



## SCOPE OF WORK FOR 2024 SEASON

### RIVER YEALM MOORING SERVICES LTD

River Yealm Mooring Services Ltd [The Company] are a local family business based in Noss Mayo that have been recognised by The River Yealm Harbour Authority [The Authority] to undertake inspection, maintenance, management, advisory and valuation services for moorings on:

- Public areas of the River Yealm and its connecting creeks; and
- Private areas of the River Yealm that are owned and managed by “Yealm Moorings” at Kitley.

As part of this service The Company shall maintain:

- Records of all mooring equipment they have been tasked to inspect sited on the River Yealm; and
- Stocks of replacement mooring equipment available to the Customer without delay on site.

The company’s objective is to ensure all inspections are completed by Easter 2023 in line with RYHA aspirational guidelines.

### PRICING

All prices charged by The Company for Work shall be free of VAT. The rates charged by the Company for Work instructed in 2023/4 shall be:

- **Inspections :**
  - **Annual Inspection** of Mooring Tackle with certification for insurance purposes: £215, (if instructed & booked online before 31/12/23: £200)
  - **5&10 Yearly Inspection** applicable to Refurbished blocks (5yrs) & New blocks supplied by the company. This inspection will consist of Base Block examination and Ground Chain shackle connection examination and replacement where applicable: £400
- **Work** (remedial action during inspection):
  - Routine & Emergency: £60 per hour on water – **we are a local business we will not charge an enhanced rate for emergency works, if available to assist.**
- **Mooring Tackle:**
  - Supply: Cost Price plus 20% (for carriage, storage & handling)
  - Disposal: Base block - £150 - Riser chains, ropes and buoy-age – no charge.

- **Ground Tackle:**
  - Sulphide resistant concrete Base Block with embedded 38mm Ground Chain cast within \*
    - New (A) Mooring: £900
    - New (B) / Kitley Trot Mooring: £700
    - New (C / D) Mooring, manually dug into seabed at LW; £685
    - Fore & Aft mooring blocks: £485 each
    - Outhaul Base Block: £250
  
- \*Does not include price of 22mm Galvanised Riser, swivels, shackles, nylon risers & buoyage, this is normally utilised from redundant mooring configuration if serviceable, if not replacements will be fitted.

**Refurbishment of Base Block:**

- Refurbished block (A & B) Mooring (new eye excavated if staple below 25mm diameter, supply & connection of 32mm ground chain & reconnection of client's inspected riser components: £475

**Mooring base block lease option**

- For customers who wish to lease a base block from the company when theirs requires replacement or is not able to be refurbished, then the arrangement would be as follows;
- Lift and dispose of redundant block - £150
- Lease new mooring base block with 38mm chain cast within - £175 per annum plus annual retail price index, on the agreement that the company will be instructed to provide annual mooring inspections for the duration the mooring holder retains that mooring. There is lifting into site fee.
- When the mooring holder ceases to retain the mooring, then the incoming mooring holder will be offered the same lease service or an option to buy the base block at its current value plus the deferred lifting fees.

**Base Block Lifting / placement and disposal:**

- Lift redundant base block from mooring site with barge: £150
- Lift refurbished or new base block into mooring site with barge: £150
- Disposal of redundant base block from river to commercial waste site: £125

**Block Movement:**

- Block movement from sited location to another proximity at direction of Harbour Authority or instruction by Client with Harbour Authority's approval utilising lifting barge: £150
- On the rare occasions that a base block is not be able to be removed from the sea bed by means of the lifting barge winch then additional tidal lifting methods will be required utilising specialist equipment. This will incur a fee of £60 per hour in addition to the set £150 lifting fee due to the associated technical demands required to raise the base block.

**Outhaul Inspection, maintenance and certification:**

- Outhaul, checked cleaned down, rollers freed from debris. Block inspected, fixing eye cross sections gathered at both ends ensuring tolerances are met for vessel utilised: £115

## MOORING EQUIPMENT

### Components & Specifications

Mooring Equipment comprises Mooring Tackle and Ground Tackle; the specifications are:

- **New Base Block:** Up to 1500 kilogramme weight of preformed marine sulphide resistant concrete circular weight with a length of embedded 38mm high-tensile steel U2 grade chain and reinforced mesh cast within.
- **Refurbished Base Block:** Inspected original concrete mooring weight with a fresh 38mm link excavated from centre if original staple link is below 25mm for attachment to 13 Tonne Green E Pin shackle and subsequent attachment of 32mm Grade U2 ground chain.
- **Ground Chain:** U2 Grade batch-numbered long-link 38 mm steel chain. Refurbished blocks will utilise U2 grade 32 mm batch numbered steel block chain.
- **Chain Riser:** Grade 30 batch-numbered long-link 22 mm galvanised steel chain
- **Nylon Riser:** 16ft Nylon Riser. Spliced-in Thimble at each end (to enable the incorporation of a suitable shackle as a join to the 22 mm Chain Riser or to a Pick-Up Chain. If Pick-Up Rope is to be connected to the nylon Rope Riser, then the thimble will be excluded and the connection made using a bowline knot or the like, tail whipped up. Protocol with regarded to this component is that they will be replaced at the 10-year point. If age is unknown, then a professional assessment will be made by the servicing operator recorded and aged or replaced accordingly.
- **Shackles:** Tested. As used for industrial lifting. For Mooring Tackle connections, 25mm “D” galvanised steel shackle with pin diameter greater than that of the standing part. For refurbish block Ground Tackle connections, 13 tonne Green E Pin heavy duty galvanised steel shackle with stainless steel locking pins.
- **Stainless Steel Swivels:** 16 mm & 19mm Grade 316 stainless steel. Forged and tested. 10yr sub surface lifespan.
- **Pick-Up Chain:** 10 mm galvanised chain connected by 12 mm “D” shackles with pin diameter greater than that of the standing part/. Tested. As used for industrial lifting. Pick up chain will be assessed on annual inspection and replaced when less than 15% its original diameter.  
**WE RECOMMEND IF NO BOAT IS ON THE MOORING OVER WINTER YOU RECOVER YOUR PICK UP CHAIN WITH THE VESSEL TO REDUCE WEAR** or accept a reduced performance in the galvanisation.
- **Buoy Tail Rope:** Fit-For Purpose 10/12mm cordage.
- **Mooring Buoy:** Plastic light-coloured net buoys of sufficient buoyancy to suspend the mooring at high water (buoys with metal pick-up rings on top can cause contact damage and are not approved for use, unless specifically requested by the customer). The Mooring Buoy shall be connected to the strop with a rolling hitch on 14-16mm buoy rope, which is then spliced onto the buoy attachment hole; this minimises the wear in the Mooring Buoy and maximises its life.
- **Pick-Up Buoy and Rope:** Fit-For-Purpose. (No static or dynamic loading).

- **Boat Ropes:** Fit-For-Purpose (Customer Responsibility unless supplied by the company and then regular checking is required) Customer is to ensure the pick-up rope is of adequate standard for their vessel and checked regularly.

### **Projected Life of Components**

Components which have been supplied and fitted/laid by The Company; or supplied by the Customer, approved by The Company and fitted by The Company shall be recommended for replacement as follows:

- **Nylon Riser:** Annual, condition-based examination, this component is unique and exclusively supplied RYMS.Ltd. This component will be replaced at the 10 year point.
- **Shackles:** Expectation of a minimum 2 years of use, when the Chain Riser is reversed, when damaged, overly pitted, defective or worn to 15% of original diameter. The 12 Tonne Safety Pin Shackle that attaches the Ground Chain to the Base Block shall be inspected after 5 years of use, or when damaged, defective or worn to 15% of original diameter.
- **Swivels:** After 10 years of use, or when damaged, defective or worn to 15% of original diameter.
- **Chains:** When damaged, defective or excessively pitted or worn to 15% of original diameter. Chain Riser life within the river has found to possess a life of on average 3-4 years pending wear, service interval period & location. Ground Chain has a life pending its wear and resultant diameter. Pick up chain will be assessed annually, if this is left on over winter or the mooring is absent of a Vessel then we have found this will expedite the wear and corrosion rate due to it being in the upper area of the water column where there is more movement.

**New Base Blocks with chain cast within supplied by the company:** Must be inspected on or after 10 years of use, then 5 yearly afterwards or when a there is suspicion of loss of material integrity, fracture, or when the Ground Chain attachment point has worn to the limit.

**Reconditioned base blocks:** To be inspected every 5 years, these will be deemed not fit for purpose when evidence of fracture is identified, loss of material integrity or when the excavated block chain eye has reached wear limit.

### **MOORING INSPECTION**

#### **Objectives**

Specific objectives of the Mooring Inspection are:

- To assess the suitability and condition of the Mooring Equipment.

- To assess the residual life and value of components of the Mooring Equipment.
- To identify any remedial Work and/or Component replacements required to restore, upgrade or extend the residual life of the Components of the Mooring Equipment.

Particular attention shall be given to those areas that are susceptible to a greater degree of wear and loading.

### **Timing**

Normally the Mooring Inspection shall be completed on specific tidal height Low Water Spring Tides (LWST). This will enable ready access to the lower end of the Chain Riser for checking its connection to the Ground Chain and for measuring the diameter of the links of both chains, prior to this the neap tides will be used to inspect the upper portion of the mooring components whereby we are not restricted by depth.

Block lifts and movements will be planned around neap tides.

All instructed inspections are intended to be undertaken and completed by Easter. It is anticipated that if you are keeping your vessel on its mooring overwinter then you will choose to have it inspected Sept to Dec and we would recommend as such, if it's seasonal only, then Jan – May.

The inspection's purpose is to ensure the mooring is fit for purpose, not just to be cleaned, as this is purely undertaken to allow full visual inspection for integrity of components.

### **Reporting**

Following the Mooring Inspection, the Company shall provide the Customer with a report detailed within their invoice covering:

- The composition and configuration of the Mooring Equipment if non standard.
- Assessments previously requested by the Customer.
- Work completed on the Mooring Equipment.
- Evident work or warnings relating to block chain required on the Mooring Equipment before the next Mooring Inspection.

### **Harbour Dues**

An email will be generated after inspection to notify the customer that their mooring has been inspected and the Harbour Office will also be copied in accordingly. This notification will suffice for harbour dues licence registration purposes and the invoice will follow in due course. You DO NOT have to produce your invoice in addition to this unless specifically requested to do so by the Harbour Office as our notification procedures and agreements to date will suffice.

### **Certification**

The Company shall provide a Certification of suitability and security of the Mooring Equipment on the completion of its Inspection and the completion of any required remedial Work and/or Component replacements as identified by the Company, this will be in the form of your invoice. Should the required remedial Work and/or Component replacements be conducted by a Third Party (including the Licensee), then The Company shall only provide the Certification after the Mooring Equipment has been re-inspected by The Company and the items fitted have their provenance verified by the Company.

### **Vessels On Mooring**

The Company shall not move any Vessel from the Mooring unless authorised by the Customer, or in exceptional circumstances, by the Harbour Master. Our workboat configuration allows us to easily work alongside your vessel and removal is not required for the inspection to be undertaken.

The Company reserves the right to charge the Customer for costs incurred by the Company or levied by the Authority for the temporary relocation of the Vessel in order to enable the Company to complete the Work on its hourly rate.

The Company accepts no liability for damage to the Vessel should:

- The Vessel remains on the Mooring during the time of the Mooring Inspection.
- The Vessel be moved by the Company or their agent in order to inspect the Mooring.

### **Routine Actions for All Components**

The following actions form part of the Work during the Inspection of Mooring Equipment and shall be undertaken routinely without further consultation with the Customer:

- All Components shall be examined to ensure they are compliant with the required Specification. Components that are not compliant with the Specifications shall be changed.
- Risers, Boat Ropes, Thimbles, Swivels, Shackles and Buoys shall be cleaned of marine growth and restrictions to allow inspection for serviceability and replaced as necessary.
- The Company shall condemn and replace any Component that is considered to be unfit for purpose, worn or damaged beyond its specified limit, or liable to fail/wear beyond its specified limit within a further preceding 12 months. The exception to this is boat ropes whereby inspection failure of this component will result in immediate customer notification.

Aspects particularly considered are:

- Evidence of embrittlement or weld failure.
- Degree of corrosion pitting; or

- A higher-than-expected rate of material loss due to abrasion, erosion or corrosion.

### **Base Blocks & Ground Chain**

**Adopted Practice.** The Annual Inspection of Mooring Equipment adopted by the Company does not include the assessment of the Base Block for any movement on the seabed, structural deterioration, any excessive wear at the connection point for the Ground Chain, nor wear on the Ground Chain. The Annual Inspection finishes at the upper link of the 38 mm Ground Chain whereby the 22mm chain riser is connected. The diameter of only the upper connection link of the Ground Chain shall be measured, and this would be a confident indication of the wear on the rest of the Ground Chain. The rationale behind this exclusion, which is based on 40 years' practice, is that the Base Block assembly:

- Is sufficiently heavy to remain unaffected by normal static loading, dynamic loading, seabed erosion or tidal force.
- The block and associated chains act as an anchor for the vessel, the most movement and therefore most wear occurs at the surface end of all components.
- Deteriorates in a common way over time, and thus has a predetermined life; and
- May be reconditioned depending upon its condition after 20 years use but would then be subject to an Interim 5 yearly visual Inspection and a further life of 10 years only. The reconditioning process involves the removal of concrete to expose a previously embedded link of the Block Chain so that this link can be adopted as the point for re-shackling the Ground Chain if the staple is below 25mm.

**Interim Inspection.** The Base Block and Ground Chain shall be assessed for condition at its mid-life point of 10 years (company supplied new Base Blocks) or 5 years (company reconditioned Base Blocks):

- **Base Block.** The Base Block shall be assessed for any degradation in its concrete structure, looseness or degradation of the Staple or loss of integrity of any embedded Block Chain.
- **Block Chain.** Any links of the Block Chain that protrude from the Base Block shall be measured for abnormal wear, restrictions in movement, link distortion, damage, excessive corrosion and pitting. If any link is found to be below 25 mm diameter at the main wear point (the link-to-link connection surface) the Base Block shall be condemned, unless a previously embedded link can be exposed and used as a substitute; after this Work the Base Block shall be inspected thereafter on a 5-yearly basis.
- **Block Shackle.** The 12 Tonne Safety Pin Load tested shackle connecting the Ground Chain to the Base Block's Staple or Block Chain shall be inspected every 5 yrs for excessive wear, or loss of integrity.
- **Ground Chain.** The ground chain link diameter for a newly manufactured base block will be 38 mm. On reconditioned base blocks 32mm chain will be used due to the lessened life expectancy of the block and relative wear rates. The assessed wear rate when used in the



River Yealm is on average 1 mm in diameter per year, pending location. When the diameter of the most worn link falls to 17 mm the customer will be notified, with the expectation that on instruction the block is lifted, inspected and the Ground Chain shall be replaced or a new block and cast in chain provided at its next anniversary.

The previous local mooring contractors' practice on the River Yealm circa the last 40yrs has been to allow the link of ground chain making surface at SLW to reach 16mm before replacement & condemnation. The company deems this as best local practice and possesses data records that substantiate its effectiveness and as such will certify moorings accordingly fit for purpose to this level.

- **FAILED INSPECTION** - In the event during an annual inspection the block chain is identified to be below the minimum standard of cross section 16mm, the inspection will cease, and customer notified that the mooring is not fit for purpose. **A reduced charge of £100** will be incurred for the inspection, however this will be waived should the customer opt to instruct the Company for base block replacement or refurbishment on notification of inspection failure.

### **Nylon Riser**

The integrity of the Nylon Riser with either swaged eyes and/or spliced eyes cannot be fully determined by visual inspection, so this component is considered to have a defined life of 10 years.

Particular consideration shall be given to the security of the Thimble and the integrity of the Splice. The Nylon Riser shall be replaced in entirety if the aluminium ferrule is insecure, or the braiding shows insufficient integrity/wear.

We are currently going through a replacement process in relation to the nylon risers upon the river that are known or assessed to be in excess of 10 years old.

It is expected that the customer will furnish the Company on instruction with any information known regarding the age of this component. This is as a result of testing conducted by Marlow ropes and a subsequent failure investigation.

### **Shackles, Swivels and Thimbles**

The Shackles and Swivels should have been load-tested prior to incorporation; therefore, the Company shall only take responsibility for these Components if previously supplied and incorporated by the Company. Shackles and Swivels shall have a expected minimum life of 2 years (Shackles) and defined life of 10 years (Swivels), or if found to be insecure, damaged or corroded to 15% of their original size. Thimbles (plastic or galvanised steel) have no defined life. Particular consideration shall be:

- **Shackles:** The loosening of pins or insecure mousing. Shackle pins are always at risk of coming loose, either because the pin threads corrode, or the mousing fails. Grease shall be used to limit corrosion; the pin eye shall have at least 2 separate mousing's - 4 turns of nylon line and 1 turn of stainless steel wire/tie.
- **Swivels.** Stainless steel will fail without obvious evidence, which is why we are adopting North Sea life standards of 10 years sub surface. On inspection they will be cleaned, examined and assessed for rotational tightness.
- **Thimbles.** Severe corrosion, fracture or sharp edges (when used with nylons or ropes).

If the Customer has previously requested retention of these Components on instruction only then these shall be tagged for identification and retained by the Company; if, after 5 days, the Customer has not collected these Components, they shall be disposed of.

#### Chain Riser

All links of the Chain Riser shall be examined for abnormal wear, restrictions to movement, link distortion, damage, excessive corrosion beyond 15% its original diameter and pitting. Any found to possess these failings will be replaced.

Links in the Chain Riser nearer the surface are subject to a greater degree of movement and wear compared with those nearer the Block Chain. To achieve some uniformity in wear and to extend the life of the Chain Riser it shall be reversed on the 2-year service point if appropriate.

On average chain riser has shown to retain a life span of 3 to 4 years (pending location in the river) before excessive pitting has resulted in its removal from use. The lifespan of chain cannot be exactly determined due to the wide number of variables, changing water quality, location in river, etc however it is all sourced from a tested and recognised supplier with certification.

The removed Components shall be cut and disposed of unless the Client has previously requested retention of these Components on instruction then these shall be tagged for identification and then retained by the Company; if, after 5 days, the Customer has not collected these Components, they shall be disposed of.

#### Pick up chain

Pick up chain is assessed upon inspection for excessive corrosion and degradation of the chain's diameter past 15% its original size. As the pick-up chain is within the upper area of the mooring component it will be subject to the most movement in the water column. Hence galvanisation will wear off quicker if left in the water overwinter when the boat is removed. We suggest that the

customer removes this pick-up chain when their boat goes ashore or accepts a higher frequency of galvanisation depletion.

### **Mooring Buoy**

Particular consideration shall be given to surface UV damage and insecure connections caused by impact or misuse, insufficient buoyancy, and identification.

The Authority is responsible for ensuring that the Mooring Buoy is clearly marked to show the RYHA mooring number; The Company shall assume this responsibility when requested by the Authority either on a single basis or as part of a programme of maintenance for all Mooring Buoys on the River Yealm and its connecting creeks.

### **Boat Ropes**

Boat Ropes, where present, are the responsibility of the Customer and shall not be provided or replaced by the Company unless specifically instructed by the Customer. The Company accepts no responsibility for their failure and consequential damage to the Customer's property, or to the property of A Third Party. The company **does not favour pick up ropes** or rope bridles due to the potential abrading factors that can occur, pick up chain is the favoured option, but we understand it is the customer's choice and some vessels are not suitable for pick up chain attachment. On the request that a pickup rope is provided or replaced then the company will provide appropriately tested rope with anti-chafe sheathing, spliced to the appropriate length.

### **Valuation**

On the occasion that the Company is asked to value a mooring at the time of ownership exchange it will be done by assessing the mooring configurations worth by mm left on the riser shackled in link from its new diameter to 16mm. A sliding scale of value based upon the cost of block & chain replacement at present day (cast in or refurbished, pending what type it is) is then applied to this figure with each mm up from 16mm accruing a value. 22mm Galvanised riser chain is given a 4-yearly life with its value decided pro rata. Nylon risers (if age known) are given a pro rata value up to their 10-year life along with stainless steel swivels up to their 10-year lifespan. All other components are given a condition-based valuation. Pick up ropes or chain are not valued as these are vessel specific lengths.

### **COMPONENT DISPOSAL**

**Retention**

The Company shall not retain replaced Components unless requested by the Customer

**Evidence of Disposal**

The Authority shall require evidence from the Company that condemned Mooring Equipment and Base Blocks have been disposed of in compliance with the policy defined by the Authority, which at present is removal from the river from the companies designated wet store area, unless they can be recycled for other use or when enough base blocks are present to make the removal operation financially viable, they will be taken to Bridgend for collection by low loader. The invoice from the Company shall stand as evidence that the disposal responsibility and associated liabilities for these items has been transferred from the Customer to the Company.

**Mooring component life expectation table (GUIDANCE ONLY)**

Component	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20	Year 25
<i>New base block with 38mm Chain cast in.</i>						Inspection of block to assess concrete		ASSESS block chain dimension. If near 16mm REPLACE mooring or refurbishment subject to condition	ASSESS block chain dimension. If near 16mm REPLACE mooring or refurbishment subject to condition
<i>Refurbished base Block with 32 mm Chain Shackled to stable eye with 32mm shackle.</i>					Inspection of Base Shackle if block concrete composition still adequate – if not replacement base block advised	Replacement advised - no further block refurbishment			
<i>Base block connecting 25mm D shackle</i>	Inspect & Assess	Inspect & Assess	Assess/ <b>REPLACE</b>	<b>REPLACE</b>					
<i>22mm Galvanised Riser Chain *</i>	Inspect & Assess	Inspect & Assess (possibly exchange end for end)	Exchange end for end or <b>REPLACE</b>	<b>REPLACE</b>					
<i>22mm Riser chain connecting 25mm D shackle</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess <b>REPLACE</b>	<b>REPLACE</b>					
<i>Danish grade 316 Stainless steel swivel</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	<b>REPLACE</b>	Inspect & Assess	<b>REPLACE</b>	Inspect & Assess
<i>Nylon mooring strap connecting 25mm D shackle</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess <b>REPLACE</b>						
<i>25mm Nylon mooring strap.</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	<b>REPLACE</b>			

<i>Thimbles on nylon</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess
<i>Main and Pick up buoy</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess
<i>Pick up chain*</i>	Inspect & Assess	Inspect & Assess	Inspect & Assess	Inspect & Assess					
<i>Pick up ropes</i>	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required	Owner to check regularly and replace when required

- **Chain** wears at different rates in different locations within the river due to a multitude of factors and has different stressors placed upon it from different vessels so each mooring maintenance schedule will vary. These life expectancies are all average estimations for customers so that they can have an overall idea of the maintenance requirements relating to their mooring and are not to be taken as uniform timings for all moorings. Annual inspection is integral to identifying early failings and damage caused throughout the year.
- **Nylon risers** are 25mm bespoke Polyester Mooring Strops with a minimum 8 tonne plus break load, woven in triplicate with a hard Chaffe proof sheathing, they will be changed when damage or wear is identified at annual inspection, on advice from Marlow Rope specialists this component is decreed to have a safe working life in this capacity of 10 years at which it will then be exchanged. If no records held to the contrary or the client can advise otherwise, then nylon risers with an unknown age will be aged by the service operator and if deemed to have exceeded the life of 10 years at the time of inspection then will be subsequently replaced.
- **Rope Risers** are again taken to have a lifespan of 10 years when immersed in water and utilised as a part of the mooring component composition. It is preference of the COMPANY for all risers to be standardised to that of the 25mm nylon type detailed above.
- **Buoyage** tends to fail due to UV degradation breaking down the plastic, this is an annual assessment for replacement appraisal.
- **Thimbles** degrade with a variety of wear conditions these too are assessed annually for replacement.
- **Break loads of components utilised are as follows (please note strength will decrease with corrosion).**

COMPONANT	Max Break Load	Denoted Line Pull if applicable
10mm Pick Up Chain	5 Tonnes	
16mm Galvanised Chain	13 Tonnes	
22mm Galvanised Chain	25 Tonnes	
32mm Ground Chain	84 Tonnes	
38mm Ground Chain	99.75 Tonnes	
16MM Stainless Swivel	16 Tonnes	SWL – 3.2 Tonnes/ Line Pull 10T
19MM Stainless Swivel	23 Tonnes	SWL – 4.7 Tonnes/ Line Pull 15T
Single Nylon Riser (up to 10yrs)	8 Tonnes	

12T Blue safety Pin base block shackle	12 Tonne	
Average amount of line pull for cleat affixed to a boat deck	2.5Tonnes to 7.1Tonnes	<a href="http://www.boatus.org/findings/16/">www.boatus.org/findings/16/</a>