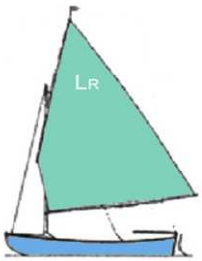
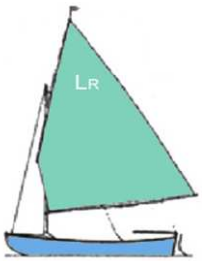


Lymington River Scow

Construction and Materials Specification

Contents

Version: Final_4 240207
Changes: Amendment to Processes 45 and 46.
Correction to Process 46.



Lymington River Scow Construction and Materials Specification
Version: Final_4, 240207

1. Introduction

This specification governs the original build and construction of a Lymington River Scow. Any later modifications or repairs shall conform to this specification as required by the class rules.

The Agreement between the LRSCA and the boat builders requires that the LRSCA hold the Lymington River (LR) Scow hull construction details confidential. Section A of this document is therefore to be held confidentially by the class Technical Group who may at their sole discretion disclose elements of it as might be required to enforce any part of it.

Class rule 3 b), new for 2023, states:

> 3 b) The **boat** shall conform to the Lymington River Scow Construction and Materials' Specification.

Unless therefore a **boat** (as defined by the Equipment Rules of Sailing, (ERS)) has been granted a dispensation in accordance with class rule 3 c), it shall have been originally built to conform with this specification.

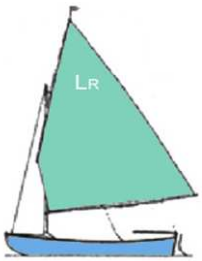
The LR Scow class rules are not 'closed' class rules. That would mean that anything not specifically permitted by the class rules was not permitted. Not being 'closed' means that owners have some latitude to modify their boats. Noting this, and that the boat is used for multiple purposes, the construction and fitout of the boats needs to recognise this. At the same time, there is a need to create a framework to maintain fundamental similarity between the boats, and to allow the class to continue to succeed, to grow, to contain expense and to allow the fun to continue. To ensure the future of the class, some things need formal definition; other should be, and are, left to individual owner's discretion.

The Specification therefore makes clear that some items are required and that some are optional. While rowlock fittings for rowing the boat will not normally be used while racing, they are nevertheless required equipment. A self bailer is however optional. If an optional fitting is fitted, it shall comply with any restrictions imposed by this Specification.

Materials from which boats are constructed are specified. It is accepted however that materials and their availability change with time. There will therefore be occasions when for reasons of practicality or force majeure, it is not possible to comply 100% with the defined materials. Provided however the alternative materials used are substantially similar in both weight and technical performance, then this is permitted.

Fittings are defined by their position and by their use, not by manufacturer and/or part name/number. Within reason therefore, another similar make/model of fitting may be substituted for the original make/model provided that this substitution does not substantially change the use of the original fitting. Attention is however drawn to any consequent weight reduction which must be accounted for.

While additional fittings and equipment are not specifically prohibited, the boat builders and owners of LR Scows are strongly advised to seek clarification from the LRSCA, the **Class Authority** (as defined by the ERS), before adding any additional fittings or equipment, particularly anything which might affect the performance of the boat.



2. Tooling, Materials and Fittings

2.1 Tooling

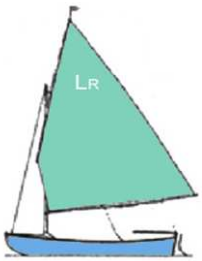
Tooling ID	Mould	Process
M1	Hull	3
M2	Foredeck	4
M3	Inner mould	5
M4	Mast gate	6
M5	Hand holds	7
	Former	**Process**
F1	Centreboard case	3
	Template	**Process**
T1	Foredeck centre spine	4
T2	Forward bulkhead fitting reinforcement	5
T3	Headsail sheet fairlead reinforcements	5
T4	Centreboard sides	10
T5	Centreboard aft face capping	10
T6	Mast foot capping	10
T7	Mast gate location	12
T8	Corner knees	15
T9	Rollock Swells	18
T10	Stem timber	21
T11	Mainsheet attachment base	22
T12	Rudder stock	26
T13	Rudder pintle and gudgeon	26
T14	Transom pintle, gudgeon and retaining clip	38
T15	Boom	44
T16	Yard	46
T17	Forestay and shrouds	49

2.2 Materials and Fittings

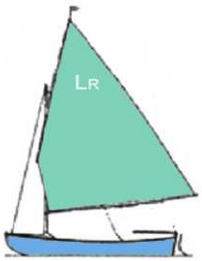
The following materials shall be used in the construction of the boat. If a specific item is unavailable, an alternative material may be used provided that it is substantially similar in both weight and technical performance.

All materials used shall be of an appropriate marine grade for the application concerned.

Gel coat.
Gel coat pigment.
300 / 450 gm/m^2 chopped strand mat (CSM) glass cloth.
300 gm/m^2 unidirectional glass cloth.
Polyester resin.
BS 1088 Grade A or B Marine plywood of various thicknesses and widths.
PVC foam.
Expanded polyurethane foam.
Spray polyurethane foam.

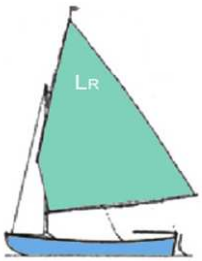


Epoxy resin.
Airtight 5 litre containers
Hardwood of various thicknesses and widths.
Softwood of various thicknesses and widths.
Bronze chainplates.
Stainless steel stemhead fitting.
Feather edge brass rubbing strips.
Bronze mooring fairlead.
50 mm 16 gauge marine grade aluminium tube.
3 mm diameter 1 x 19 stainless steel wire.
4/5 mm diameter stainless steel wire.
Rope of various diameters and any material.
Shockcord of various diameters .
Fittings as specified.
Fastenings.
Dowel plugs.
Sealant.
Nylon mast step.
Carbon fibre (yard).



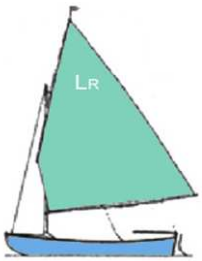
Section A, Hull Construction. Processes 3 – 25

Confidential



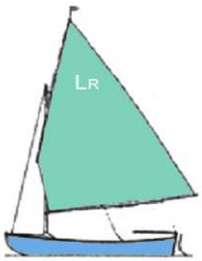
3. Hull Layup

Redacted.



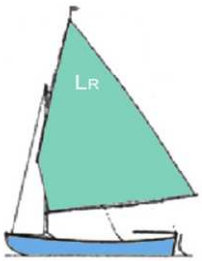
4. Foredeck Layup

Redacted.



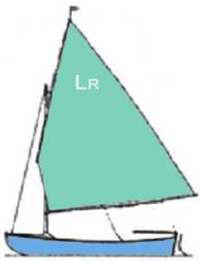
5. Inner Moulding Layup

Redacted.



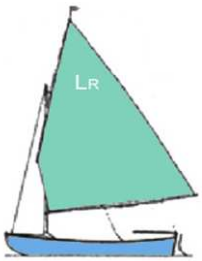
6. Mast Gate Layup

Redacted.



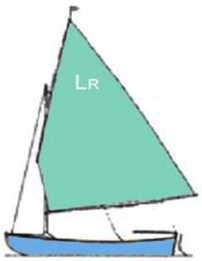
7. Hand Holds Layup

Redacted.



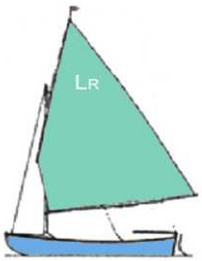
8. Fit Inner Moulding

Redacted.



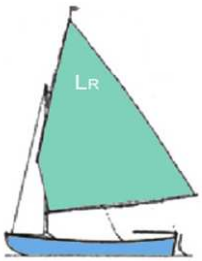
9. Remove hull from Mould

Redacted.



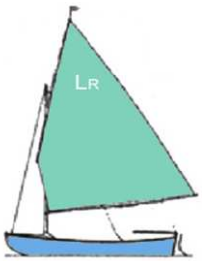
10. Centreboard Case

Redacted.



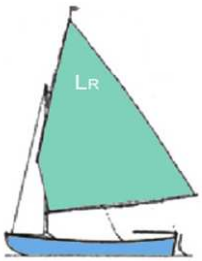
11. Thwart

Redacted.



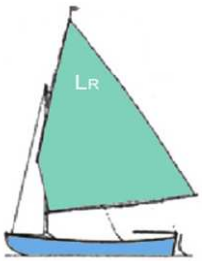
12. Foredeck

Redacted.



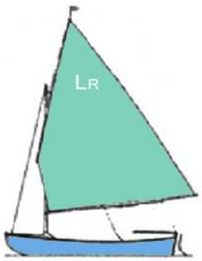
13. Gunwales

Redacted.



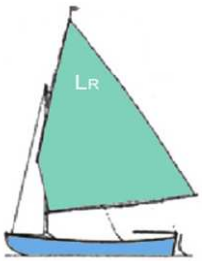
14. Transom Timber Top

Redacted.



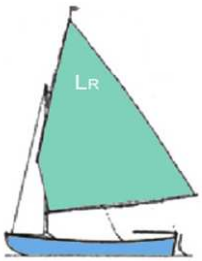
15. Transom Corner Knees

Redacted.



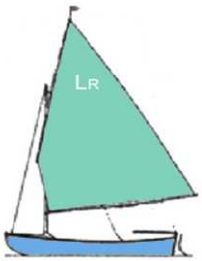
16. Outboard brackets

Redacted.



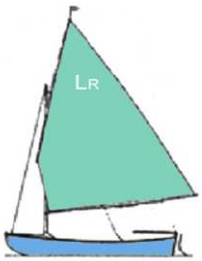
17. Pintles Timber

Redacted.



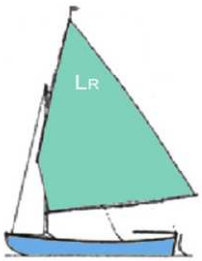
18. Rollock Swells

Redacted.



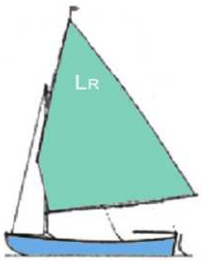
19. Chainplate cutouts

Redacted.



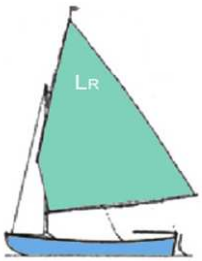
20. Mast Step

Redacted.



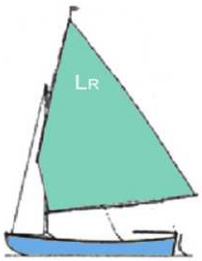
21. Stem

Redacted.



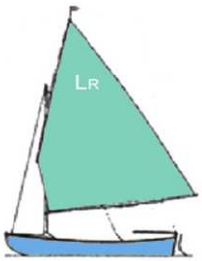
22. Mainsheet Attachment Base

Redacted.



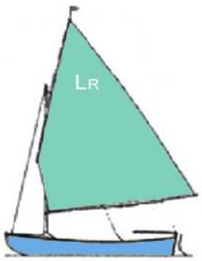
23. Shroud Chainplates

Redacted.



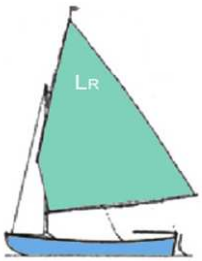
24. Stemhead

Redacted.



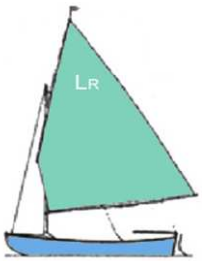
25. Bilge Keel, Centreline and Skeg Rubbing Strips

Redacted.



Section B, Rudder and Centreboard. Processes 26 – 29

Not Confidential

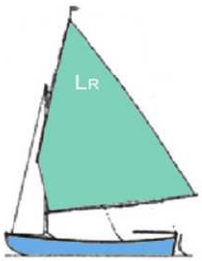


26. Rudder Stock and Tiller

Tooling (if applicable):		T12. Rudder stock. T13. Rudder pintle and gudgeon.
Drawing reference (if applicable):		N/A.
Material/Part Description:		12 mm and 19 mm marine plywood. 4 mm and 10 mm hardwood. Epoxy resin.
Required/Optional:		Required.
Minimum weight of finished part:		3.5 kg including rudder blade and tiller extension (if fitted).
Process:	26.1	Fashion rudder stock cheeks and centre as per templates.
	26.2	Bond centre to cheeks as per template using epoxy resin.
	26.3	Bond 10 mm tiller sides, length optional, to rudder stock.
	26.4	Bond 4 mm tiller top, length optional, to tiller sides.
	26.5	Clean up and radius all edges and corners as desired.
	26.6	Drill 8 mm hole as per template for rudder blade pivot.
	26.7	Fit pintle positioned as per template.
	26.8	Fit gudgeon positioned as per template.

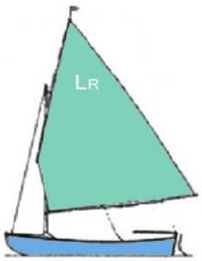
27. Tiller Extension

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Tiller extension.
Required/Optional:		Optional.
Minimum weight of finished part:		See process 26.
Process:	27.1	Fit tiller extension as required.



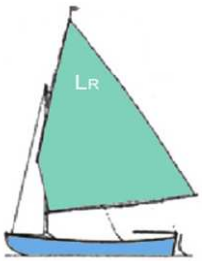
28. Rudder Blade

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Chopped strand mat glass cloth. Epoxy resin. PVC foam.
Required/Optional:		Required.
Minimum weight of finished part:		See process 26.
Process:	28.1	Manufactured by DEM Foils using tooling owned by LRSCA.



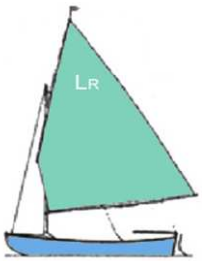
29. Centreboard

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Chopped strand mat glass cloth. Epoxy resin. PVC foam.
Required/Optional:		Required.
Minimum weight of finished part:		2.5 kg +/- 0.5 kg.
Process:	29.1	Manufactured by DEM Foils using tooling owned by LRSCA.



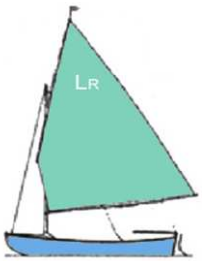
Section B, Hull Fitout. Processes 30 – 40

Not Confidential



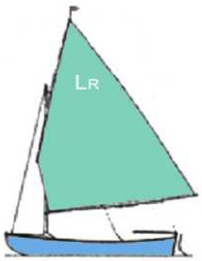
30. Mainsail and Headsail Halyard Fittings

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		Drawing 2, Scow-5A and Drawing 3 Scow-6A.
Material/Part Description:		Main halyard mast foot turning block. Main halyard horn cleat. Headsail halyard mast foot turning block. Headsail halyard cam cleat with lead.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	30.1	Fasten the main halyard mast foot turning block to the aft face of the forward tank bulkhead on the starboard side. See drawing 3, Scow-6A.
	30.2	Fasten the main halyard horn cleat to the starboard side of the centreboard case in a suitable position. See drawing 3, Scow-6A.
	30.3	Fasten the headsail halyard mast foot turning block to the port mast step cheek. See drawing 2, Scow-5A.
	30.4	Fasten the headsail halyard cam cleat to the port side of the centreboard case in a suitable position. See drawing 2, Scow-5A.



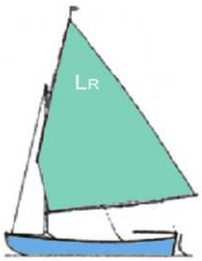
31. Spinnaker Halyard Fittings

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		Drawing 4, Scow-8A.
Material/Part Description:		Spinnaker halyard mast foot turning block. Spinnaker halyard aft turning block. Spinnaker halyard cam cleat with lead. Spinnaker halyard bullseye.
Required/Optional:		Optional.
Minimum weight of finished part:		N/A.
Process:	31.1	Fasten the spinnaker halyard mast foot turning block to the aft face of the forward tank bulkhead on the starboard side below the main halyard mast foot turning block. See drawing 4, Scow-8A.
	31.2	Fasten the spinnaker halyard aft turning block, cam cleat and bullseye to the starboard side of the centreboard case in suitable positions. See drawing 4, Scow-8A.



32. Downhaul Fittings

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		Drawing 2, Scow-5A.
Material/Part Description:		Downhaul mast foot turning block. Downhaul aft turning block. Downhaul cam cleat with lead. Downhaul bullseye.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	32.1	Fasten the downhaul mast foot turning block to the aft face of the forward tank bulkhead on the port side. See drawing 2, Scow-5A.
	32.2	Fasten the downhaul aft turning block, cam cleat and bullseye to the starboard side of the centreboard case in suitable positions. See drawing 2, Scow-5A.

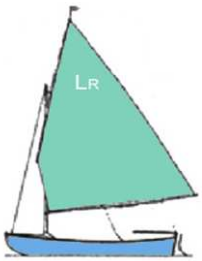


33. Kicking Strap Fittings

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		Drawing 3, Scow-6A.
Material/Part Description:		Kicking strap mast foot padeye. Kicking strap mast foot turning block. Kicking strap aft turning block. Kicking strap cam cleat with lead. Kicking strap bullseye.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	33.1	Fasten the Kicking strap mast foot padeye to the upper surface of the mast step on the centreline. See drawing 3, Scow-6A.
	33.2	Fasten the Kicking strap mast foot turning block to the port mast step cheek. See drawing 3, Scow-6A.
	33.3	Fasten the kicking strap aft turning block, cam cleat and bullseye to the starboard side of the centreboard case in suitable positions. See drawing 3, Scow-6A.

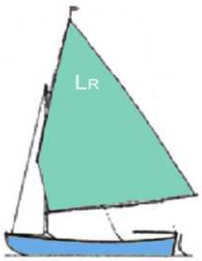
34. Mainsheet Fittings

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		Drawing 2, Scow-5A.
Material/Part Description:		2 off lacing eyes. Swivel mounted final mainsheet block with integral cleat.
Required/Optional:		Optional.
Minimum weight of finished part:		N/A.
Process:	34.1 a)	Fasten a lacing eye centrally to the upper surface of the mainsheet attachment base.
Or:	34.1 b)	Fasten a swivel mounted final mainsheet block with integral cleat centrally to the upper surface of the mainsheet attachment base.
	34.2	Fasten a lacing eye to the centreboard case capping on the centreline aft of the centreboard slot.
	34.3	As an alternative to 34.1 and 34.2, a rope loop may be formed around the end of the centreboard case, passing beneath the thwart and over the centreboard case aft of the centreboard slot allowing the final mainsheet block to be positioned either forward or aft of the thwart.



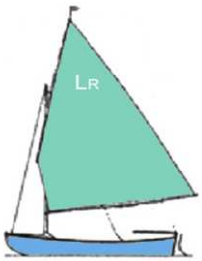
35. Headsail Sheet Fairleads

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		2 off headsail sheet fairleads.
Required/Optional:		Optional if cam type headsail sheet cleats with integral fairleads are to be fitted. Otherwise, required. See process 36.
Minimum weight of finished part:		N/A.
Process:	35.1	If required, fasten a headsail sheet fairlead to the buoyancy tank top port and starboard with the forward fixing through the moulding dimples in the tank tops.



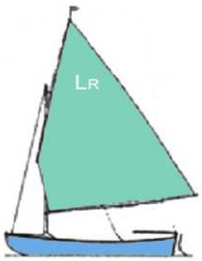
36. Headsail Sheet Cleats

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Horn cleat and/or 2 off cam type cleats mounted on swivel bases and with integral fairleads.
Required/Optional:		Optional.
Minimum weight of finished part:		N/A.
Process:	36.1	If required, fasten the horn cleat to the centreboard capping aft of the centreboard slot.
And/or	36.2	If required, fasten boat builder approved cam type cleats ensuring that if the fitting used incorporates a headsail sheet fairlead that the fore, aft and lateral headsail sheeting position is unchanged from the position set by process 35.



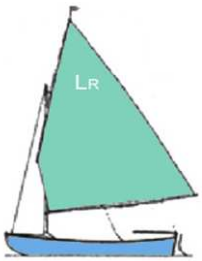
37. Mooring Fairlead

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Bronze mooring fairlead.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	37.1	Fasten the mooring fairlead through either gunwale immediately aft of the stemhead fitting.



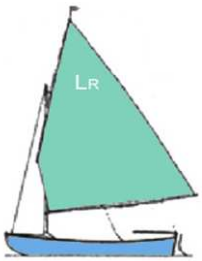
38. Rudder Fittings

Tooling (if applicable):		T14. Transom pintle, gudgeon and retaining clip.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Transom gudgeon and pintle. Rudder retaining clip.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	38.1	Position and attach transom pintle on centreline positioned as per template.
	38.2	Position and attach transom gudgeon on centreline positioned as per template.
	38.3	Position and attach rudder retaining clip on centreline with lower edge of fitting positioned as per template.



39. Mainsheet horse

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Wire mainsheet horse, nominal diameter not less than 4 mm, 1170 mm long to undersides of transom corner knees.
Or:		Rope mainsheet horse, nominal diameter not less than 6 mm. Interlinked double mainsheet block.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process: Either	39.1	Thread interlinked mainsheet block onto horse.
	39.2	Install wire mainsheet horse to a length of 1170 mm measured to the undersides of the transom corner knees.
Or:	39.3	Install rope mainsheet horse with the height of the underside of the bridle at its centre point when pulled firmly upwards above the forward edge of the transom on the centreline not greater than 235 mm.

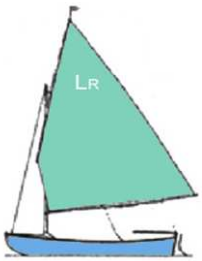


40. Hatches

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		4 off 4” hatches. Sealant
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	40.1	Fit and attach hatch surrounds to each cutout in the inner moulding.

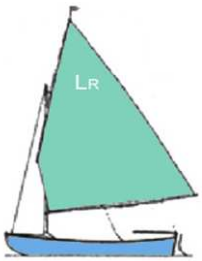
41. Sundry (required)

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Anchor pocket. Rowlock stowage pockets. Transom padeye for rudder retaining shockcord.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	41.1	Fasten the anchor pocket to the aft face of the forward bulkhead on the port side.
	41.2	Fasten the rowlock stowage pockets to the underside of the thwart port and starboard.
	41.3	Fasten a padeye to the forward face of the transom on the centreline approximately mid way between the transom top and the upper face of the buoyancy tank.



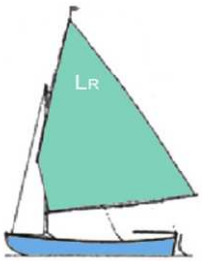
42. Sundry (optional)

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Self bailer. Stirrups. Lacing eyes. Spinnaker sheet turning blocks and cleats. Mesh storage bags
Required/Optional:		Optional.
Minimum weight of finished part:		N/A.
Process:	42.1	Install a self bailer through the hull floor as required.
	42.2	Attach lacing eyes as required to retain righting stirrups.
	42.3	Fasten a spinnaker sheet turning block port and starboard positioned as desired. Fasten a turning block and cleat port and starboard positioned as desired.
	42.4	Attached mesh storage bags to the centreboard sides as desired.



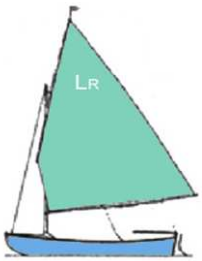
Section C, Rig. Processes 43 – 51

Not Confidential



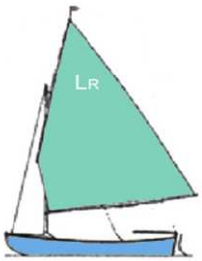
43. Mast

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		50 mm 16 gauge marine grade aluminium tube maximum 3330 mm long, OD 50 mm +/1 mm, wall thickness 1.6 mm +/-0.1 mm. Mast heel fitting. Spinnaker/whisker pole eye. Masthead cap. Protective plastic tube, 300 mm length x ID 52 mm.
Required/Optional:		Required.
Minimum weight of finished part:		2.9 kg including standing rigging and fittings but excluding running rigging.
Process:	43.1	Fasten the spinnaker/whisker pole eye on the forward face of the mast tube with the centreline not more than 840 mm above the bottom of the mast tube.
	43.2	Slide the protective plastic tube onto the tube section above the spinnaker/whisker pole eye.
	43.3	Insert and fasten mast heel fitting ensuring that no part extends more than 15 mm below the bottom of the mast tube.
	43.4	Attach the masthead cap directly onto the top of the mast tube.



44. Boom

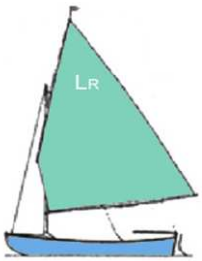
Tooling (if applicable):		T15. Boom.
Drawing reference (if applicable):		N/A.
Material/Part Description:		50 mm 16 gauge marine grade aluminium tube minimum 3020 mm long, OD 50 mm +/1 mm, wall thickness 1.6 mm +/-0.1 mm. Mainsail foot track, length 2755 mm. Mainsail foot track forward end piece. Boom tube plastic end plugs. Stainless steel lacing eyes for mainsail tack, 2 x downhaul positions, kicking strap take-off, 2 x mainsheet blocks, mainsheet termination.
Required/Optional:		Required.
Minimum weight of finished part:		2.6 kg.
Process:	44.1	Through bolt the mainsail tack and forward downhaul lacing eyes to the top and bottom surfaces of the boom positioned as per the template using M5 machine screws.
	44.2	Temporarily locate the mainsail foot track on the top surface of the boom located at the forward end in the track end piece and at the aft end positioned against the aft end of the boom tube.
	44.3	Through bolt the mainsail foot track forward end piece and aft downhaul lacing eye to the top and bottom surfaces of the boom positioned as per the template using M5 machine screws also through the mainsail foot track.
	44.4	Through bolt the kicking strap lacing eye to the bottom surface of the boom positioned as per the template using M5 machine screws also through the mainsail foot track.
	44.5	Through bolt the forward and aft mainsheet block lacing eyes to the bottom surface of the boom positioned as per the template using M5 machine screws also through the mainsail foot track.
	44.6	Through bolt the mainsheet termination lacing eye to the bottom surfaces of the boom positioned as per the template using M5 machine screws also through the mainsail foot track.
	44.7	Insert a plastic plug in each end of the boom tube.



45. Yard - Manufacture

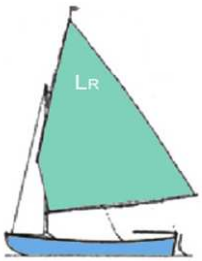
Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Minimum length 2970 mm.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	45.1	With effect from 1/1/2023, supplied from builders stock of the construction and dimensions below:

Material:	Carbon fibre reinforced epoxy resin.
Diameter:	58 mm tapering to 26 mm, +/- 1.5 mm.
Length:	Minimum tube length 2970 mm.
Weight:	Minimum weight of complete spar 1.95 kgs.



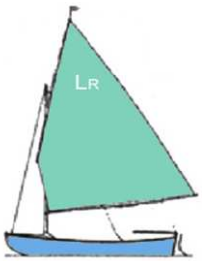
46. Yard - Fitout

Tooling (if applicable):		T16. Yard.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Yard tube. Mainsail luff track, length 2820 mm. Halyard hook. 2 x M4 or M5 rings. Stainless steel lacing eyes for mainsail throat, 2 x halyard rings, mainsail head.
Required/Optional:		Required.
Minimum weight of finished part:		1.95 kg.
Process:	46.1	Through bolt the mainsail throat lacing eye to the aft surface of the yard positioned as per the template using M5 machine screws. The lacing eye may be mounted on a pad of maximum thickness 6 mm.
	46.2	Temporarily locate the mainsail luff track on the aft surface of the boom located with the top end positioned against the aft end of the yard tube.
	46.3	Through bolt the halyard hook to the forward surface of the yard positioned as per the template using M5 machine screws also through the mainsail luff track.
	46.4	Through bolt the halyard ring lacing eyes to the forward surface of the yard trapping the M4 or M5 rings positioned as per the template using M5 machine screws also through the mainsail foot track.
	46.5	Rivet the mainsail head lacing eye to the forward surface of the yard tube positioned as per the template.
	46.6	Fasten the mainsail luff track to the yard tube using self tapping screws. Fasten lacing eyes for the mainsail throat, 2 x halyard rings and the mainsail head positioned as per the template.
	46.7	Insert a plastic plug in each end of the yard tube.



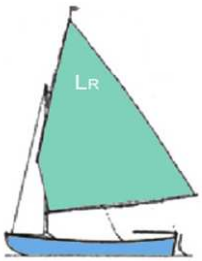
47. Spinnaker Pole

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		N/A.
Required/Optional:		Optional.
Minimum weight of finished part:		0.5 kg.
Process:	43.1	Build and fitout the spinnaker pole as desired with a maximum overall length of 1300 mm.



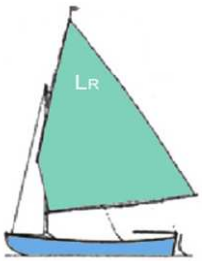
48. Whisker Pole

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		N/A
Required/Optional:		Optional.
Minimum weight of finished part:		N/A.
Process:	48.1	There are no restrictions on the whisker pole.



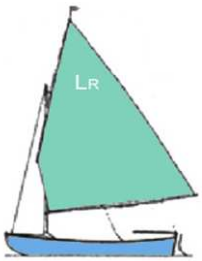
49. Standing Rigging

Tooling (if applicable):		T17. Forestay and shrouds.
Drawing reference (if applicable):		N/A.
Material/Part Description:		Forestay 1 x 19 stainless steel wire 3 mm nominal diameter, hard eye at one end and a fork fitting at the other end. 2 x shrouds 1 x 19 stainless steel wire 3 mm nominal diameter hard eye at one end and a fork fitting at the other end.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Process:	49.1	Manufacture the forestay as per the template.
	49.2	Manufacture the shrouds as per the template.



50. Running Rigging - Required

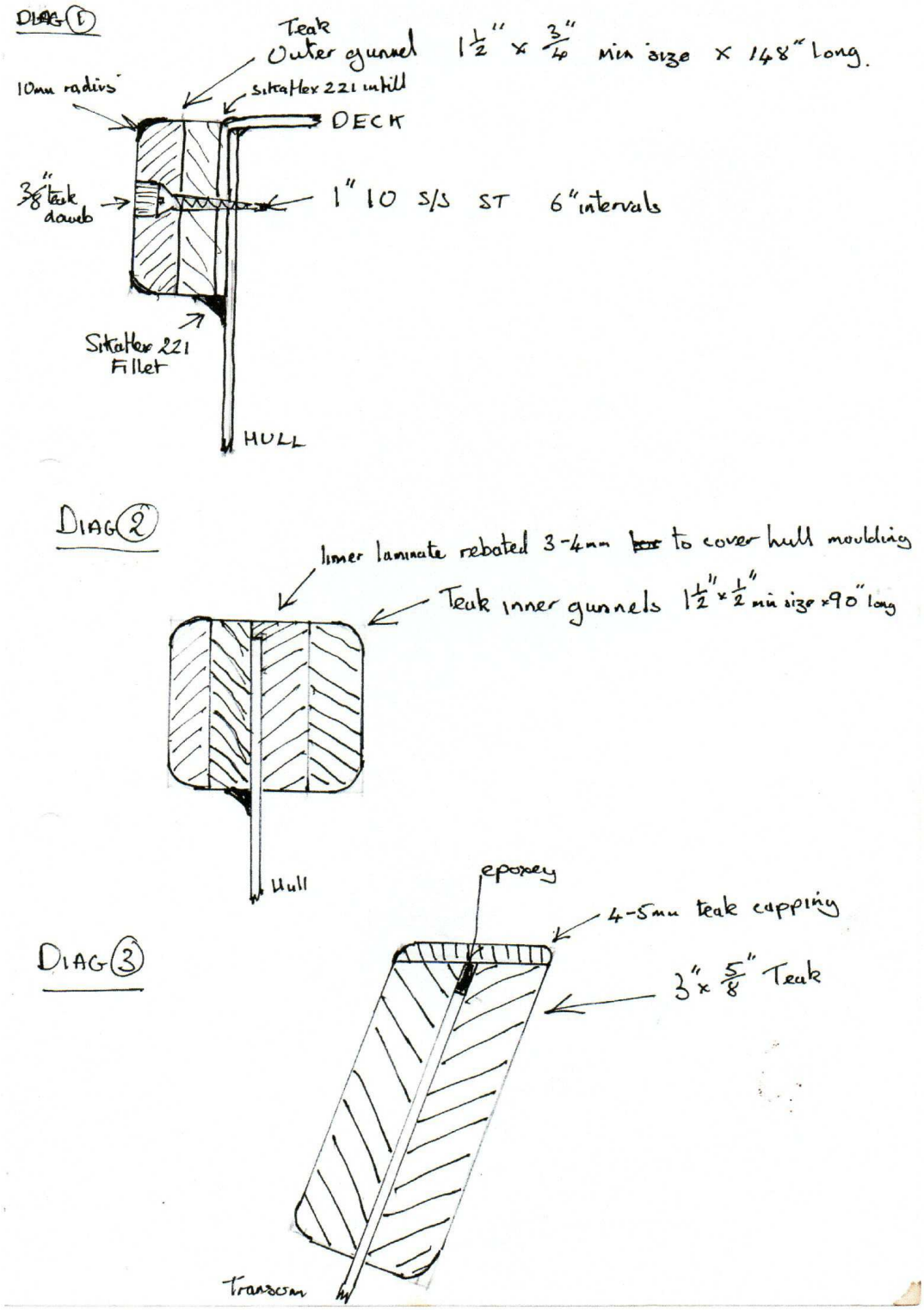
Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		8 mm nominal diameter rope. 8 mm nominal diameter floating rope. 6 mm nominal diameter rope. 5 mm nominal diameter rope. 2.5 mm nominal diameter rope. 6 mm shockcord. 2 x 3 way blocks, one with becket. 2 x single blocks. 2 x snap hooks.
Required/Optional:		Required.
Minimum weight of finished part:		N/A.
Item:	Mainsheet:	9200 mm x 8 mm nominal diameter rope.
	Main halyard:	8230 mm x 6 mm nominal diameter rope.
	Anchor warp:	9150 mm x 6 mm nominal diameter rope.
	Bow painter:	8000 mm floating rope of nominal minimum diameter 8 mm.
	Mainsail downhaul:	920 mm x 6 mm nominal diameter rope. 3660 mm x 5 mm nominal diameter rope. 2 x 3 way blocks, one with becket. 1 x snap hook.
	Kicking strap:	460 mm x 5 mm nominal diameter rope. 3660 mm x 5 mm nominal diameter rope. 2 x single blocks. 1 x snap hook.
	Forestay and shroud lanyards:	3 x 600 mm 2.5 mm nominal diameter rope.
	Rudder retaining shockcord:	450 mm x 6 mm nominal diameter shockcord.
	Rudder downhaul:	860 mm x 5 mm nominal diameter rope. 760 mm x 6 mm nominal diameter shockcord.



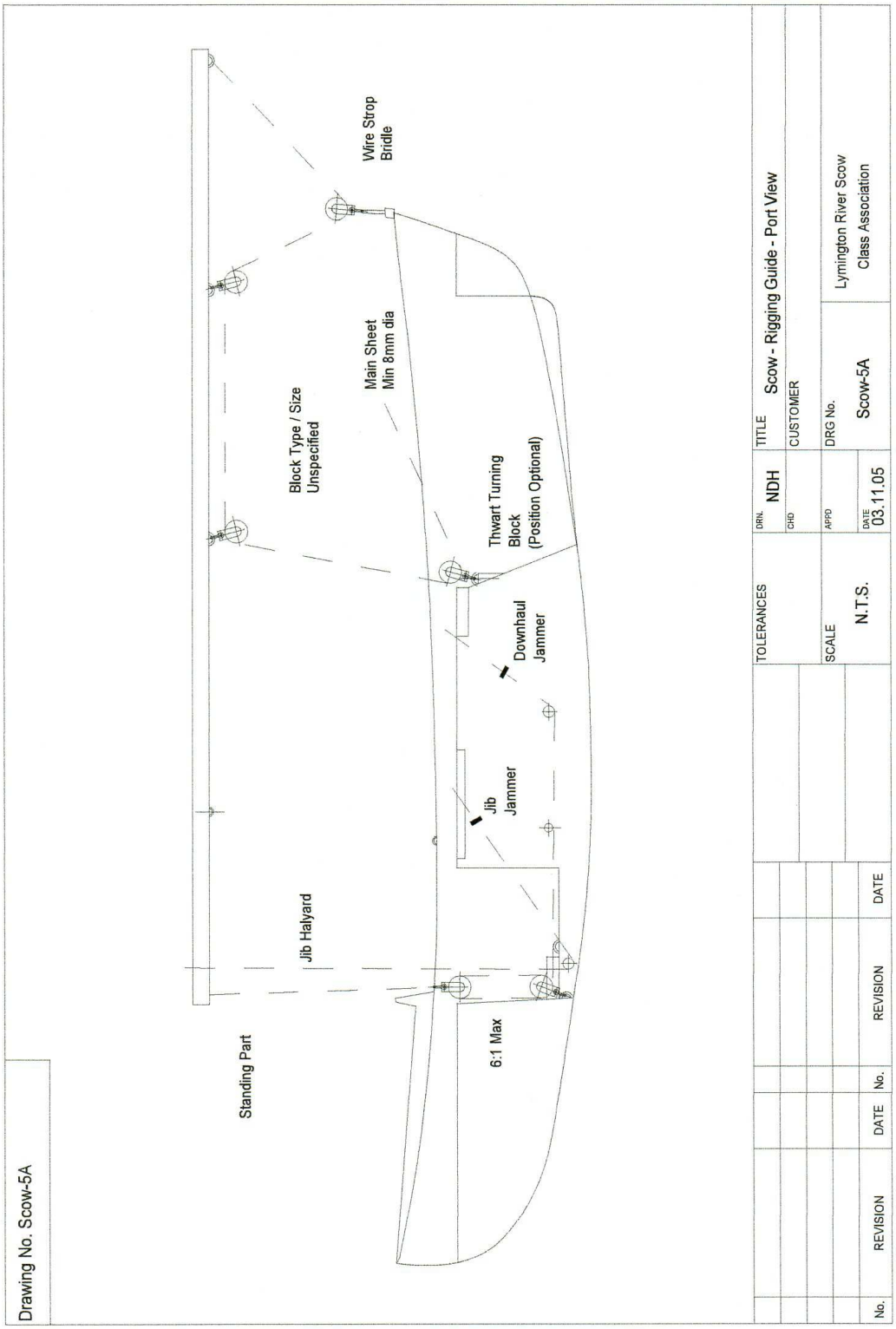
51. Running Rigging - Optional

Tooling (if applicable):		N/A.
Drawing reference (if applicable):		N/A.
Material/Part Description:		8 mm nominal diameter rope. 6 mm nominal diameter rope. 5 mm nominal diameter rope. 4 mm nominal diameter rope. 3 mm nominal diameter rope. 6 mm nominal diameter shockcord. 4 mm nominal diameter shockcord.
Required/Optional:		Optional.
Minimum weight of finished part:		N/A.
Item:	Oar retaining shockcord:	As desired.
	Claridge:	As desired.
	Reefing loop:	As desired.
	Reefing tie:	As desired.
	Rollock ties:	As desired.
	Headsail halyard:	Length as desired from 5 mm nominal diameter rope.
	Headsail sheet:	Length as desired from 8 mm nominal diameter rope.
	Spinnaker halyard:	Length as desired from 5 mm nominal diameter rope.
	Spinnaker sheets:	Length as desired from 4 mm nominal diameter rope.
	Spinnaker up/downhaul:	As desired.

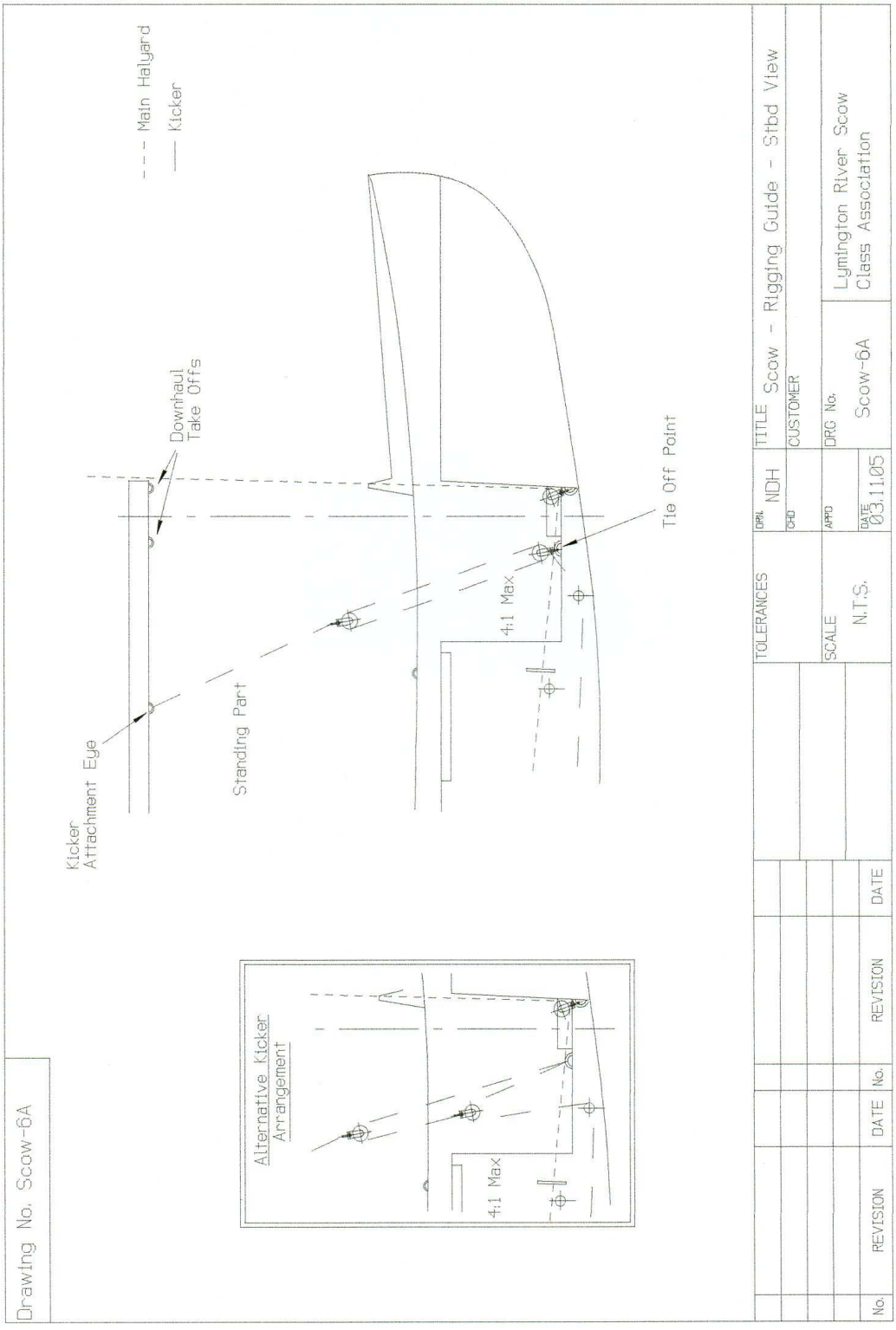
Drawing 1: Scow-7A – Timber. Gunwale Details



Drawing 2: Scow-5A – Rigging Guide – Port View



Drawing 3: Scow-6A – Rigging Guide – Starboard View



Drawing 4: Scow-8A – Spinnaker Fittings Starboard – Halyard