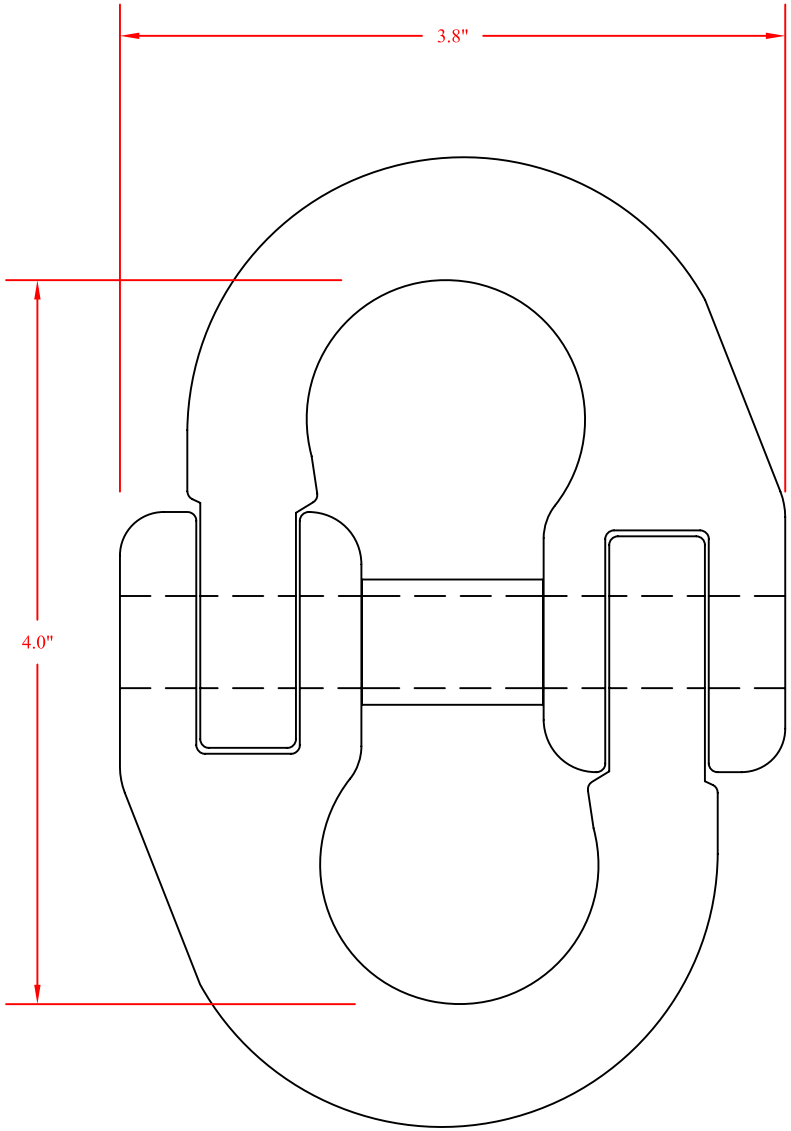
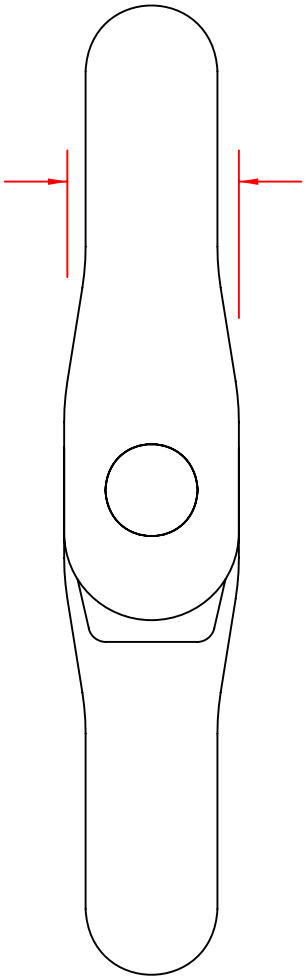
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
18	2.30	2.00





NOAA Fisheries

5/8" HAMMERLOCK

NEFSC YANKEE - 36 SURVEY TRAWL

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January 2004	YAN - 16 - 18	16 of 38		NTS

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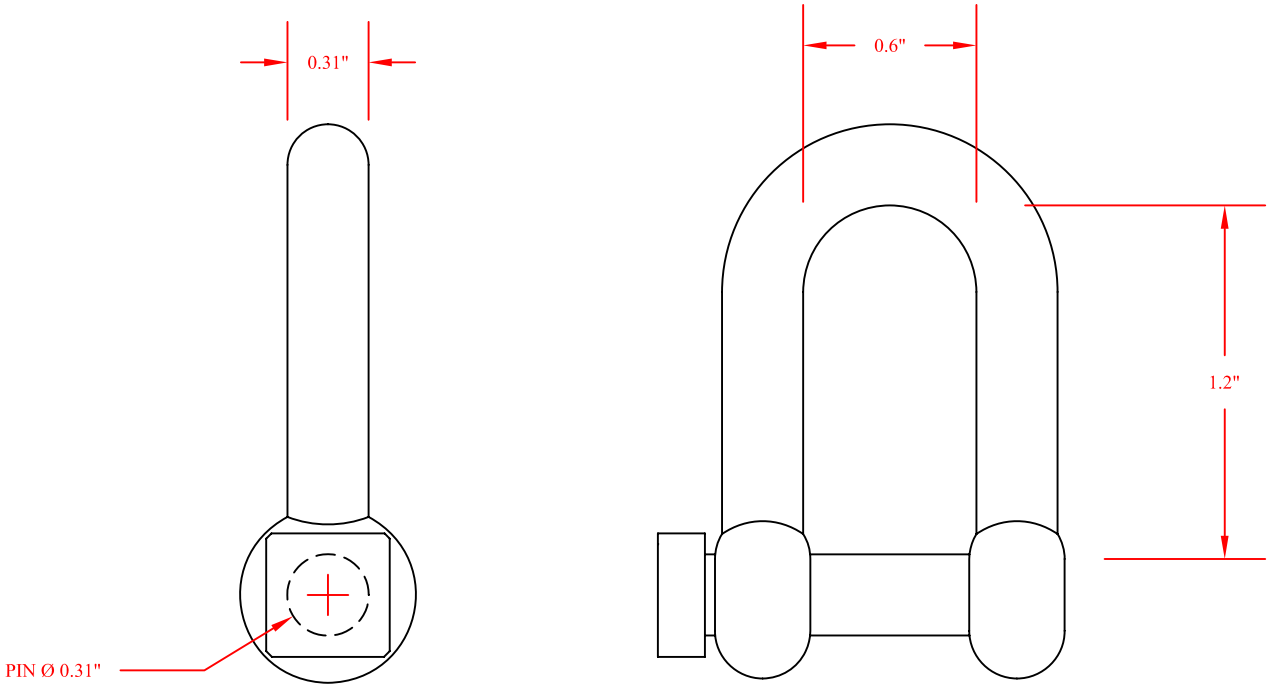
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
19	0.13	0.12



NOAA Fisheries

5/16" TRAWL SHACKLE

NEFSC YANKEE - 36 SURVEY TRAWL

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March 2004	YAN - 17 -19	17 of 38		NTS

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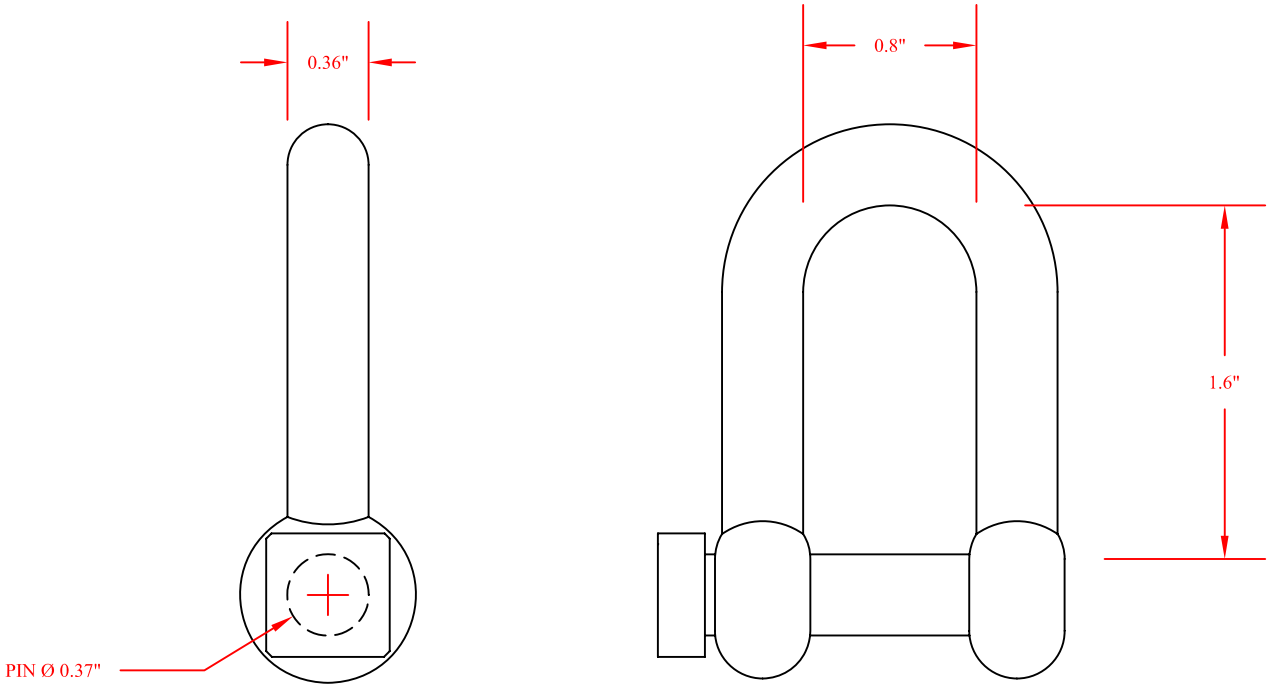
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
20	0.22	0.19



NOAA Fisheries

3/8" TRAWL SHACKLE

NEFSC YANKEE - 36 SURVEY TRAWL

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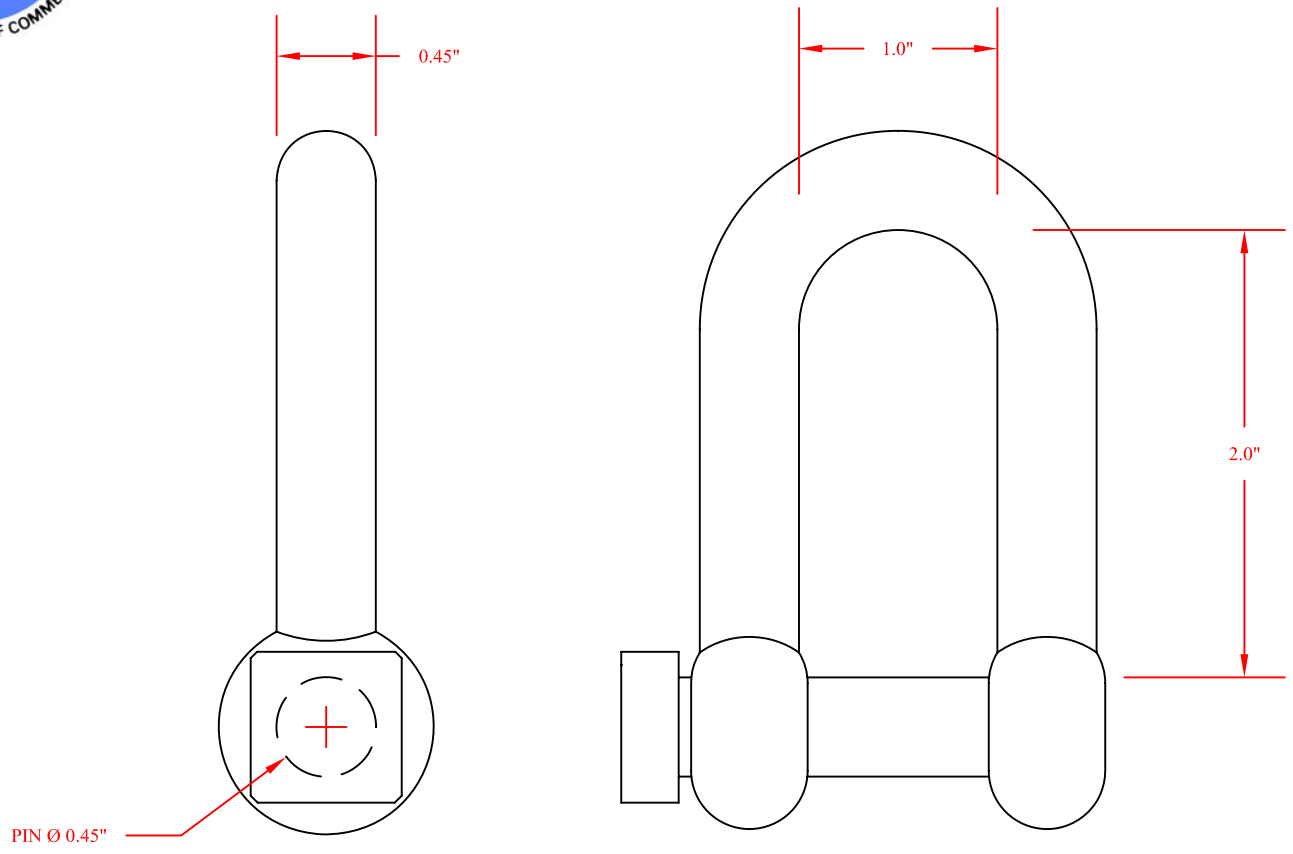
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
21	0.42	0.37



NOAA Fisheries

1/2" TRAWL SHACKLE

NEFSC YANKEE - 36 SURVEY TRAWL

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January 2004	YAN - 19 - 21	19 of 38		NTS

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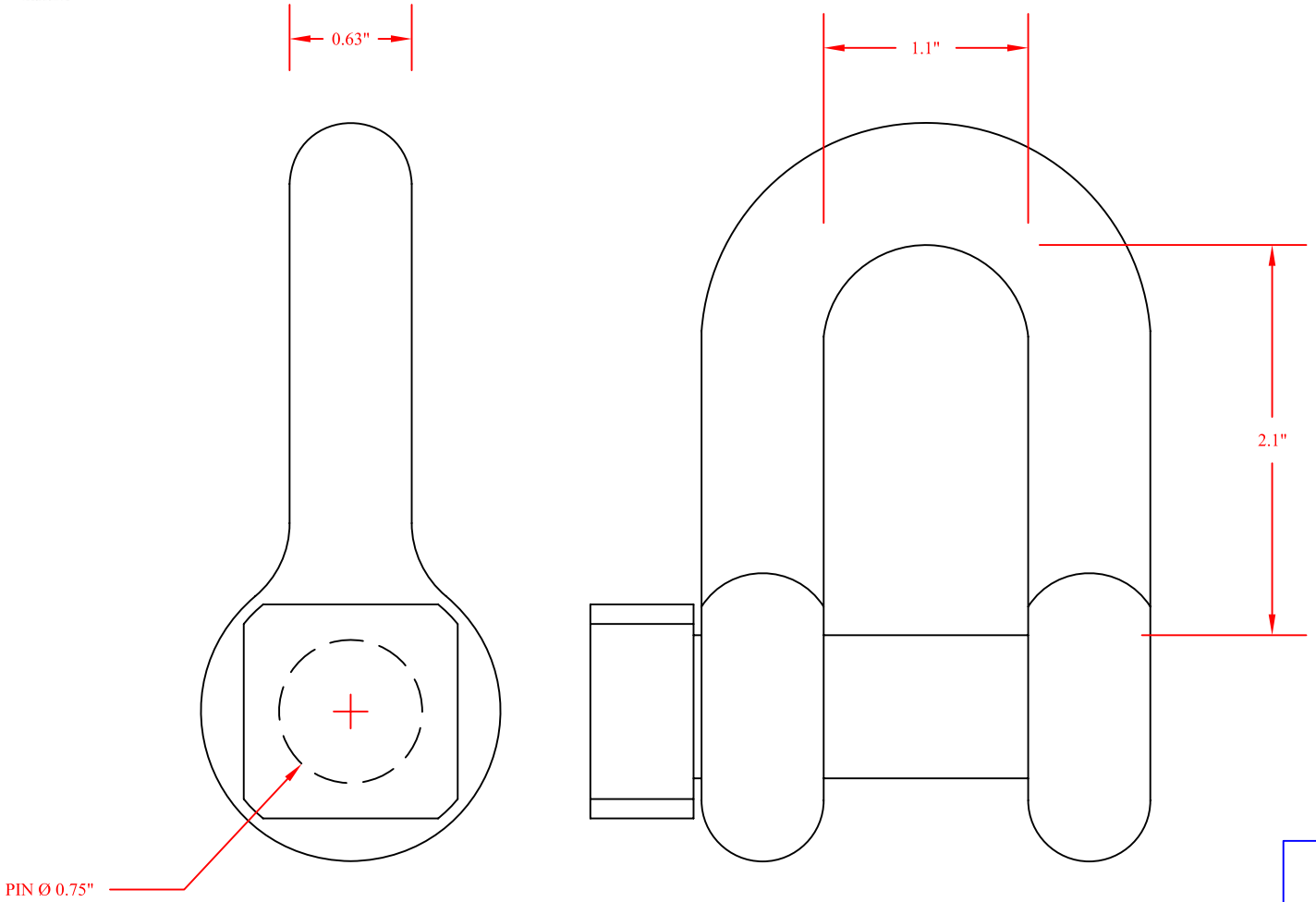
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
22	1.31	1.17



NOAA Fisheries

5/8" TRAWL SHACKLE

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 20 - 22	20 of 38		NTS

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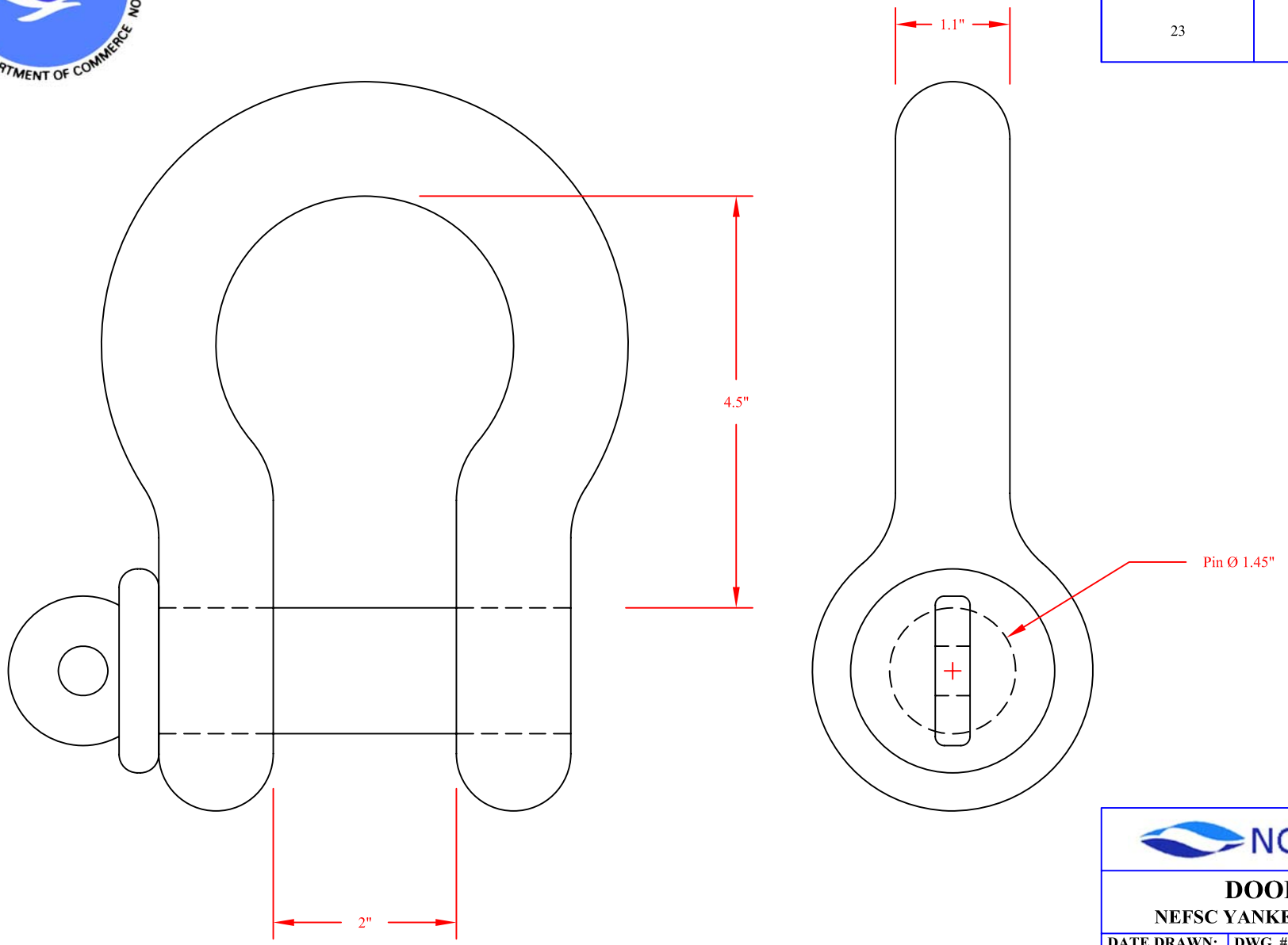
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
23	14.3	12.7



NOAA Fisheries

DOOR SHACKLE

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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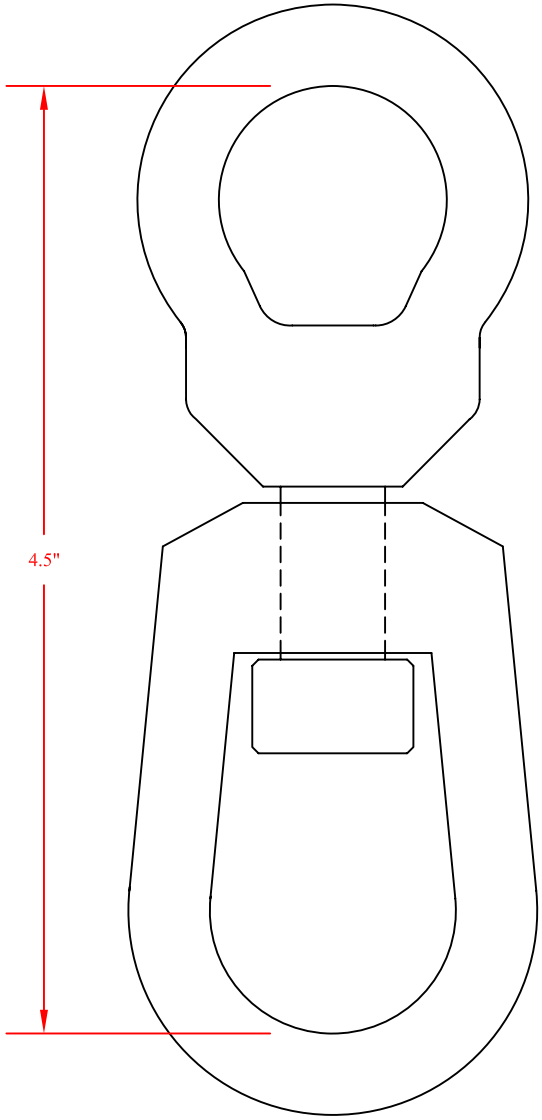

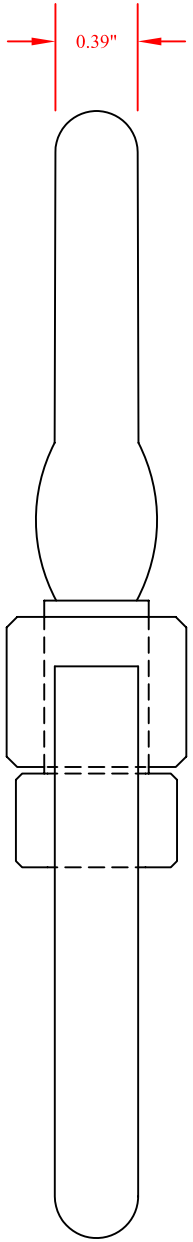

SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
24	0.64	0.57

NOAA Fisheries

3/8" SWIVEL

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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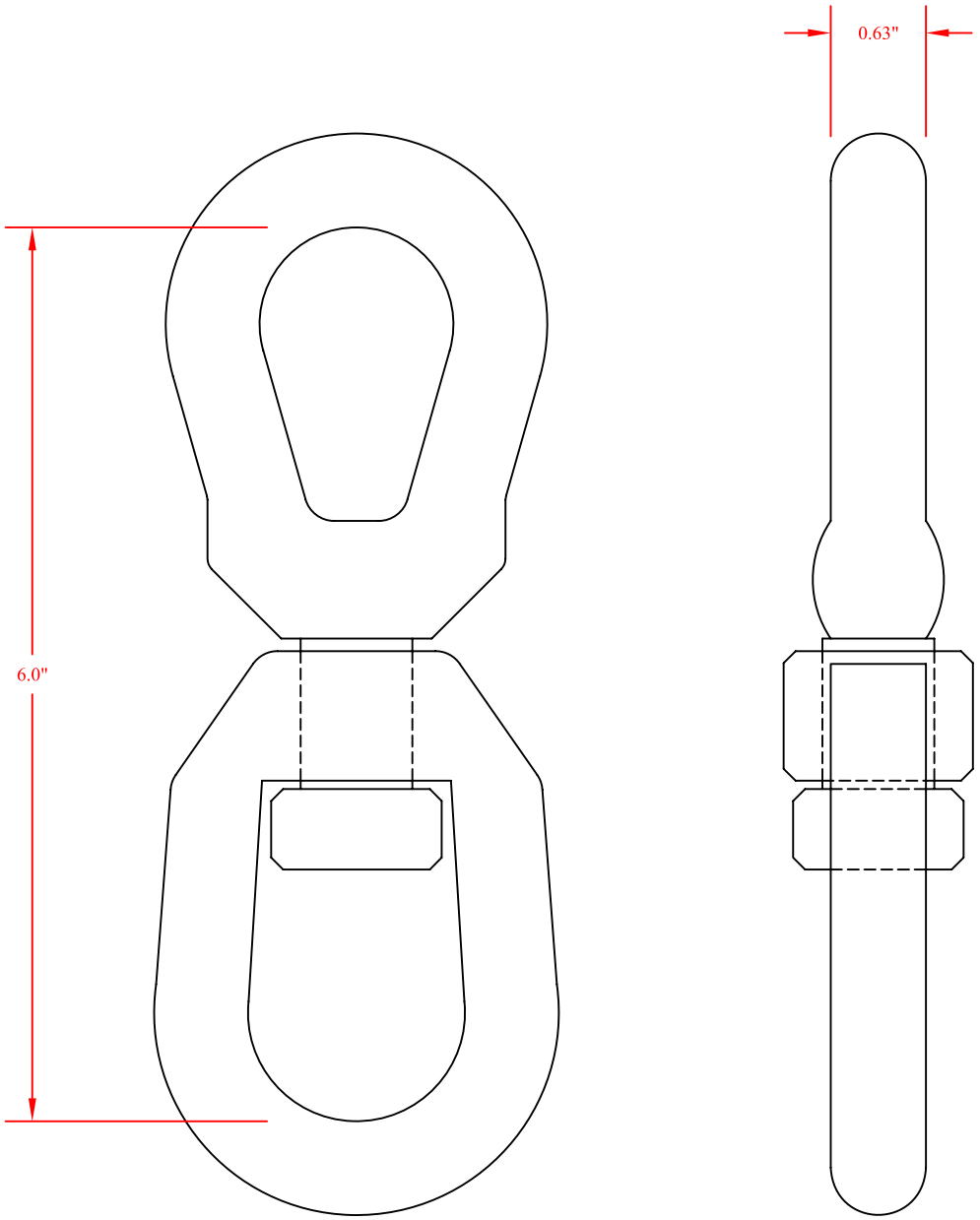

SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
26	1.90	1.65

NOAA Fisheries

5/8" SWIVEL

NEFSC YANKEE - 36 SURVEY TRAWL

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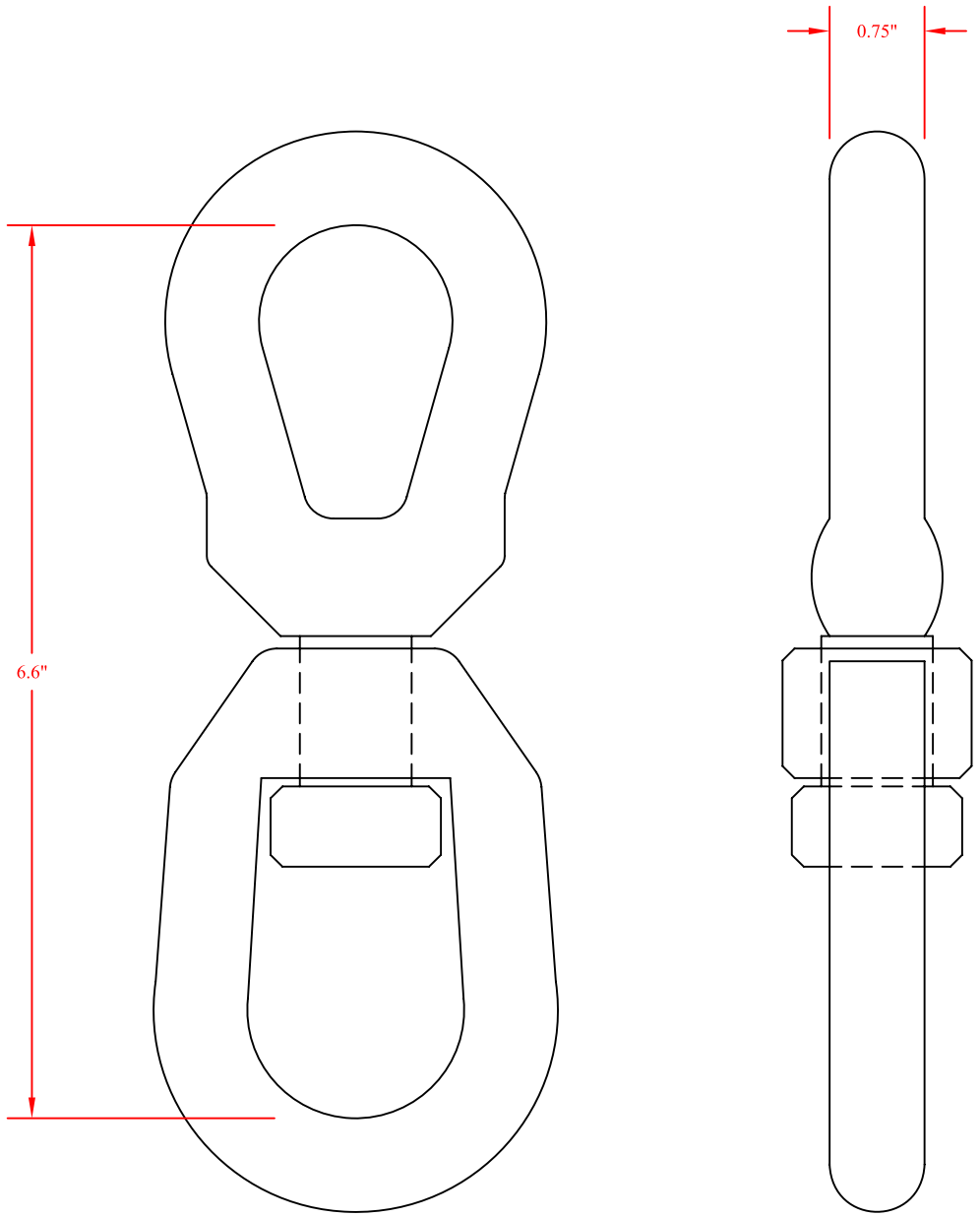

SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
27	3.1	2.7

NOAA Fisheries

3/4" SWIVEL

NEFSC YANKEE - 36 SURVEY TRAWL

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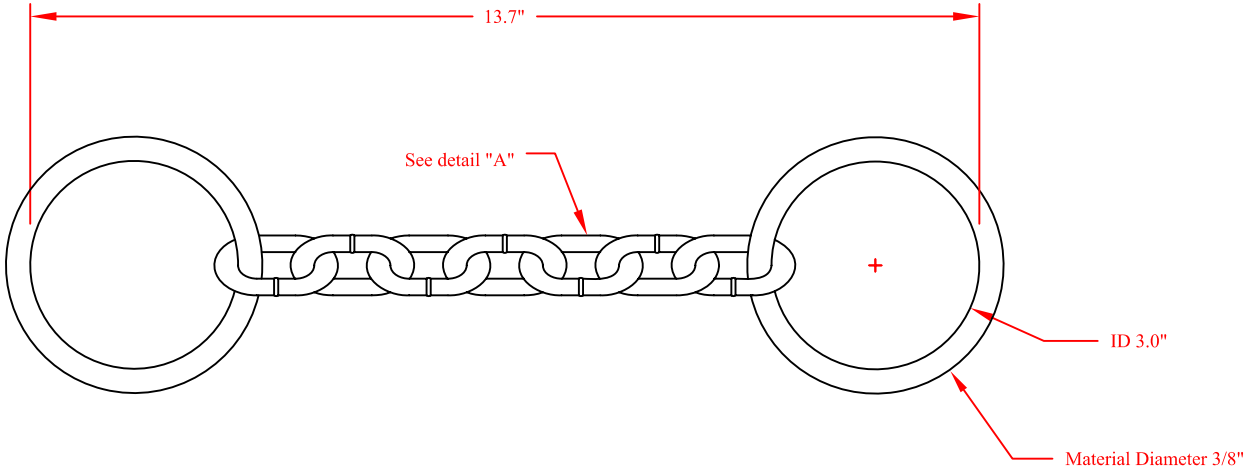
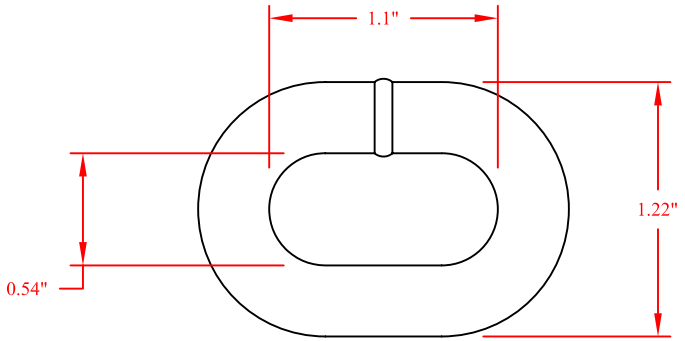
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
28	1.66	1.44





CHAIN LINK DETAIL "A"

NOAA Fisheries

13.7" ROLLER CHAIN

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 25 - 28	25 of 38		NTS

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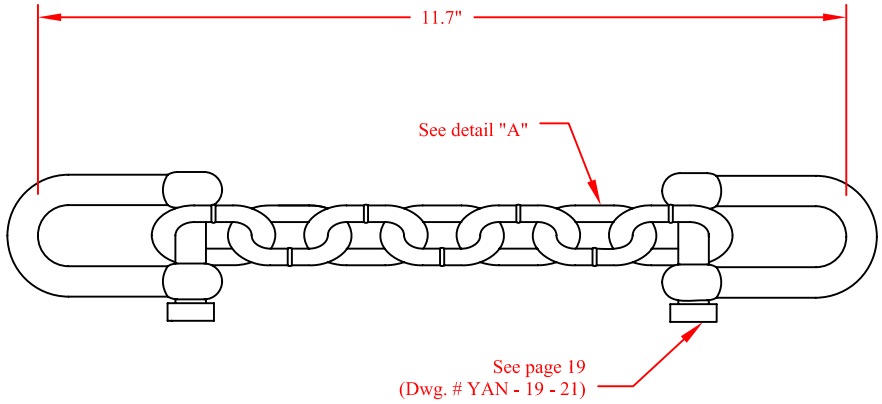
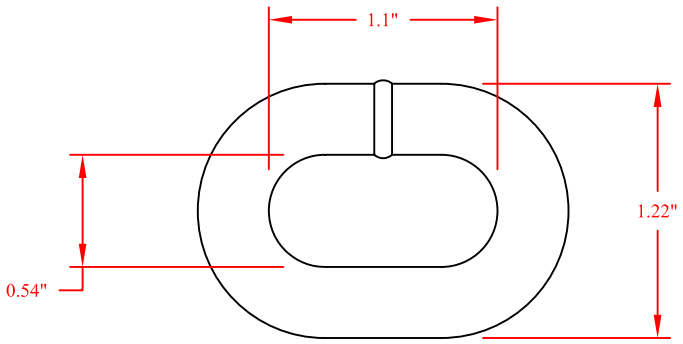
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
29	1.30	1.13





CHAIN LINK DETAIL "A"

NOAA Fisheries

DROPPER WITH 2 SHACKLES

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 26 - 29	26 of 38		NTS

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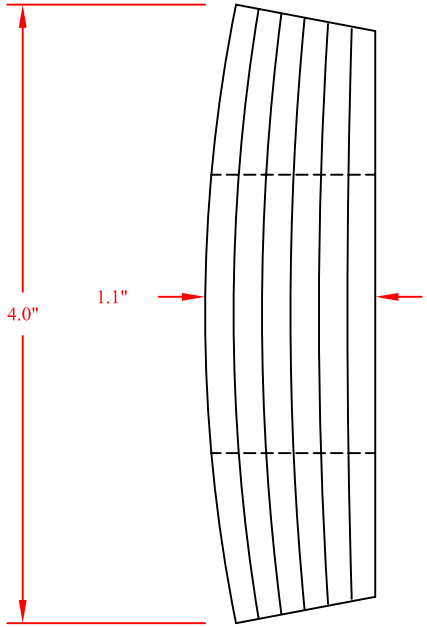
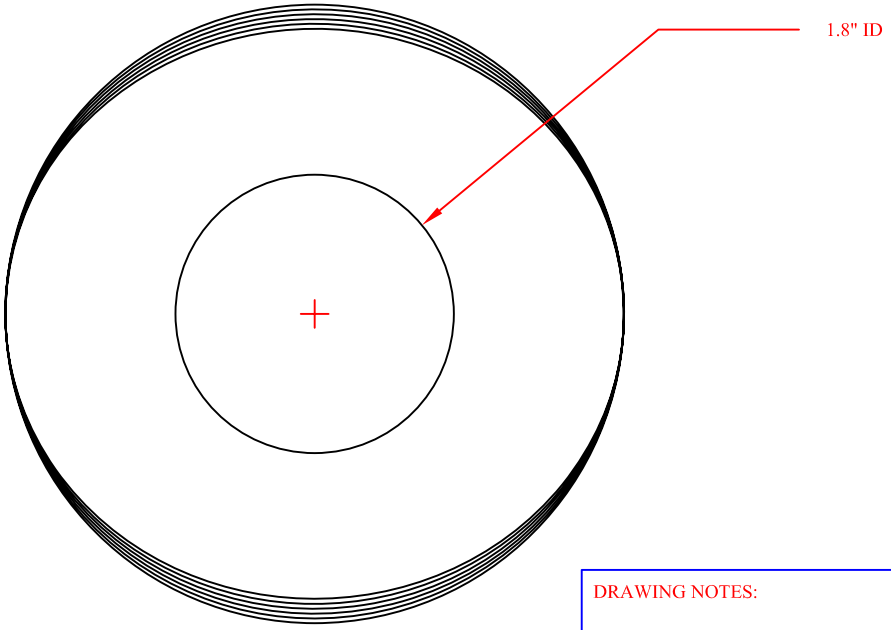
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
30	0.41	.041





DRAWING NOTES:

The thickness of this component is extremely variable due to manufacturing processes. Tolerances for thickness are presented in the parts list.

NOAA Fisheries

4" RUBBER DISK / COOKIE

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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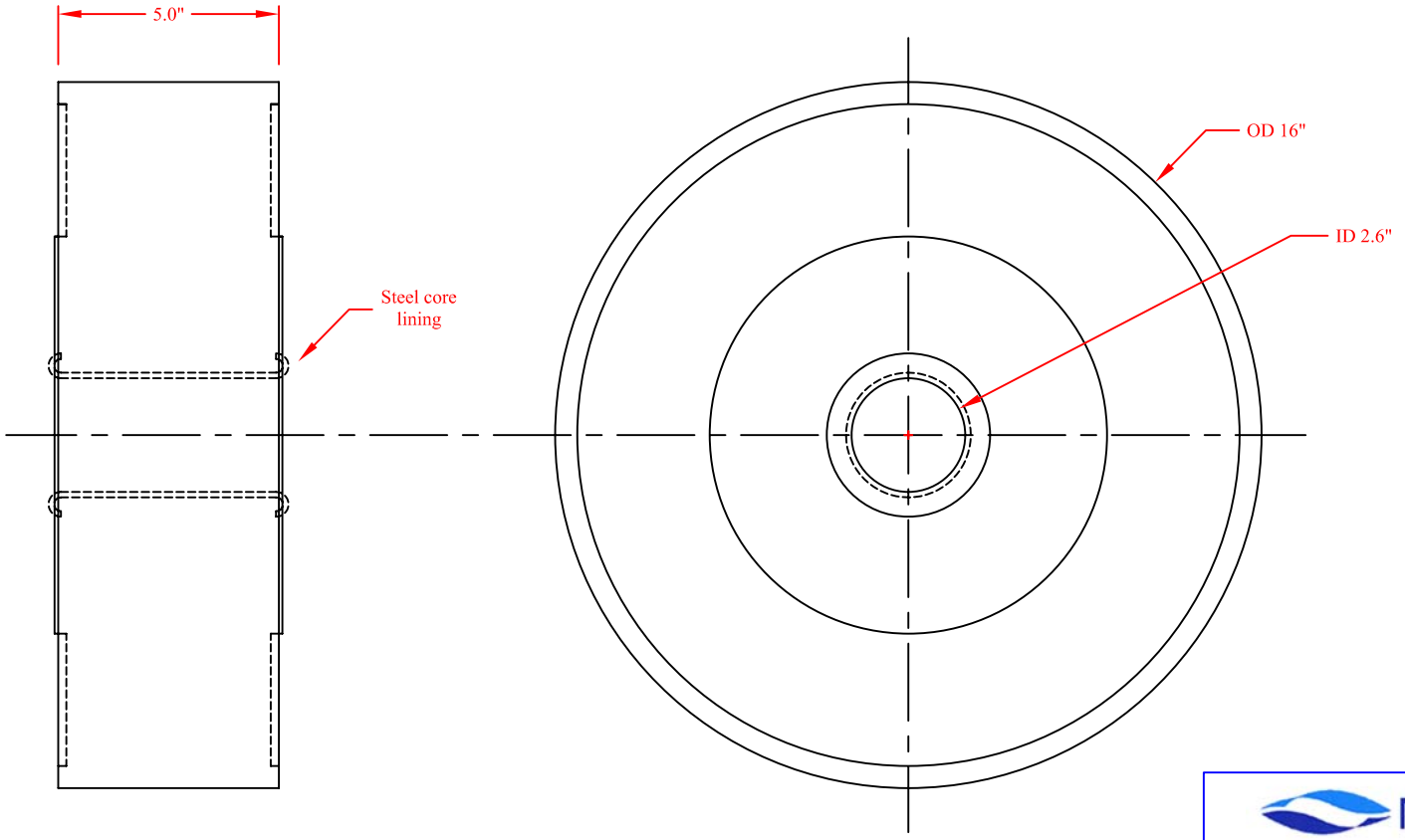
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
31	41.28	7.17



NOAA Fisheries

16" ROLLER

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 28 - 31	28 of 38		NTS

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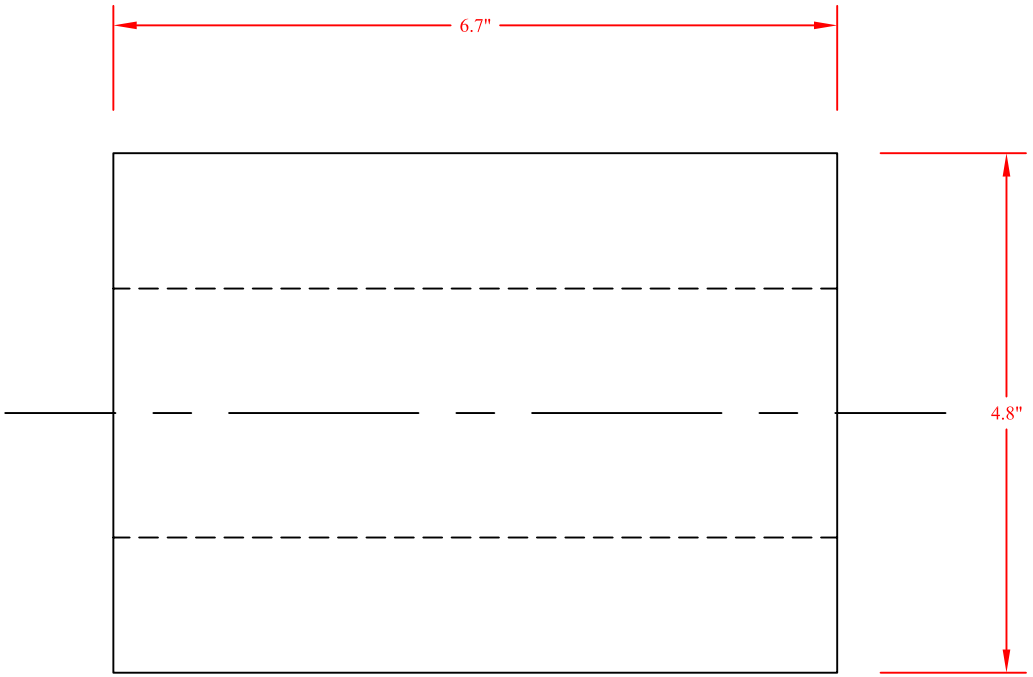
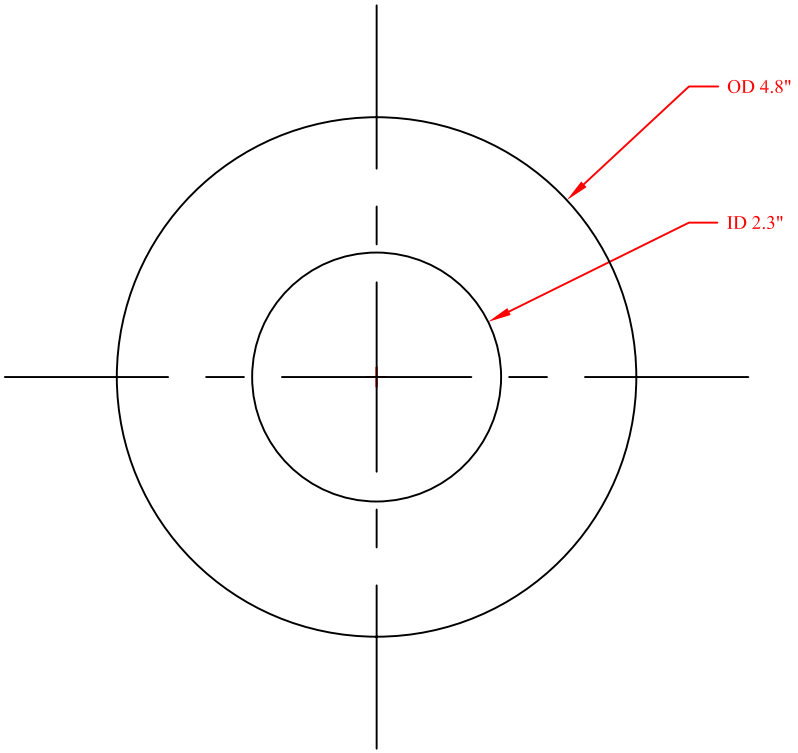
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
32	4.03	0.85





NOAA Fisheries

4.8" x 6.7" RUBBER SPACER

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 29 - 32	30 of 38		NTS

DRAWN BY:
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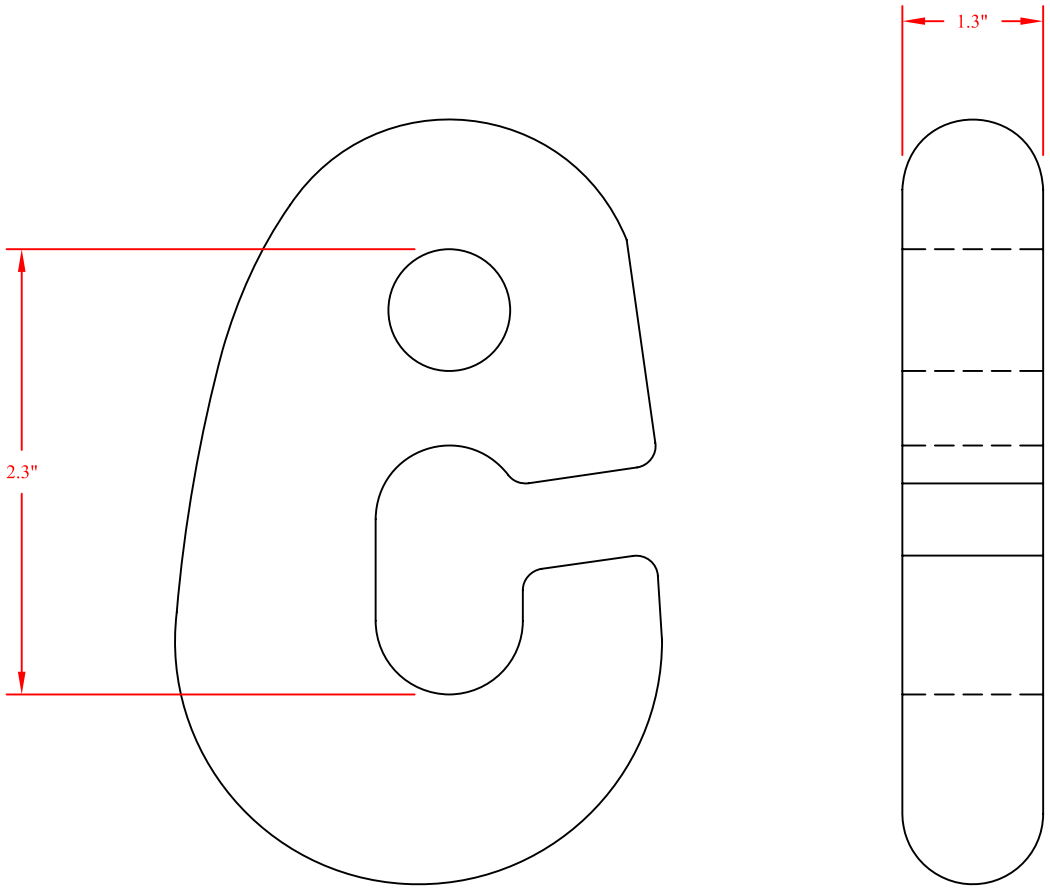
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
33	5.06	4.43



NOAA Fisheries

G - HOOK

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 30 - 33	30 of 38		NTS

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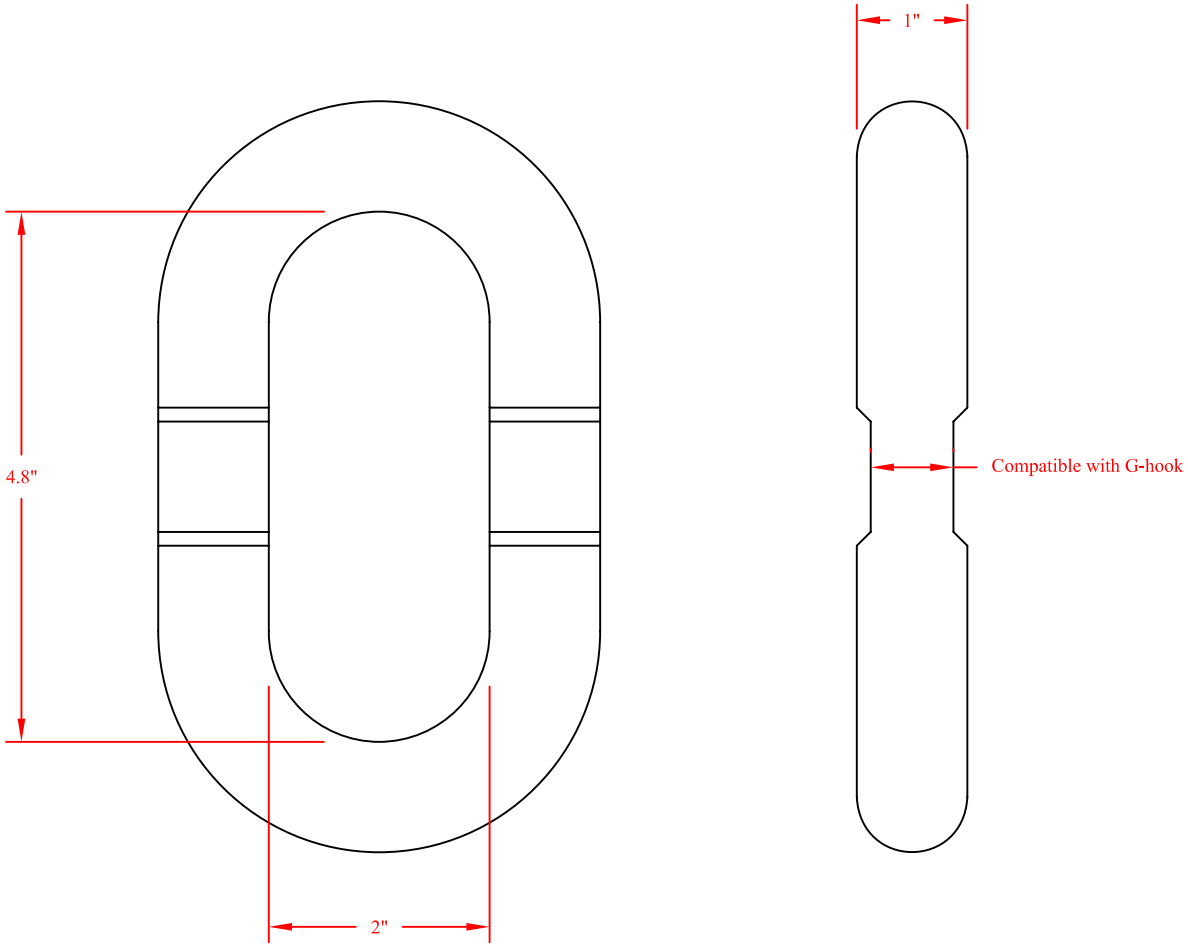
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
34	3.5	3.1



NOAA Fisheries

FLAT LINK

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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DRAWN BY:
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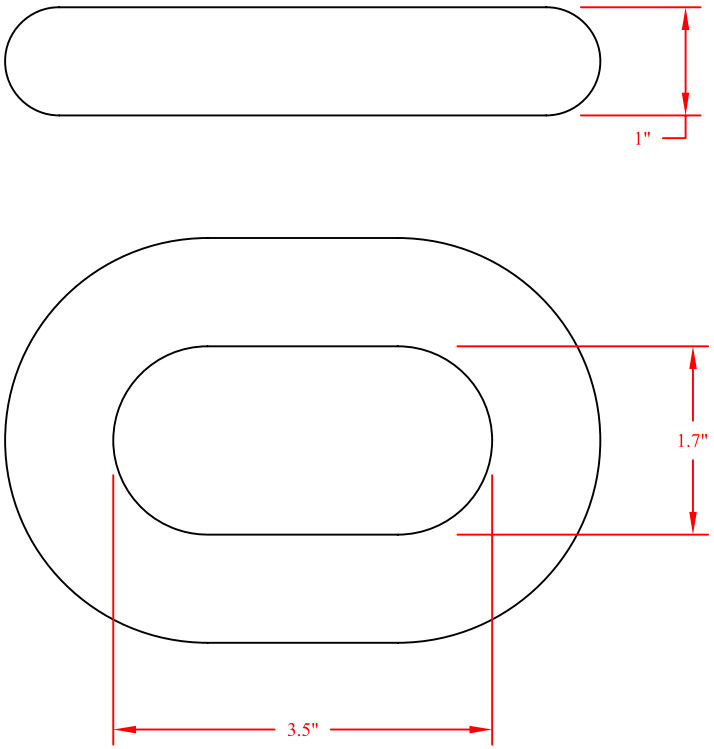
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
35	3.36	3.00



NOAA Fisheries

CONNECTING LINK

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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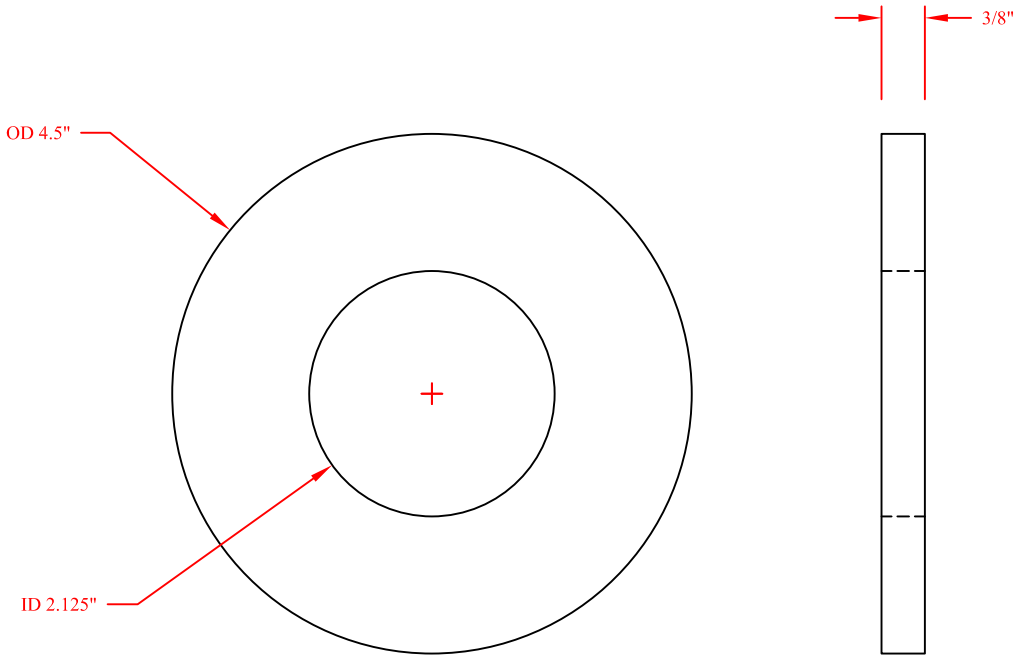
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
36	1.23	1.10



NOAA Fisheries

4.5" STEEL WASHER

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
March 2004	YAN - 33 - 36	33 of 38		NTS

DRAWN BY:
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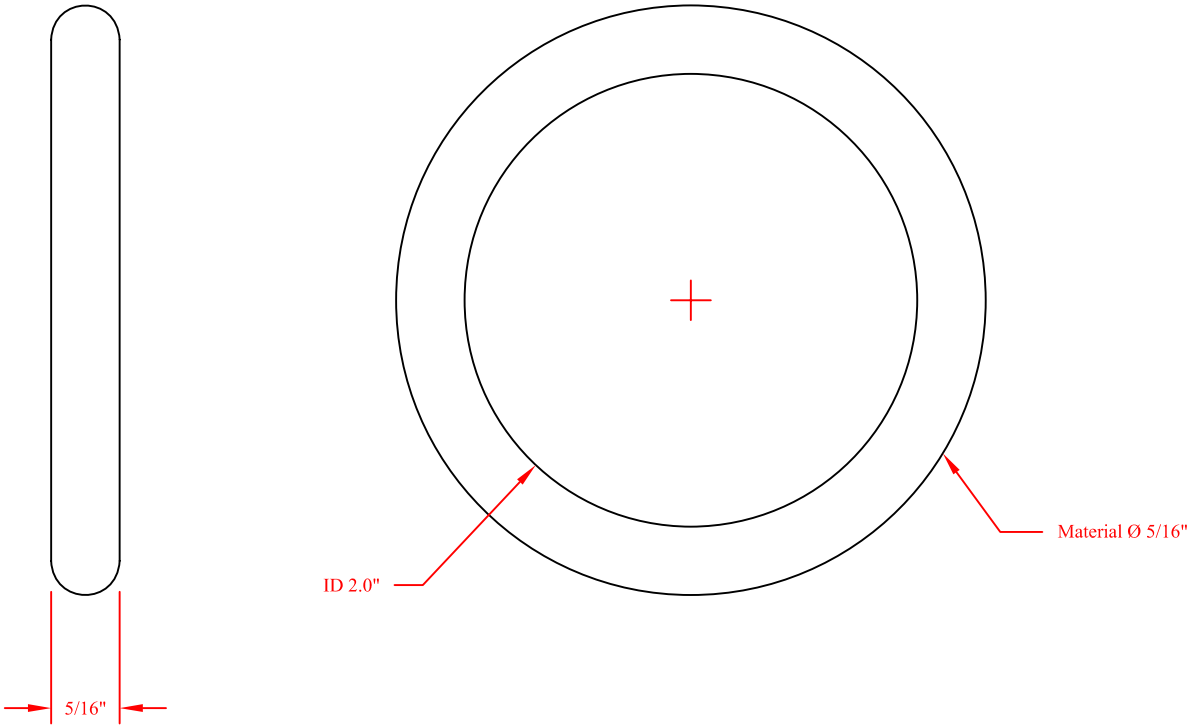
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
14	0.16	0.14



NOAA Fisheries

2" CODEND RING

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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DRAWN BY:
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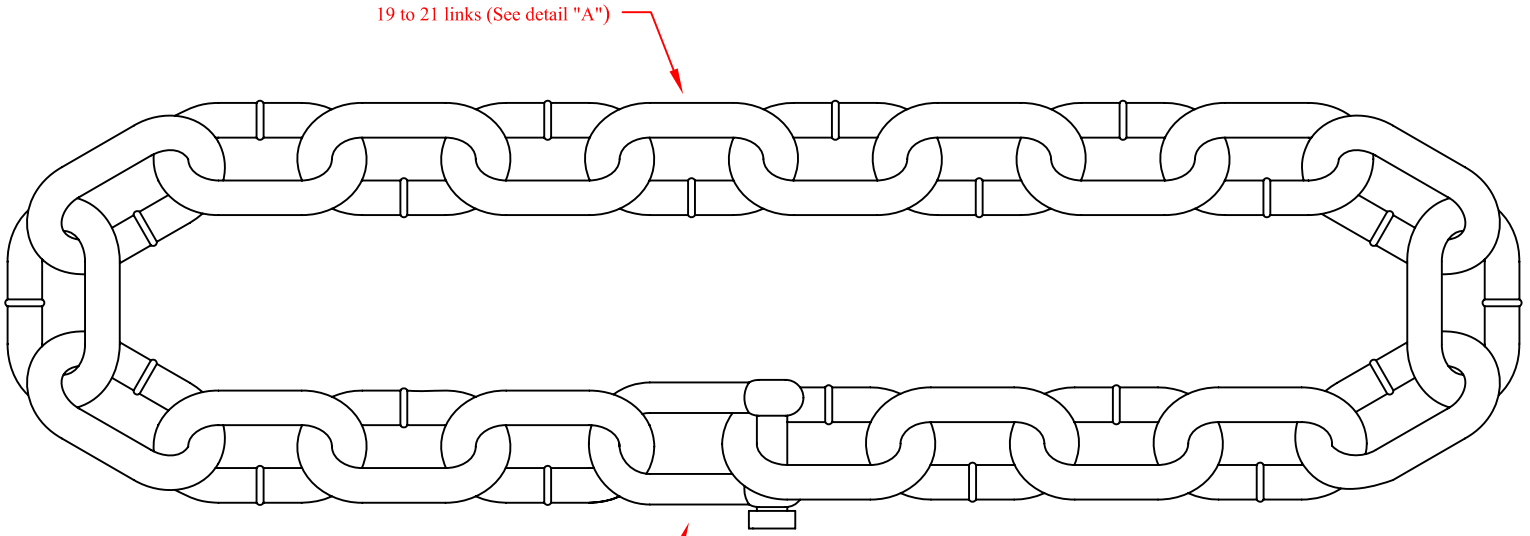
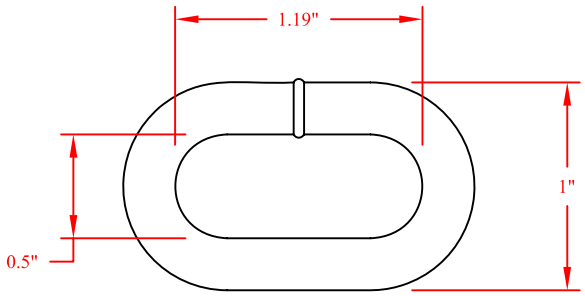
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
38	1.4	1.2





CHAIN LINK DETAIL "A"

NOAA Fisheries

IDLER CONNECTION CHAIN

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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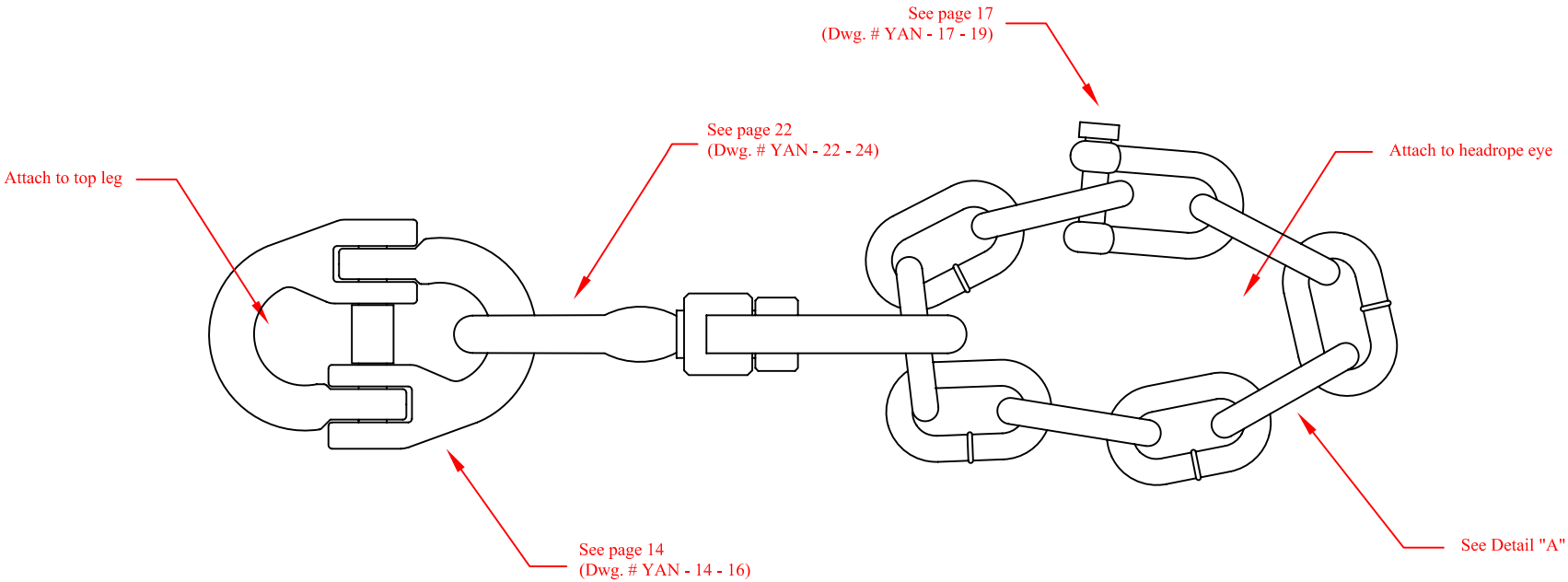
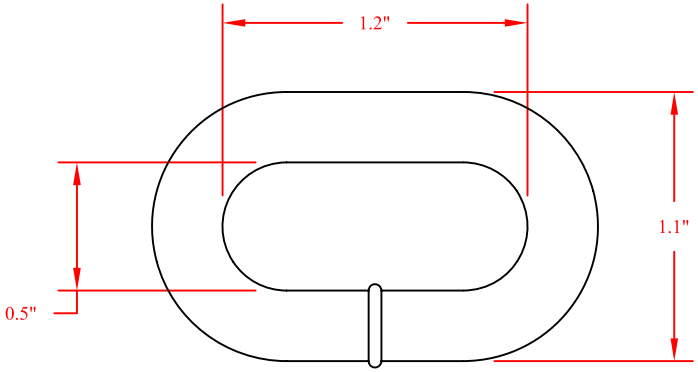
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
39	2.2	1.94





CHAIN LINK DETAIL "A"

NOAA Fisheries

WEAK LINK

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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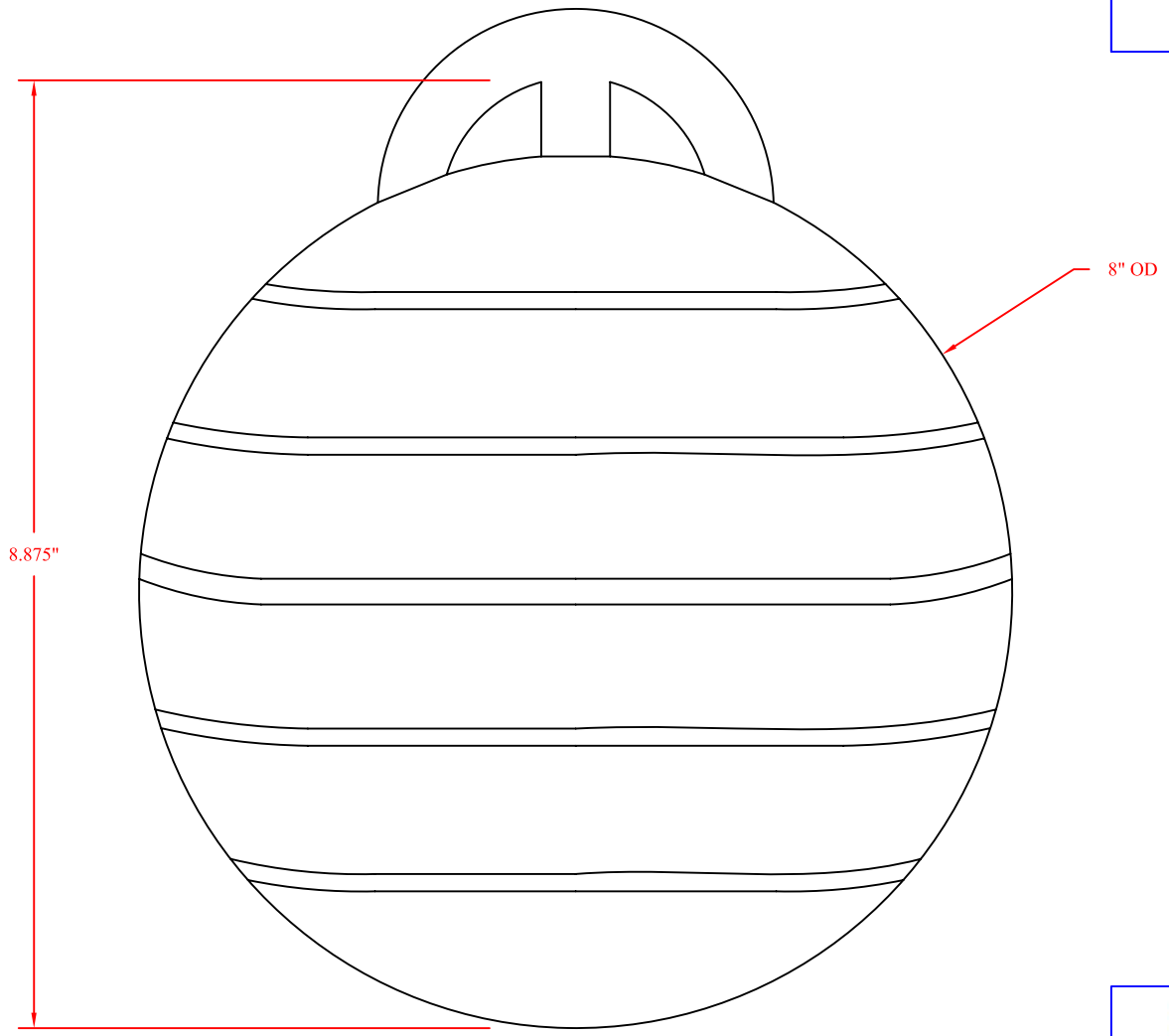
SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	BUOYANCY IN FRESH WATER (lbs):
40	3.80	4.76



NOAA Fisheries

8" ALUMINUM BECKET FLOAT

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
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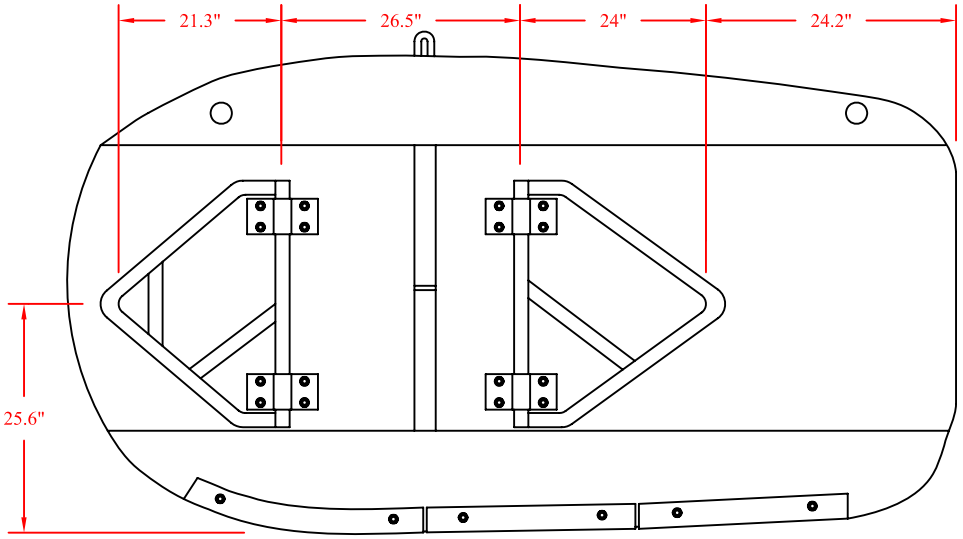
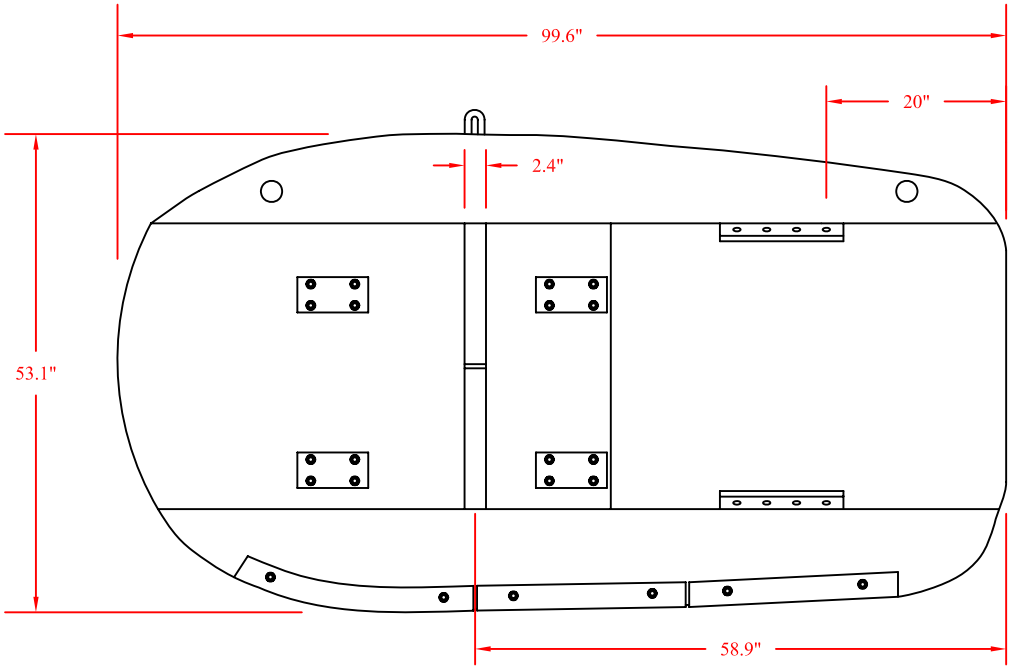


FRONTSIDE VIEW OF DOOR



BACKSIDE VIEW OF DOOR

SPECIFICATIONS

PART # :	WEIGHT IN AIR (lbs):	WEIGHT IN FRESHWATER (lbs):
41	990	N/A

NOAA Fisheries

TRAWL DOOR DETAILS

NEFSC YANKEE - 36 SURVEY TRAWL

DATE DRAWN:	DWG. # :	PAGE # :	REV.	SCALE:
January 2004	YAN - 38 - 41	38 of 38		NTS

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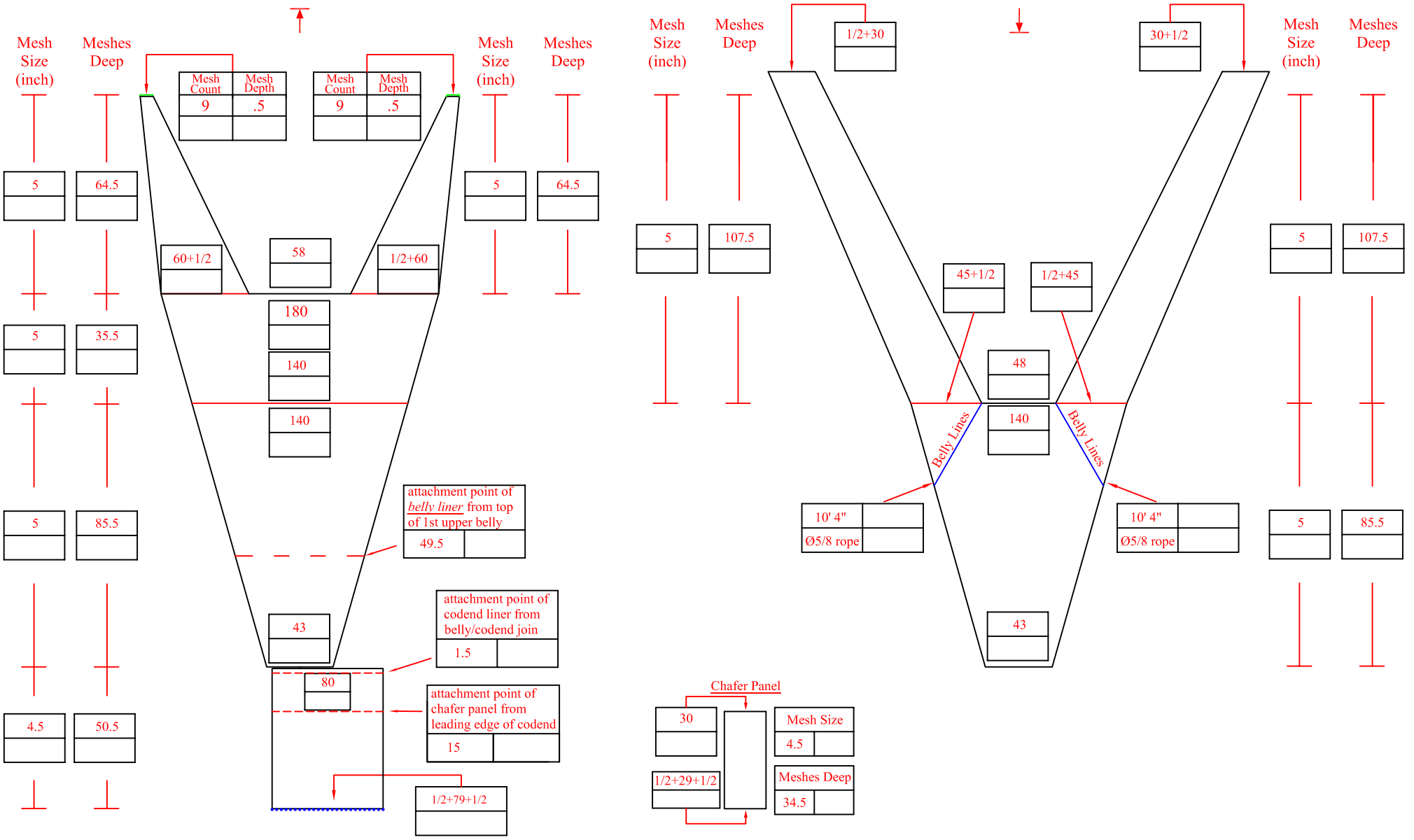
SECTION 5 – CHECKLISTS

- **PAGE 1 OF 4** - NET PLAN CHECKLIST
- **PAGE 2 OF 4** - FRAMEROPE CHECKLIST
- **PAGE 3 OF 4** - SWEEP GEAR CHECKLIST
- **PAGE 4A OF 4** - RIGGING CHECKLIST – ALBATROSS IV
- **PAGE 4B OF 4** - RIGGING CHECKLIST – DELAWARE II

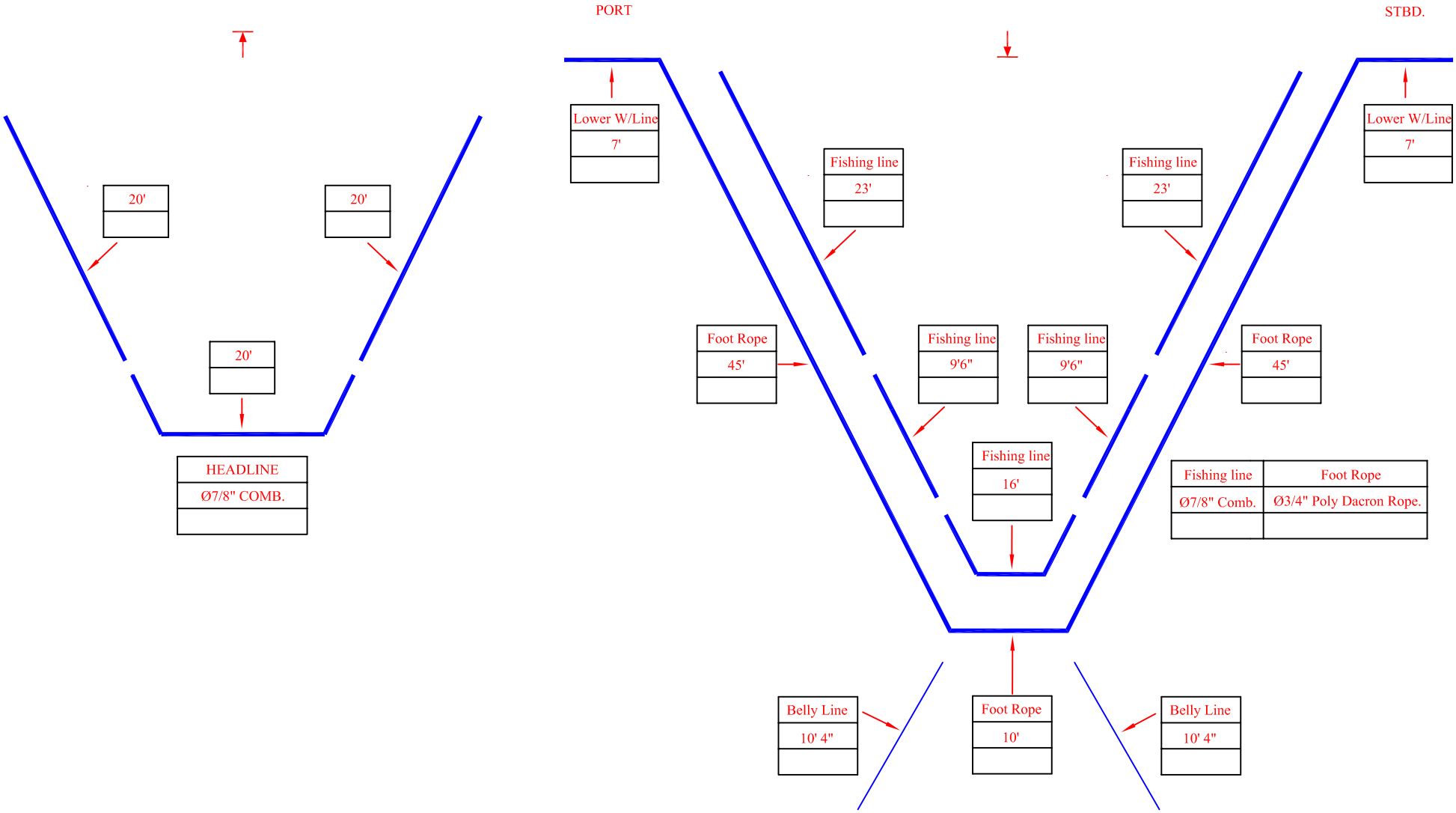


NOAA Fisheries

NET PLAN CHECKLIST
YANKEE - 36 SURVEY TRAWL

VESSEL: _____ PAGE: 1 OF 4
CRUISE: _____ DATE: _____

CHECKED BY: _____
APPROVED BY: _____



NOAA Fisheries

FRAMEROPE PLAN CHECKLIST
YANKEE - 36 SURVEY TRAWL

VESSEL: _____ PAGE: 2 OF 4

CRUISE: _____ DATE: _____

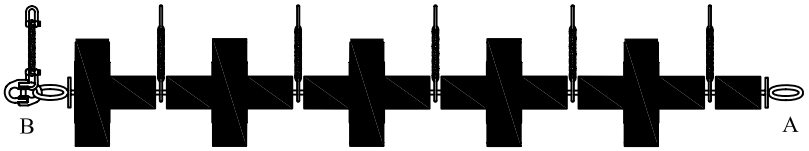
CHECKED BY: _____

APPROVED BY: _____

SECTION A - PORT WING

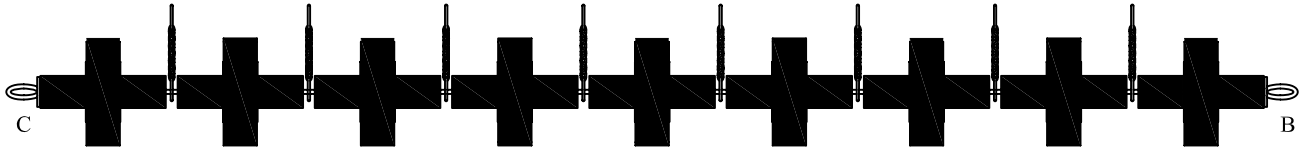
7 link roller chain with 2 links		5/8" Hammerlock		Dropper with 2 shackles		4.5" Steel washer		4" Cookies		3/4" Galv. wire (6 x 19)	
10		1		1		2		Throughout		22' 6"	

SECTION B - PORT QUARTER



7 link roller chain with 2 links		Dropper with 2 shackles		16" x 5" Roller		5/8" Hammerlock		Rubber spacer		4.5" Steel washer		3/4" Galv. wire (6 x 19)	
5		1		5		1		10		2		9'6"	

SECTION C - MIDDLE

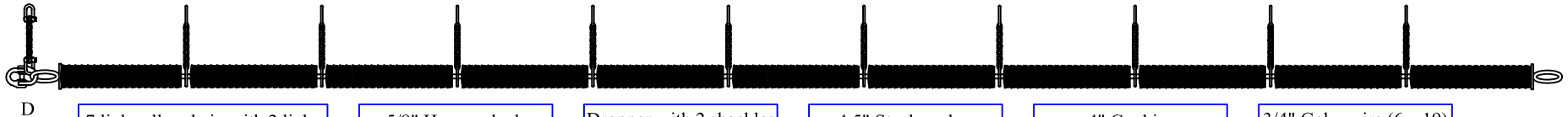


7 link roller chain with 2 links		Rubber spacer		16" x 5" Rubber wheel		4.5" Steel washer		3/4" Galv. wire (6 x 19)	
8		18		9		2		16'	

SECTION B - STBD. QUARTER

7 link roller chain with 2 links		Dropper with 2 shackles		16" x 5" Roller		5/8" Hammerlock		Rubber spacer		4.5" Steel washer		3/4" Galv. wire (6 x 19)	
5		1		5		1		10		2		9'6"	

SECTION A - STBD. WING



7 link roller chain with 2 links		5/8" Hammerlock		Dropper with 2 shackles		4.5" Steel washer		4" Cookies		3/4" Galv. wire (6 x 19)	
10		1		1		2		Throughout		22' 6"	

NOAA Fisheries

SWEEP GEAR CHECKLIST
YANKEE - 36 SURVEY TRAWL

VESSEL: _____ PAGE: 3 OF 4

CRUISE: _____ DATE: _____

CHECKED BY: _____

APPROVED BY: _____

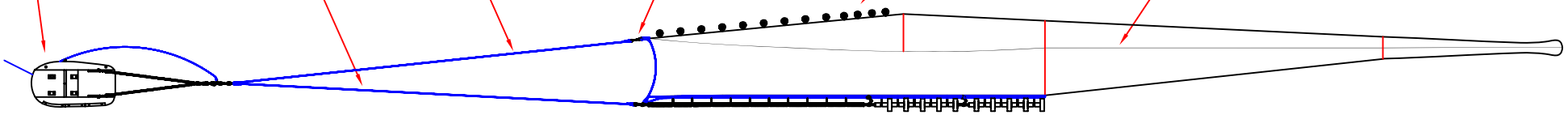
OTTERBOARD	
2.84 sq.m 450 kg	
PORT	STBD

BRIDLES (Ø 5/8" x 30')			
LOWER		UPPER	
PORT	STBD	PORT	STBD

WEAK LINK	
9 Links 1/4" Chain	
PORT	STBD

8" ALUM. FLOATS		
(2 x 8) + 20 = 36		
PORT	STBD	BOSUM

GORE LINES				
Ø 3/4" Poly Dacron 26' + 14.2' + 34' + 16'				
	TOP WING	SQUARE	BELLY	CODEND
PORT				
STBD				

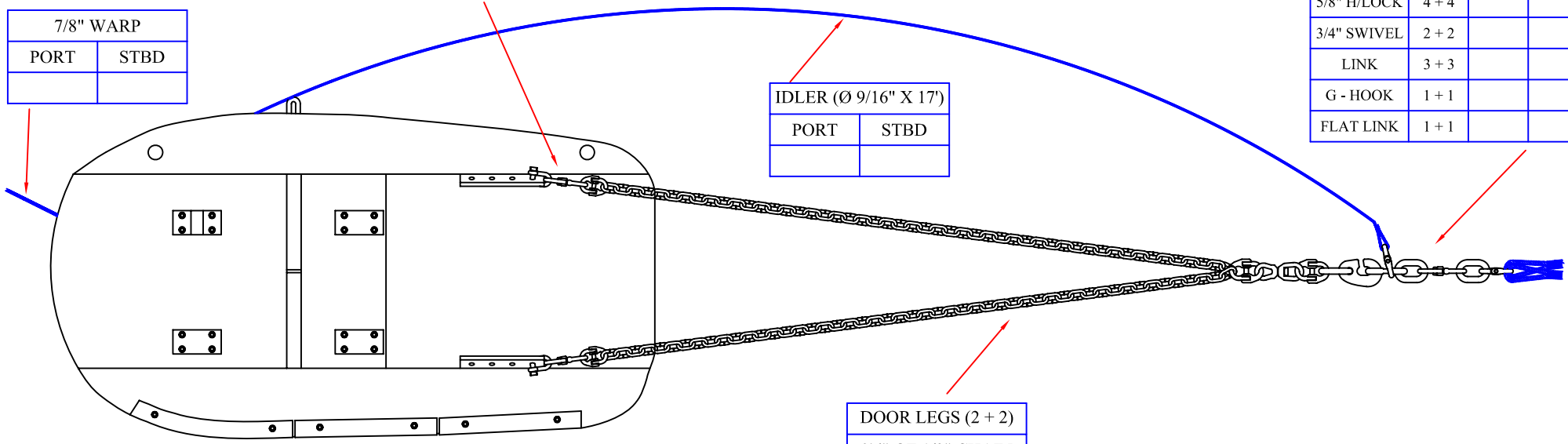


DOOR TO LEG RIGGING			
COMPONENT	QTY.	PORT	STBD
5/8" SHACKLE	1 + 1		
5/8" SWIVEL	1 + 1		
1/2" H/LOCK	1 + 1		

TRAWL TO DOOR RIGGING			
COMPONENT	QTY.	PORT	STBD
5/8" H/LOCK	4 + 4		
3/4" SWIVEL	2 + 2		
LINK	3 + 3		
G - HOOK	1 + 1		
FLAT LINK	1 + 1		

7/8" WARP	
PORT	STBD

IDLER (Ø 9/16" X 17')	
PORT	STBD



DOOR LEGS (2 + 2)	
9'6" OF 1/2" CHAIN	
PORT	STBD

NOAA Fisheries

RIGGING CHECKLIST
YANKEE - 36 SURVEY TRAWL

VESSEL: ALBATROSS IV PAGE: 4A OF 4
CRUISE: _____ DATE: _____

CHECKED BY: _____
APPROVED BY: _____

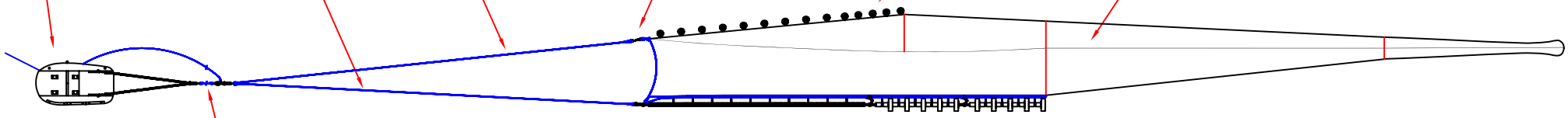
OTTERBOARD	
2.84 sq.m 450 kg	
PORT	STBD

BRIDLES (Ø 5/8" x 30')			
LOWER		UPPER	
PORT	STBD	PORT	STBD

WEAK LINK	
9 Links 1/4" Chain	
PORT	STBD

8" ALUM. FLOATS		
(2 x 8) + 20 = 36		
PORT	STBD	BOSUM

GORE LINES				
Ø 3/4" Poly Dacron 26' + 14.2' + 34' + 16'				
	TOP WING	SQUARE	BELLY	CODEND
PORT				
STBD				



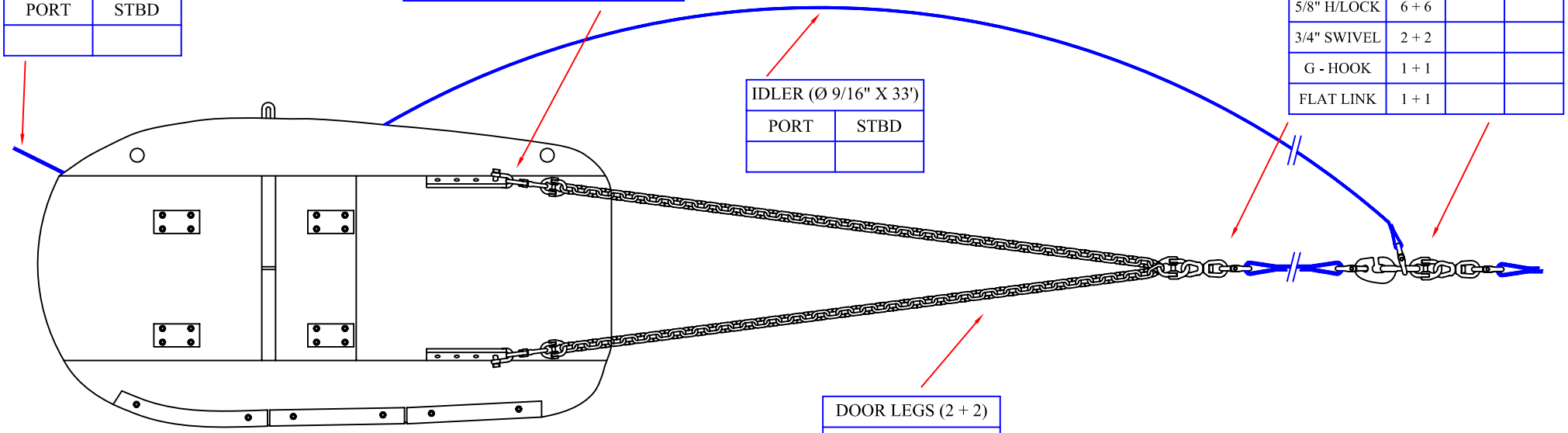
EXT. (5/8" x 11')	
PORT	STBD

DOOR TO LEG RIGGING			
COMPONENT	QTY.	PORT	STBD
5/8" SHACKLE	1 + 1		
5/8" SWIVEL	1 + 1		
1/2" H/LOCK	1 + 1		

1" WARP	
PORT	STBD

IDLER (Ø 9/16" X 33')	
PORT	STBD

TRAWL TO DOOR RIGGING			
COMPONENT	QTY.	PORT	STBD
5/8" H/LOCK	6 + 6		
3/4" SWIVEL	2 + 2		
G - HOOK	1 + 1		
FLAT LINK	1 + 1		



DOOR LEGS (2 + 2)	
9'6" OF 1/2" CHAIN	
PORT	STBD

NOAA Fisheries

RIGGING CHECKLIST
YANKEE - 36 SURVEY TRAWL

VESSEL: DELAWARE II PAGE: 4B OF 4
CRUISE: _____ DATE: _____

CHECKED BY: _____
APPROVED BY: _____

SECTION 6 – PARTS LIST

PARTS LIST

YANKEE - 36 SURVEY TRAWL

ITEM	PART	DESCRIPTION	QUANTITY	TOLERANCE	DRAWING	PAGE #	PART #
1	Top Wing	R5263tex Polyamide (nylon) netting 5" Mesh size (KC) #96/108 (3mm) 16-carrier virgin braided nylon Color white 9 X 60.5 X 64.5 Meshes deep	2	Rtex 5263 +/- 10% Mesh size (in.) 5 +/- 3%	YAN - 1 YAN - 2 YAN - 3	1,2,3	1
2	Square	R5263tex Polyamide (nylon) netting 5" Mesh size (KC) #96/108 (3mm) 16-carrier virgin braided nylon Color white 180 X 140 X 35.5 Meshes deep	1	Rtex 5263 +/- 10% Mesh size (in.) 5 +/- 3%	YAN - 1	1	2
3	First Belly Top	R5263tex Polyamide (nylon) netting 5" Mesh size (KC) #96/108 (3mm), 16-carrier virgin braided nylon Color white 140 X 43 X 85.5 Meshes deep	1	Rtex 5263 +/- 10% Mesh size (in.) 5 +/- 3%	YAN - 1	1	3
4	Codend	R11764tex Polyamide (nylon) netting 4.5" Mesh size (KC) #182, 16-carrier virgin braided nylon Color white 80 X (0.5+79+0.5) X 50.5 Meshes deep	1	Rtex 11764 +/- 10% Mesh size (in.) 4.5 +/- 3%	YAN - 1	1	4
5	Lower Wing	R5263tex Polyamide (nylon) netting 5" Mesh size (KC) #96/108 (3mm), 16-carrier virgin braided nylon Color white 30.5 X 45.5 X 107.5 Meshes deep	2	Rtex 5263 +/- 10% Mesh size (in.) 5 +/- 3%	YAN - 1 YAN - 4 YAN - 5	1,4,5	5
6	1st Belly Lower	R5263tex Polyamide (nylon) netting 5" Mesh size (KC) #96/108 (3mm), 16-carrier virgin braided nylon Color white 140 X 43 X 85.5 Meshes deep	1	Rtex 5263 +/- 10% Mesh size (in.) 5 +/- 3%	YAN - 1	1	6
7	Headline	Diameter 7/8" x 60' (3 x 20') Galvanized Comb. Rope (6 x 7 construction) Weight (air) = 0.568 lb/ft MBS = 12.4T (27337 lb)	1	Weight (lb/ft) 0.568 +/- 10% Dimensions (ft.) Length = 60 +/- 0.5%	YAN - 1 YAN - 3	1,3	7
8	Footrope	Diameter 3/4" x 100' Twisted Poly Dacron Rope Weight (air) = 11.4 lb (0.114 lb/ft)	1	Weight (lb/ft) 0.114 +/- 10% Dimensions (ft.) Length = 100 +/- 0.2%	YAN - 1	1	8
9	Fishingline	Diameter 7/8" x 81' (2 x 23') + (2 x 9'6") + (1 x 16') Galvanized Comb. Rope (6 x 7 construction) Weight (air) = 0.568 lb/ft MBS = 12.4T (27337 lb)	1	Weight (lb/ft) 0.568 +/- 10% Dimensions (ft.) Length = 81 +/- 0.3%	YAN - 1	1	9
10	Lower Wingline	Diameter 3/4" x 7' Twisted Poly Dacron Rope Weight (air) = 0.798 lb (0.114 lb/ft)	2	Weight (lb/ft) 0.114 +/- 10% Dimensions (ft.) Length = 7 +/- 3.5%	YAN - 1 YAN - 5	1,5	10
11	Gore Line	Diameter 3/4" x 74'2" Twisted Poly Dacron Rope Weight (air) = 8.455 lb (0.114 lb/ft)	2	Weight (lb/ft) 0.114 +/- 10% Dimensions Length = 74'2" +/- 1%	YAN - 1	1	11
12	Gore Line	Diameter 3/4" x 16' Twisted Poly Dacron Rope Weight (air) = 1.824 lb (0.114 lb/ft)	2	Weight (lb/ft) 0.114 +/- 10% Dimensions (ft.) Length = 16 +/- 2%	YAN - 1	1	12
13	Chafer	R5263tex Polyamide (nylon) netting 4.5" Mesh size (KC) #96/108 (3mm), 16-carrier virgin braided nylon Color white 30 X 29 X 34.5 Meshes deep	1	Rtex 5263 +/- 10% Mesh size (in.) 4.5 +/- 3%	YAN - 1 YAN - 8	1,8	13
14	Codend Ring	2" Codend Ring, Material Ø 5/16" Weight (air) = 0.16 lb Galvanized Steel Construction	27	Weight (lb) 0.16 +/- 10%	YAN - 34 - 14	34	14

PARTS LIST

YANKEE - 36 SURVEY TRAWL

ITEM	PART	DESCRIPTION	QUANTITY	TOLERANCE	DRAWING	PAGE #	PART #
15	Belly Line	Diameter 5/8" x 10'4" 3 Strand Twisted Poly Dacron Rope Weight (air) = 0.095 lb/ft MBS = 4.1T (9000 lb)	2	Weight (lb/ft) 0.095 +/- 10% Dimensions Length = 10'4" +/- 2%	YAN - 1	1	15
16	Hammerlock	3/8" Hammerlock, WLL = 7100 lb Effective length 2.75" Weight (air) = 0.77 lb Steel construction	2	Dimensions (in.) Length = 2.75 +/- 3%	YAN - 14 - 16 YAN - 36 - 39	14,36	16
17	Hammerlock	1/2" Hammerlock, WLL = 12000 lb Effective length 3.3" Weight (air) = 1.35 lb Steel construction	2	Dimensions (in.) Length = 3.3 +/- 3%	YAN - 15 -17	15	17
18	Hammerlock	**Albatross IV** 5/8" Hammerlock, WLL = 18100 lb Effective Length 4" Weight (air) = 2.30 lb Steel construction	36	Dimensions (in.) Length = 4.0 +/- 3%	YAN - 16 - 18	16	18
		Delaware II 5/8" Hammerlock, WLL = 18100 lb Effective Length 4" Weight (air) = 2.30 lb Steel Construction	42	Dimensions (in.) Length = 4.0 +/- 3%	YAN - 16 - 18	16	18
19	Shackle	5/16" Trawl Shackle WLL = 0.65 Ton Effective length 1.2" Steel construction	2	Dimensions (in.) Length = 1.2 +/- 3%	YAN - 17 - 19 YAN - 36 - 39	17,36	19
20	Shackle	3/8" Trawl Shackle WLL = 0.92 ton Effective length 1.6" Steel construction	2	Dimensions (in.) Length = 1.6 +/- 3%	YAN - 18 - 20 YAN - 35 - 38	18,35	20
21	Shackle	1/2" Trawl Shackle WLL = 1.45 ton Effective length 2.0" Steel construction	8	Dimensions (in.) Length = 2.0 +/- 3%	YAN - 19 - 21 YAN - 26 - 29	19,26	21
22	Shackle	5/8" Trawl Shackle WLL = 3.25 ton Effective length 2.1" Steel construction	4	Dimensions (in.) Length = 2.1 +/- 3%	YAN - 20 - 22	20	22
23	Shackle	Door Shackle, WLL = 13.5 ton Effective length = 4.5" Weight (air) = 11.65 lb Steel Construction	2	Dimensions (in.) Length = 4.5 +/- 3%	YAN - 21 - 23	21	23
24	Swivel	3/8" Swivel SWL = 1.1 ton BS = 11000 lb Effective length 4.5" Steel construction	2	Dimensions (in.) Length = 4.5 +/- 3%	YAN - 22 - 24 YAN - 36 - 39	22,36	24
25	Swivel	**Albatross IV** 5/8" Swivel SWL = 2.6 ton BS = 26000 lb Effective length 6" Steel construction	8	Dimensions (in.) Length = 6 +/- 3%	YAN - 23 - 26	23	26
		Delaware II 5/8" Swivel SWL = 2.6 ton BS = 26000 lb Effective length 6" Steel construction	4	Dimensions (in.) Length = 6 +/- 3%	YAN - 23 - 26	23	26
26	Swivel	3/4" Swivel SWL = 3.8 T (7600 lb) Effective length 6.6" Steel construction	6	Dimensions (in.) Length = 6.6 +/- 3%	YAN - 24 - 27	24	27

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YANKEE - 36 SURVEY TRAWL

ITEM	PART	DESCRIPTION	QUANTITY	TOLERANCE	DRAWING	PAGE #	PART #
27	Roller Chain	Length 13.7" Weight (air) = 1.66 lb Steel Construction	38	Weight (lb) 1.66 +/- 10% Dimensions (in.) Length = 13.7 +/- 0.5%	YAN - 25 - 28	25	28
28	Dropper With 2 Shackles	Length 11.7" Weight (air) = 1.30 lb Steel construction	4	Weight (lb) 1.30 +/- 10% Dimensions (in.) Length = 11.7 +/- 0.5%	YAN - 26 - 29	26	29
29	Rubber Disk / Cookie	Diameter 4", thickness 1.1", Centerhole diameter 1.8", Weight (air) = 0.41 lb Rubber construction ** For thickness listed	**436	Weight (lb) 0.41 +/- 10% Dimensions (in.) Dia. = 4 +/- 10% Thickness = 1.1 +/- 50% Centerhole = 1.8 +/- 20%	YAN - 27 - 30	27	30
30	Rubber Roller	Diameter 16", thickness 5" Centerhole diameter 2.6" Weight (air) = 41.28 lb Rubber Construction with steel core	19	Weight (lb) 41.28 +/- 10% Dimensions (in.) Dia. = 16 +/- 2.5% Thickness = 5 +/- 2.5% Centerhole = 2.6 +/- 2.5%	YAN - 28 - 31	28	31
31	5" Rubber Spacer	Diameter 4.8", length 6.7" Centerhole diameter 2.3" Weight (air) = 4.03 lb Rubber construction	38	Weight (lb) 4.03 +/- 10% Dimensions (in.) Dia. = 4.8 +/- 5% Length = 6.7 +/- 5% Centerhole = 2.3 +/- 10%	YAN - 29 - 32	29	32
32	G-Hook	Leoperis 6 ton or equivalent Weight (air) = 5.061 lb L = 7", W = 4.1", thickness = 1.25" Gap = 0.8125" , Hole dia. = 1"	4	Weight (lb) 5.061 +/- 3% Dimensions (in.) Length = 7.0 +/- 3% Width = 4.1 +/- 3%	YAN - 30 - 33	30	33
33	Flat Link	4.8" x 2" Flat Link, Ø 1" Weight (air) = 3.5 lb Steel Construction	4	Weight (lb) 3.5 +/- 3% Dimensions (in.) Length = 4.8 +/- 3% Width = 2.0 +/- 3%	YAN - 31 - 34	31	34
34	Connecting Link	3.5" x 1.7" Connecting Link, Ø 1" Weight (air) = 3.003 lb Steel Construction	14	Weight (lb) 3.003 +/- 3% Dimensions (in.) Inside length = 3.5 +/- 3% Inside width = 1.7 +/- 3%	YAN - 32 - 35	32	35
35	Steel Washer	Diameter 4.5", 3/8" thick Centerhole diameter 2.125" Weight (air) = 1.23 lb Steel construction	10	Weight (lb) 1.23 +/- 10% Dimensions (in.) Dia. = 4.5 +/- 3% Thickness = 0.375 +/- 3% Centerhole = 2.125 +/- 3%	YAN - 33 - 36	33	36
36	Idler Connection Chain	Weight (air) = 1.4 lb Steel Construction	2	Weight (lb) 1.4 +/- 10%	YAN - 35 - 38	35	38
37	Weak Link	Weight (air) = 2.2 lb Steel Construction	2	Weight (lb) 2.2 +/- 10%	YAN - 36 - 39	36	39
38	Float with beckets	Diameter 8" float Working depth = 3937 ft Buoyancy (freshwater) = 4.76 lb Weight (air) = 3.8 lb Aluminum Construction	36	Buoyancy (lb) 4.76 +/- 3% Depth (ft) 3937	YAN - 37 - 40	37	40
39	Trawl Door	Portuguese polyvalent Otter boards, 2.84 sq.m, Weight (air) = 990 lb	2	Weight (lb) 990 +/- 5%	YAN - 38 - 41	38	41
40	Sweep Gear Wire Section A	Diameter 3/4" x 22' 6" Trawlmaster or equivalent Galvanized wire (6 x19 FC RRL construction) Spliced weight (air) = 25.01 lb Wire weight (air) = 0.95 lb/ft MBS = 21.4T (42800 lb)	2	Weight (lb/ft) 0.95 +/- 10% Dimensions (ft.) Length = 22.5 +/- 0.5%	YAN - 9 YAN - 10	9,10	42

PARTS LIST

YANKEE - 36 SURVEY TRAWL

ITEM	PART	DESCRIPTION	QUANTITY	TOLERANCE	DRAWING	PAGE #	PART #
40	Sweep Gear Wire Section B	Diameter 3/4" x 9' 6" Trawlmaster or equivalent Galvanized wire (6 x19 FC RRL construction) Spliced weight (air) = 12.58 lb Wire weight (air) = 0.95 lb/ft MBS = 21.4T (42800 lb)	2	Weight (lb/ft) 0.95 +/- 10% Dimensions (ft.) Length = 9.5 +/- 0.5%	YAN - 9 YAN - 10	9,10	42
40	Sweep Gear Wire Section C	Diameter 3/4" x 16' Trawlmaster or equivalent Galvanized wire (6 x19 FC RRL construction) Spliced weight (air) = 18.46 lb Wire weight (air) = 0.95 lb/ft MBS = 21.4T (42800 lb)	1	Weight (lb/ft) 0.95 +/- 10% Dimensions (ft.) Length = 16 +/- 0.5%	YAN - 9 YAN - 10	9,10	42
41	Warp	**Albatross IV** Diameter 7/8" wire Bridon (no substitutions) Galvanized wire (6 x 26 Dyform FC RRL IPS Dark petroleum heavy lubricated) Wire weight (air) = 1.53 lb/ft MBS = 43.8 T (87600 lb)	2	Weight (lb/ft) 1.53 +/- 10%	YAN - 11A	11A	43A
		Delaware II Diameter 1" wire Galvanized wire (6 x 25 Flattened strand FC RRL IPS Bright finish Wire weight (air) = 1.8 lb/ft MBS = 46 T (92000 lb)	2	Weight (lb/ft) 1.8 +/- 10%	YAN - 11B	11B	43B
42	Backstraps (Door Legs)	Diameter 1/2" Trawlex, Length 9'6", 52 links breaking load 29.2 ton Weight (air) = 2.36 lb/ft	4	Weight (lb/ft) 2.36 +/- 10% Dimensions (in.) Length = 114 +/- 0.5%	YAN - 12A YAN - 12B YAN - 13A YAN - 13B	12A,12B, 13A,13B	44
43	Idler / Pennant	**Albatross IV** Diameter 9/16" x 17' wire Trawlmaster or equivalent Galvanized wire (6 x 37 FC IPS RRL construction) Wire weight (air) = 0.53 lb/ft MBS = 12.2 T (24400 lb)	2	Weight (lb/ft) 0.53 +/- 10% Dimensions (ft.) Length = 17 +/- 0.5%	YAN - 12A YAN - 13A	12A,13A	45A
		Delaware II Diameter 9/16" x 33' wire Trawlmaster or equivalent Galvanized wire (6 x 37 FC IPS RRL construction) Wire weight (air) = 0.53 lb/ft MBS = 12.2 T (24400 lb)	2	Weight (lb/ft) 0.53 +/- 10% Dimensions (ft.) Length = 33 +/- 0.5%	YAN - 12B YAN - 13B	12B,13B	45B
44	Bridles / Legs	Diameter 5/8" x 30' wire Trawlmaster or equivalent Galvanized wire (6 x19 FC RRL construction) Wire weight (air) = 0.66 lb/ft MBS = 15 T (30000 lb)	4	Weight (lb/ft) 0.66 +/- 10% Dimensions (ft) Length = 30 +/- 0.5%	YAN - 11A YAN - 11B	11A,11B	46
45	Extension (Delaware Only)	Diameter 5/8" x 11' wire Trawlmaster or equivalent Galvanized wire (6 x19 FC RRL construction) Wire weight (air) = 0.66 lb/ft MBS = 15 T (30000 lb)	2	Weight (lb/ft) 0.66 +/- 10% Dimensions (ft.) Length = 11 +/- 0.5%	YAN -12B YAN - 13B	12B,13B	47
46	Belly Liner	#147 Knotless white nylon webbing 1/2" Mesh Size	1	Rtex 163 +/- 10% Mesh size (in.) 0.5 +/- 3%	YAN - 7	7	59
47	Codend Liner	#147 Knotless white nylon webbing 1/2" Mesh Size	1	Rtex 163 +/- 10% Mesh size (in.) 0.5 +/- 3%	YAN -7	7	60