Intuitive operation and pilot training when using marine azimuthing control devices

AZIPILOT

Report Title:

Deliverable 4.5:

Manoeuvring with podded manned models

EXECUTIVE SUMMARY

The present report contains the main results of Task 4.5 of the AZIPILOT Project.
Work Package 4 of the project is specifically aimed at maritime pilots, ship operators/managers, pilot associations and end users. More generally it focuses on subjects relating to operational practice with azimuthing control devices (ACDs).
The main aim of WP4 is to collate, review and audit available material relating to operational aspects of ACDs when manoeuvring ships in pilotage waters. The outcomes of the work will be used to improve current techniques and tools.

The objective of this task is to summarise knowledge gathered in other tasks into an accessible form and, in doing so, propose practical solutions for shiphandling. This task aims to illustrate typical manoeuvres both in normal and emergency scenarios. The task mainly consisted in carrying out a number of illustrative tracks with a podded manned model. Both turning circles and crash stops were carried out and are reported here in full detail.

The conclusions to be drawn from the manoeuvring exercise with the podded manned model are as follows:

- For turning circles:
  - The effect of twin pods on the turning diameter is similar to that of a rudder with twice the angle;
  - In case of failure of one pod, the turning diameter is less affected when the outside pod is still working.
- For crash stops:
  - The shortest stop is obtained when turning both pods 180° inboard at full positive rpm (the so-called “Pod way stop”);
  - Turning both pods 180° outboard is slightly less efficient and increases mechanical stresses;
  - The “Transverse Arrest stop” (turning both pods 90° inboard) is even less efficient and increases mechanical stresses;
  - Other crash stop scenarios are inferior to the ones mentioned above, except for the Turning Stop, which can be used if sufficient lateral area is available.

Detailed results are provided in this report and will hopefully be useful for further mathematical and physical modelling.

The work summarised in this deliverable was conducted by Port Revel (Appendix 2).

1. CONTRACTUAL TASK DESCRIPTION

Task 4.5	**Encapsulate knowledge using integration & evaluation exercise.**						
Start Month:	15				**Duration (months):**		27
Participating partners:	PRL						
Person-months:	2.5						

The aim of this task is to identify operational practice for pilots of ships equipped with azimuthing control devices, both in normal and emergency situations. The objective is to hold a dedicated project workshop (hosted by the task leader) to identify, with the help of expert maritime pilots, a number of normal and emergency scenarios and corresponding ship handling procedures. Existing information on the manoeuvring performance of ships equipped with azimuthing control devices will be gathered from other tasks. These other tasks are expected to yield a great deal of information regarding both theoretical and practical experience. However, it is recognised that very little information exists as yet for manned-model ships equipped with azimuthing control devices. The objective of the workshop is to summarise this knowledge into an accessible form, and in doing so propose practical solutions.

The task will serve to encapsulate the compiled knowledge through an integration and evaluation exercise. Specifically, the task will integrate the identified scenarios and corresponding ship handling procedures into the ongoing activities of the training centre. The project is thereby expected to illustrate the manoeuvres in order to disseminate knowledge by means of videos and pictures.

The task will culminate in a report describing and summarising the above integration and evaluation and will constitute one deliverable.

2. DESCRIPTION OF THE MODEL

The task mainly consisted in carrying out a number of illustrative tracks with a podded manned model. Both turning circles and crash stops were carried out and are reported here in full detail.

1. Manned models

Many research workers, hydraulics specialists and engineers have been using scale models for over a century, in particular in towing tanks. Manned models are small-scale models that can carry and be handled by at least one person on an open expanse of water. They must behave just like real ships, giving the shiphandler the same sensations. Physical conditions such as wind, currents, waves, water depths, channels and berths must be reproduced realistically (Appendix 2).
Manned models are used for research (e.g. ship behaviour), engineering (e.g. port layout) and training in shiphandling (e.g. maritime pilots, masters and officers).

They are usually at 1:25 scale.

Port Revel has chosen to apply the **physical similitude** law of William Froude (1810-1879) for its manned models. This means that gravity is considered to be preponderant over the other forces acting on the hull (viscosity, capillarity, cavitation, compressibility, etc.).
The different aspects of similitude may thus be defined as follows:

Similitude of shape: The model has exactly the same geometric shape as the real ship. This means that all the dimensions of the real ship are divided by the same factor, the scale factor. The designers of Port Revel chose a scale of 1:25, so:

$S_{(L)} = 25$

In this similitude, the proportions are kept (the ratios between the various dimensions of the ship are identical). This is also the case with the block coefficient. Furthermore, the angles are a length ratio, so they are also identical to the original ones. The scale factors of the areas and volumes are deduced from this, i.e.:

$S^2_{(L)} = 25^2 = 625$

$S^3_{(L)} = 25^3 = 15\ 625$

Similitude of mass: The model used for shiphandling training must not only resemble the original but also move in the same way as the original when subjected to similar forces. Moreover, the density of the lake water is almost the same as that of sea water. Consequently, the scale factor for the mass and displacement is the same as that for the volumes, i.e.:

$S_{(M)} = S^3_{(L)} = 25^3 = 15\ 625$

Similitude of forces: If the external forces on the model are in similitude, like the shapes, masses and inertia, the model's movement will be in similitude. It can thus be shown that the forces must be at the same scale as the masses and weights, so:

$S_{(F)} = S_{(M)} = 25^3 = 15\ 625$

Similitude of time: In accordance with Froude's law, the time scale is the square root of the length scale, so:

$S_{(T)} = S^{1/2}_{(L)} = \text{sqrt}(25) = 5$

Similitude of power: Similarly, it can be shown that:

$S_{(P)} = S^{7/2}_{(L)} = 25^{7/2} = 78\ 125$

To conclude, in choosing a scale of 1:25 for the lengths and complying with Froude's law, the engineers at Sogreah – Port Revel built models 25 times smaller and operating 5 times more slowly. However, since the distances are 25 times shorter, things occur 5 times faster. The ships are 78125 times less powerful.

Similitude of manoeuvres: While the models must be in correct physical similitude, this is not enough. Other factors can affect the correct reproduction of the manoeuvres, such as the field of vision, on-board equipment and wind.

- First, manoeuvres on a model require the same pilot's orders as those on a real ship. The only difference is that they are executed five times faster on the model, so there is no time to discuss them. In fact, the operating rate is such that the captain and helmsman swap roles every hour to avoid fatigue.
- The captain's position gives him a true field of vision from the bridge. He gives his orders to the helmsman, who is seated in front of him and operates the wheel and engine.
- Control panels show the usual information (engine speed, rudder angle, heading, log, wind speed and direction, chain shackles lowered). This information is shown in real-life values to help the trainee forget as much as possible that he is on a scale model.
- The ships are fitted with bow and stern thrusters and perfectly operational anchors. They behave like real ships from this point of view as well.
- Tugs are under the captain's orders via remote control, and are handled by a real tug captain.
- As far as wind is concerned, it should be recalled that, since the speed scale factor is 1 in 5, a wind of 10 knots on the lake is equivalent to a 50-knot squall in reality. Ripples on the surface of the water and the movement of leaves on the trees are therefore unreliable indicators. The wind and ship speeds displayed on the control panel are hence very important for trainees. However, the lake is situated in a forest in a region with little wind, so uncontrollable wind effects are minimised.

Nature is at work on scale models, with random effects that are similar to those of real-life situations. The unforeseeable nature of squalls, shallows, currents and waves calls for an immediate, appropriate reaction, without any repeat or automatic response … and no “reset” switch.
For the same reason (natural phenomena), hydrodynamic effects are correctly reproduced on scale models and it is therefore unnecessary to transpose them in the form of complex equations. This gives a better simulation of hydrodynamic effects such as interactions between ships (for example in a canal), interactions between the ship and berth, small under-keel clearance (such as 10% of the ship's draught) and the use of anchor dredging in various operating situations.
The scale effect of wind on a manned model is well known, but this is also well known to be in no way detrimental to the use of manned models for serious and effective shiphandling training. Wind is a factor in the everyday life of pilots throughout the world. The design of our manned model lake is such that the wind element will vary in different parts of the lake. This allows a course to be structured in such a manner as to introduce wind as and when required. Extreme

wind conditions are encountered in the real world. If they occur at a manned model centre, with care they can be used in various scenarios to demonstrate how well control can be maintained.

Experience of over 40 years has shown that students quickly learn how to control the models just as they do the real ships that they are used to manoeuvring.

Those who have trained on both claim that scale models are complementary to electronic simulators. While manoeuvres with currents, waves, tugs, anchors, bank effects, etc. are reproduced more accurately on scale models, numerical simulators are more realistic when it comes to the bridge environment and human factors.

2. The lake

Port Revel is located on a man-made lake of about 13 acres (5 ha) that has been remodelled in order to reproduce real sailing conditions (Appendix 1).
The lake is located near Grenoble (France), where the wind regime is very mild. Moreover, it is sheltered by a forest. Uncontrolled wind effects on ships are hence reduced to a minimum.
At a 1:25 scale, the lake area represents a navigable zone measuring about 5 by 2 nautical miles, allowing several models to sail at the same time at normal manoeuvring speeds.
It features deep, shallow and very shallow water areas (less than 10% under keel-clearance for certain ships).

The lake has the following permanent equipment and features:

a) the different types of moorings that exist in ports or near the coast:

- open wharves,
- solid quays,
- offshore platform structure,
- new Panama lock,
- single buoy mooring.

b) the different types of buoyed channel (deep water and shallow water) with different widths, and a length of ship canal (representing, for example, a bend of the Suez Canal),

c) a wave generator designed to produce waves of varying period and height (maximum about 6 m at full scale, or 24 cm for the models),

d) current generators able to produce currents of various directions with speeds up to 3 knots (at full scale),

e) a wind generator designed to reproduce a wind field of 20-30 knots (at full scale),

f) a "garage" (boat house) for shelter and maintenance of the models.

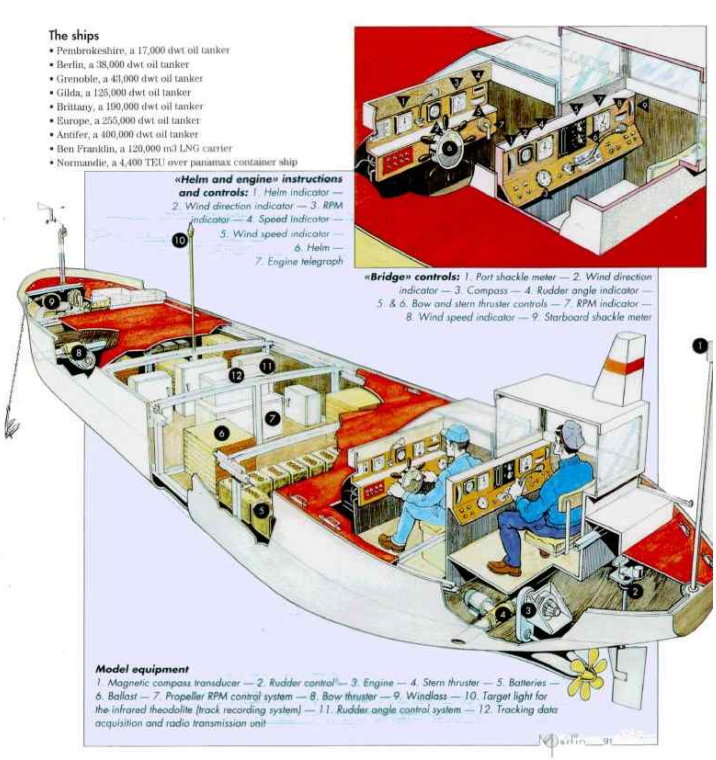
This equipment is supplemented by a number of leading marks on land, and an observation tower.

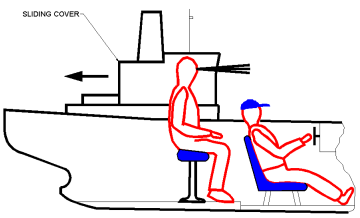
A very accurate track recording system is available: the position of 5 ships can be determined with an accuracy of 25 cm (10 inches) at full scale, anywhere on the lake. Ship positions and headings are sent to the base along with data on rudder angle, rpm, wind speed and direction, ship speed, etc.
Printouts of manoeuvres are provided and discussed with the participants at the end of each day.

All the tests were conducted with virtually no wind.

3. The ships

The ships are accurately constructed to conform to the principles of similitude and are fitted with indicators showing the ship's parameters. Information given by the indicators is at full scale.
The Port Revel fleet is at present made up of eleven manned models and three radio-controlled tractor tugs.
Seven of the manned models represent at scale real oil tankers or bulk carriers ranging from 17 000 to 400 000 dwt.
The eighth is a replica of the liquid natural gas (LNG) carrier "Ben Franklin" (125 000 m^3).
The ninth is a replica of a 4 400 TEU post-panamax container ship, the "CGM-Normandie".
The tenth ship, introduced in 2009, is a model of the "CMA CGM Otello", a large 8 500 TEU container ship. The latest ship, introduced in 2010, is a "Q-Max", a large 265 000 m^3 LNG carrier.
Most models are fitted with diesel motor and steam turbine, and the Normandie can be controlled from the front deck like a car carrier or a cruise ship, so that the fleet in fact reproduces over 20 different vessels.
One ship is fitted with an optional Becker rudder and another ship has a Schilling rudder.
On two ships, it is possible to have the bridge forward.
All but one are fitted with a bow thruster. Most ships are fitted with bow and stern thrusters.
All ships but one have fully operational anchors.
Several ships have variable draught.
Each model is designed so that the Master is at bridge level. He calls out his instructions to the "crew", i.e. the helmsman, who steers the ship and operates the engine room telegraph. An instrument panel gives continuous full-scale indications of propeller rpm, rudder angle, ship's heading and speed, and wind velocity and direction.
The sliding cover is positioned to correctly reproduce the effect of wind.





4. The Pods

The Normandie can be fitted with optional "pods" in order to reproduce the behaviour of a 900 ft cruise ship. This means that the ship can be fitted either with a conventional

rudder/propeller or with two pods. The pod parameters are taken from the Queen Mary 2, including the “Fast” and “Standard” manoeuvring modes with corresponding engine accelerations and decelerations, torque limitations, and steering limitations.

To make the shiphandling training centre even more attractive for ships' pilots and captains, it was decided in 2006 to introduce pod propulsion on one of its 1:25 scale models (see www.portrevel.com).
Pods have a considerable effect on the way a ship handles. At cruising speed, the diameter of the turning circle is greatly reduced, even though pods cannot rotate more than 35°, as is the case with a conventional rudder. In manoeuvring situations, the 360° rotation of the pods means that thrust can be created in any direction, including combinations in which one pod is operating fore and aft and the other at an angle of 90° (“T-Bone”), and combinations with bow thrusters, which enable the ship to move sideways ("crabbing").
It thus seems that there is considerable room for experimentation with this type of propulsion.
At Port Revel, pod propulsion is optional; in other words, the ship may be fitted with pods to reproduce the behaviour of a 275 m cruise liner, or else fitted with conventional propulsion including a rudder and propeller to reproduce the behaviour of 4400 TEU container ships (the Normandie, formerly CMA-CGM). It is also possible to reproduce a ship with two propellers and a central rudder.
A specific training course was therefore set up for experienced pilots and captains who wish to discover the possibilities of pods in shiphandling. This course is obviously carried out without using a joystick but with the conventional Stork-Kwant controls identical to those on the QM2.
The course covers such operations as:

- Docking and undocking with a current.
- Crabbing, with pods and bow thruster.
- Backing into a slip.
- Manoeuvring with a single pod (in the event of failure).
- Emergency stopping.

A course of this kind can also usefully involve the following:

- emergency operations with escort tugs,
- operations in the local conditions to which participants are accustomed.

The first two courses of this kind took place during the summer of 2006 with pilots from San Francisco, who returned home delighted with their experience at Port Revel. Most of them were at Port Revel for the fourth time in their career to perfect their skills.
The seven instructors at Port Revel were also extremely eager to discover the possibilities offered by pods, in particular for emergency manoeuvres. For example, they were able to crash stop a ship heading at 13.5 knots in one and a half times its length. A feat of this kind would probably cause a little breakage on board, but if it is going to save human life….

The container carrier Normandie converted into a 275 m cruise liner with the bridge to the bow.

One of the two 21.5 MW pods installed on the Normandie

Stork-Kwant control unit for operating pods

Crash stop by turning the ship. With an initial speed of 13.5 knots, the ship is stopped in 120 seconds, in an area equivalent to only 2.2 x 1.4 times its length.

3. SCENARIOS AND TRACKS

Both normal and emergency scenarios were considered.

1. Series 1 - Normal operations: turning circles

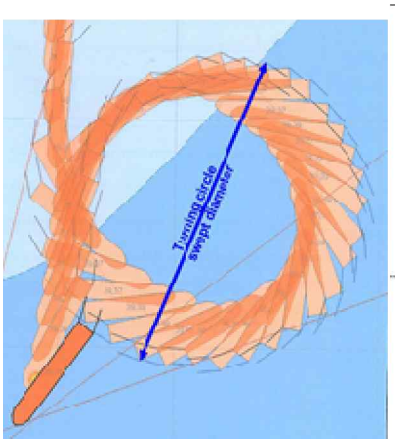
Since the model could be set either as a traditional single-screw container ship or as a twin-podded cruise ship, the two configurations were compared.
The following turning circle exercises were performed:

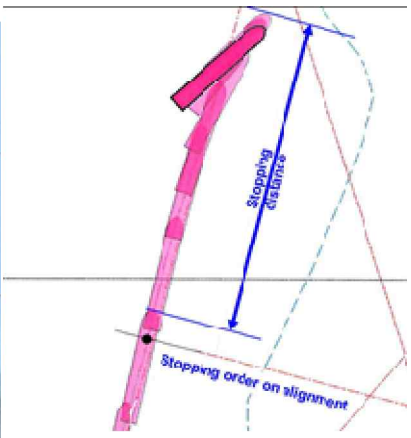
1.1.1 - Traditional single-propeller ship starboard turn with rudder at 40°,
1.1.2 - Traditional single-propeller ship port turn with rudder at 40°,
1.2 – Twin-podded ship, stb turn with 2 pods at 30°,
1.3.1 - Twin-podded ship, stb turn with stb pod at 35°,
1.3.2 - Twin-podded ship, stb turn with port pod at 35°,
1.4 - Twin-podded ship, stb turn with 2 pods at 20°,
1.5 - Twin-podded ship, stb turn with 2 pods at 10°.

2. Series 2 - Emergency operations: crash stops

Several procedures are known for crash-stopping a podded ship. These were compared at an initial speed of 13.5 to 14 kn in the "Fast Mode" (i.e. without any rpm limitations), with the exception of tracks 2.0 and 2.5, which required too great a distance on the lake and were therefore carried out with an initial speed of 9.5 to 10 kn:

2.0 – Propellers in line and stopped,
2.1 - Reverse propellers to full negative rpm (= full astern),
2.2 - Turn both pods 180° outboard with full positive rpm,
2.3 - Turn both pods 180° inboard with full positive rpm (Pod way stop),
2.4 - Turn both pods 90° inboard with full positive rpm (transverse arrest),
2.5.1 - Turn both pods 90° inboard with propellers ordered at stop,
2.5.2 - Turn both pods 90° outboard with propellers ordered at stop,
2.6 - Turn both pods 60° outboard with propeller ordered at full negative rpm,
2.7 - Turn both pods 35° outboard with reduced rpm until speed is reduced to 8 kn, then turn both pods further to 180° with increased rpm,
2.8 - Reduce to 80 rpm, then turn pods 180° outboard, then at 11 kn reduce to 50 rpm, and at 8 kn reduce to 30 rpm (fast deceleration)
2.9 - Reduce to 80 rpm, then at 11 kn reduce to 50 rpm, and at 8 kn reduce to 30 rpm then turn pods 180° outboard (smooth deceleration)
2.10 – Turn port pod 45° outboard and the stb 135° inboard with full positive rpm,





4. RESULTS FOR TURNING CIRCLES

Track 1.1.1 - Traditional single-propeller ship starboard turn with rudder at 40°,

Track 1.1.2 - Traditional single-propeller ship port turn with rudder at 40°,

Track 1.2 - Twin-podded ship, stb turn with 2 pods at 30°,

Track 1.3.1 - Twin-podded ship, stb turn with stb pod at 35°,

Track 1.3.2 - Twin-podded ship, stb turn with port pod at 35°,

Track 1.4 - Twin-podded ship, stb turn with 2 pods at 20°,

Track 1.5 - Twin-podded ship, stb turn with 2 pods at 10°.

All tests were conducted with an initial speed of around 10 knots obtained with around 70 rpm on the pods (and 55 rpm on the traditional single propeller). It should be noted that turning circles in this series of tracks are defined by their "swept diameter", i.e. the largest area taken for the manoeuvre. All dimensions are related to the overall ship length "SL".

As a reference, the ship was used in her traditional single right-turning propeller mode to carry out a starboard turn and a port turn with 40° rudder angle. As expected, the port turn was slightly shorter (2.8 SL) than the starboard turn (3.4 SL) due to the propeller thrust.

The twin-podded ship was used for several turns with various pod angles, with the following resulting swept diameters:

- the stb turn with 2 pods at 30° gave a circle of 2.8 SL
- the stb turn with 2 pods at 20° gave a circle of 3.2 SL
- the stb turn with 2 pods at 10° gave a circle of 4.9 SL

If this is compared with the traditional ship with rudder at 40°, it can be seen that the podded ship gave a similar diameter of around 3.0 SL for a pod angle of around 25°. This is known as a "1 in 2" angle ratio between pod and rudder angles for similar turning circle diameters.

The twin-podded ship was also used for turns with only one pod, resulting in the following swept diameters:

- the stb turn with stb pod at 35° gave a circle of 3.9 SL
- the stb turn with port pod at 35° gave a circle of 2.4 SL

As expected, the shortest turn is obtained with the "outside" pod. This turn is indeed very short due to severe skidding of the ship stern.

5. RESULTS FOR STOPPING MANOEUVRES

Track 2.0 – Propellers in line and stopped,

Track 2.1 - Reverse propellers to full negative rpm (= full astern),

Track 2.2 - Turn both pods 180° outboard with full positive rpm,

Track 2.3 - Turn both pods 180° inboard with full positive rpm (Pod way stop),

Track 2.4 - Turn both pods 90° inboard with full positive rpm (transverse arrest),

Track 2.5.1 - Turn both pods 90° inboard with propellers ordered at stop,

Track 2.5.2 - Turn both pods 90° outboard with propellers ordered at stop,

Track 2.6 - Turn both pods 60° outboard with propellers ordered at full negative rpm,

Track 2.7 - Turn both pods 35° outboard with reduced rpm until speed is reduced to 8 kn, then turn both pods further to 180° with increased rpm,

Track 2.8 - Reduce to 80 rpm, then turn pods 180° outboard, then at 11 kn reduce to 50 rpm, and at 8 kn reduce to 30 rpm (fast deceleration),

Track 2.9 - Reduce to 80 rpm, then at 11 kn reduce to 50 rpm, and at 8 kn reduce to 30 rpm then turn pods 180° outboard (smooth deceleration),

Track 2.10 – Turn port pod 45° outboard and the stb 135° inboard with full positive rpm.

All tests were conducted with an initial speed of around 13.5 knots obtained with around 100 rpm on the pods (except the tests with stopped engine, which were conducted with an initial speed of around 10 knots). It is to be noted that stopping distances in this series of tracks are defined by their bow positions at the initiation of the manoeuvre and at full stop. The manoeuvres were initiated at a fixed alignment on the lake and all stopping manoeuvres were carried out in two directions in order to eliminate any possible wind effect. All dimensions are related to the overall ship length "SL".

As a reference, the propellers were simply ordered at stop, starting from an initial speed of around 10 knots as the lake was too short to cope with larger stopping distances:

- Propellers kept in line (0°) and stopped gave a distance of 4.1 SL
- Turning both pods 90° inboard with propellers ordered at stop gave a distance of 5.0 SL
- Turning both pods 90° outboard with propellers ordered at stop gave a distance of 5.0 SL

The first track led to a stopping distance of 4.1 SL … with around 3 SL lateral transfer as control was gradually lost over the ship as speed reduced. The two tests with pods at 90° led to even larger distances with lateral transfer of around 2.5 SL.

The ship was than stopped in several ways (with an initial speed of around 13.5 knots):

- Reversing propeller to full negative rpm (= full astern) gave a distance of 3.0 SL
- Turning both pods 180° outboard with full positive rpm gave a distance of 2.3 SL
- Turning both pods 180° inboard with full positive rpm (Pod way stop) gave a distance of 2.1 SL

The last procedure was the shortest obtained for all the tests. The inboard turning of the pods was slightly better than the outboard turning of the pods, and both of them were much better than the traditional "full astern" order.

The "transverse arrest" stopping manoeuvre is well known to tug masters. It appears also to be quite efficient on podded ships (with an initial speed of around 13.5 knots):

- Turning both pods 90° inboard with full positive rpm gave a distance of 2.9 SL

However, the stopping distance of 2.9 SL found during this test is greater than the shortest distance of 2.1 SL obtained with 180° inboard turning of the pods at full positive rpm.
The efficiency of this "transverse arrest" stopping method also explains why the "Pod way" stop with inboard turning of the pods mentioned earlier is more efficient than the one with outboard turning of the pods.
The hydraulic effect of the transverse flow of water generated by the pods is shown by the two tests with propellers ordered at stop and leading to a stopping distance of 5.0 SL (with around 2.5 SL lateral transfer).

Obviously, pod manufacturers do not recommend placing pods at 90°. It may be said here that, since the Pod way stop is more efficient in stopping the ship, there is no need to use these 90° pod positions for stopping manoeuvres.

The ship was then stopped in several other less efficient ways (with an initial speed of around 13.5 knots):

- Turning both pods 60° outboard with propellers ordered at full negative rpm gave a distance of 2.6 SL
- Turning both pods 35° outboard with reduced rpm until speed is reduced to 8 kn, then turning both pods further to 180° with increased rpm gave a distance of 4.9 SL
- Reducing to 80 rpm, then turning pods 180° outboard, then at 11 kn reducing to 50 rpm, and at 8 kn reducing to 30 rpm (fast deceleration) gave a distance of 4.4 SL
- Reducing to 80 rpm, then at 11 kn reducing to 50 rpm, and at 8 kn reducing to 30 rpm then turning pods 180° outboard (smooth deceleration) gave a distance of 6.1 SL

The first of this group is surprisingly efficient with 2.6 SL.
The other three aim to turn the pods with reduced speed in order to reduce mechanical stresses. However, the resulting stopping distances of 4.4 to 6.1 SL are disappointing.

Finally, one test was conducted with a "turning stop":

- Turning port pod 45° outboard and the stb 135° inboard with full positive rpm gave a distance of only 2.0 SL

This test put both pods at 90° with respect to each other and induced a sharp turn of the ship.
The stopping distance of 2.0 SL was very short, and a turning circle of around 2 SL was generated.
Obviously, this final track is possible only in cases where a sufficient lateral area is available.

6. COMPARISON WITH EXISTING DATA

It must be said that very little data has been published on this subject.

M. D. Woodward published results from model simulations in 2005 [1] and two of his simulations can be compared with the tracks reported here:

- his "Conventional Stopping Manoeuvre" (CSM), which is a full astern order,
- and his "Slew Stopping Manoeuvre" (SSM1), which is a 180° outboard turning of the pods at full rpm.

His simulations were performed with a 172 m ROPAX with 2 pods starting at a speed of around 27 kn, which is more than the 13.5 kn of the tracks reported here. If we take the liberty of using the part of his resulting deceleration curve from 13.5 kn down to zero, we see that his stopping methods take around 150 and 130 seconds respectively. That yields a total stopping distance of around 500 m and 440 m respectively, i.e. 2.9 and 2.5 Ship Lengths respectively.

In chapter 5 above, the results are 3.0 SL for CSM and 2.3 SL for SSM1 (Tracks 2.1 and 2.2 respectively).

This is quite close.

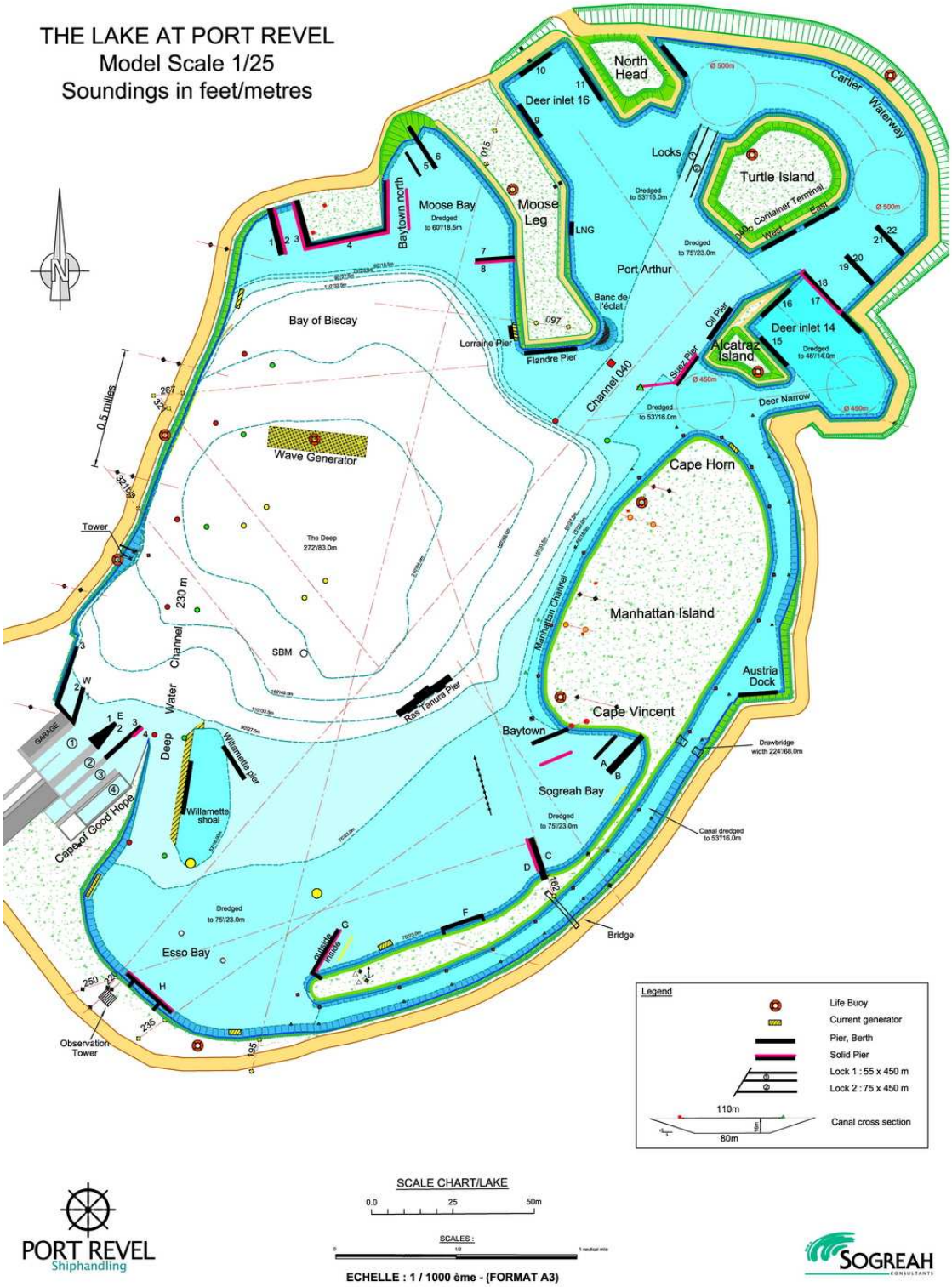
7. REFERENCES

1. M. D. Woodward, M. Atlar and D. Clarke (University of Newcastle Upon Tyne)
"Comparison of stopping modes for pod-driven ships by simulation based on model testing"
J. Engineering for the Maritime Environment, Vol. 219
2005

2. S. Burnay (BMT SeaTech Ltd)
"Azimuthing pod propulsion and ship manoeuvring simulations"
May 2001

3. Capt. C. Rynd (Master Queen Mary 2)
"Podded propulsion"
The Nautical Institute, Seaways, December 2007 & January 2008

APPENDIX 1 – PORT REVEL LAKE



APPENDIX 2 – PORT REVEL TECHNICAL DOCUMENTATION

PORT REVEL
Shiphandling

PORT REVEL
SHIPHANDLING

TECHNICAL DOCUMENTATION

SOGREAH
GROUPE ARTELIA

WHY TRAINING … ?!

Because human error is still the main cause of accidents.

WHY MANNED MODEL TRAINING … ?

Because this is still the best way to acquire certain reflexes which, when the time comes, will make all the difference between being good and being the best. Training on the scale models provides experience that could never be gained on real ships for the simple reason that neither ship-owners nor local authorities would allow such risks to be taken. Scale models allow the shiphandler to make mistakes. Scale models allow experimentation on ship behaviour to explore unknown fields beyond the limits of safety.

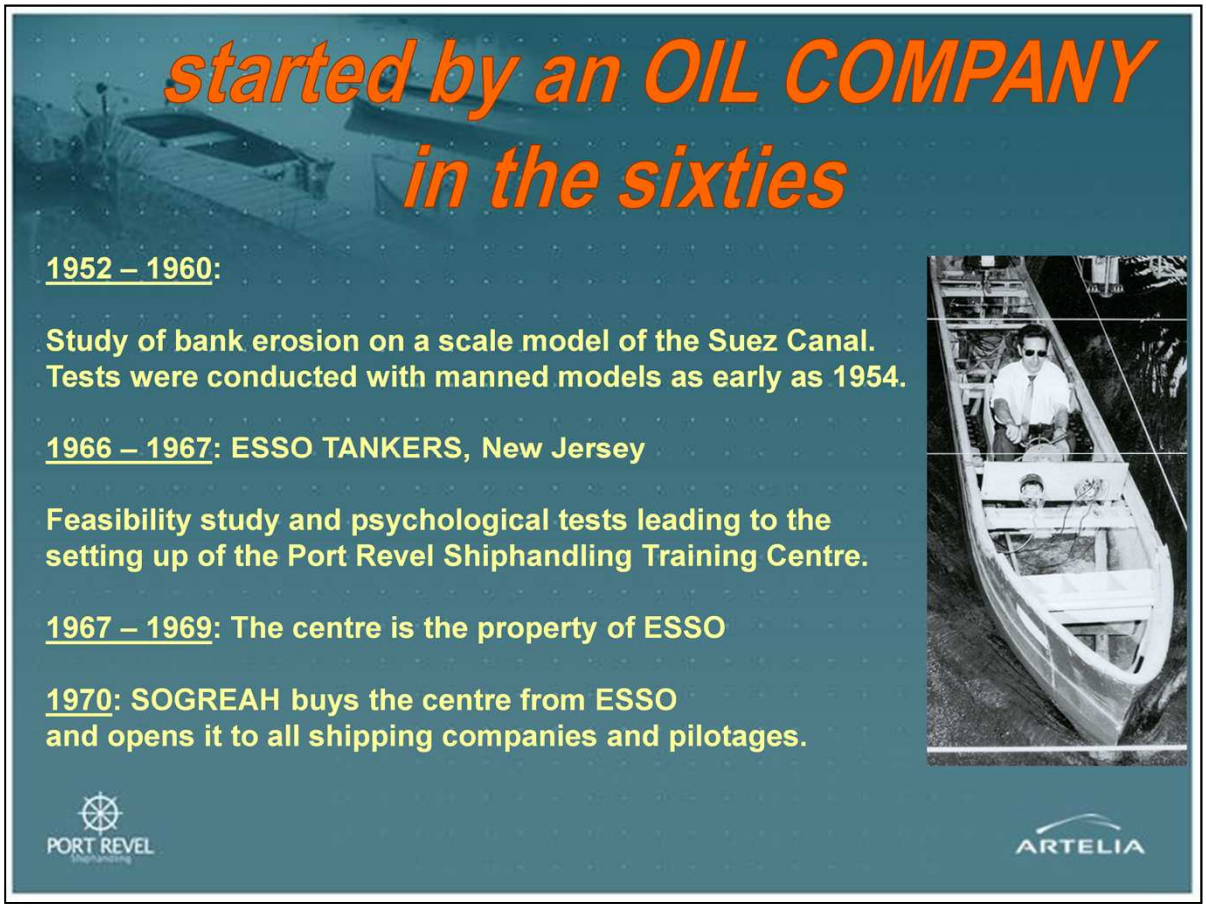
Training on the manned 1:25 scale models is a complement to training on electronic simulators as it provides **additional experience** through a feeling of **"déjà vu"**.

Safety at sea is our common aim

Nature is at work on scale models, with random effects that are similar to those of real-life situations. The unforeseeable nature of squalls, shallows, currents and waves calls for an immediate, appropriate reaction, without any repeat or automatic response … and no “reset” switch.

For the same reason (natural phenomena) hydrodynamic effects are correctly reproduced on scale models and it is therefore unnecessary to transpose them in the form of complex equations. This gives a **better simulation of hydrodynamic effects** such as interactions between ships (for example in a canal), interactions between the ship and berth, small under-keel clearance (such as 10% of the ship's draught) and the use of anchor dredging in various operating situations.

The scale effect of wind on a manned model is well known, but it is also well known that this is in no way detrimental to the use of manned models for serious and effective shiphandling training. Wind is a factor in the everyday life of pilots throughout the world. The design of our manned model lake is such that **the wind element will vary in different parts of the lake**. This allows a course to be structured in such a manner as to introduce wind as and when required. Extreme wind conditions are encountered in the real world. If they occur at a manned model centre, with care they can be used in various scenarios to demonstrate how well control can be maintained.



The ship models behave exactly like real ships, only much faster. In carrying out a given operation with the model, such as mooring alongside a wharf for instance, **exactly the same instructions are given** to the engine room and helm as on a real ship, but there is only one fifth of the time available in which to give them.

Over 40 years of experience have shown that students quickly get the feel of their models in the same way as the real ships they are accustomed to handling.

Reality will be much slower than the model, thus leaving quite a lot more time to react. Manned models **sharpen the shiphandlers' natural senses** of perception and anticipation and enable an appreciation of the ships' behaviour as a whole.

The time scale also means that it is possible to perform **five times as many manoeuvres**. In other words, it is possible to perform as many manoeuvres in 35 hours on the models as in 175 hours on the real ship. If you then consider the cost of training on scale models compared to computer models as a **cost per manoeuvre and per pilot**, scale models might turn out to be even cheaper than computer models!!

THE PORT REVEL FLEET

	SHIP	BERLIN Tanker (fully loaded)		GRENOBLE Tanker (fully loaded)		GILDA Tanker (variable load)		BRITTANY Tanker (variable load)		EUROPE Tanker (fully loaded)		ANTIFER Tanker (variable load)		BEN FRANKLIN LNG Carrier		Q-Max LNG Carrier		NORMANDIE 4 400 TEU		OTELLO 8 500 TEU (variable load)		NORMANDIE Cruise ship	
	Size :	38 000 dwt		43 000 dwt		125 000 dwt		190 000 dwt		255 000 dwt		400 000 dwt		125 000 m^3		266 000 m^3		53 000 dwt		102 000 dwt		900 ft	
	Unit	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25	Real	1/25
Lpp	m	201	8.05	191	7.62	269	10.75	305	12.2	329	13.17	337	13.47	256	10.24	332	13.28	261	10.45	319	12.76	261	10.45
Beam	m	28.8	1.15	29.5	1.18	42	1.68	47.2	1.89	51.8	2.07	70	2.8	41	1.64	53.8	2.15	37.1	1.48	42.8	1.71	37.1	1.48
Loaded Displ.	ton	51 000	3.26	55 000	3.52	149 000	9.55	225 000	14.4	291 000	18.6	471 000	30.13	90 000	5.79	180 000	11.52	75 000	4.67	135 000	8.64	-	-
Ballast Displ.	ton	29 000	1.83	31 000	1.95	88 000	5.61	131 000	8.39	144 000	9.23	219 000	14.05	-	-	132 000	8.45	-	-	87 000	5.57	-	-
Loaded Draught	m	10.92	0.43	11.54	0.46	15.52	0.62	18.45	0.74	19.98	0.8	21.96	0.88	11.10	0.44	12.00	0.48	12.40	0.5	14.50	0.58	12.40	0.5
Aft	m	7.70	0.3	7.32	0.23	11.59	0.46	11.90	0.48	11.59	0.46	12.81	0.5	-	-	9.30	0.37	-	-	10.20	0.41	-	-
Ballast Draught																							
Fwd	m	5.00	0.2	5.80	0.29	7.37	0.3	10.37	0.41	9.15	0.37	8.24	0.34	-	-	9.30	0.37	-	-	10.20	0.41	-	-
Actual Draught	m	10.90	0.43	11.50	0.46	12.50	0.5	13.00	0.52	19.50	0.78	17.40	0.7	11.00	0.44	12.00	0.48	12.40	0.5	13.00	0.52	12.00	0.48
Shaft H.P.	S.H.P.	17 500	0.224	17 500	0.224	24 000	0.308	32 000	0.41	32 000	0.41	45 000	0.57	32 000	0.41	52 000	0.66	52 000	0.66	93 000	1.19	57 000	0.72
Engine type	Turb / Mot	-	T & M	-	T & M	-	M	-	T & M	-	T & M	-	M	-	T & M	M	M	M	M	M	M	2 pods	2 pods
Rudder type	-	-	Norm	-	Norm	-	Norm & Becker	-	Norm	-	Norm	-	Norm	-	Norm & Schilling	Twin	Twin	Norm	Norm	Norm	Norm	-	-
Rudder RoT	Deg/s.	3.1	15.5	2.6	13	3.5	17.5	2.5	12.5	2.6	13	2.1	10.5	2.6	13	2.6	13	2.8	14	2.5	12.5	7.5	37.5
Anchor	-		Manu		Manu		Electr.		Electr.		Electr.		Electr.		Electr.		Electr.		Electr.		Electr.		Electr.
Bow Thrust.	S.H.P.	1 500	0.019	1 100	0.014	1 500	0.019	3 000	0.038	3 000	0.038	6 000	0.077	1 500	0.019	-	0.077	3 000	0.038	3 500	0.045	3 000	0.038
Stern Thrust.	S.H.P.	-	-	-	-	1 500	0.019	3 000	0.038	3 000	0.038	3 000	0.038	1 500	0.019	-	0.077	-	0.038	-	0.021	-	0.038
Block Coeff.	-	0.79		0.82		0.83		0.83		0.83		0.89		0.76		0.79		0.60		0.67		0.60	

This is all at scale 1:25

The fleet encompasses 11 ships reproducing 20 vessels at scale 1:25:

>> 7 tankers from 17 to 400 000 dwt with diesel motor and steam turbine

>> 2 LNG carriers

>> 2 container ships, one being also: a car carrier, a cruise ship with pods and a twin screw ship with single rudder and 3 escort tugs: an ASD (Azimutal Stern Drive) and two VSP (Voith Schneider Propulsion) and 3 types of rudder: conventional, Becker and Schilling

PORT REVEL
Shiphandling

Shown above: 7 oil tankers and 1 LNG tanker.

The 125 000 dwt tanker has an optional Becker rudder,

The 125 000 m^3 LNG tanker has a Schilling rudder,

The 125 000 dwt tanker has a variable draught from 10 to 12 m,

The 190 000 dwt tanker has a variable draught from 13 to 16 m,

The 400 000 dwt tanker has a variable draught from 15 to 19 m,

The other tankers are fully loaded.

All ships at 1:25 scale. We strongly believe it is better not to change scales during the course, as getting used to several time scales (= square root of length scale) may be confusing for the students.

The container ship can be turned into a car carrier and a cruise ship with bridge at the bow. As a cruise ship, she receives two optional pods.

She can also reproduce a twin-screw ship with single rudder.

Three tugs are available. Two of them are Voith Schneider tractor tugs (one with the Turbo Fin). One is an Azimutal Stern Drive with Z-pellers.

The tugs are used both as escort tugs for emergencies and as harbour tugs for docking.

The tugs are of course also at scale 1:25 … Can you imagine working with a model ship at one scale and a tug at another scale??!

Two brand new ships were commissioned in 2009 and 2010:

>> the CMA CGM OTELLO:

8500 TEU container ship
334 m long
42.8 m beam
10 to 14.5 m draught

>> the Q-Max:

266 000 m3 LNG carrier
345 m long
53.8 m beam
12 m draught

Obviously, **escort tugs will be used more and more around the world** in the future to increase safety at sea for some types of ship in some dangerous areas.

Introduction of the model tugs in our courses is a major advance as it allows experimentation with emergency shiphandling when mechanical failures occur on ships:

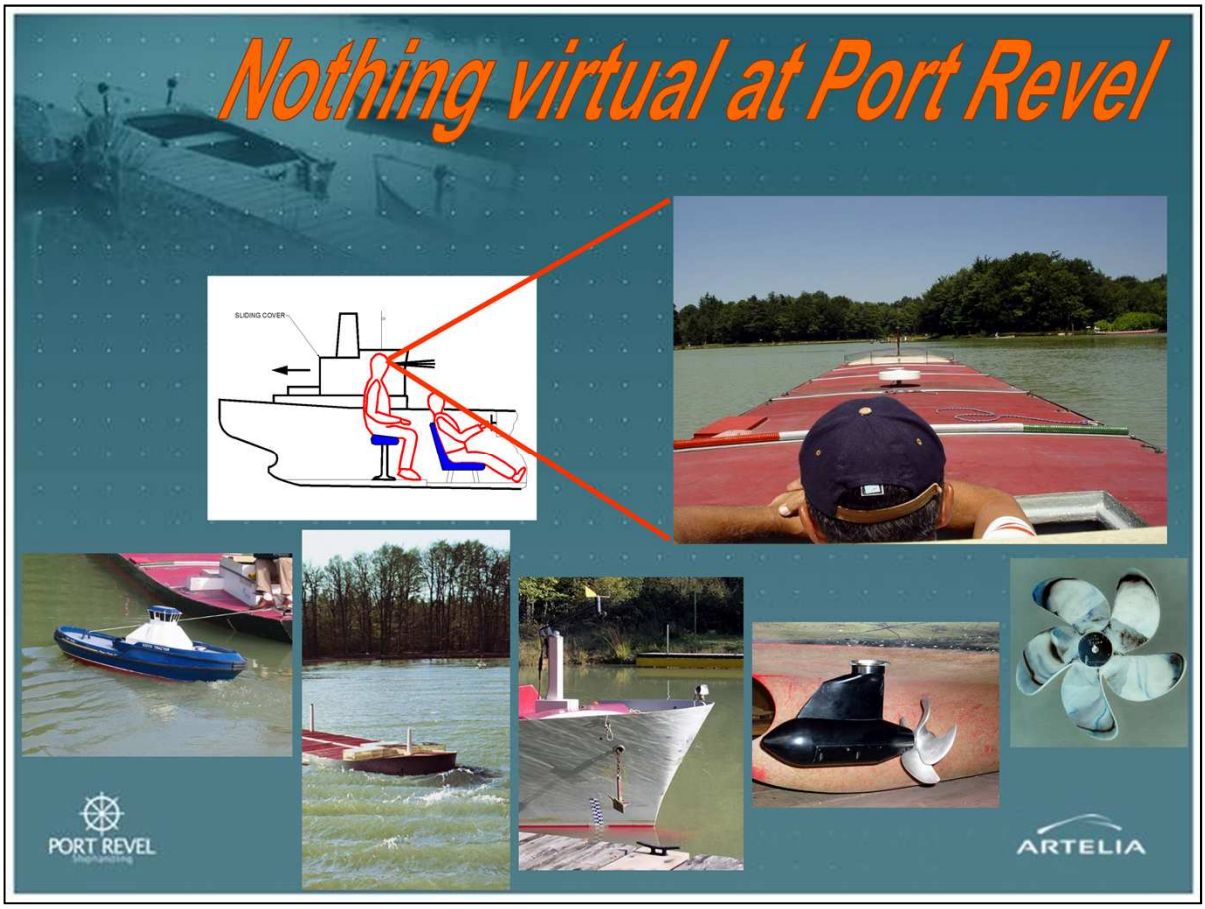
- rudder failures
- engine failures

Two tugs were introduced in 2000 at the request of several US pilotages. A third tug was introduced in 2006 and includes the Voith Schneider **Turbo Fin**.

One of the tugs is an Azimutal Stern Drive (ASD) with a Z-peller propulsion system. Two tugs have Voith Schneider propulsion (VSP). They can provide a bollard pull of over 100t, but are usually set to 50 to 70t. This is decided every morning with the students before starting the manoeuvres.

The tugs are remote-controlled by a professional tug master at the pilot's orders.

This is not reproduced on numerical simulators … nor are the typical tug manoeuvres: pure and powered indirect modes, jacknife, push-pull, driving and flying to steering position, etc.



The ships are accurately constructed to conform with the principles of similitude and are fitted with indicators showing the ship's parameters. Information given by the indicators is at **full scale**.

Most models are fitted with **diesel motor and steam turbine**, and the Normandie can be controlled from the front deck like a car carrier and a cruise ship, so that the fleet in fact reproduces over **20 different vessels**.

One ship is fitted with an optional **Becker** rudder and another ship has a **Schilling** rudder.

On two ships, it is possible to have the **bridge forward**.

One ship can be fitted with **optional "pods"** in order to reproduce the behaviour of a 900 ft cruise ship. This means that the ship can be fitted either with a conventional rudder/propeller or with two pods.

All but one are fitted with a bow thruster. Most ships are fitted with **bow and stern thrusters**.

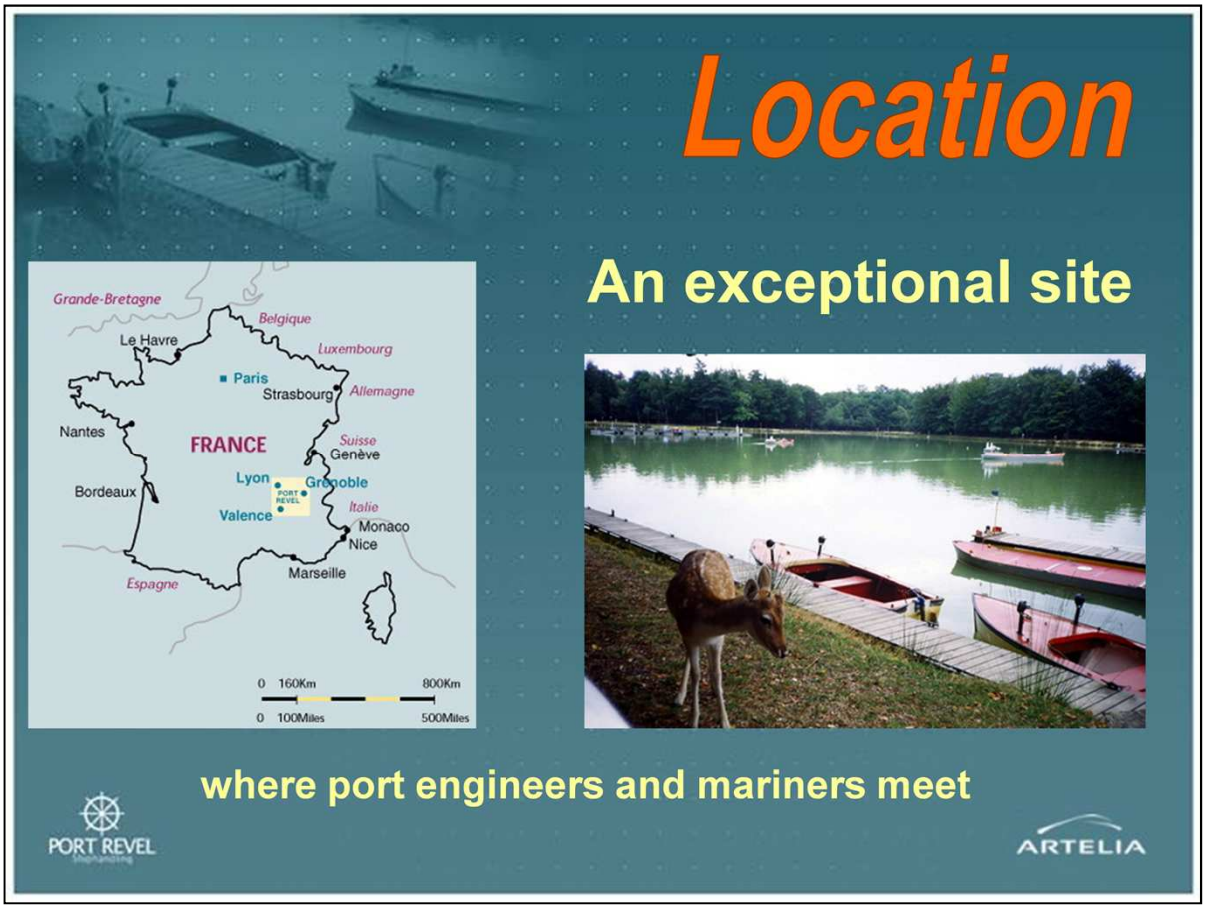
All ships but one have fully operational **anchors.**

Several ships have **variable draught.**

Each model is designed so that **the Master is at bridge level**. He calls out his instructions to the "crew", i.e. the helmsman, who steers the ship and operates the engine room telegraph. An instrument panel gives continuous **full scale** indications of propeller rpm, rudder angle, ship's heading and speed, and wind velocity and direction.

The sliding cover is positioned to correctly reproduce the effect of wind.

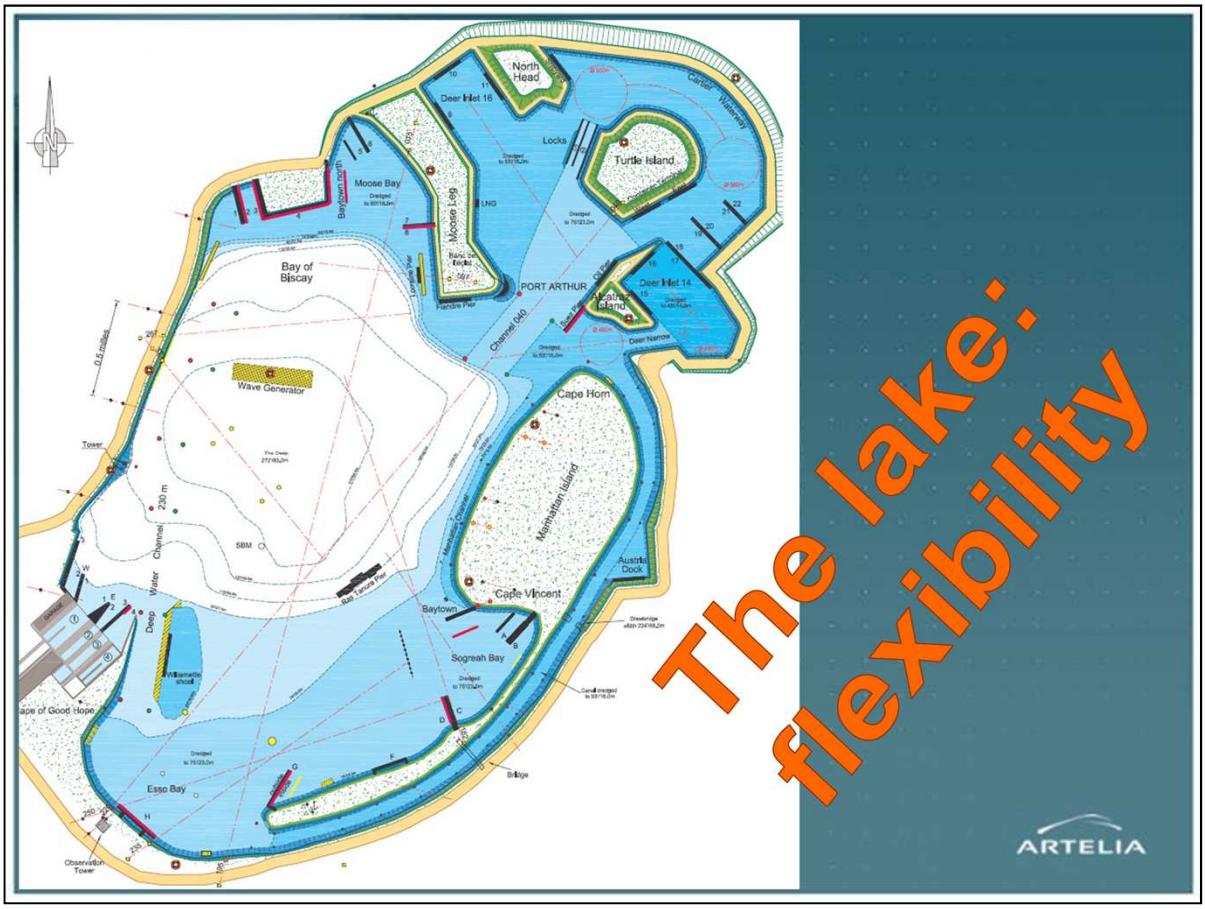
Nothing virtual at Port Revel



The lake is located near Grenoble (France), in a beautiful site in the middle of the forest of a natural park where the wind regime is very mild. Hence uncontrolled **wind effects** on ships are reduced to a minimum: no course has ever been stopped because of too much wind.

Port Revel is **a permanent forum of ideas**, an ideal meeting place where information and experience can be exchanged, or as a pilot once pointed out: “In regular life, a practising pilot is always alone. He has no-one around to comment on or discuss a particular manoeuvre. The only times when a manoeuvre is analysed and commented on is after an accident, when there is an inquiry. And that always takes place in a mood of tension. What I appreciate at Port Revel is that pilots observe your work in a calm, dispassionate and therefore constructive climate.”

As a member of a consulting firm of a world-wide renown specialising in port and coastal engineering, Port Revel is also a place where port engineers and experienced mariners meet. The centre inherited Sogreah's **near-century of experience with scale models**, numerical simulation, port planning, design & construction.



A major lake extension to NE was commissioned in 2009. The physical dimensions of the lake are now approximately **5 miles x 2 miles** at a 1:25 scale, and any of **your local conditions** can be reproduced.

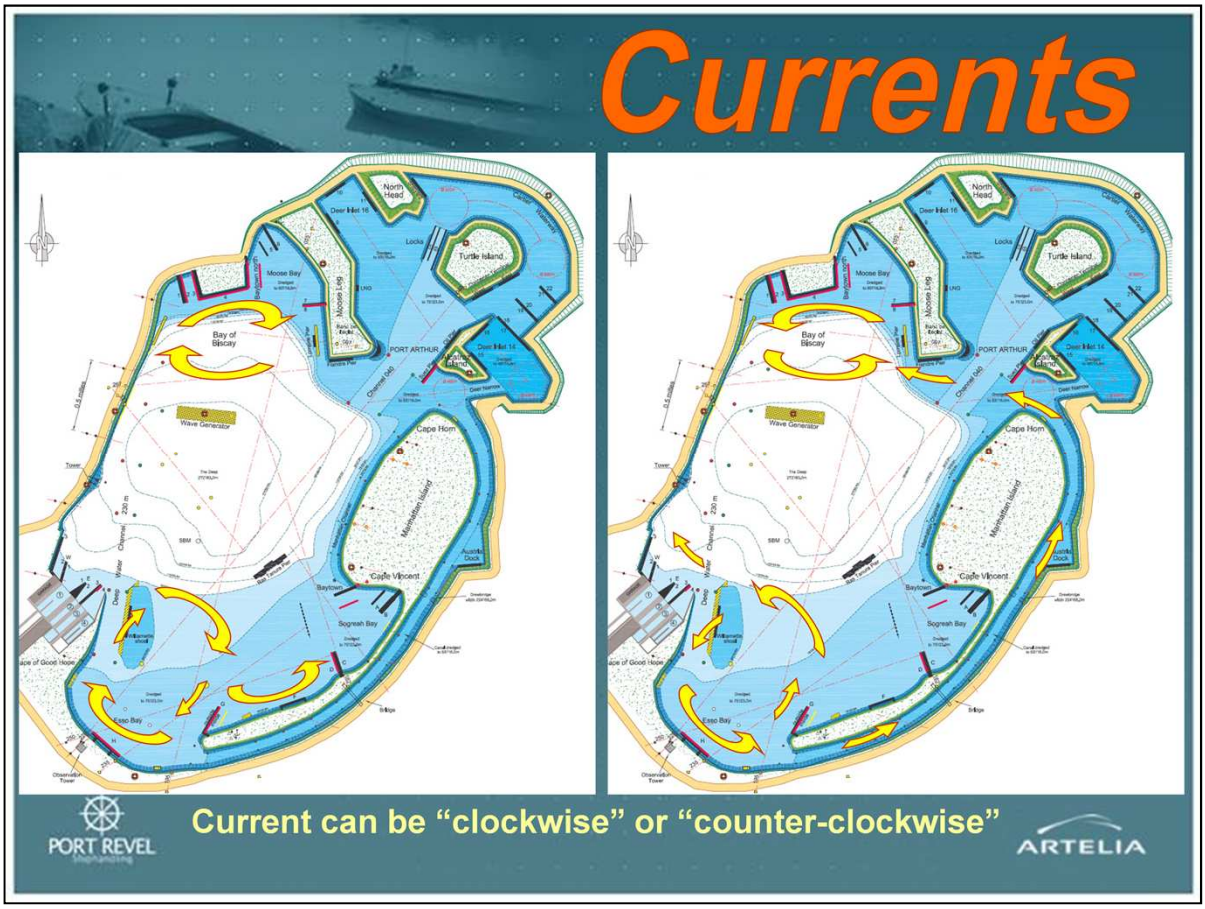
We have been there …

A **Suez-sized canal** with bends has a length of 4 miles and includes a drawbridge.

The lake features extensive **shallow water areas**, channels and many berths.

Other features are **locks**, **offshore** platform and SBM.

It also includes **wave, current and wind generators,** and a very accurate **track recording system** is also available.



Currents are a main feature at Port Revel as **3.5 days out of 5** in the Shiphandling Course are conducted with currents: 2.5 days with clockwise current and 1 day with counter-clockwise current.

It can be seen above that **about half** of the lake is subjected to currents, i.e. currents are not confined to a small area where no manoeuvres can be done, or to a canal.

Currents reach speeds of up to 3 kn near Pier H at the south end of the lake, and up to 1 kn in the canal. New current fields in the North of the lake were commissioned in 2009.

Most of our docking exercises are done with current ahead, astern or abeam.

Wind is a factor in the everyday life of pilots throughout the world.

On manned models operating in the open air, it cannot be scaled down. Every effort is thus made to reduce the effect of wind on the lake:

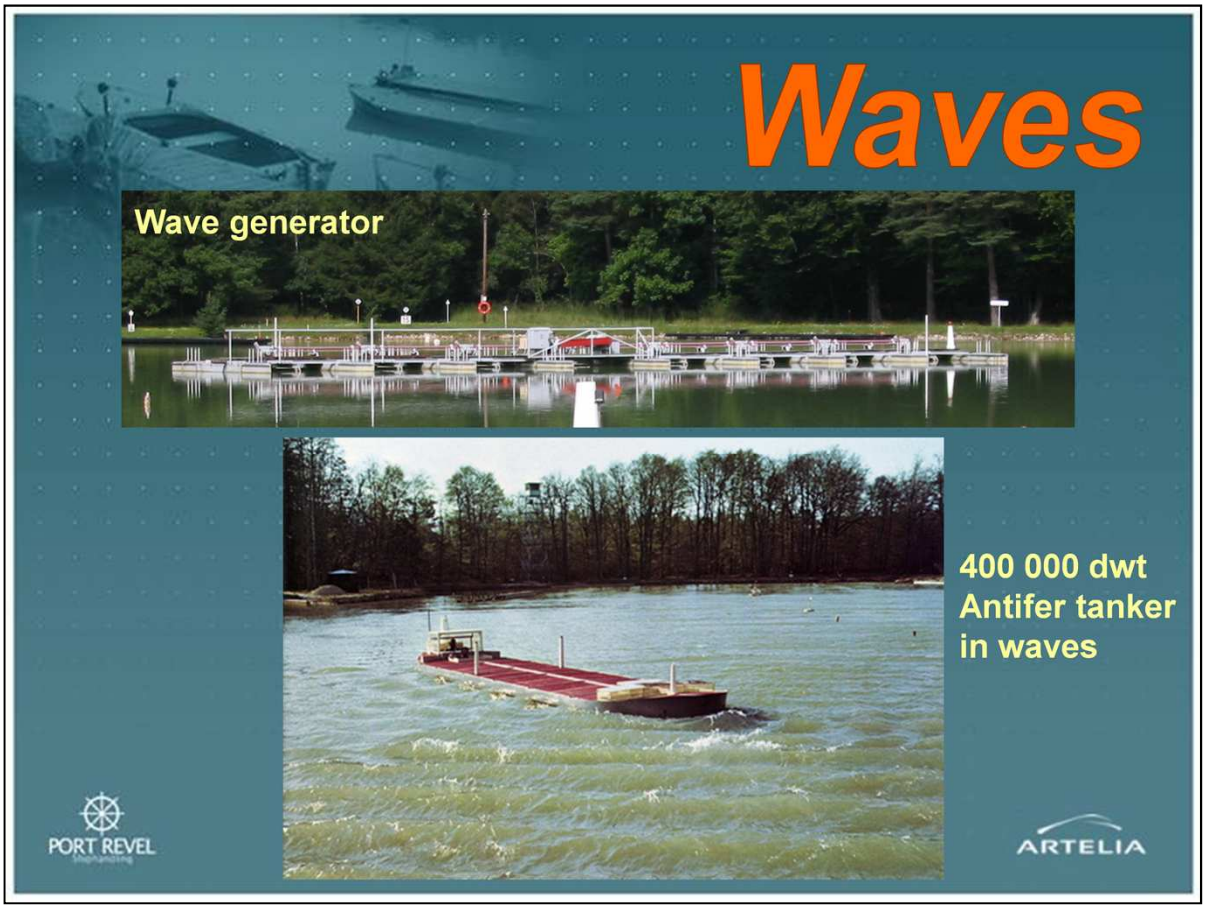
>> First by choosing a location without wind, as in the **French Dauphiné**, which is far enough from the sea to have such a mild wind regime,

>> Second by choosing a lake in the heart of a **forest** in order to be sheltered by high trees,

>> Finally by installing adequate **wind screens** as was done at Port Revel in one place where manoeuvring was hampered by local wind.

But at Port Revel we are now able to **produce wind**!

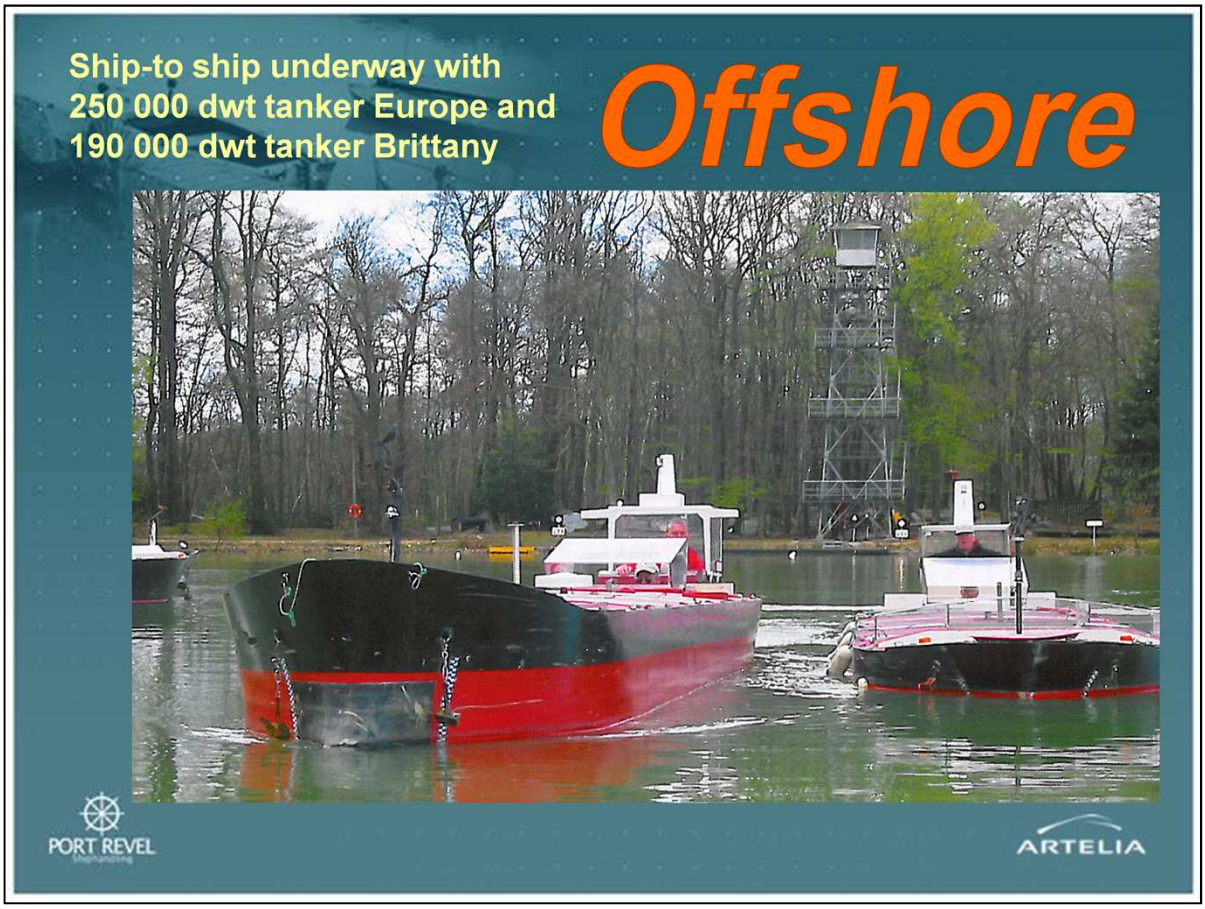
As from 2007, a **movable wind generator** that can be placed anywhere on the lake, is used to reproduce wind effects during docking manoeuvres.



A unique feature at Port Revel is the wave generator. It is the only one of its kind in the world.

It generates **a wave front of 750 m**, i.e. around 3 ship lengths. This front propagates towards the south of the lake where it may encounter the current field.

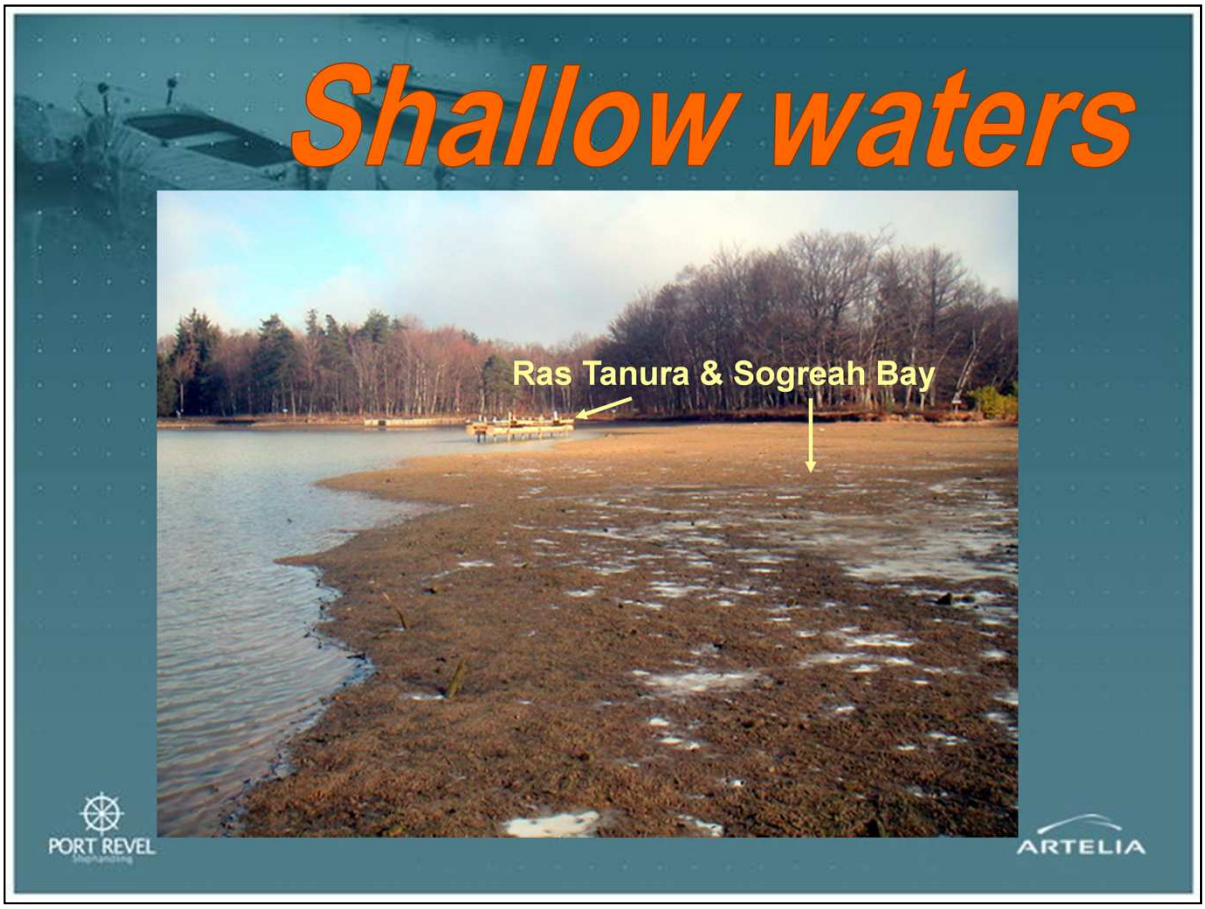
It is generally set on H = 3 m and T = 8 s, as this values induce heavy rolling of the ship. However, these settings can be changed.



Following the waves towards the south of the lake, an SBM is found. That is where we sometimes organise **docking exercises on an SPM or an FPSO**.

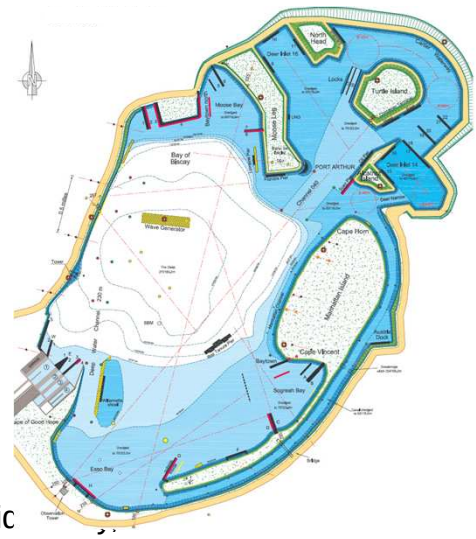
This area can also be subjected to East-West currents, i.e. perpendicular to the wave field.

In this area a long track is also available for **ship-to-ship underway** training.



The best way to visualise the shallow waters of the Port Revel lake is to show the lake partly emptied. On this picture, the water level was lowered by about 1 m (25 m at full scale) showing the **very extensive shallow water area** of “Sogreah Bay” on the SE side of the lake with our “Ras Tanura” platform in the background.

Admire the flat bottom of the lake where anchor-dredging exercises are done in a water depth of 23 m.



Around 70% of the lake consists of shallow waters (< 27.5 m water depth)

Incic **er level as shown above every 5 years** in order to check and/or modify the bottom and banks of the lake.

This is unique in the world of manned models.

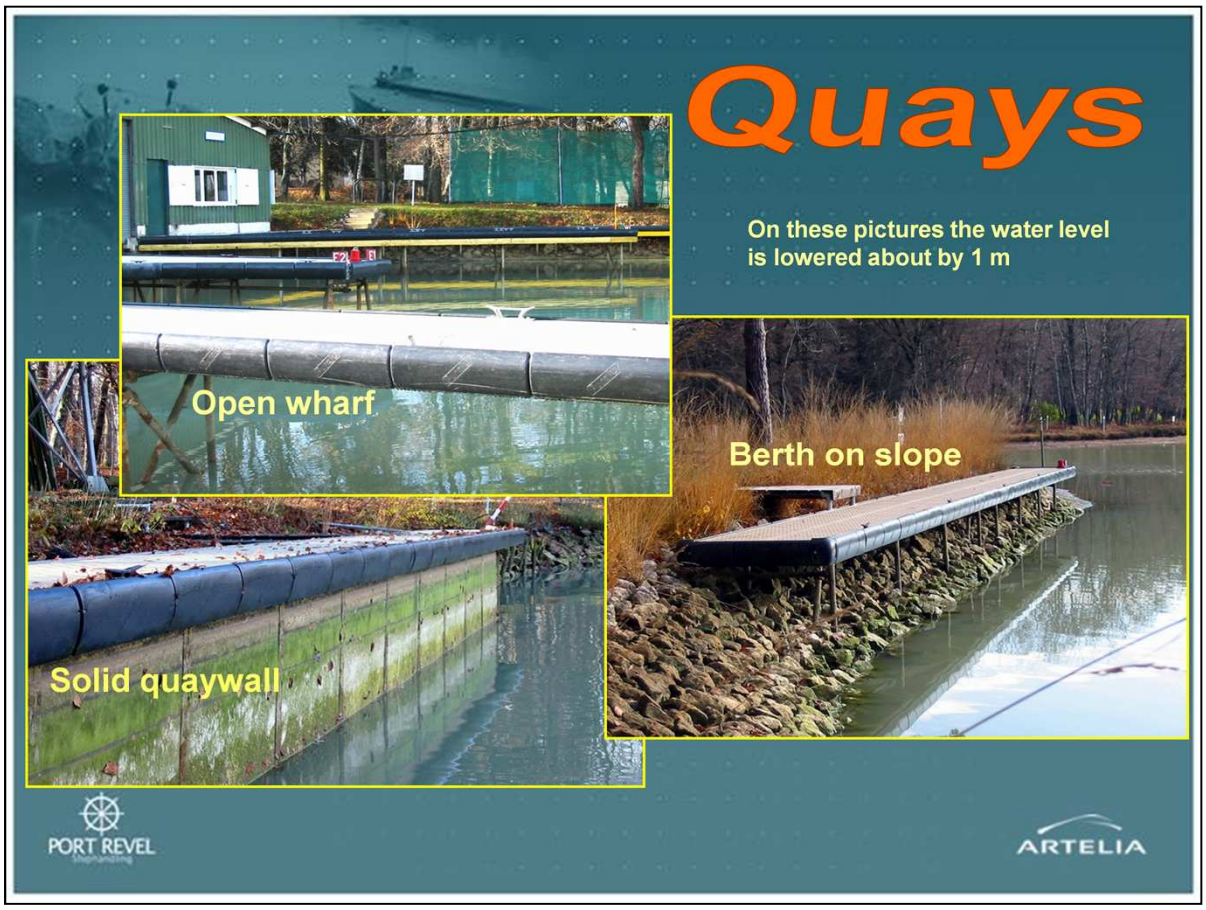
Port Revel's canal is taken from a portion of the (old) Suez Canal when it was still **16 m deep and 80 m wide** on the bottom with 3 (hor.) in 1 (vert.) side slopes. Its length is nearly **7 km** and it includes both a curve and a straight part convenient for meeting and overtaking manoeuvres. It is a real canal, which is very different from prismatic flumes used by theoreticians.

Exercises involving ships **meeting and overtaking** are performed in the canal. In addition, the canal is used for experimenting with tugs in case of a rudder failure.

This part of the course is definitely very impressive.

A **drawbridge** was installed in the straight part of the canal leaving a passage of 68 m as shown in the picture above.

When the lake level is lowered, the canal is reshaped. The resulting accuracy is +/- 1 cm (+/- 25 cm at full scale).



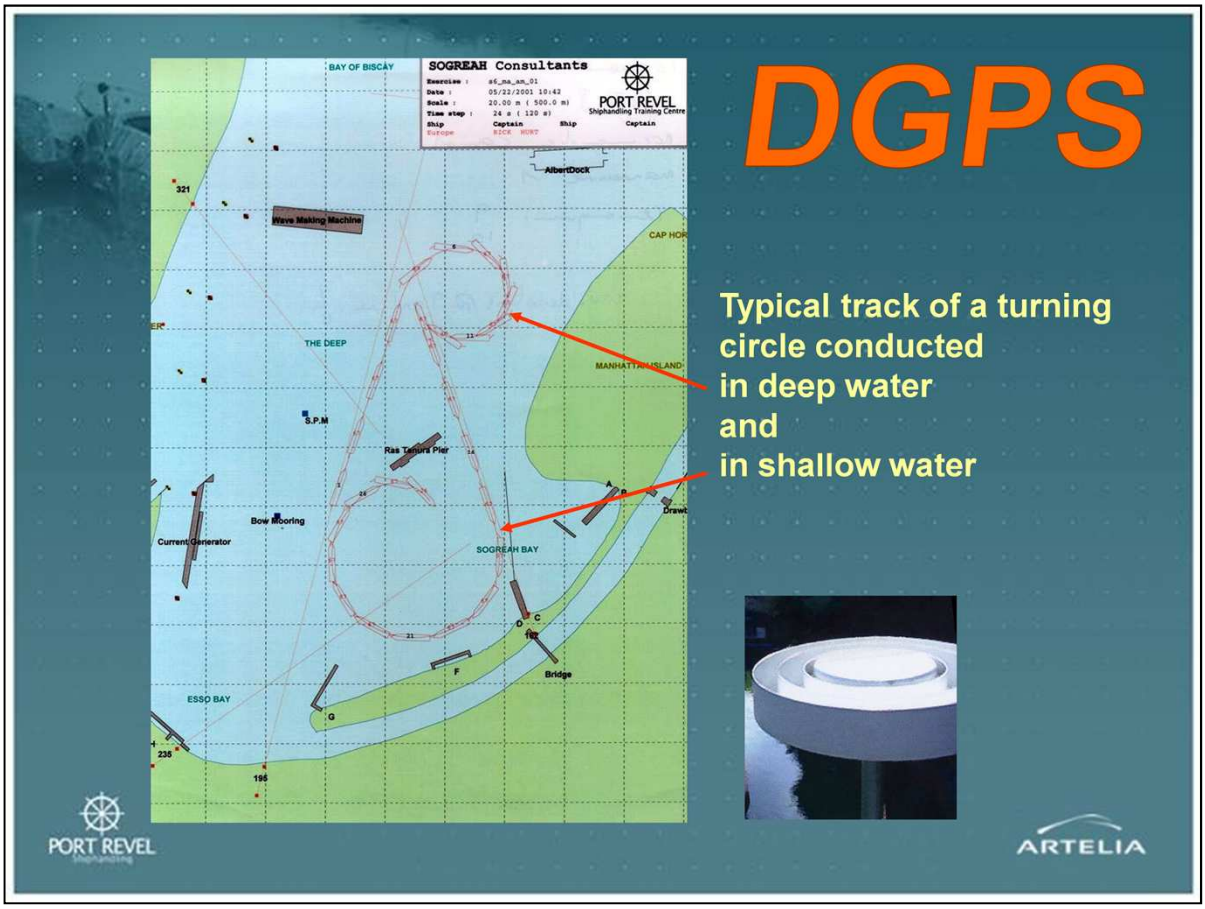
All types of quay are in use at Port Revel: solid quaywalls, fully open wharves on piles and berths on a rubble slope.

Nearly 50 quays are scattered around the lake in various locations, some of which are subject to **current action**.

At the NE end of the lake **23 m, 16 m and 14 m deep harbour basins** are reproduced with quays.

A reproduction of the **new Panama locks** is also available.

The canal also includes a notch where a demonstration is often made to pilots as to the effect of a ship **passing a moored ship**.

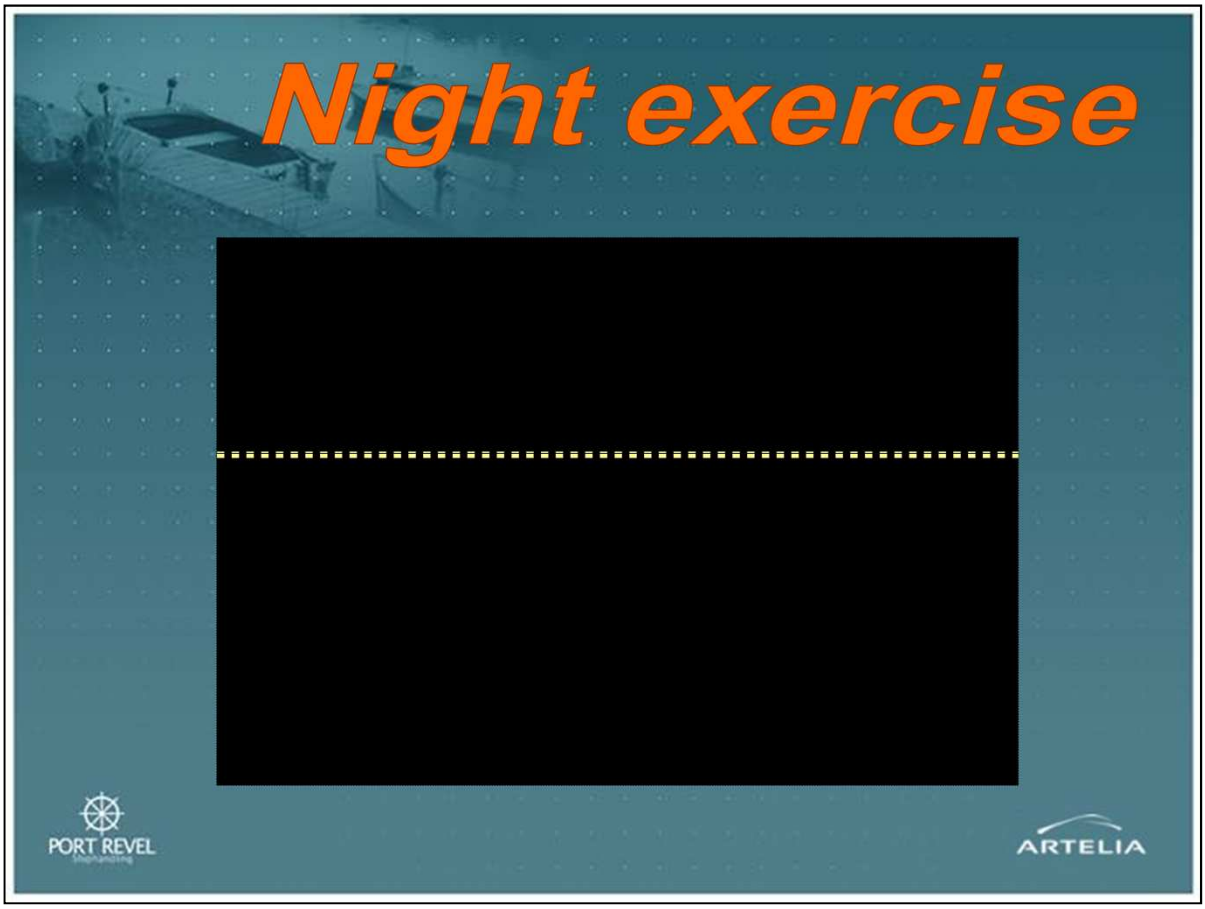


A very accurate **track recording system** is available: the position of 3 ships can be determined with an accuracy of 25 cm (10 inches) at full scale, anywhere on the lake. Ship positions and headings are sent to the base along with data on rudder angle, rpm, wind speed and direction, ship speed, etc.

Printouts of manoeuvres are provided and discussed with the participants at the end of each day.

The picture above illustrates one of the strong features of the Port Revel centre, i.e. the vast difference between manoeuvring in deep water and manoeuvring in shallow water.

In fact, **captains and maritime pilots really need a training centre with extensive shallow waters**, because that is where most of the ship manoeuvring is conducted.



Frankly speaking, we dropped the night exercises a few years ago because they proved to be **not very useful**, although they were good fun …

The main problem was that our instructors could not see what students were exactly doing on the lake.

Furthermore, we had to wait until late in the night to reach sufficient darkness (NB: this is even worse in summer time in northern Europe) making it hard to wake up the next morning.

As a matter of fact, we believe training under night conditions is more effectively performed on a computer simulator.

But our lighting system is still operational and, should anybody wish to experience such a night training, **it can be organised**.

Highly experienced instructors work on a part time basis: all of them are licensed captains and former maritime pilots. In addition, two former tug masters control the escort tugs:

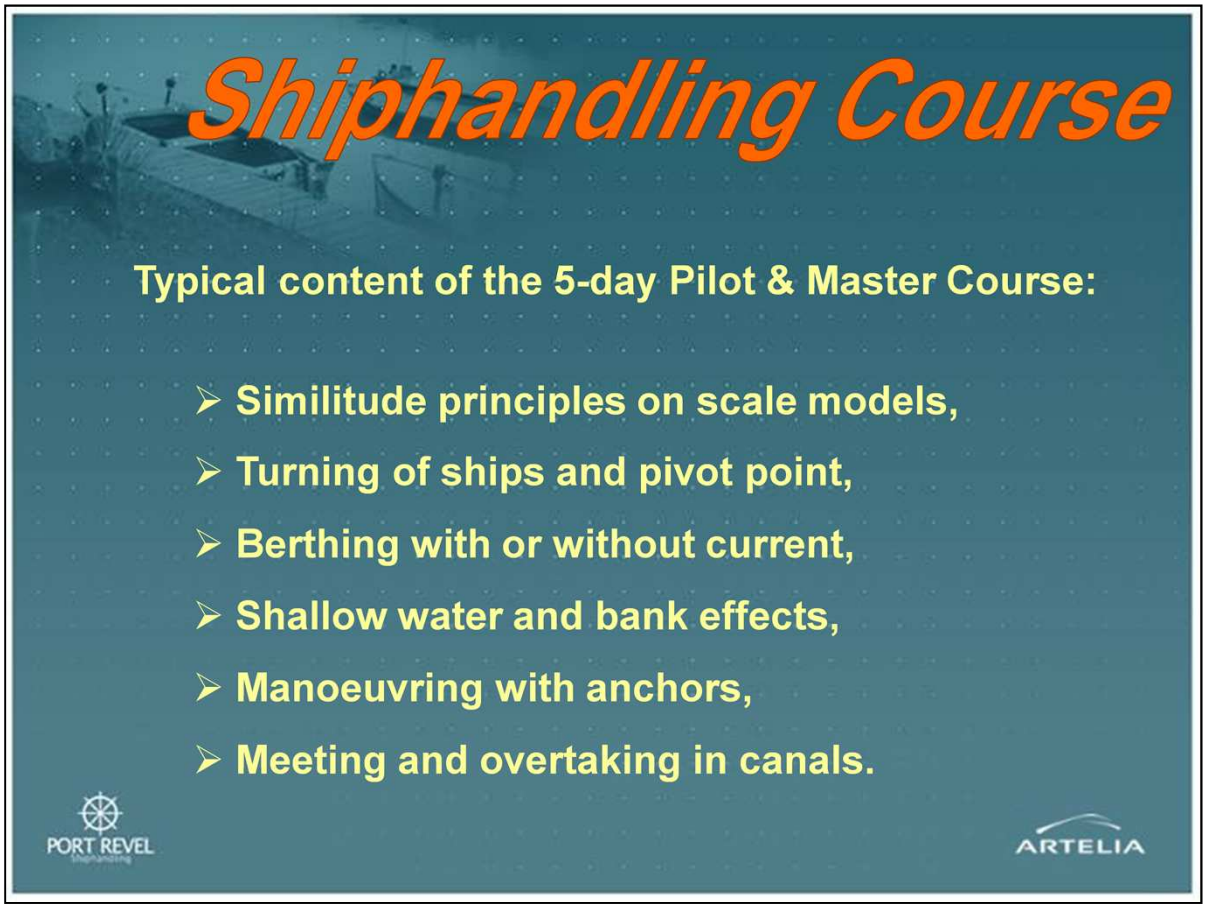
Alain CHARMASSON (Le Havre pilot), Marc DERLYN (Dunkirk pilot), Bernard GILAND (Dunkirk pilot), Jean-Paul JEANJEAN (Sète pilot), Raymond LEOSTIC (Le Havre pilot), Michel RENSON (Marseilles pilot), Michel SABATIER (Sète pilot), Jean-Claude SERRIERE (Nouméa pilot), Olivier THOMAS (Loire Pilot), Jean-Marie TROUSSELARD (Marseilles pilot), Marc VAN VLIET (Amsterdam pilot)

and 3 tug captains:

Marc BARTHELEMY, Michel VALLETTE and Gilles MOSSE

That makes a total of over 300 years of seamanship!!

Port Revel's instructors are highly appreciated by all students who come to the centre. They are **very pragmatic seamen** and provide both lectures in the conference room and training on the lake.



The traditional 5-day **Pilot & Master Shiphandling Courses** are designed for pilots and masters who are required to handle ships of all kinds, such as tankers, container-, gas- and ore carriers.

The course consists of a theoretical part, about 5 hours of lectures (as a reminder or to acquire new knowledge), and a practical part, **35 hours of shiphandling on the lake**. That makes a total training time of 40 hours for a 5-day course.

The purpose is to increase safety in all circumstances through better knowledge of the manoeuvring capabilities (and limitations) of all kinds of ships, in open and restricted waters.

This course is recommended for pilots training for the first time on manned models

Most courses are **5 days** long.

The "**Emergency Shiphandling Course**" is focused on emergencies, including training with escort tugs and use of anchors in waves and in currents. This course is also recommended for those coming for their second time on manned models.

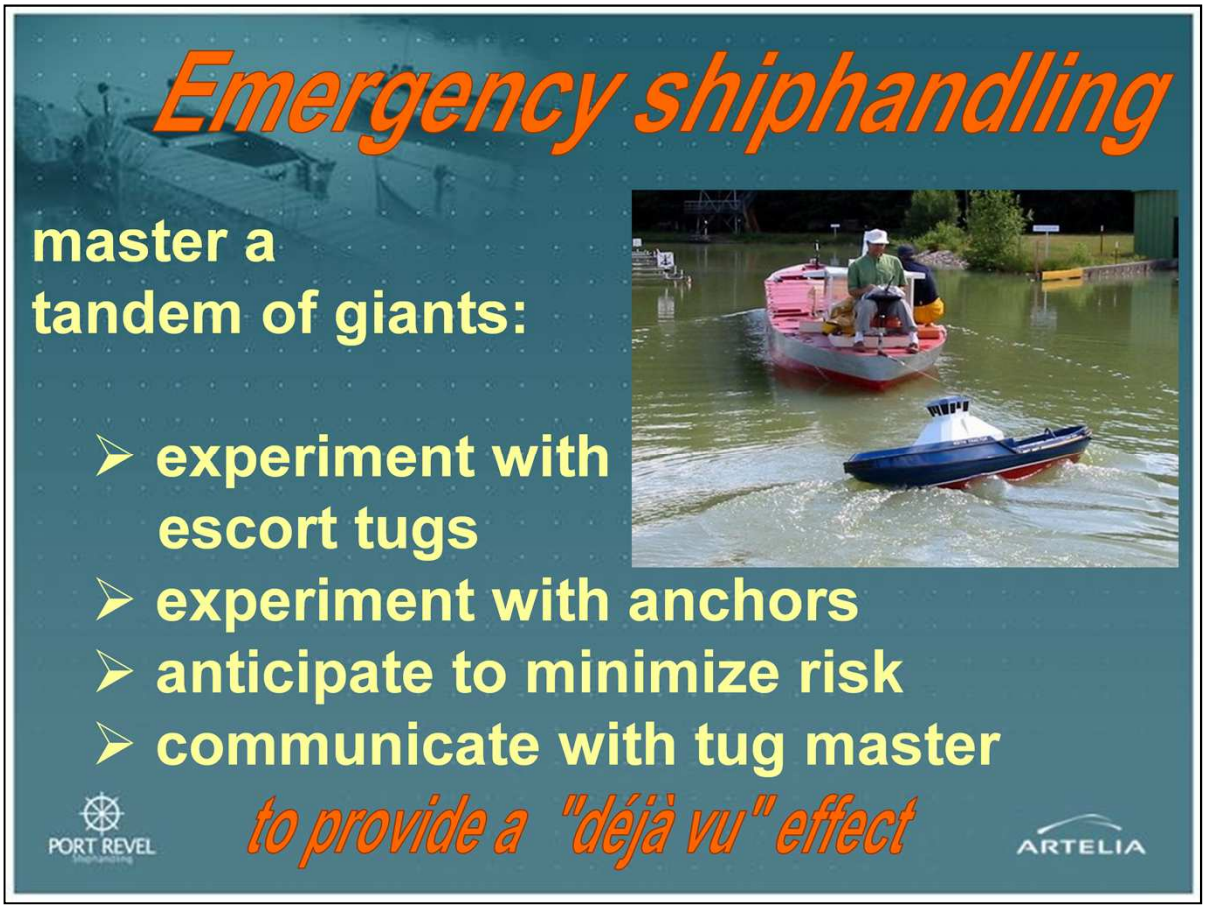
This course is often combined with some "**Experimenting with pods**" to provide a high level advanced course for senior pilots.

The "**Q-Max Course**" is focused on twin-screw LNG carriers and other large bulk carriers. It includes emergencies with rudder/engine failures and work with escort tugs and anchors.

In addition, a **fully-customised 5-day course** can be organised, e.g. with more training with waves and berthing on our SBM and on our fixed offshore platforms, using various kinds of tankers (7 tankers ranging from 17 000 dwt up to 400 000 dwt with various loadings, three rudder types), more work with escort tugs and/or podded ships, or LNG and/or container carriers, specific work on your local conditions, etc.

The course content will be prepared to your satisfaction once we know more about **your needs**.

In any case, special attention will be given to **coordinating with pilots' training on their computer simulator** in order to be complementary.



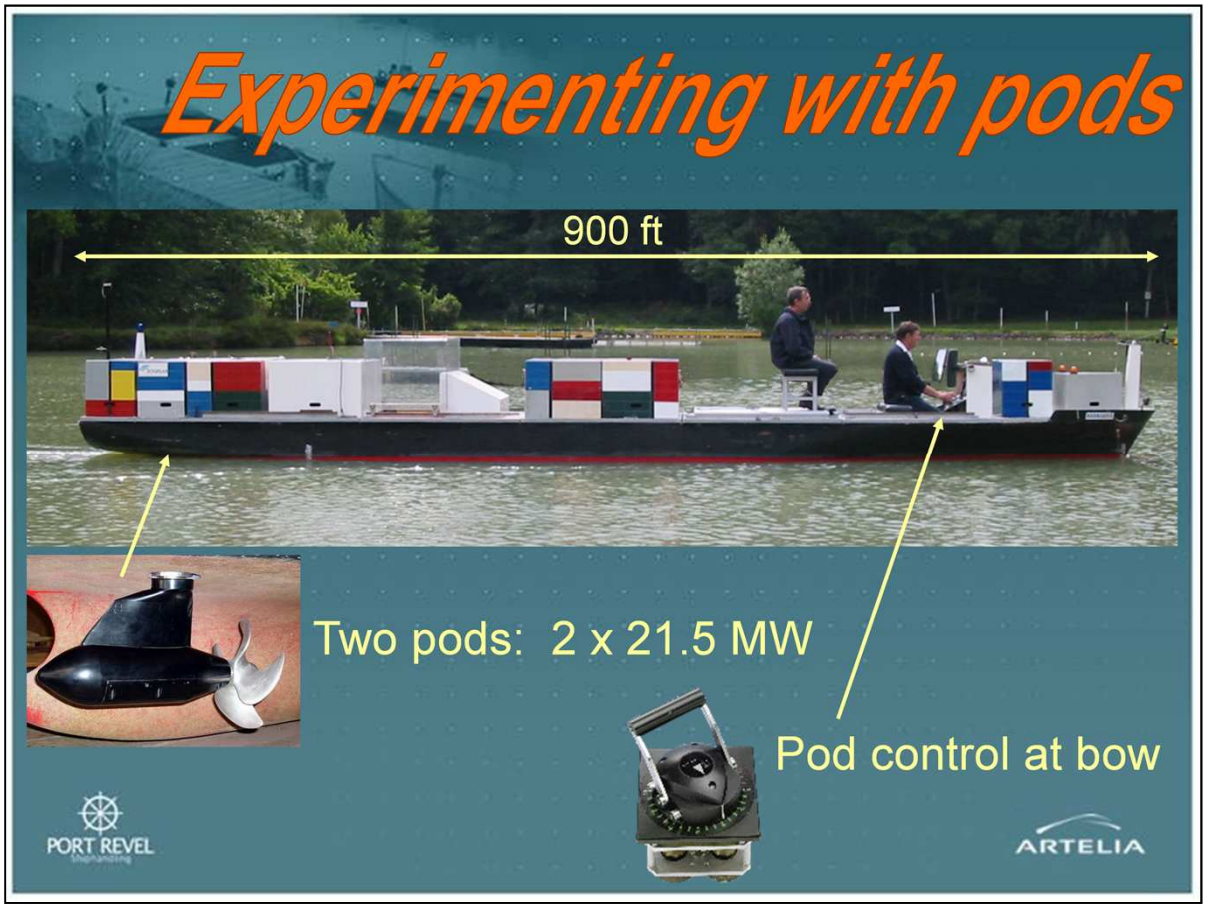
The **Emergency Shiphandling Course** is designed for experienced pilots and masters who wish to experiment with mechanical failure on ships and appropriate reactions with **anchors and/or tugs**.

Such experience could never be gained on real ships as neither ship-owners nor local authorities would allow such risks to be taken, with manoeuvres such as:

- drift and manoeuvring in swell and/or current,
- rudder failure in a canal,
- emergency stopping in a canal with **anchors**,
- docking and undocking with dredging anchor,
- zigzag manoeuvre with **escort tug** at stern and engine/rudder failures,
- proceeding through channels with engine/rudder failures, using the escort tug to stay in the channel

We try to provide you with a **"déjà vu"** effect.

Over 200 students have experienced this course since 2000 and all agree that our tug masters manoeuvre the tugs in a **most realistic** way.



Experimenting with pods is designed for experienced pilots and masters who wish to discover **podded propulsion** and associated mechanical failures.

The Normandie can be fitted with **optional "pods"** in order to reproduce the behaviour of a 900 ft cruise ship. This means that the ship can be fitted either with a conventional rudder/propeller or with two pods.

The pod parameters are taken from the **Queen Mary 2**, including the "Fast" and "Standard" manoeuvring modes with corresponding engine accelerations and decelerations, torque limitations, and steering limitations.

See also: http://www.afcan.org/dossiers_techniques/port_revel2_gb.html

Typical manoeuvres are:

- docking and undocking with current,
- crabbing with pods and bow thruster,
- backing into a slip,
- pod failures and emergency stopping.

This is obviously done without the all-in assistance of a "joystick" but with two conventional control units.

Such a course may also be combined with:

- emergency shiphandling with escort tugs and anchors,
- some local navigation conditions.

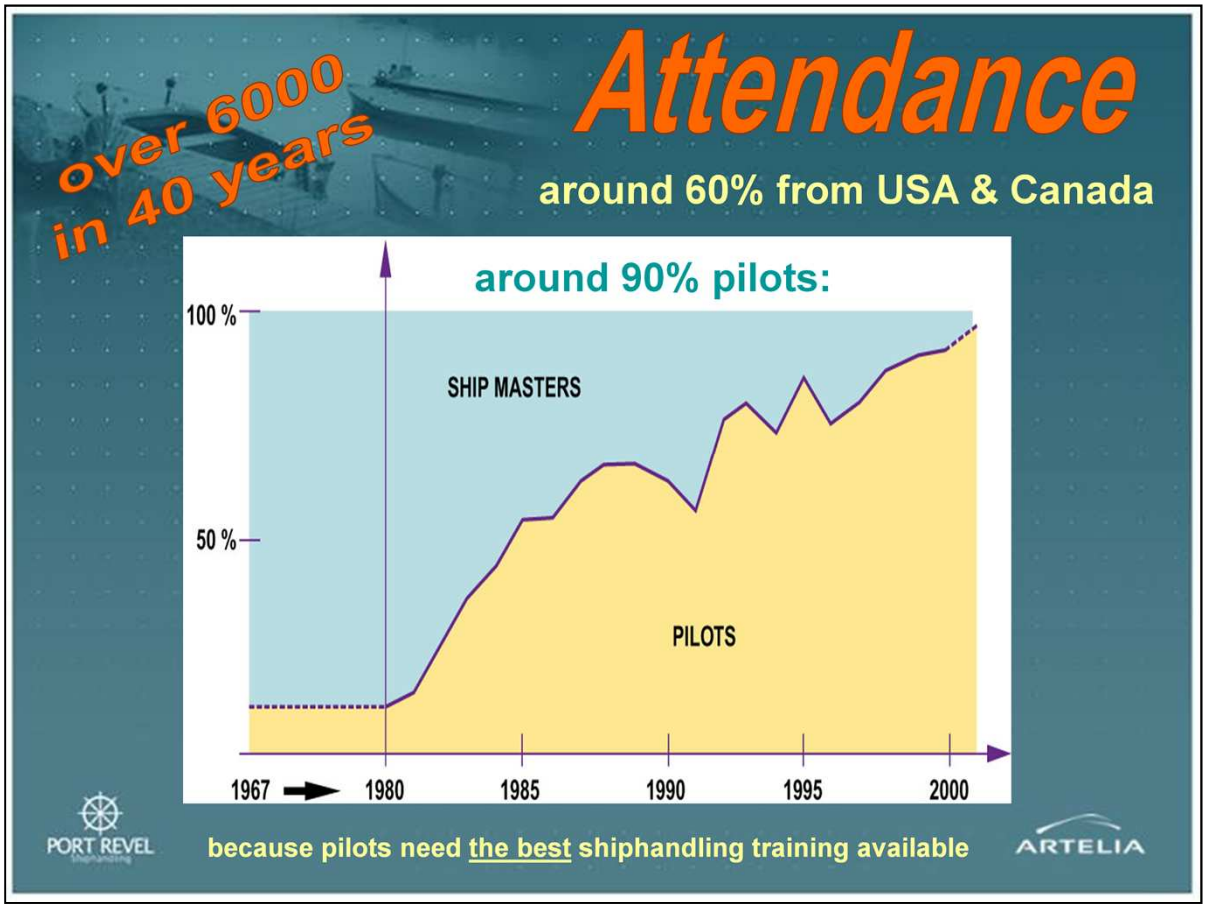
The Port Revel centre is located a one-hour drive from Lyons airport, and we organise airport pickup.

The centre is located in the forest of a peaceful natural park near an 11th century castle.
It's only a 15-minute drive away from the hotel.

The hotel is located in a typical scenic French village with at least … 2 bars,

and with a swimming pool in front of your room and marvellous food.
see: http://www.hostelleriedechambaran.com/

Our assistant will organize your trip from your arrival in France until your departure, including hotel bookings in Lyons, Nice, Chamonix, Paris, and so on …



Over 6000 mariners have been to Port Revel in the past 40 years.

Manned models are considered by ships' captains and pilots - shiphandlers par excellence - as **the next best thing to a full-scale** prototype for studying and understanding a ship's behaviour.

All seamen who have been to Port Revel consider that our type of training is complementary to that provided by simulators. They even say that it is **more realistic** than simulators.

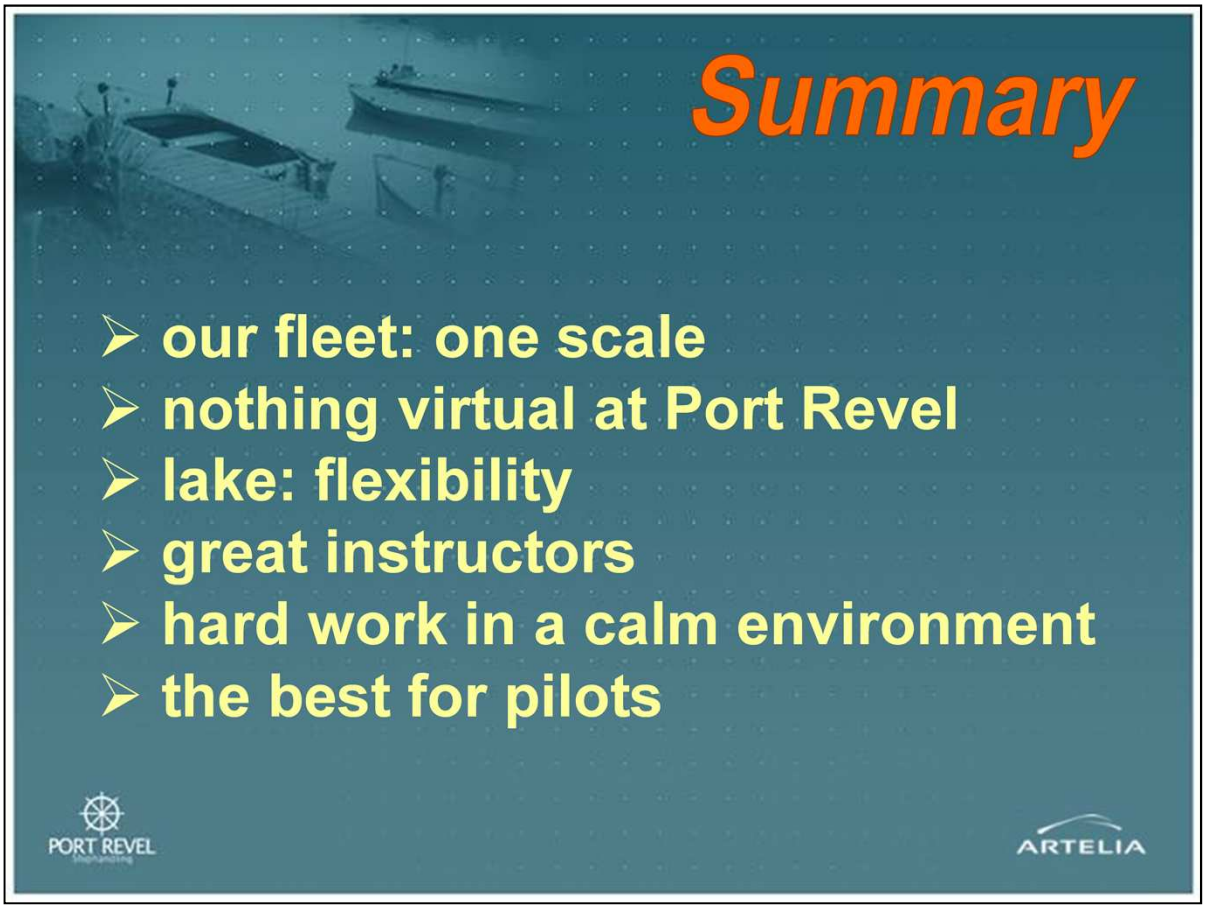
See also: http://www.marine-marchande.net/groupe%20mar-mar/Documents/F.Massard/Port-Revel_Marine-marchande/Port-Revel_GB_1_Marine-marchande.htm

During the 1970s, most participants were captains, while the first pilots came to discover the centre.

During the 80s, the ratio of 9 captains to 1 pilot was reversed as pilots discovered the great value of training on manned models in very shallow waters.

In the 90s, the first refresher courses were organised for pilots, who returned every 5 years. These courses are less directive and leave more room for customisation, which is a way of optimising port operations to increase port accessibility.

Over this last decade, we have seen a change in our relations with mariners. **We are now moving towards a closer partnership** in which participants use our installations at their convenience. Courses and equipment are specially designed in close collaboration with them.



The Port Revel Centre was **the first** of its kind in the world, back in 1967, and its strong features are still:

- Over **6000** experienced pilots and captains have been trained there since 1967 (mainly from the USA, Canada and Europe); many of them are now coming for the second (and even third and fourth) time in their career,
- courses can be **tailored** to reproduce local navigation conditions,
- **instructors** are highly-experienced maritime pilots,
- the fleet of 11 models at scale 1:25 reproduces over **20 different vessels**,
- 3 escort tugs are operated by a **real tug master** at the pilot's orders,
- Port Revel has inherited Sogreah's **near-century of experience with scale models**, numerical simulation, port planning, design & construction,
- the 5 ha (13 acre) lake is highly flexible with very little interference from wind; it also features **many shallow water areas**, and includes a **wave** generator, a **current** generator and a **wind** generator,
- the **DGPS** allows accurate debriefing of the exercises performed on the lake,
- the centre is located in a **peaceful natural park**: no time wasted, no disturbances, no stress,
- pilots constitute 90% of centre attendees:

Port Revel is the best place for shiphandling training

This is what we would like to avoid:

You can have it …

>> on the rocks …

>> on the beach …

>> as a T-bone …

>> or a French kiss

Any of these accidents costs as much as **hundreds of weeks** of training …

The total cost of the Valdez disaster is even in the order of 1 million courses!!!!

… and please remember the IMO's resolutions which recommends continued proficiency and updating of knowledge be undertaken at intervals not exceeding **five years**...

PORT REVEL
Shiphandling

Port Revel Shiphandling
3500 route de Revel
38870 St Pierre de Bressieux, France
+33 (0)474 200 240
port.revel@sogreah.fr
www.portrevel.com

DNV

DNV SeaSkill certified

TECHNICAL DATA SHEET (2010)

All data at full prototype scale (except if stated differently)

SCALES	
Number of length scales	1

FLEET	
Manned models	11
Manned vessels reproduced by the models	20
Tankers w turbine (17 000 - 400 000 dwt)	5
Tankers w motor (17 000 - 400 000 dwt)	7
LNG carrier (twin screw w motors only)	1
LNG carrier (turbine & motor)	2
Container ships (w motor only)	2
Car carrier (container ship w bridge at bow)	1
Podded ship (container ship w optional pods)	1
Twin screw ship w single rudder (reversed pods)	1
Ships w optional bridge at bow	2
Ships w optional Becker rudder	1
Ships w Schilling rudder	1
Ships w operational anchors	10
Ships without operational anchors	1
Ships w bow & stern thrusters	8
Ships w bow thruster only	3
Ships w GPS-GLONAS tracking system	5
GPS-GLONAS tracking accuracy (m)	0.25 m
Parameters reported by tracking system to base	10
Parameters reported on board (minimum)	6
Tug w 100t BP: Voith Schneider tractor	1
Tug w 100t BP: Voith Schneider tractor w Turbo Fin	1
Tug w 100t BP: Azimutal Stern Drive	1

LAKE	
Surface used for shiphandling	5.0 ha
Used for training ONLY	yes
Can be emptied	yes
Percent of shallow water area (< 27.5 m)	70%
Percent of area w currents	50%
Highest current along a berth (kn)	3 kn
Highest current in canal (kn)	1 kn
Percent of time w wind > 50 kn, April	7%
Percent of time w wind > 50 kn, June	3%
Percent of time w wind > 50 kn, August	<1%
Percent of time w wind > 50 kn, October	<1%
Artificial wind generator	1
Canal length (km)	6.7 km
Canal water depth (m)	16 m
Canal width at bottom level (m)	80 m
Drawbridge w 68 m passage	1
Locks	2
Depth of harbour basin (m)	16 m
Offshore buoy	1
Wave front length generated (m)	750 m
Wave height: usual value (m)	3 m
Wave period: usual value (s)	8 s
Berths, open wharf type	14
Berths, solid quaywall type	18
Berths, open type on rock slope	12
Berths in canal	2

COURSES	
Instructors w over 20 years experience	9
Client's instructor admitted as instructor	yes
Tug masters w over 15 years of experience	2
Port engineer	1
Conferences (hours, real time on 5-day course)	8 h
Manoeuvring on the lake (hours, real time on 5-day course)	35 h
Days w current (on 5-day course)	3.5 days
Night training possible	yes
Coordination with training on simulator possible	yes
Fully customized course possible	yes
Open weeks per year	25
Maximum number of participants per year	250
Manual content (approx nb of pages)	400 pp

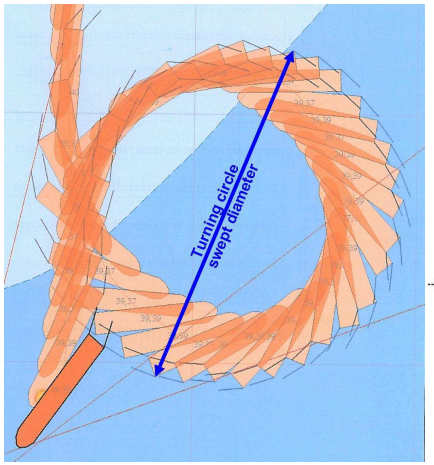
LOGISTICS	
Travel time from Lyons intl airport to training centre (h)	1 h
Travel time from hotel to training centre (min)	15 min

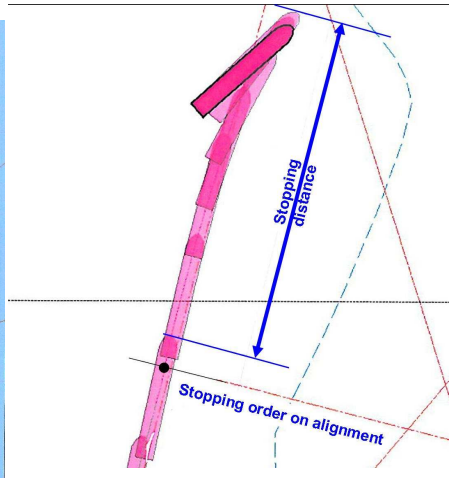
EXPERIENCE	
Years of operation as training centre (>> 2009)	43 years
Total nb of participants (>> 2009)	6125
Nb of participants par year (2007-09)	180-200
Attendance: percent of pilots (average 2000-09)	90%

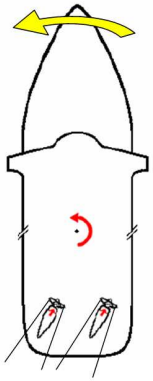
Rien n'est virtuel à Port Revel

APPENDIX 3 – AZIPILOT TRACKS ON THE PORT REVEL LAKE

Track N°	Date	Starting time	Starting speed	Pod settings pt/stb	Pod settings pt/stb	Turning circle diameter	Stopping distance	Observations
	yyyymmdd	hh:mm	kn	rpm	azimuth	ship lengths	ship lengths	
Series 1: compare turning circles:								
1.1.1	20100521	08:20	10.0	55	40	3.4	-	Traditional ship stb turn with rudder at 40°
1.1.2	20100521	08:27	10.0	55	-40	2.8	-	Traditional ship port turn with rudder at 40°
1.2	20100503	09:03	10.0	70/70	-30/-30	2.8	-	Podded ship, stb turn with 2 pods at 30°
1.3.1	20100503	09:11	10.0	70/0	-35/0	3.9	-	Podded ship, stb turn with stb pod at 35°
1.3.2	20100503	09:21	10.5	0/70	0/-35	2.4	-	Podded ship, stb turn with port pod at 35°
1.4	20100503	08:53	10.0	70/70	-20/-20	3.2	-	Podded ship, stb turn with 2 pods at 20°
1.5	20100503	08:39	10.0	70/70	-10/-10	4.9	-	Podded ship, stb turn with 2 pods at 10°
Series 2: compare stopping manoeuvres:								
2.0	20100503	09:46	10.0	0/0	0/0	-	4.1	Propellers in line and stopped (induces 3 L lateral transfer!)
2.1	20100503	10:46	13.5	-100/-100	0/0	-	3.0	Reverse propeller to full negative rpm (= full astern)
2.2	20100503	10:56	13.5	100/100	-180/-180	-	2.3	Turn both pods 180° outboard with full positive rpm
2.3	20100503	11:06	14.0	100/100	-180/-180	-	2.1	Idem inboard turning (Pod way stop)
2.4	20100503	11:15	13.5	100/100	90/-90	-	2.9	Turn both pods 90° inboard with full positive rpm (transverse arrest)
2.5.1	20100503	09:30	9.5	0/0	90/-90	-	5.0	Idem with propellers ordered at stop (induces 2.5 L lateral transfer!)
2.5.2	20100503	09:37	9.5	0/0	-90/90	-	5.0	Idem with pods turned outboard (induces 2.5 L lateral transfer!)
2.6	20100503	11:26	13.5	-100/-100	-60/60	-	2.6	Turn both pods 60° outboard with propeller ordered at full negative rpm
2.7	20100503	11:34	13.5	sequence		-	4.9	Turn both pods 35° outboard with reduced rpm until speed is reduced to 8 kn … then turn both pods further to 180° with increased rpm
2.8	20100503	11:44	13.5	sequence		-	4.4	Reduce to 80 rpm, then turn 180° outboard, then 11kn/50rpm, 8kn/30rpm
2.9	20100503	11:54	13.5	sequence		-	6.1	Deceleration: 80rpm, then 11kn/50rpm, 8kn/30rpm & turn 180° outboard
2.10	20100503	12:03	13.5	100/100	-45/-135	-	2.0	Turn port pod 45° outboard and the stb 135° inboard with full positive rpm (induces 1.5 to 2 L lateral transfer)



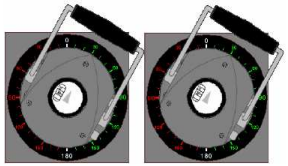




Definitions:

+ rpm: positive rpm ("ahead")
+ 35°: turn pod 35° clockwise

+ rpm + rpm
+ 35° + 35°



APPENDIX 4 – DETAILED RESULTS FOR TURNING CIRCLES

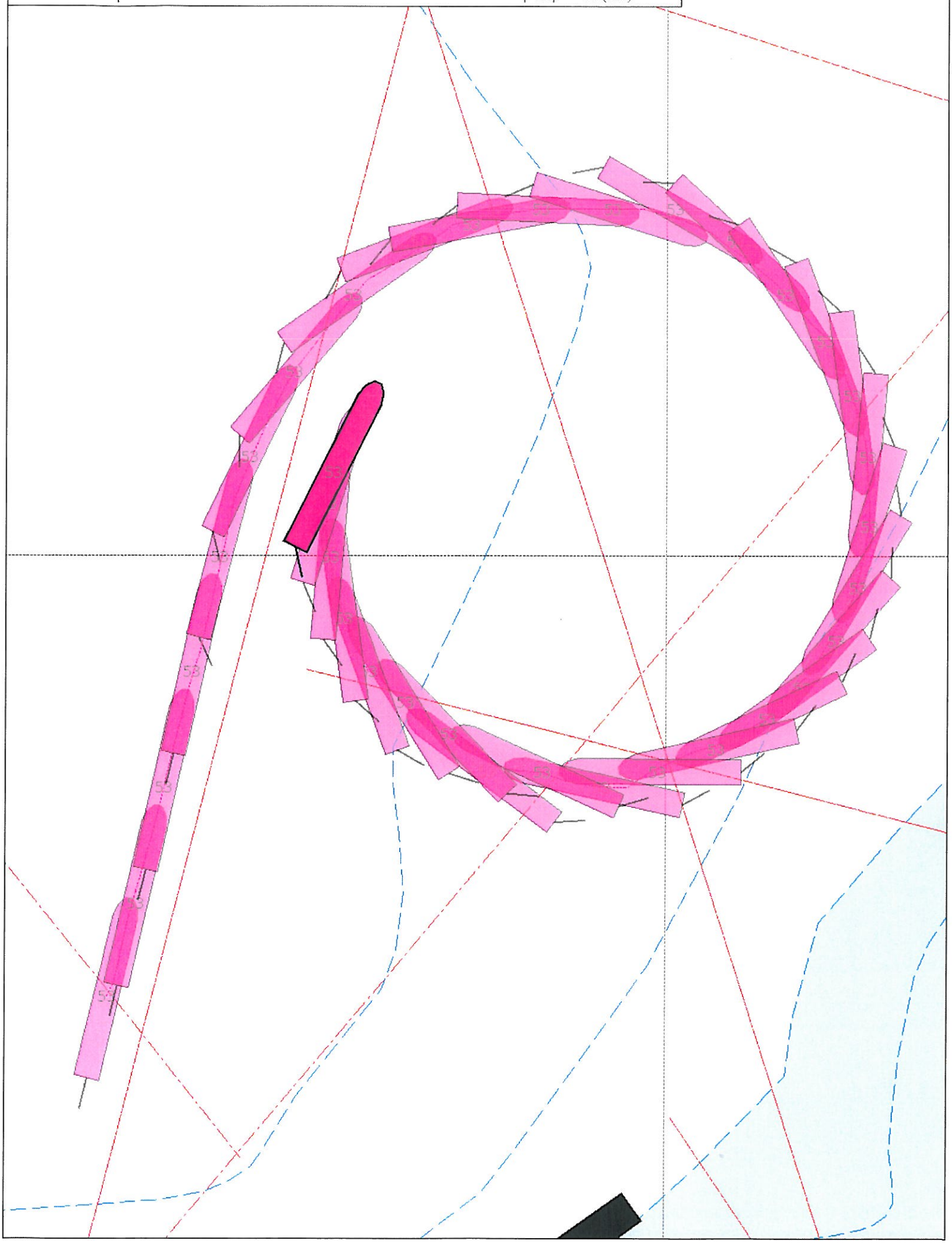
PORT REVEL
Shiphandling

Session
Name TURNING NORMANDIE 21052010
Path
Instructors Raymond LEOSTIC

1.1.1
Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-21 - 08h02m40s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : TURNING NORMANDIE 21052010 Lake : Turning Circles
Path : Current : 1- No current
Instructors: Raymond LEOSTIC
Sequence:
Tracks : Normandie Sequence : 2010-05-21 - 08h02m40s
Start : t1 Stop : t2
Students : Jan MEULEMEESTER, Dirk Van PUYVELDE, Bruno FISHBACH, Daniel RASQUIN, Gijs MERTENS, Gerit HENDRICKX, Bart BONDUE
Notes:
turning circle
vitesse 10 noeuds 55 rpm

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Rudder	RPM	Bow Thruster	Stern Thruster
	HHhMMmSSs		knots		°	kts	°	°	rpm		
	08h19m30s	5.0	9.5	10.0	14	0	0	-1	53	Stop	Stop
	08h19m31s	5.0	9.5	10.0	14	0	0	-1	53	Stop	Stop
	08h19m32s	5.0	9.5	10.0	14	0	0	-5	53	Stop	Stop
	08h19m33s	5.0	9.5	10.0	14	0	0	-5	53	Stop	Stop
	08h19m34s	5.0	9.5	10.0	13	0	0	-2	53	Stop	Stop
	08h19m35s	5.0	9.5	10.0	13	0	0	-2	53	Stop	Stop
	08h19m36s	5.0	9.5	10.0	13	0	0	-2	54	Stop	Stop
	08h19m37s	5.0	9.5	10.0	13	0	0	-2	54	Stop	Stop
	08h19m38s	0.0	9.5	10.0	13	0	0	-2	53	Stop	Stop
	08h19m39s	0.0	9.5	10.0	13	0	0	-2	53	Stop	Stop
	08h19m40s	5.0	9.5	10.0	13	0	0	-3	54	Stop	Stop
	08h19m41s	5.0	9.5	10.0	13	0	0	-3	54	Stop	Stop
	08h19m42s	0.0	9.5	10.0	13	0	0	-3	53	Stop	Stop
	08h19m43s	0.0	9.5	10.0	13	0	0	-3	53	Stop	Stop
	08h19m44s	0.0	9.5	10.0	13	0	0	-2	53	Stop	Stop
	08h19m45s	0.0	9.5	10.0	13	0	0	-2	53	Stop	Stop
	08h19m46s	5.0	9.5	10.0	13	0	0	-3	53	Stop	Stop
	08h19m47s	5.0	9.5	10.0	13	0	0	-3	53	Stop	Stop
	08h19m48s	0.0	9.5	10.0	13	0	0	-3	53	Stop	Stop
	08h19m49s	0.0	9.5	10.0	13	0	0	-3	53	Stop	Stop
	08h19m50s	0.0	9.5	10.0	13	0	0	-2	54	Stop	Stop
	08h19m51s	0.0	9.5	10.0	13	0	0	-2	54	Stop	Stop
	08h19m52s	5.0	9.5	10.0	13	0	0	40	53	Stop	Stop
	08h19m53s	5.0	9.5	10.0	13	0	0	40	53	Stop	Stop
	08h19m54s	5.0	9.5	10.0	15	0	0	40	53	Stop	Stop
	08h19m55s	5.0	9.5	10.0	15	0	0	40	53	Stop	Stop
	08h19m56s	5.0	9.5	9.5	17	0	0	40	53	Stop	Stop
	08h19m57s	5.0	9.5	9.5	17	0	0	40	53	Stop	Stop
	08h19m58s	5.0	9.0	9.5	19	0	0	40	53	Stop	Stop
	08h19m59s	5.0	9.0	9.5	19	0	0	40	53	Stop	Stop
	08h20m00s	5.0	9.0	9.5	26	0	0	40	53	Stop	Stop
	08h20m01s	5.0	9.0	9.5	26	0	0	40	53	Stop	Stop
	08h20m02s	5.0	8.5	9.0	30	0	0	40	54	Stop	Stop
	08h20m03s	5.0	8.5	9.0	30	0	0	40	54	Stop	Stop
	08h20m04s	5.0	8.0	9.0	34	0	0	40	54	Stop	Stop
	08h20m05s	5.0	8.0	9.0	34	0	0	40	54	Stop	Stop
	08h20m06s	5.0	7.5	8.5	41	0	0	40	53	Stop	Stop
	08h20m07s	5.0	7.5	8.5	41	0	0	40	53	Stop	Stop
	08h20m08s	5.0	6.5	8.5	44	0	0	40	54	Stop	Stop
	08h20m09s	5.0	6.5	8.5	44	0	0	40	54	Stop	Stop
	08h20m10s	5.0	6.5	8.0	48	0	0	40	53	Stop	Stop
	08h20m11s	5.0	6.5	8.0	48	0	0	40	53	Stop	Stop
	08h20m12s	5.0	5.5	7.5	55	0	0	40	53	Stop	Stop
	08h20m13s	5.0	5.5	7.5	55	0	0	40	53	Stop	Stop

08h20m14s	5.0	5.0	7.5	59	0	0	40	53	Stop	Stop
08h20m15s	5.0	5.0	7.5	59	0	0	40	53	Stop	Stop
08h20m16s	5.0	4.5	7.5	62	0	0	40	53	Stop	Stop
08h20m17s	5.0	4.5	7.5	62	0	0	40	53	Stop	Stop
08h20m18s	5.0	3.5	7.0	69	0	0	40	53	Stop	Stop
08h20m19s	5.0	3.5	7.0	69	0	0	40	53	Stop	Stop
08h20m20s	5.0	3.0	7.0	73	0	0	40	53	Stop	Stop
08h20m21s	5.0	3.0	7.0	73	0	0	40	53	Stop	Stop
08h20m22s	5.0	3.0	7.0	76	0	0	40	53	Stop	Stop
08h20m23s	5.0	3.0	7.0	76	0	0	40	53	Stop	Stop
08h20m24s	5.0	2.5	6.5	80	0	0	40	53	Stop	Stop
08h20m25s	5.0	2.5	6.5	80	0	0	40	53	Stop	Stop
08h20m26s	5.0	1.5	6.5	86	0	0	40	54	Stop	Stop
08h20m27s	5.0	1.5	6.5	86	0	0	40	54	Stop	Stop
08h20m28s	5.0	1.5	6.5	89	0	0	40	53	Stop	Stop
08h20m29s	5.0	1.5	6.5	89	0	0	40	53	Stop	Stop
08h20m30s	5.0	0.5	6.5	93	0	0	40	53	Stop	Stop
08h20m31s	5.0	0.5	6.5	93	0	0	40	53	Stop	Stop
08h20m32s	5.0	0.0	6.0	100	0	0	40	53	Stop	Stop
08h20m33s	5.0	0.0	6.0	100	0	0	40	53	Stop	Stop
08h20m34s	5.0	-0.5	6.0	103	0	0	40	53	Stop	Stop
08h20m35s	5.0	-0.5	6.0	103	0	0	40	53	Stop	Stop
08h20m36s	5.0	-0.5	6.0	107	0	0	40	54	Stop	Stop
08h20m37s	5.0	-0.5	6.0	107	0	0	40	54	Stop	Stop
08h20m38s	5.0	-1.5	6.0	113	0	0	40	53	Stop	Stop
08h20m39s	5.0	-1.5	6.0	113	0	0	40	53	Stop	Stop
08h20m40s	5.0	-1.5	6.0	117	0	0	40	54	Stop	Stop
08h20m41s	5.0	-1.5	6.0	117	0	0	40	54	Stop	Stop
08h20m42s	5.0	-2.0	6.0	120	0	0	40	53	Stop	Stop
08h20m43s	5.0	-2.0	6.0	120	0	0	40	53	Stop	Stop
08h20m44s	5.0	-2.5	5.5	126	0	0	40	54	Stop	Stop
08h20m45s	5.0	-2.5	5.5	126	0	0	40	54	Stop	Stop
08h20m46s	5.0	-3.0	6.0	130	0	0	40	54	Stop	Stop
08h20m47s	5.0	-3.0	6.0	130	0	0	40	54	Stop	Stop
08h20m48s	5.0	-3.0	6.0	133	0	0	40	54	Stop	Stop
08h20m49s	5.0	-3.0	6.0	133	0	0	40	54	Stop	Stop
08h20m50s	5.0	-3.5	5.5	140	0	0	40	54	Stop	Stop
08h20m51s	5.0	-3.5	5.5	140	0	0	40	54	Stop	Stop
08h20m52s	5.0	-4.0	5.5	143	0	0	40	53	Stop	Stop
08h20m53s	5.0	-4.0	5.5	143	0	0	40	53	Stop	Stop
08h20m54s	5.0	-4.0	5.5	146	0	0	40	53	Stop	Stop
08h20m55s	5.0	-4.0	5.5	146	0	0	40	53	Stop	Stop
08h20m56s	5.0	-4.5	5.5	150	0	0	40	53	Stop	Stop
08h20m57s	5.0	-4.5	5.5	150	0	0	40	53	Stop	Stop
08h20m58s	5.0	-4.5	5.5	156	0	0	40	53	Stop	Stop
08h20m59s	5.0	-4.5	5.5	156	0	0	40	53	Stop	Stop
08h21m00s	5.0	-4.5	5.5	159	0	0	40	53	Stop	Stop
08h21m01s	5.0	-4.5	5.5	159	0	0	40	53	Stop	Stop
08h21m02s	5.0	-4.5	5.5	163	0	0	40	54	Stop	Stop
08h21m03s	5.0	-4.5	5.5	163	0	0	40	54	Stop	Stop
08h21m04s	0.0	-5.0	5.5	169	0	0	40	53	Stop	Stop
08h21m05s	0.0	-5.0	5.5	169	0	0	40	53	Stop	Stop
08h21m06s	0.0	-5.0	5.5	172	0	0	40	54	Stop	Stop
08h21m07s	0.0	-5.0	5.5	172	0	0	40	54	Stop	Stop
08h21m08s	0.0	-5.0	5.5	176	0	0	40	53	Stop	Stop
08h21m09s	0.0	-5.0	5.5	176	0	0	40	53	Stop	Stop
08h21m10s	0.0	-5.5	5.5	182	0	0	40	53	Stop	Stop
08h21m11s	0.0	-5.5	5.5	182	0	0	40	53	Stop	Stop
08h21m12s	0.0	-5.5	5.5	185	0	0	40	53	Stop	Stop
08h21m13s	0.0	-5.5	5.5	185	0	0	40	53	Stop	Stop
08h21m14s	0.0	-5.5	5.5	188	0	0	40	53	Stop	Stop

08h21m15s	0.0	-5.5	5.5	188	0	0	40	53	Stop	Stop
08h21m16s	-0.0	-5.5	5.5	195	0	0	40	53	Stop	Stop
08h21m17s	-0.0	-5.5	5.5	195	0	0	40	53	Stop	Stop
08h21m18s	-0.0	-5.5	5.5	198	0	0	40	53	Stop	Stop
08h21m19s	-0.0	-5.5	5.5	198	0	0	40	53	Stop	Stop
08h21m20s	-0.0	-5.5	5.5	201	0	0	40	53	Stop	Stop
08h21m21s	-0.0	-5.5	5.5	201	0	0	40	53	Stop	Stop
08h21m22s	-0.0	-5.0	5.5	204	0	0	40	53	Stop	Stop
08h21m23s	-0.0	-5.0	5.5	204	0	0	40	53	Stop	Stop
08h21m24s	-0.0	-5.0	5.5	211	0	0	40	54	Stop	Stop
08h21m25s	-0.0	-5.0	5.5	211	0	0	40	54	Stop	Stop
08h21m26s	-0.0	-5.0	5.5	215	0	0	40	54	Stop	Stop
08h21m27s	-0.0	-5.0	5.5	215	0	0	40	54	Stop	Stop
08h21m28s	-0.0	-5.0	5.5	218	0	0	40	54	Stop	Stop
08h21m29s	-0.0	-5.0	5.5	218	0	0	40	54	Stop	Stop
08h21m30s	-5.0	-4.5	5.5	222	0	0	40	54	Stop	Stop
08h21m31s	-5.0	-4.5	5.5	222	0	0	40	54	Stop	Stop
08h21m32s	-5.0	-4.5	5.5	225	0	0	40	54	Stop	Stop
08h21m33s	-5.0	-4.5	5.5	225	0	0	40	54	Stop	Stop
08h21m34s	-5.0	-4.0	5.5	232	0	0	40	53	Stop	Stop
08h21m35s	-5.0	-4.0	5.5	232	0	0	40	53	Stop	Stop
08h21m36s	-5.0	-4.0	5.0	235	0	0	40	53	Stop	Stop
08h21m37s	-5.0	-4.0	5.0	235	0	0	40	53	Stop	Stop
08h21m38s	-5.0	-4.0	5.0	238	0	0	40	54	Stop	Stop
08h21m39s	-5.0	-4.0	5.0	238	0	0	40	54	Stop	Stop
08h21m40s	-5.0	-3.5	5.0	241	0	0	40	54	Stop	Stop
08h21m41s	-5.0	-3.5	5.0	241	0	0	40	54	Stop	Stop
08h21m42s	-5.0	-3.5	5.5	245	0	0	40	54	Stop	Stop
08h21m43s	-5.0	-3.5	5.5	245	0	0	40	54	Stop	Stop
08h21m44s	-5.0	-3.0	5.5	251	0	0	40	53	Stop	Stop
08h21m45s	-5.0	-3.0	5.5	251	0	0	40	53	Stop	Stop
08h21m46s	-5.0	-2.5	5.5	254	0	0	40	54	Stop	Stop
08h21m47s	-5.0	-2.5	5.5	254	0	0	40	54	Stop	Stop
08h21m48s	-5.0	-2.5	5.5	258	0	0	40	53	Stop	Stop
08h21m49s	-5.0	-2.5	5.5	258	0	0	40	53	Stop	Stop
08h21m50s	-5.0	-2.0	5.0	261	0	0	40	53	Stop	Stop
08h21m51s	-5.0	-2.0	5.0	261	0	0	40	53	Stop	Stop
08h21m52s	-5.0	-1.5	5.0	267	0	0	40	53	Stop	Stop
08h21m53s	-5.0	-1.5	5.0	267	0	0	40	53	Stop	Stop
08h21m54s	-5.0	-1.5	5.0	270	0	0	40	53	Stop	Stop
08h21m55s	-5.0	-1.5	5.0	270	0	0	40	53	Stop	Stop
08h21m56s	-5.0	-1.0	5.0	273	0	0	40	54	Stop	Stop
08h21m57s	-5.0	-1.0	5.0	273	0	0	40	54	Stop	Stop
08h21m58s	-5.0	-1.0	5.0	276	0	0	40	54	Stop	Stop
08h21m59s	-5.0	-1.0	5.0	276	0	0	40	54	Stop	Stop
08h22m00s	-5.0	-0.5	5.0	282	0	0	40	53	Stop	Stop
08h22m01s	-5.0	-0.5	5.0	282	0	0	40	53	Stop	Stop
08h22m02s	-5.0	0.0	5.0	285	0	0	40	53	Stop	Stop
08h22m03s	-5.0	0.0	5.0	285	0	0	40	53	Stop	Stop
08h22m04s	-5.0	0.5	5.0	288	0	0	40	54	Stop	Stop
08h22m05s	-5.0	0.5	5.0	288	0	0	40	54	Stop	Stop
08h22m06s	-5.0	1.0	5.0	294	0	0	40	53	Stop	Stop
08h22m07s	-5.0	1.0	5.0	294	0	0	40	53	Stop	Stop
08h22m08s	-5.0	1.0	5.0	297	0	0	40	53	Stop	Stop
08h22m09s	-5.0	1.0	5.0	297	0	0	40	53	Stop	Stop
08h22m10s	-5.0	1.5	5.0	300	0	0	40	53	Stop	Stop
08h22m11s	-5.0	1.5	5.0	300	0	0	40	53	Stop	Stop
08h22m12s	-5.0	1.5	5.0	307	0	0	40	54	Stop	Stop
08h22m13s	-5.0	1.5	5.0	307	0	0	40	54	Stop	Stop
08h22m14s	-5.0	2.0	5.0	310	0	0	40	53	Stop	Stop
08h22m15s	-5.0	2.0	5.0	310	0	0	40	53	Stop	Stop

08h22m16s	-5.0	2.5	5.0	313	0	0	40	53	Stop	Stop
08h22m17s	-5.0	2.5	5.0	313	0	0	40	53	Stop	Stop
08h22m18s	-5.0	2.5	5.0	316	0	0	40	54	Stop	Stop
08h22m19s	-5.0	2.5	5.0	316	0	0	40	54	Stop	Stop
08h22m20s	-5.0	3.0	5.0	322	0	0	40	54	Stop	Stop
08h22m21s	-5.0	3.0	5.0	322	0	0	40	54	Stop	Stop
08h22m22s	-5.0	3.0	5.0	324	0	0	40	53	Stop	Stop
08h22m23s	-5.0	3.0	5.0	324	0	0	40	53	Stop	Stop
08h22m24s	-5.0	3.5	5.0	328	0	0	40	54	Stop	Stop
08h22m25s	-5.0	3.5	5.0	328	0	0	40	54	Stop	Stop
08h22m26s	-5.0	3.5	5.0	334	0	0	40	53	Stop	Stop
08h22m27s	-5.0	3.5	5.0	334	0	0	40	53	Stop	Stop
08h22m28s	-5.0	4.0	5.0	337	0	0	40	54	Stop	Stop
08h22m29s	-5.0	4.0	5.0	337	0	0	40	54	Stop	Stop
08h22m30s	-5.0	4.0	5.0	340	0	0	40	53	Stop	Stop
08h22m31s	-5.0	4.0	5.0	340	0	0	40	53	Stop	Stop
08h22m32s	-0.0	4.5	5.0	346	0	0	40	53	Stop	Stop
08h22m33s	-0.0	4.5	5.0	346	0	0	40	53	Stop	Stop
08h22m34s	-0.0	4.5	5.0	349	0	0	40	53	Stop	Stop
08h22m35s	-0.0	4.5	5.0	349	0	0	40	53	Stop	Stop
08h22m36s	-0.0	4.5	4.5	352	0	0	40	53	Stop	Stop
08h22m37s	-0.0	4.5	4.5	352	0	0	40	53	Stop	Stop
08h22m38s	-0.0	4.5	5.0	355	0	0	40	53	Stop	Stop
08h22m39s	-0.0	4.5	5.0	355	0	0	40	53	Stop	Stop
08h22m40s	-0.0	4.5	5.0	2	0	0	40	53	Stop	Stop
08h22m41s	-0.0	4.5	5.0	2	0	0	40	53	Stop	Stop
08h22m42s	-0.0	4.5	5.0	5	0	0	40	53	Stop	Stop
08h22m43s	-0.0	4.5	5.0	5	0	0	40	53	Stop	Stop
08h22m44s	-0.0	5.0	5.0	8	0	0	40	54	Stop	Stop
08h22m45s	-0.0	5.0	5.0	8	0	0	40	54	Stop	Stop
08h22m46s	-0.0	5.0	5.0	14	0	0	40	53	Stop	Stop
08h22m47s	-0.0	5.0	5.0	14	0	0	40	53	Stop	Stop
08h22m48s	0.0	5.0	5.0	18	0	0	40	53	Stop	Stop
08h22m49s	0.0	5.0	5.0	18	0	0	40	53	Stop	Stop

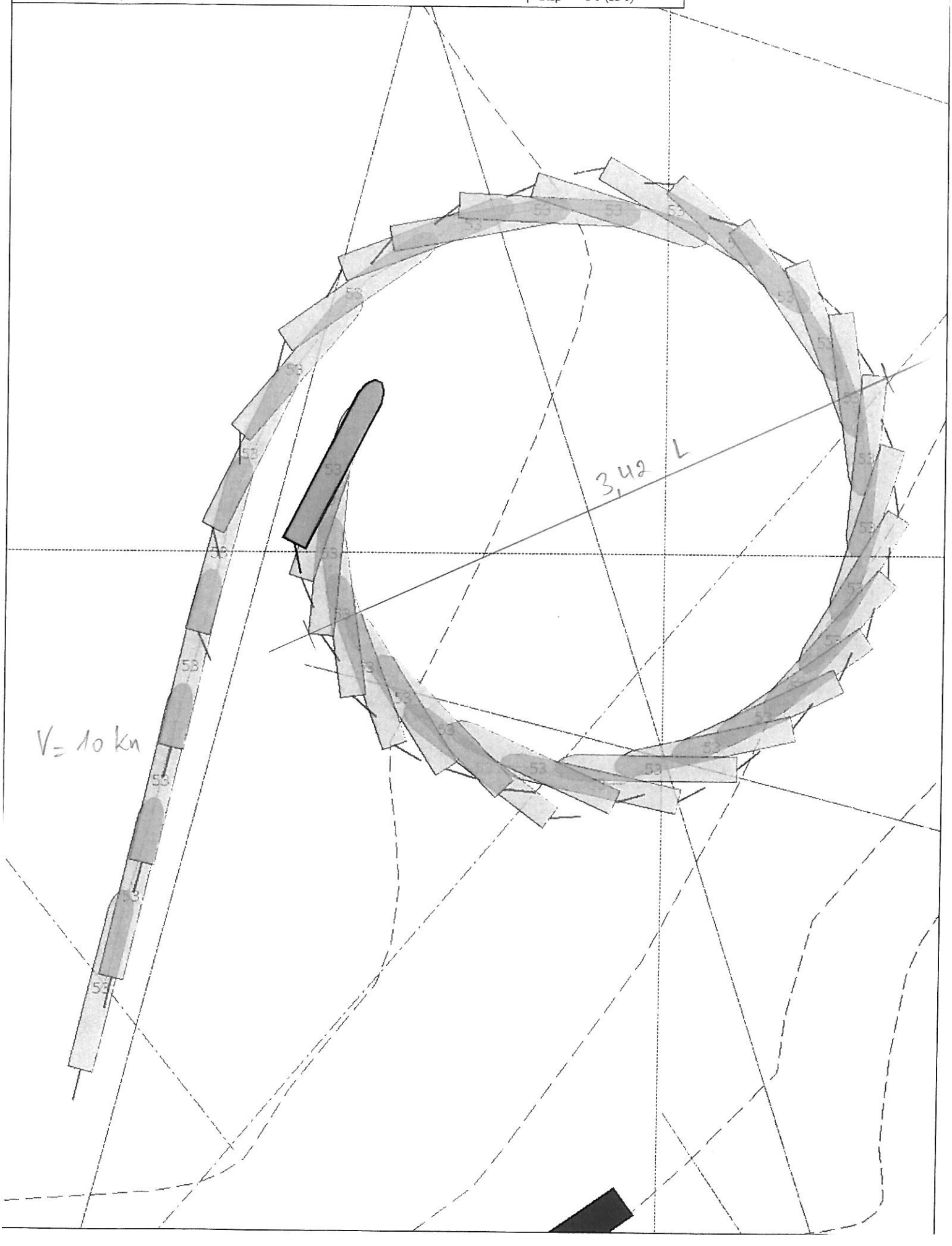
PORT REVEL
Shiphandling

Session
Name TURNING NORMANDIE 21052010
Path
Instructors Raymond LEOSTIC

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-21 - 08h02m40s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



PORT REVEL
Shiphandling

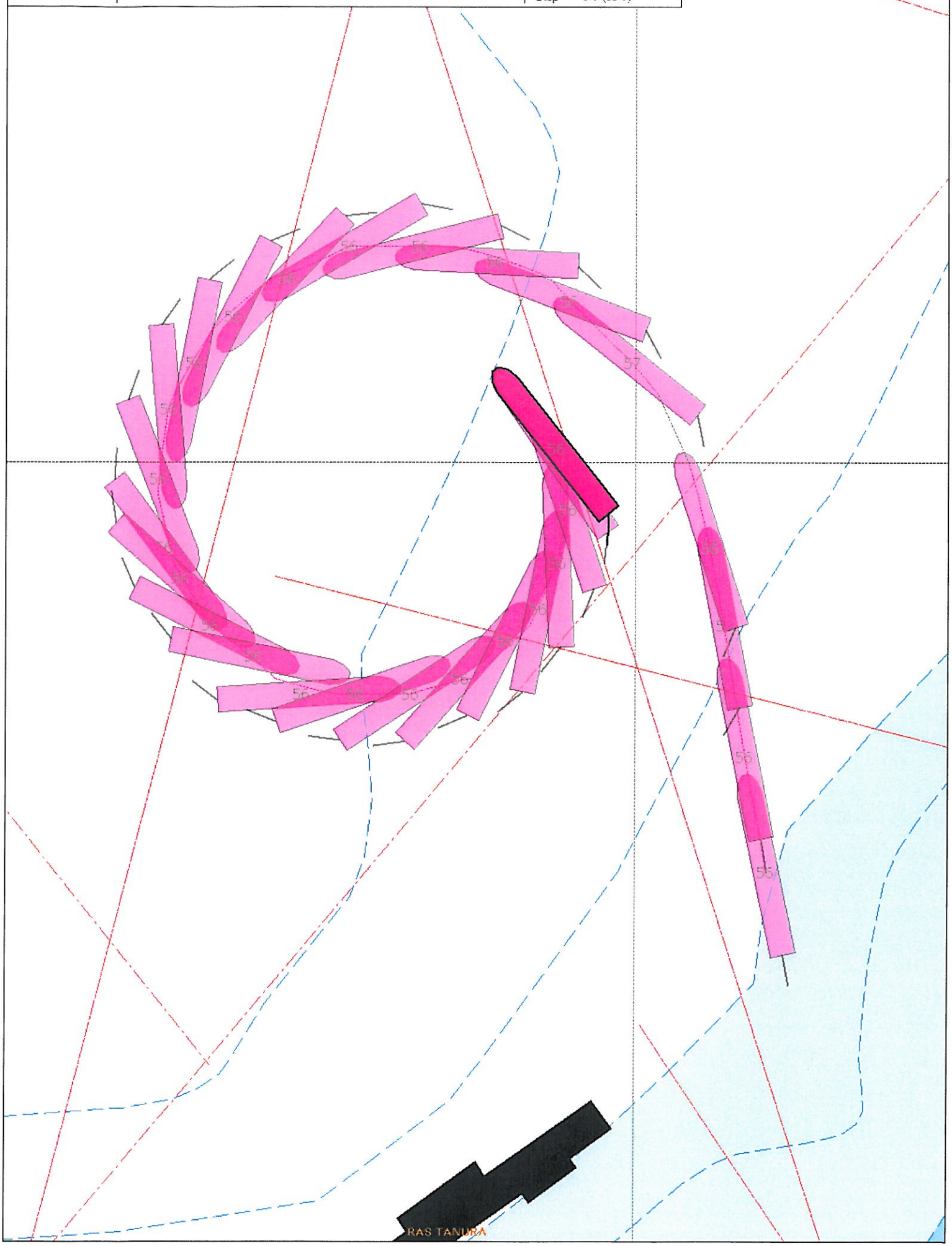
Session
Name TURNING NORMANDIE 21052010
Path
Instructors Raymond LEOSTIC

1.1.2

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-21 - 08h02m40s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)

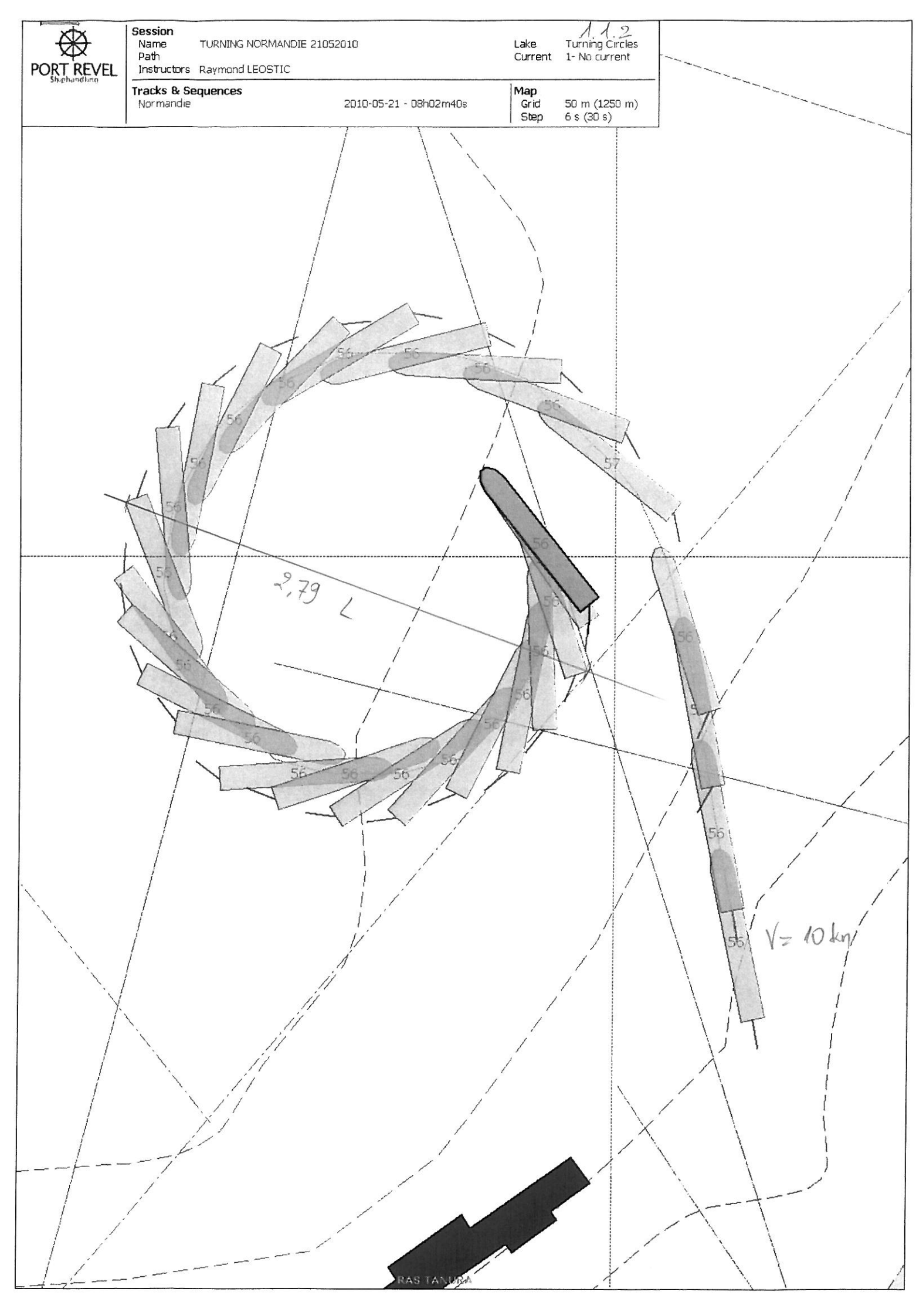


Session:
Name : TURNING NORMANDIE 21052010 Lake : Turning Circles
Path : Current : 1- No current
Instructors: Raymond LEOSTIC
Sequence:
Tracks : Normandie Sequence : 2010-05-21 - 08h02m40s
Start : t3 Stop : t4
Students
Notes:
turning circle vitesse 10 noeuds 55 rpm

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Rudder	RPM	Bow Thruster	Stern Thruster
	HHhMMmSSs	knots			°	kts	°	°	rpm		
	08h27m24s	-0.0	10.0	10.0	348	0	0	-2	57	Stop	Stop
	08h27m25s	-0.0	10.0	10.0	348	0	0	-2	57	Stop	Stop
	08h27m26s	-0.0	10.0	10.0	348	0	0	-2	56	Stop	Stop
	08h27m27s	-0.0	10.0	10.0	348	0	0	-2	56	Stop	Stop
	08h27m28s	-0.0	10.0	10.0	348	0	0	-2	57	Stop	Stop
	08h27m29s	-0.0	10.0	10.0	348	0	0	-2	57	Stop	Stop
	08h27m30s	-0.0	10.0	10.5	349	0	0	-3	57	Stop	Stop
	08h27m31s	-0.0	10.0	10.5	349	0	0	-3	57	Stop	Stop
	08h27m32s	-0.0	10.0	10.5	349	0	0	-3	56	Stop	Stop
	08h27m33s	-0.0	10.0	10.5	349	0	0	-3	56	Stop	Stop
	08h27m34s	-0.0	10.0	10.5	349	0	0	-7	57	Stop	Stop
	08h27m35s	-0.0	10.0	10.5	349	0	0	-7	57	Stop	Stop
	08h27m36s	-0.0	10.0	10.0	349	0	0	-40	56	Stop	Stop
	08h27m37s	-0.0	10.0	10.0	349	0	0	-40	56	Stop	Stop
	08h27m38s	-0.0	10.0	10.0	348	0	0	-40	56	Stop	Stop
	08h27m39s	-0.0	10.0	10.0	348	0	0	-40	56	Stop	Stop
	08h27m40s	-0.0	10.0	10.0	345	0	0	-40	57	Stop	Stop
	08h27m41s	-0.0	10.0	10.0	345	0	0	-40	57	Stop	Stop
	08h27m42s	-0.0	9.5	9.5	342	0	0	-40	57	Stop	Stop
	08h27m43s	-0.0	9.5	9.5	342	0	0	-40	57	Stop	Stop
	08h27m44s	-5.0	9.0	9.5	334	0	0	-40	57	Stop	Stop
	08h27m45s	-5.0	9.0	9.5	334	0	0	-40	57	Stop	Stop
	08h27m46s	-5.0	9.0	9.5	331	0	0	-40	57	Stop	Stop
	08h27m47s	-5.0	9.0	9.5	331	0	0	-40	57	Stop	Stop
!	08h27m48s	0.0	0.0	0.0	0	0	0	0	0	LeftStro	LeftStro
!	08h27m49s	0.0	0.0	0.0	0	0	0	0	0	LeftStro	LeftStro
	08h27m50s	-5.0	7.5	8.5	318	0	0	-40	57	Stop	Stop
	08h27m51s	-5.0	7.5	8.5	318	0	0	-40	57	Stop	Stop
	08h27m52s	-5.0	7.0	8.5	313	0	0	-40	56	Stop	Stop
	08h27m53s	-5.0	7.0	8.5	313	0	0	-40	56	Stop	Stop
	08h27m54s	-5.0	6.5	8.0	308	0	0	-40	57	Stop	Stop
	08h27m55s	-5.0	6.5	8.0	308	0	0	-40	57	Stop	Stop
	08h27m56s	-5.0	5.5	8.0	300	0	0	-40	57	Stop	Stop
	08h27m57s	-5.0	5.5	8.0	300	0	0	-40	57	Stop	Stop
	08h27m58s	-5.0	5.0	7.5	295	0	0	-40	57	Stop	Stop
	08h27m59s	-5.0	5.0	7.5	295	0	0	-40	57	Stop	Stop
	08h28m00s	-5.0	4.5	7.5	290	0	0	-40	57	Stop	Stop
	08h28m01s	-5.0	4.5	7.5	290	0	0	-40	57	Stop	Stop
	08h28m02s	-5.0	3.5	7.5	286	0	0	-40	56	Stop	Stop
	08h28m03s	-5.0	3.5	7.5	286	0	0	-40	56	Stop	Stop
	08h28m04s	-5.0	3.0	7.0	277	0	0	-40	56	Stop	Stop
	08h28m05s	-5.0	3.0	7.0	277	0	0	-40	56	Stop	Stop
	08h28m06s	-5.0	2.5	7.0	273	0	0	-40	57	Stop	Stop
	08h28m07s	-5.0	2.5	7.0	273	0	0	-40	57	Stop	Stop
	08h28m08s	-5.0	2.0	7.0	269	0	0	-40	57	Stop	Stop

08h28m09s	-5.0	2.0	7.0	269	0	0	-40	57	Stop	Stop
08h28m10s	-5.0	1.0	6.5	261	0	0	-40	56	Stop	Stop
08h28m11s	-5.0	1.0	6.5	261	0	0	-40	56	Stop	Stop
08h28m12s	-5.0	0.5	6.5	256	0	0	-40	56	Stop	Stop
08h28m13s	-5.0	0.5	6.5	256	0	0	-40	56	Stop	Stop
08h28m14s	-5.0	-0.0	6.5	252	0	0	-40	57	Stop	Stop
08h28m15s	-5.0	-0.0	6.5	252	0	0	-40	57	Stop	Stop
08h28m16s	-5.0	-1.0	6.0	244	0	0	-40	56	Stop	Stop
08h28m17s	-5.0	-1.0	6.0	244	0	0	-40	56	Stop	Stop
08h28m18s	-5.0	-1.5	6.0	240	0	0	-40	57	Stop	Stop
08h28m19s	-5.0	-1.5	6.0	240	0	0	-40	57	Stop	Stop
08h28m20s	-5.0	-1.5	6.0	236	0	0	-40	57	Stop	Stop
08h28m21s	-5.0	-1.5	6.0	236	0	0	-40	57	Stop	Stop
08h28m22s	-5.0	-2.5	6.0	227	0	0	-40	57	Stop	Stop
08h28m23s	-5.0	-2.5	6.0	227	0	0	-40	57	Stop	Stop
08h28m24s	-5.0	-2.5	6.0	224	0	0	-40	56	Stop	Stop
08h28m25s	-5.0	-2.5	6.0	224	0	0	-40	56	Stop	Stop
08h28m26s	-5.0	-3.0	5.5	219	0	0	-40	56	Stop	Stop
08h28m27s	-5.0	-3.0	5.5	219	0	0	-40	56	Stop	Stop
08h28m28s	-5.0	-3.5	5.5	211	0	0	-40	57	Stop	Stop
08h28m29s	-5.0	-3.5	5.5	211	0	0	-40	57	Stop	Stop
08h28m30s	-5.0	-4.0	5.5	207	0	0	-40	56	Stop	Stop
08h28m31s	-5.0	-4.0	5.5	207	0	0	-40	56	Stop	Stop
08h28m32s	-5.0	-4.0	5.5	204	0	0	-40	56	Stop	Stop
08h28m33s	-5.0	-4.0	5.5	204	0	0	-40	56	Stop	Stop
08h28m34s	-5.0	-4.5	5.5	200	0	0	-40	57	Stop	Stop
08h28m35s	-5.0	-4.5	5.5	200	0	0	-40	57	Stop	Stop
08h28m36s	-5.0	-4.5	5.5	191	0	0	-40	56	Stop	Stop
08h28m37s	-5.0	-4.5	5.5	191	0	0	-40	56	Stop	Stop
08h28m38s	-5.0	-5.0	5.5	187	0	0	-40	56	Stop	Stop
08h28m39s	-5.0	-5.0	5.5	187	0	0	-40	56	Stop	Stop
08h28m40s	-0.0	-5.0	5.5	183	0	0	-40	56	Stop	Stop
08h28m41s	-0.0	-5.0	5.5	183	0	0	-40	56	Stop	Stop
08h28m42s	-0.0	-5.0	5.0	175	0	0	-40	56	Stop	Stop
08h28m43s	-0.0	-5.0	5.0	175	0	0	-40	56	Stop	Stop
08h28m44s	-0.0	-5.0	5.5	171	0	0	-40	57	Stop	Stop
08h28m45s	-0.0	-5.0	5.5	171	0	0	-40	57	Stop	Stop
08h28m46s	-0.0	-5.0	5.5	167	0	0	-40	57	Stop	Stop
08h28m47s	-0.0	-5.0	5.5	167	0	0	-40	57	Stop	Stop
08h28m48s	-0.0	-5.0	5.5	159	0	0	-40	56	Stop	Stop
08h28m49s	-0.0	-5.0	5.5	159	0	0	-40	56	Stop	Stop
08h28m50s	0.0	-5.0	5.5	155	0	0	-40	57	Stop	Stop
08h28m51s	0.0	-5.0	5.5	155	0	0	-40	57	Stop	Stop
08h28m52s	0.0	-5.0	5.0	151	0	0	-40	56	Stop	Stop
08h28m53s	0.0	-5.0	5.0	151	0	0	-40	56	Stop	Stop
08h28m54s	0.0	-5.0	5.0	144	0	0	-40	56	Stop	Stop
08h28m55s	0.0	-5.0	5.0	144	0	0	-40	56	Stop	Stop
08h28m56s	0.0	-4.5	5.0	139	0	0	-40	57	Stop	Stop
08h28m57s	0.0	-4.5	5.0	139	0	0	-40	57	Stop	Stop
08h28m58s	0.0	-4.5	5.0	135	0	0	-40	57	Stop	Stop
08h28m59s	0.0	-4.5	5.0	135	0	0	-40	57	Stop	Stop
08h29m00s	0.0	-4.5	5.0	131	0	0	-40	57	Stop	Stop
08h29m01s	0.0	-4.5	5.0	131	0	0	-40	57	Stop	Stop
08h29m02s	5.0	-4.0	5.0	124	0	0	-40	57	Stop	Stop
08h29m03s	5.0	-4.0	5.0	124	0	0	-40	57	Stop	Stop
08h29m04s	5.0	-4.0	5.0	120	0	0	-40	57	Stop	Stop
08h29m05s	5.0	-4.0	5.0	120	0	0	-40	57	Stop	Stop
08h29m06s	5.0	-4.0	5.0	116	0	0	-40	57	Stop	Stop
08h29m07s	5.0	-4.0	5.0	116	0	0	-40	57	Stop	Stop
08h29m08s	5.0	-3.5	5.0	109	0	0	-40	56	Stop	Stop
08h29m09s	5.0	-3.5	5.0	109	0	0	-40	56	Stop	Stop

08h29m10s	5.0	-3.0	5.0	105	0	0	-40	56	Stop	Stop
08h29m11s	5.0	-3.0	5.0	105	0	0	-40	56	Stop	Stop
08h29m12s	5.0	-3.0	5.0	102	0	0	-40	56	Stop	Stop
08h29m13s	5.0	-3.0	5.0	102	0	0	-40	56	Stop	Stop
08h29m14s	5.0	-2.0	5.0	94	0	0	-40	57	Stop	Stop
08h29m15s	5.0	-2.0	5.0	94	0	0	-40	57	Stop	Stop
08h29m16s	5.0	-2.0	5.0	90	0	0	-40	57	Stop	Stop
08h29m17s	5.0	-2.0	5.0	90	0	0	-40	57	Stop	Stop
08h29m18s	5.0	-1.5	5.0	86	0	0	-40	57	Stop	Stop
08h29m19s	5.0	-1.5	5.0	86	0	0	-40	57	Stop	Stop
08h29m20s	5.0	-1.0	5.0	79	0	0	-40	56	Stop	Stop
08h29m21s	5.0	-1.0	5.0	79	0	0	-40	56	Stop	Stop
08h29m22s	5.0	-0.5	5.0	76	0	0	-40	56	Stop	Stop
08h29m23s	5.0	-0.5	5.0	76	0	0	-40	56	Stop	Stop
08h29m24s	5.0	-0.5	5.0	71	0	0	-40	56	Stop	Stop
08h29m25s	5.0	-0.5	5.0	71	0	0	-40	56	Stop	Stop
08h29m26s	5.0	0.0	5.0	68	0	0	-40	57	Stop	Stop
08h29m27s	5.0	0.0	5.0	68	0	0	-40	57	Stop	Stop
08h29m28s	5.0	0.5	5.0	61	0	0	-40	56	Stop	Stop
08h29m29s	5.0	0.5	5.0	61	0	0	-40	56	Stop	Stop
08h29m30s	5.0	1.0	5.0	57	0	0	-40	57	Stop	Stop
08h29m31s	5.0	1.0	5.0	57	0	0	-40	57	Stop	Stop
08h29m32s	5.0	1.5	5.0	53	0	0	-40	57	Stop	Stop
08h29m33s	5.0	1.5	5.0	53	0	0	-40	57	Stop	Stop
08h29m34s	5.0	1.5	4.5	46	0	0	-40	57	Stop	Stop
08h29m35s	5.0	1.5	4.5	46	0	0	-40	57	Stop	Stop
08h29m36s	5.0	2.0	4.5	42	0	0	-40	57	Stop	Stop
08h29m37s	5.0	2.0	4.5	42	0	0	-40	57	Stop	Stop
08h29m38s	5.0	2.5	4.5	38	0	0	-40	57	Stop	Stop
08h29m39s	5.0	2.5	4.5	38	0	0	-40	57	Stop	Stop
08h29m40s	5.0	3.0	4.5	31	0	0	-40	57	Stop	Stop
08h29m41s	5.0	3.0	4.5	31	0	0	-40	57	Stop	Stop
08h29m42s	5.0	3.0	4.5	27	0	0	-40	57	Stop	Stop
08h29m43s	5.0	3.0	4.5	27	0	0	-40	57	Stop	Stop
08h29m44s	5.0	3.5	4.5	23	0	0	-40	57	Stop	Stop
08h29m45s	5.0	3.5	4.5	23	0	0	-40	57	Stop	Stop
08h29m46s	5.0	4.0	4.5	15	0	0	-40	57	Stop	Stop
08h29m47s	5.0	4.0	4.5	15	0	0	-40	57	Stop	Stop
08h29m48s	5.0	4.0	4.5	11	0	0	-40	56	Stop	Stop
08h29m49s	5.0	4.0	4.5	11	0	0	-40	56	Stop	Stop
08h29m50s	0.0	4.0	4.5	7	0	0	-40	57	Stop	Stop
08h29m51s	0.0	4.0	4.5	7	0	0	-40	57	Stop	Stop
08h29m52s	0.0	4.5	4.5	2	0	0	-40	57	Stop	Stop
08h29m53s	0.0	4.5	4.5	2	0	0	-40	57	Stop	Stop
08h29m54s	0.0	4.5	4.5	358	0	0	-40	57	Stop	Stop
08h29m55s	0.0	4.5	4.5	358	0	0	-40	57	Stop	Stop
08h29m56s	0.0	4.5	4.5	353	0	0	-40	57	Stop	Stop
08h29m57s	0.0	4.5	4.5	353	0	0	-40	57	Stop	Stop
08h29m58s	0.0	4.5	4.5	346	0	0	-40	57	Stop	Stop
08h29m59s	0.0	4.5	4.5	346	0	0	-40	57	Stop	Stop
08h30m00s	0.0	4.5	4.5	342	0	0	-40	57	Stop	Stop
08h30m01s	0.0	4.5	4.5	342	0	0	-40	57	Stop	Stop
08h30m02s	0.0	4.5	4.5	338	0	0	-40	56	Stop	Stop
08h30m03s	0.0	4.5	4.5	338	0	0	-40	56	Stop	Stop
08h30m04s	-0.0	4.5	4.5	334	0	0	-40	56	Stop	Stop
08h30m05s	-0.0	4.5	4.5	334	0	0	-40	56	Stop	Stop


PORT REVEL
Shiphandling
Session
Name TURNING NORMANDIE 21052010
Path
Instructors Raymond LEOSTIC
1.1.2
Lake Turning Circles
Current 1- No current
Tracks & Sequences
Normandie 2010-05-21 - 08h02m40s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
2,79 L
V= 10 kn
RAS TANURA

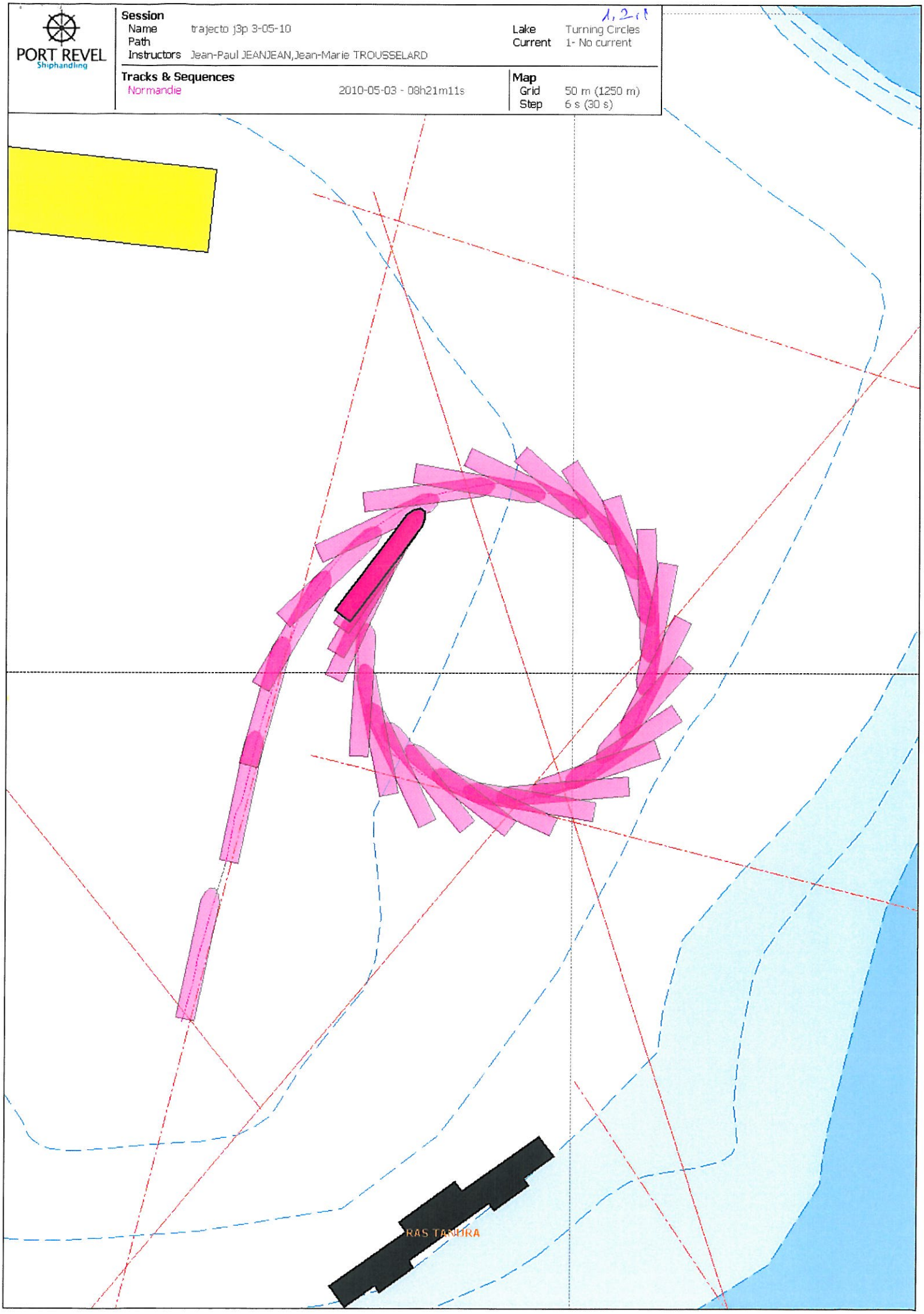
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 Lake : Turning Circles 1.2.1
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : 5 Stop : 6
Students
Notes:
pods à 30 degrés lancé à 10 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs		knots		°	kts	°		rpm	°	rpm	°
	09h03m08s	5.0	9.5	10.0	13	0	0	Stop	69	-1	75	359
	09h03m09s	5.0	9.5	10.0	13	0	0	Stop	69	-1	75	359
	09h03m10s	5.0	10.0	10.0	12	0	0	Stop	70	0	75	360
	09h03m11s	5.0	10.0	10.0	12	0	0	Stop	70	0	75	360
	09h03m12s	5.0	10.0	10.0	12	0	0	Stop	70	0	75	359
	09h03m13s	5.0	10.0	10.0	12	0	0	Stop	70	0	75	359
	09h03m14s	5.0	10.0	10.0	12	0	0	Stop	69	-1	75	358
	09h03m15s	5.0	10.0	10.0	12	0	0	Stop	69	-1	75	358
	09h03m16s	5.0	10.0	10.5	13	0	0	Stop	70	-1	74	360
	09h03m17s	5.0	10.0	10.5	13	0	0	Stop	70	-1	74	360
!	09h03m18s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	09h03m19s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	09h03m20s	5.0	10.0	10.0	12	0	0	Stop	70	0	75	360
	09h03m21s	5.0	10.0	10.0	12	0	0	Stop	70	0	75	360
	09h03m22s	5.0	10.0	10.0	12	0	0	Stop	70	-1	75	359
	09h03m23s	5.0	10.0	10.0	12	0	0	Stop	70	-1	75	359
	09h03m24s	5.0	10.0	10.5	12	0	0	Stop	70	1	75	359
	09h03m25s	5.0	10.0	10.5	12	0	0	Stop	70	1	75	359
	09h03m26s	5.0	10.0	10.0	12	0	0	Stop	69	333	75	333
	09h03m27s	5.0	10.0	10.0	12	0	0	Stop	69	333	75	333
	09h03m28s	0.0	10.0	10.5	14	0	0	Stop	69	333	75	326
	09h03m29s	0.0	10.0	10.5	14	0	0	Stop	69	333	75	326
	09h03m30s	5.0	9.5	10.0	16	0	0	Stop	70	333	75	328
	09h03m31s	5.0	9.5	10.0	16	0	0	Stop	70	333	75	328
	09h03m32s	5.0	9.5	10.0	19	0	0	Stop	69	333	75	328
	09h03m33s	5.0	9.5	10.0	19	0	0	Stop	69	333	75	328
	09h03m34s	5.0	9.5	10.0	22	0	0	Stop	70	331	75	326
	09h03m35s	5.0	9.5	10.0	22	0	0	Stop	70	331	75	326
	09h03m36s	5.0	8.5	9.5	30	0	0	Stop	70	333	75	328
	09h03m37s	5.0	8.5	9.5	30	0	0	Stop	70	333	75	328
	09h03m38s	5.0	8.0	9.5	34	0	0	Stop	69	333	75	327
	09h03m39s	5.0	8.0	9.5	34	0	0	Stop	69	333	75	327
	09h03m40s	5.0	8.0	9.0	38	0	0	Stop	70	331	75	328
	09h03m41s	5.0	8.0	9.0	38	0	0	Stop	70	331	75	328
	09h03m42s	5.0	7.0	8.5	46	0	0	Stop	71	333	75	328
	09h03m43s	5.0	7.0	8.5	46	0	0	Stop	71	333	75	328
	09h03m44s	5.0	6.0	8.0	52	0	0	Stop	70	332	75	328
	09h03m45s	5.0	6.0	8.0	52	0	0	Stop	70	332	75	328
	09h03m46s	5.0	5.5	8.0	56	0	0	Stop	70	332	75	327
	09h03m47s	5.0	5.5	8.0	56	0	0	Stop	70	332	75	327
	09h03m48s	5.0	4.5	7.5	65	0	0	Stop	71	332	75	326
	09h03m49s	5.0	4.5	7.5	65	0	0	Stop	71	332	75	326
	09h03m50s	5.0	4.0	7.5	69	0	0	Stop	70	333	75	327
	09h03m51s	5.0	4.0	7.5	69	0	0	Stop	70	333	75	327
	09h03m52s	5.0	3.5	7.0	74	0	0	Stop	70	333	75	327

09h04m54s	-5.0	-3.5	4.5	237	0	0	Stop	70	331	75	329
09h04m55s	-5.0	-3.5	4.5	237	0	0	Stop	70	331	75	329
09h04m56s	-5.0	-3.5	4.5	244	0	0	Stop	71	332	75	327
09h04m57s	-5.0	-3.5	4.5	244	0	0	Stop	71	332	75	327
09h04m58s	-5.0	-3.5	4.5	248	0	0	Stop	71	332	75	327
09h04m59s	-5.0	-3.5	4.5	248	0	0	Stop	71	332	75	327
09h05m00s	-5.0	-3.0	5.0	251	0	0	Stop	70	332	75	327
09h05m01s	-5.0	-3.0	5.0	251	0	0	Stop	70	332	75	327
09h05m02s	-5.0	-2.5	4.5	258	0	0	Stop	70	332	75	328
09h05m03s	-5.0	-2.5	4.5	258	0	0	Stop	70	332	75	328
09h05m04s	-5.0	-2.5	4.5	262	0	0	Stop	71	331	75	326
09h05m05s	-5.0	-2.5	4.5	262	0	0	Stop	71	331	75	326
09h05m06s	-5.0	-2.0	4.5	265	0	0	Stop	71	333	75	327
09h05m07s	-5.0	-2.0	4.5	265	0	0	Stop	71	333	75	327
09h05m08s	-5.0	-1.5	5.0	272	0	0	Stop	70	330	75	327
09h05m09s	-5.0	-1.5	5.0	272	0	0	Stop	70	330	75	327
09h05m10s	-5.0	-1.5	4.5	276	0	0	Stop	71	332	75	328
09h05m11s	-5.0	-1.5	4.5	276	0	0	Stop	71	332	75	328
09h05m12s	-5.0	-1.0	4.5	280	0	0	Stop	70	332	75	327
09h05m13s	-5.0	-1.0	4.5	280	0	0	Stop	70	332	75	327
09h05m14s	-5.0	-0.5	4.5	287	0	0	Stop	71	331	75	327
09h05m15s	-5.0	-0.5	4.5	287	0	0	Stop	71	331	75	327
09h05m16s	-5.0	0.0	4.5	291	0	0	Stop	70	331	75	327
09h05m17s	-5.0	0.0	4.5	291	0	0	Stop	70	331	75	327
09h05m18s	-5.0	0.5	4.5	294	0	0	Stop	70	331	76	328
09h05m19s	-5.0	0.5	4.5	294	0	0	Stop	70	331	76	328
09h05m20s	-5.0	1.0	4.5	301	0	0	Stop	70	333	75	328
09h05m21s	-5.0	1.0	4.5	301	0	0	Stop	70	333	75	328
09h05m22s	-5.0	1.0	4.5	305	0	0	Stop	70	332	75	327
09h05m23s	-5.0	1.0	4.5	305	0	0	Stop	70	332	75	327
09h05m24s	-5.0	1.5	4.5	308	0	0	Stop	70	332	75	328
09h05m25s	-5.0	1.5	4.5	308	0	0	Stop	70	332	75	328
09h05m26s	-5.0	1.5	4.5	314	0	0	Stop	70	331	75	326
09h05m27s	-5.0	1.5	4.5	314	0	0	Stop	70	331	75	326
09h05m28s	-5.0	2.0	4.5	318	0	0	Stop	70	332	75	327
09h05m29s	-5.0	2.0	4.5	318	0	0	Stop	70	332	75	327
09h05m30s	-5.0	2.0	4.5	321	0	0	Stop	71	333	75	328
09h05m31s	-5.0	2.0	4.5	321	0	0	Stop	71	333	75	328
09h05m32s	-5.0	2.5	4.5	327	0	0	Stop	70	334	75	328
09h05m33s	-5.0	2.5	4.5	327	0	0	Stop	70	334	75	328
09h05m34s	-5.0	3.0	4.5	331	0	0	Stop	71	331	75	327
09h05m35s	-5.0	3.0	4.5	331	0	0	Stop	71	331	75	327
09h05m36s	-5.0	3.0	4.5	334	0	0	Stop	70	331	75	328
09h05m37s	-5.0	3.0	4.5	334	0	0	Stop	70	331	75	328
09h05m38s	-5.0	3.0	4.0	338	0	0	Stop	70	331	75	328
09h05m39s	-5.0	3.0	4.0	338	0	0	Stop	70	331	75	328
09h05m40s	-0.0	3.5	4.5	345	0	0	Stop	70	331	75	328
09h05m41s	-0.0	3.5	4.5	345	0	0	Stop	70	331	75	328
09h05m42s	-0.0	3.5	4.5	349	0	0	Stop	71	332	75	327
09h05m43s	-0.0	3.5	4.5	349	0	0	Stop	71	332	75	327
09h05m44s	-0.0	4.0	4.5	353	0	0	Stop	70	332	75	327
09h05m45s	-0.0	4.0	4.5	353	0	0	Stop	70	332	75	327
09h05m46s	-0.0	4.0	4.5	359	0	0	Stop	70	332	75	328
09h05m47s	-0.0	4.0	4.5	359	0	0	Stop	70	332	75	328
09h05m48s	-0.0	4.0	4.5	3	0	0	Stop	70	332	75	327
09h05m49s	-0.0	4.0	4.5	3	0	0	Stop	70	332	75	327
09h05m50s	-0.0	4.0	4.0	7	0	0	Stop	70	-0	75	360
09h05m51s	-0.0	4.0	4.0	7	0	0	Stop	70	-0	75	360
09h05m52s	-0.0	4.5	4.5	10	0	0	Stop	70	0	75	361
09h05m53s	-0.0	4.5	4.5	10	0	0	Stop	70	0	75	361
! 09h05m54s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0

PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)

PORT REVEL
Shiphandling

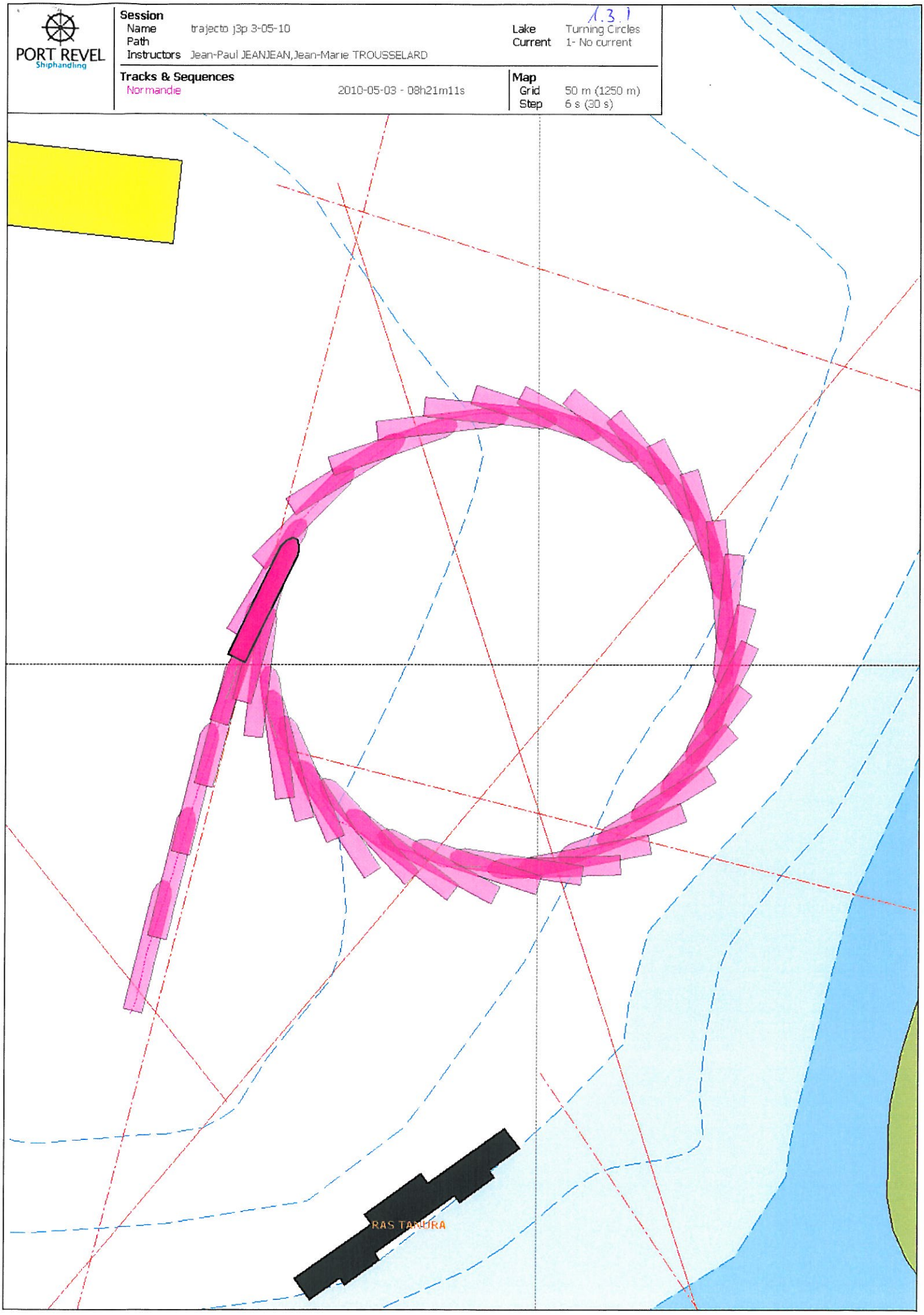
Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

1.3.1

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 Lake : Turning Circles 1.31
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : 7 Stop : 8
Students
Notes:
pod babord (extérieur) à 325degrés lancé à 10 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs		knots		°	kts	°		rpm	°	rpm	°
	09h11m38s	5.0	9.5	10.0	14	0	0	Stop	72	0	73	22
	09h11m39s	5.0	9.5	10.0	14	0	0	Stop	72	0	73	22
	09h11m40s	5.0	9.5	10.0	14	0	0	Stop	71	-1	73	17
	09h11m41s	5.0	9.5	10.0	14	0	0	Stop	71	-1	73	17
	09h11m42s	5.0	9.5	10.0	14	0	0	Stop	71	-0	73	359
	09h11m43s	5.0	9.5	10.0	14	0	0	Stop	71	-0	73	359
	09h11m44s	5.0	9.5	10.0	14	0	0	Stop	72	-1	73	357
	09h11m45s	5.0	9.5	10.0	14	0	0	Stop	72	-1	73	357
	09h11m46s	5.0	9.5	10.0	14	0	0	Stop	71	-1	74	359
	09h11m47s	5.0	9.5	10.0	14	0	0	Stop	71	-1	74	359
	09h11m48s	5.0	9.5	10.0	14	0	0	Stop	71	0	73	359
	09h11m49s	5.0	9.5	10.0	14	0	0	Stop	71	0	73	359
	09h11m50s	5.0	9.5	10.0	13	0	0	Stop	71	-1	74	359
	09h11m51s	5.0	9.5	10.0	13	0	0	Stop	71	-1	74	359
	09h11m52s	5.0	9.5	10.0	14	0	0	Stop	71	0	73	71
	09h11m53s	5.0	9.5	10.0	14	0	0	Stop	71	0	73	71
	09h11m54s	5.0	10.0	10.5	14	0	0	Stop	71	-1	73	360
	09h11m55s	5.0	10.0	10.5	14	0	0	Stop	71	-1	73	360
	09h11m56s	5.0	10.0	10.0	14	0	0	Stop	71	-2	72	361
	09h11m57s	5.0	10.0	10.0	14	0	0	Stop	71	-2	72	361
	09h11m58s	5.0	10.0	10.5	14	0	0	Stop	73	333	1	358
	09h11m59s	5.0	10.0	10.5	14	0	0	Stop	73	333	1	358
	09h12m00s	5.0	9.5	10.0	15	0	0	Stop	77	332	-5	358
	09h12m01s	5.0	9.5	10.0	15	0	0	Stop	77	332	-5	358
	09h12m02s	5.0	9.5	10.0	15	0	0	Stop	79	333	-6	358
	09h12m03s	5.0	9.5	10.0	15	0	0	Stop	79	333	-6	358
!	09h12m04s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	09h12m05s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	09h12m06s	5.0	9.0	9.5	19	0	0	Stop	80	332	-5	359
	09h12m07s	5.0	9.0	9.5	19	0	0	Stop	80	332	-5	359
	09h12m08s	5.0	9.0	9.5	25	0	0	Stop	77	333	-5	358
	09h12m09s	5.0	9.0	9.5	25	0	0	Stop	77	333	-5	358
	09h12m10s	5.0	8.5	9.0	28	0	0	Stop	72	331	-5	360
	09h12m11s	5.0	8.5	9.0	28	0	0	Stop	72	331	-5	360
	09h12m12s	5.0	8.0	9.0	31	0	0	Stop	73	332	-5	358
	09h12m13s	5.0	8.0	9.0	31	0	0	Stop	73	332	-5	358
	09h12m14s	5.0	7.5	8.5	38	0	0	Stop	73	332	-5	360
	09h12m15s	5.0	7.5	8.5	38	0	0	Stop	73	332	-5	360
	09h12m16s	5.0	7.0	8.5	41	0	0	Stop	73	332	-5	359
	09h12m17s	5.0	7.0	8.5	41	0	0	Stop	73	332	-5	359
	09h12m18s	5.0	6.5	8.0	45	0	0	Stop	73	331	-6	360
	09h12m19s	5.0	6.5	8.0	45	0	0	Stop	73	331	-6	360
	09h12m20s	5.0	5.5	7.5	51	0	0	Stop	73	332	-6	358
	09h12m21s	5.0	5.5	7.5	51	0	0	Stop	73	332	-6	358
	09h12m22s	5.0	5.5	7.5	55	0	0	Stop	73	333	-5	360

09h13m24s	0.0	-5.0	5.0	175	0	0	Stop	73	331	0	360
09h13m25s	0.0	-5.0	5.0	175	0	0	Stop	73	331	0	360
09h13m26s	0.0	-5.0	5.0	178	0	0	Stop	73	332	0	358
09h13m27s	0.0	-5.0	5.0	178	0	0	Stop	73	332	0	358
09h13m28s	0.0	-5.0	5.0	180	0	0	Stop	73	331	0	359
09h13m29s	0.0	-5.0	5.0	180	0	0	Stop	73	331	0	359
09h13m30s	0.0	-5.0	5.0	186	0	0	Stop	73	331	0	358
09h13m31s	0.0	-5.0	5.0	186	0	0	Stop	73	331	0	358
09h13m32s	0.0	-5.0	5.0	188	0	0	Stop	73	332	0	360
09h13m33s	0.0	-5.0	5.0	188	0	0	Stop	73	332	0	360
09h13m34s	0.0	-5.0	5.0	191	0	0	Stop	73	332	1	359
09h13m35s	0.0	-5.0	5.0	191	0	0	Stop	73	332	1	359
09h13m36s	-0.0	-5.0	5.0	196	0	0	Stop	73	333	0	360
09h13m37s	-0.0	-5.0	5.0	196	0	0	Stop	73	333	0	360
09h13m38s	-0.0	-5.0	5.0	199	0	0	Stop	73	330	0	360
09h13m39s	-0.0	-5.0	5.0	199	0	0	Stop	73	330	0	360
09h13m40s	-0.0	-5.0	5.0	202	0	0	Stop	73	330	0	358
09h13m41s	-0.0	-5.0	5.0	202	0	0	Stop	73	330	0	358
09h13m42s	-0.0	-4.5	5.0	207	0	0	Stop	72	331	0	358
09h13m43s	-0.0	-4.5	5.0	207	0	0	Stop	72	331	0	358
09h13m44s	-0.0	-5.0	5.5	210	0	0	Stop	73	331	0	359
09h13m45s	-0.0	-5.0	5.5	210	0	0	Stop	73	331	0	359
09h13m46s	-0.0	-4.5	5.0	212	0	0	Stop	73	332	0	359
09h13m47s	-0.0	-4.5	5.0	212	0	0	Stop	73	332	0	359
09h13m48s	-0.0	-4.5	5.0	218	0	0	Stop	73	331	0	360
09h13m49s	-0.0	-4.5	5.0	218	0	0	Stop	73	331	0	360
09h13m50s	-0.0	-4.5	5.0	220	0	0	Stop	73	331	0	359
09h13m51s	-0.0	-4.5	5.0	220	0	0	Stop	73	331	0	359
09h13m52s	-5.0	-4.5	5.0	223	0	0	Stop	73	333	0	360
09h13m53s	-5.0	-4.5	5.0	223	0	0	Stop	73	333	0	360
09h13m54s	-5.0	-4.0	5.0	228	0	0	Stop	73	331	0	359
09h13m55s	-5.0	-4.0	5.0	228	0	0	Stop	73	331	0	359
09h13m56s	-5.0	-4.0	5.0	231	0	0	Stop	72	332	0	360
09h13m57s	-5.0	-4.0	5.0	231	0	0	Stop	72	332	0	360
09h13m58s	-5.0	-4.0	5.0	234	0	0	Stop	73	332	0	360
09h13m59s	-5.0	-4.0	5.0	234	0	0	Stop	73	332	0	360
09h14m00s	-5.0	-3.5	5.0	239	0	0	Stop	73	333	0	361
09h14m01s	-5.0	-3.5	5.0	239	0	0	Stop	73	333	0	361
09h14m02s	-5.0	-3.5	5.0	242	0	0	Stop	72	332	0	359
09h14m03s	-5.0	-3.5	5.0	242	0	0	Stop	72	332	0	359
09h14m04s	-5.0	-3.0	5.0	244	0	0	Stop	73	331	0	360
09h14m05s	-5.0	-3.0	5.0	244	0	0	Stop	73	331	0	360
09h14m06s	-5.0	-3.0	5.0	250	0	0	Stop	73	332	0	359
09h14m07s	-5.0	-3.0	5.0	250	0	0	Stop	73	332	0	359
09h14m08s	-5.0	-2.5	5.0	252	0	0	Stop	73	331	0	359
09h14m09s	-5.0	-2.5	5.0	252	0	0	Stop	73	331	0	359
09h14m10s	-5.0	-2.5	5.5	255	0	0	Stop	73	332	0	359
09h14m11s	-5.0	-2.5	5.5	255	0	0	Stop	73	332	0	359
09h14m12s	-5.0	-2.0	5.0	259	0	0	Stop	73	333	1	359
09h14m13s	-5.0	-2.0	5.0	259	0	0	Stop	73	333	1	359
09h14m14s	-5.0	-2.0	5.0	263	0	0	Stop	73	331	0	359
09h14m15s	-5.0	-2.0	5.0	263	0	0	Stop	73	331	0	359
09h14m16s	-5.0	-1.5	5.0	266	0	0	Stop	73	331	0	359
09h14m17s	-5.0	-1.5	5.0	266	0	0	Stop	73	331	0	359
09h14m18s	-5.0	-1.0	5.0	268	0	0	Stop	73	331	0	359
09h14m19s	-5.0	-1.0	5.0	268	0	0	Stop	73	331	0	359
09h14m20s	-5.0	-1.0	5.0	273	0	0	Stop	73	332	1	359
09h14m21s	-5.0	-1.0	5.0	273	0	0	Stop	73	332	1	359
09h14m22s	-5.0	-0.5	5.0	276	0	0	Stop	73	332	0	360
09h14m23s	-5.0	-0.5	5.0	276	0	0	Stop	73	332	0	360
09h14m24s	-5.0	-0.5	5.0	278	0	0	Stop	72	331	1	361

09h15m22s	-0.0	4.5	4.5	11	0	0	Stop	73	331	1	360
09h15m23s	-0.0	4.5	4.5	11	0	0	Stop	73	331	1	360
09h15m24s	0.0	4.5	4.5	13	0	0	Stop	73	332	0	358
09h15m25s	0.0	4.5	4.5	13	0	0	Stop	73	332	0	358
09h15m26s	0.0	4.5	4.5	15	0	0	Stop	73	331	0	359
09h15m27s	0.0	4.5	4.5	15	0	0	Stop	73	331	0	359
09h15m28s	0.0	4.5	4.5	20	0	0	Stop	73	331	59	328
09h15m29s	0.0	4.5	4.5	20	0	0	Stop	73	331	59	328
09h15m30s	0.0	4.5	4.5	23	0	0	Stop	73	330	59	328
09h15m31s	0.0	4.5	4.5	23	0	0	Stop	73	330	59	328
09h15m32s	0.0	4.5	4.5	26	0	0	Stop	37	281	60	328
09h15m33s	0.0	4.5	4.5	26	0	0	Stop	37	281	60	328

PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

A.3.1
Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)

PORT REVEL
Shiphandling

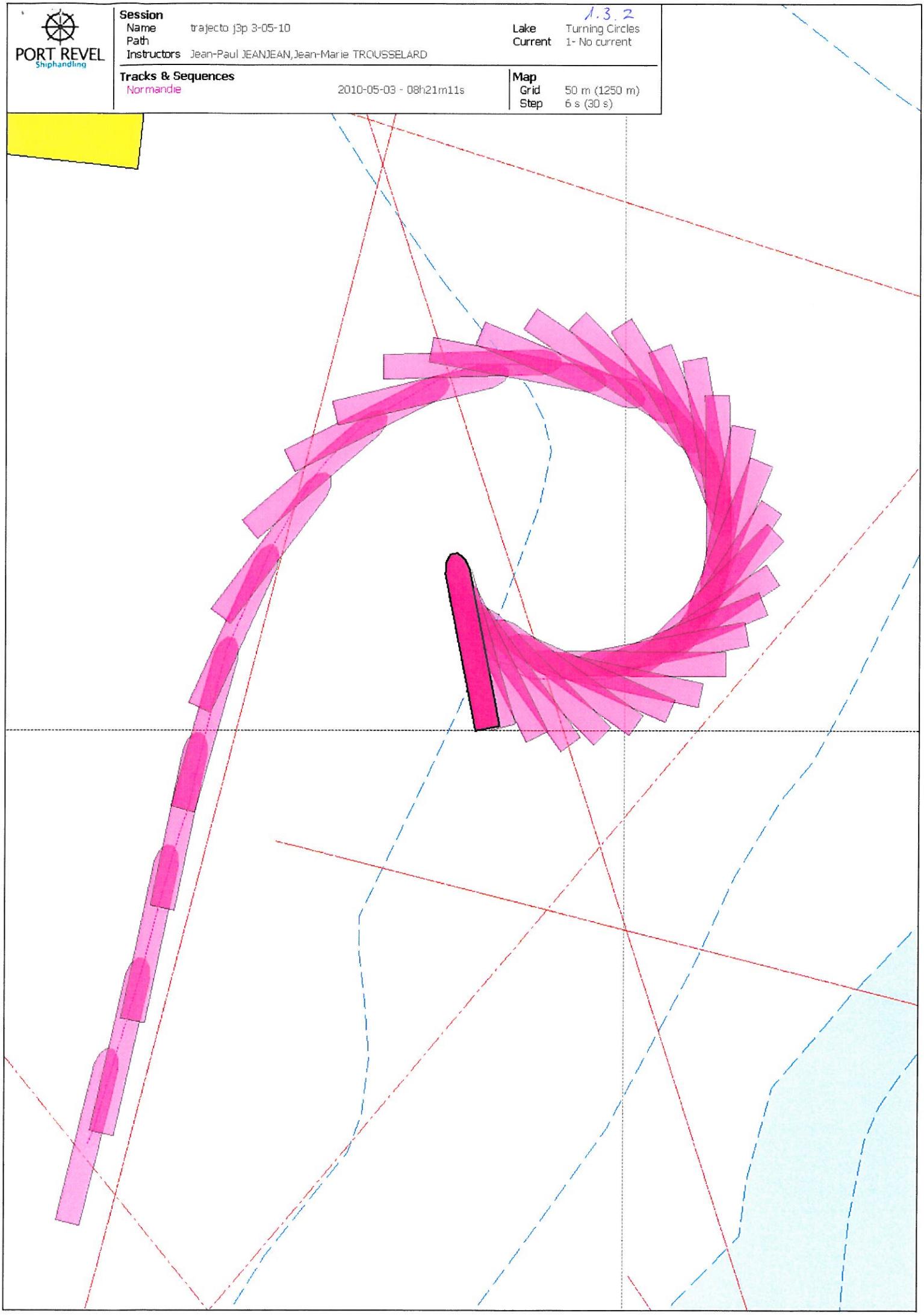
1.3.2

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 Lake : Turning Circles 1.3.2
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : t9 Stop : t10
Students
Notes:
pod tribord (intérieur) à 35° lancé à 10.5 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	09h20m55s	5.0	9.5	9.5	13	0	0	Stop	72	-1	74	360
	09h20m56s	5.0	9.5	10.0	14	0	0	Stop	72	0	74	360
	09h20m57s	5.0	9.5	10.0	14	0	0	Stop	72	0	74	360
	09h20m58s	5.0	9.5	10.0	13	0	0	Stop	72	-1	74	359
	09h20m59s	5.0	9.5	10.0	13	0	0	Stop	72	-1	74	359
	09h21m00s	5.0	9.5	10.0	13	0	0	Stop	72	0	74	359
	09h21m01s	5.0	9.5	10.0	13	0	0	Stop	72	0	74	359
	09h21m02s	5.0	9.5	10.0	13	0	0	Stop	72	-0	74	358
	09h21m03s	5.0	9.5	10.0	13	0	0	Stop	72	-0	74	358
	09h21m04s	5.0	9.5	10.0	13	0	0	Stop	72	-1	74	360
	09h21m05s	5.0	9.5	10.0	13	0	0	Stop	72	-1	74	360
	09h21m06s	5.0	9.5	10.0	12	0	0	Stop	73	-0	74	349
	09h21m07s	5.0	9.5	10.0	12	0	0	Stop	73	-0	74	349
	09h21m08s	5.0	10.0	10.0	12	0	0	Stop	72	1	74	360
	09h21m09s	5.0	10.0	10.0	12	0	0	Stop	72	1	74	360
	09h21m10s	5.0	10.0	10.0	12	0	0	Stop	72	0	74	360
	09h21m11s	5.0	10.0	10.0	12	0	0	Stop	72	0	74	360
	09h21m12s	5.0	10.0	10.5	12	0	0	Stop	2	-1	74	334
	09h21m13s	5.0	10.0	10.5	12	0	0	Stop	2	-1	74	334
	09h21m14s	5.0	10.0	10.5	12	0	0	Stop	-0	-0	74	328
	09h21m15s	5.0	10.0	10.5	12	0	0	Stop	-0	-0	74	328
	09h21m16s	0.0	9.5	10.0	12	0	0	Stop	-0	1	73	327
	09h21m17s	0.0	9.5	10.0	12	0	0	Stop	-0	1	73	327
	09h21m18s	0.0	9.5	9.5	14	0	0	Stop	-1	-0	74	327
	09h21m19s	0.0	9.5	9.5	14	0	0	Stop	-1	-0	74	327
	09h21m20s	0.0	9.0	9.5	16	0	0	Stop	-0	-1	74	328
	09h21m21s	0.0	9.0	9.5	16	0	0	Stop	-0	-1	74	328
	09h21m22s	0.0	9.0	9.5	17	0	0	Stop	-0	0	74	328
	09h21m23s	0.0	9.0	9.5	17	0	0	Stop	-0	0	74	328
	09h21m24s	5.0	8.5	9.0	22	0	0	Stop	-1	-1	74	328
	09h21m25s	5.0	8.5	9.0	22	0	0	Stop	-1	-1	74	328
	09h21m26s	5.0	8.0	8.5	25	0	0	Stop	-1	-0	74	327
	09h21m27s	5.0	8.0	8.5	25	0	0	Stop	-1	-0	74	327
	09h21m28s	5.0	8.0	8.5	28	0	0	Stop	0	-2	74	328
	09h21m29s	5.0	8.0	8.5	28	0	0	Stop	0	-2	74	328
	09h21m30s	5.0	7.5	8.0	34	0	0	Stop	-0	0	74	327
	09h21m31s	5.0	7.5	8.0	34	0	0	Stop	-0	0	74	327
	09h21m32s	5.0	7.0	7.5	37	0	0	Stop	0	-1	74	328
	09h21m33s	5.0	7.0	7.5	37	0	0	Stop	0	-1	74	328
	09h21m34s	5.0	6.5	7.5	40	0	0	Stop	-0	-1	74	327
	09h21m35s	5.0	6.5	7.5	40	0	0	Stop	-0	-1	74	327
	09h21m36s	5.0	5.5	7.0	46	0	0	Stop	-1	-0	74	328
	09h21m37s	5.0	5.5	7.0	46	0	0	Stop	-1	-0	74	328
	09h21m38s	5.0	5.5	7.0	50	0	0	Stop	0	-1	74	328
	09h21m39s	5.0	5.5	7.0	50	0	0	Stop	0	-1	74	328

09h22m41s	0.0	-2.5	3.0	173	0	0	Stop	-0	0	73	326
09h22m42s	0.0	-2.5	3.0	176	0	0	Stop	-0	-1	74	328
09h22m43s	0.0	-2.5	3.0	176	0	0	Stop	-0	-1	74	328
09h22m44s	0.0	-2.5	3.0	180	0	0	Stop	-0	-2	74	328
09h22m45s	0.0	-2.5	3.0	180	0	0	Stop	-0	-2	74	328
09h22m46s	0.0	-2.5	3.0	186	0	0	Stop	-0	-1	74	328
09h22m47s	0.0	-2.5	3.0	186	0	0	Stop	-0	-1	74	328
09h22m48s	0.0	-2.5	2.5	188	0	0	Stop	-0	-1	74	329
09h22m49s	0.0	-2.5	2.5	188	0	0	Stop	-0	-1	74	329
09h22m50s	0.0	-3.0	3.0	191	0	0	Stop	-1	0	74	328
09h22m51s	0.0	-3.0	3.0	191	0	0	Stop	-1	0	74	328
09h22m52s	0.0	-2.5	2.5	194	0	0	Stop	-0	-1	74	328
09h22m53s	0.0	-2.5	2.5	194	0	0	Stop	-0	-1	74	328
09h22m54s	0.0	-2.5	2.5	200	0	0	Stop	-1	-1	74	329
09h22m55s	0.0	-2.5	2.5	200	0	0	Stop	-1	-1	74	329
09h22m56s	0.0	-2.5	2.5	203	0	0	Stop	0	-0	74	327
09h22m57s	0.0	-2.5	2.5	203	0	0	Stop	0	-0	74	327
09h22m58s	0.0	-2.5	2.5	205	0	0	Stop	-0	-2	74	329
09h22m59s	0.0	-2.5	2.5	205	0	0	Stop	-0	-2	74	329
09h23m00s	-0.0	-2.5	2.5	211	0	0	Stop	-0	1	74	328
09h23m01s	-0.0	-2.5	2.5	211	0	0	Stop	-0	1	74	328
09h23m02s	-0.0	-2.5	2.5	214	0	0	Stop	0	-1	74	328
09h23m03s	-0.0	-2.5	2.5	214	0	0	Stop	0	-1	74	328
09h23m04s	-0.0	-2.5	2.5	217	0	0	Stop	-1	-1	74	326
09h23m05s	-0.0	-2.5	2.5	217	0	0	Stop	-1	-1	74	326
09h23m06s	-0.0	-2.5	2.5	223	0	0	Stop	0	-1	74	328
09h23m07s	-0.0	-2.5	2.5	223	0	0	Stop	0	-1	74	328
09h23m08s	-0.0	-2.5	2.5	225	0	0	Stop	-0	-2	74	327
09h23m09s	-0.0	-2.5	2.5	225	0	0	Stop	-0	-2	74	327
09h23m10s	-0.0	-2.5	2.5	228	0	0	Stop	-0	-0	74	329
09h23m11s	-0.0	-2.5	2.5	228	0	0	Stop	-0	-0	74	329
09h23m12s	-0.0	-2.0	2.5	234	0	0	Stop	-0	-1	74	328
09h23m13s	-0.0	-2.0	2.5	234	0	0	Stop	-0	-1	74	328
09h23m14s	-0.0	-2.0	2.5	237	0	0	Stop	-0	-2	74	328
09h23m15s	-0.0	-2.0	2.5	237	0	0	Stop	-0	-2	74	328
09h23m16s	-0.0	-2.0	2.5	239	0	0	Stop	-0	-0	74	328
09h23m17s	-0.0	-2.0	2.5	239	0	0	Stop	-0	-0	74	328
09h23m18s	-0.0	-2.0	2.5	245	0	0	Stop	-1	-0	74	328
09h23m19s	-0.0	-2.0	2.5	245	0	0	Stop	-1	-0	74	328
09h23m20s	-0.0	-2.0	2.5	248	0	0	Stop	-0	-1	74	328
09h23m21s	-0.0	-2.0	2.5	248	0	0	Stop	-0	-1	74	328
09h23m22s	-0.0	-1.5	2.5	251	0	0	Stop	-0	-1	74	328
09h23m23s	-0.0	-1.5	2.5	251	0	0	Stop	-0	-1	74	328
09h23m24s	-0.0	-1.5	2.5	256	0	0	Stop	-0	-1	74	327
09h23m25s	-0.0	-1.5	2.5	256	0	0	Stop	-0	-1	74	327
09h23m26s	-0.0	-1.5	2.5	259	0	0	Stop	-1	-0	74	328
09h23m27s	-0.0	-1.5	2.5	259	0	0	Stop	-1	-0	74	328
09h23m28s	-0.0	-1.5	2.5	261	0	0	Stop	-0	-0	74	328
09h23m29s	-0.0	-1.5	2.5	261	0	0	Stop	-0	-0	74	328
09h23m30s	-0.0	-1.0	2.5	268	0	0	Stop	-1	-0	74	327
09h23m31s	-0.0	-1.0	2.5	268	0	0	Stop	-1	-0	74	327
09h23m32s	-0.0	-1.0	2.5	270	0	0	Stop	0	-0	75	326
09h23m33s	-0.0	-1.0	2.5	270	0	0	Stop	0	-0	75	326
09h23m34s	-0.0	-1.0	2.5	274	0	0	Stop	-0	-1	74	327
09h23m35s	-0.0	-1.0	2.5	274	0	0	Stop	-0	-1	74	327
09h23m36s	-0.0	-1.0	2.5	279	0	0	Stop	-0	-1	74	329
09h23m37s	-0.0	-1.0	2.5	279	0	0	Stop	-0	-1	74	329
09h23m38s	-0.0	-0.5	2.5	282	0	0	Stop	-1	-1	74	328
09h23m39s	-0.0	-0.5	2.5	282	0	0	Stop	-1	-1	74	328
09h23m40s	-0.0	-0.5	2.5	285	0	0	Stop	-0	-2	74	328
09h23m41s	-0.0	-0.5	2.5	285	0	0	Stop	-0	-2	74	328

PORT REVEL
Shiphandling

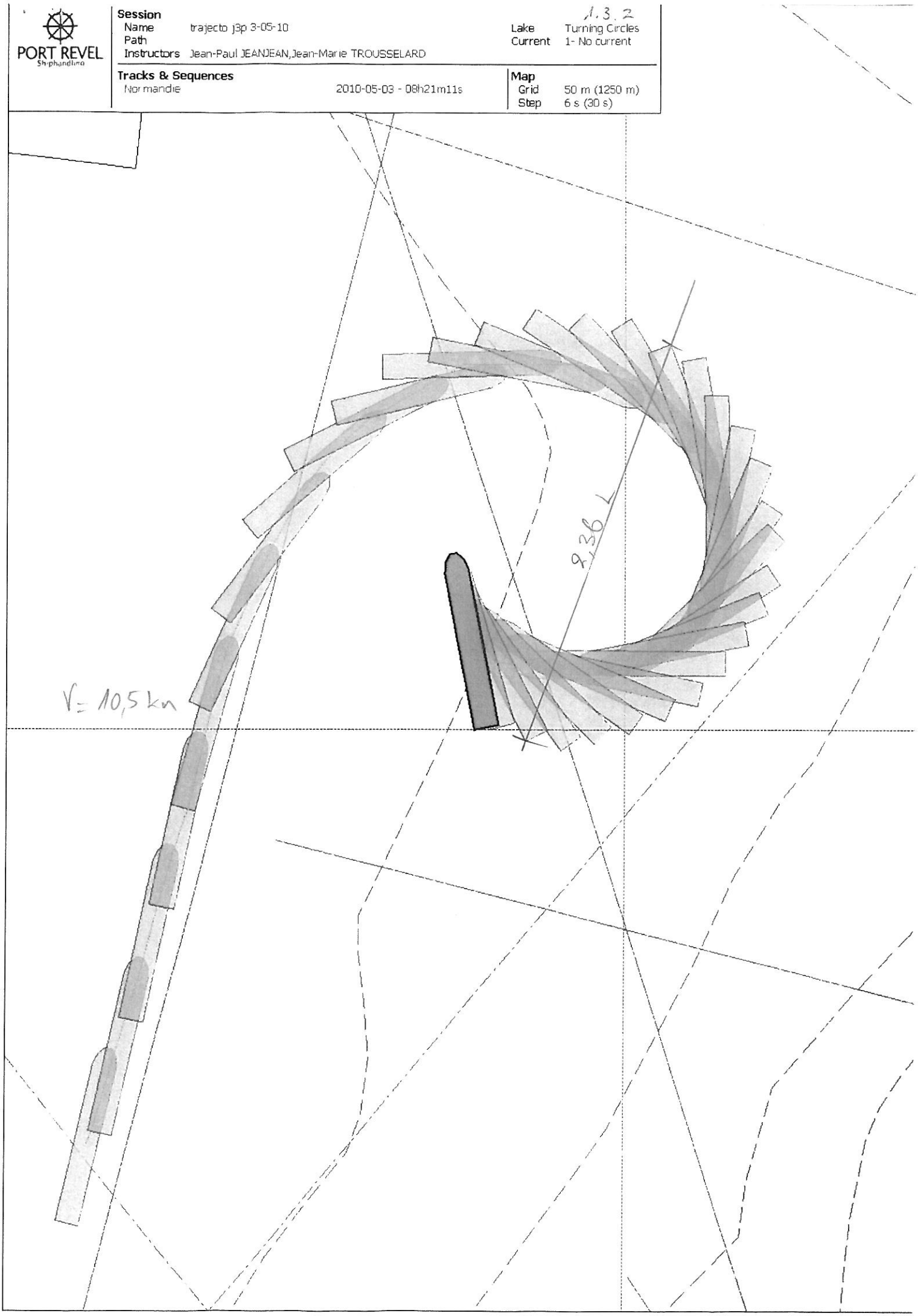
Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

1.3.2

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



PORT REVEL
Shiphandling

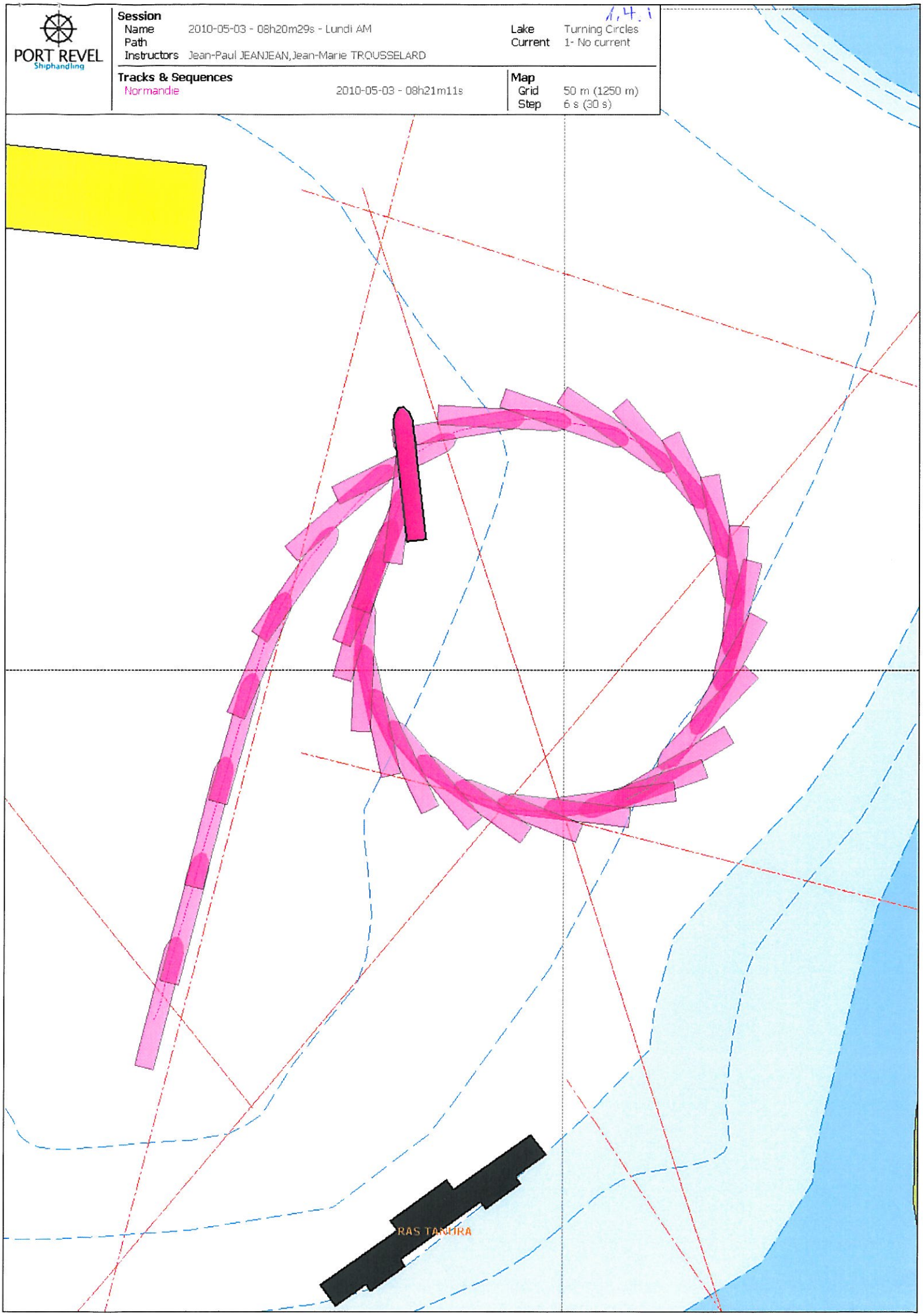
Session
Name 2010-05-03 - 08h20m29s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

1,4.1

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

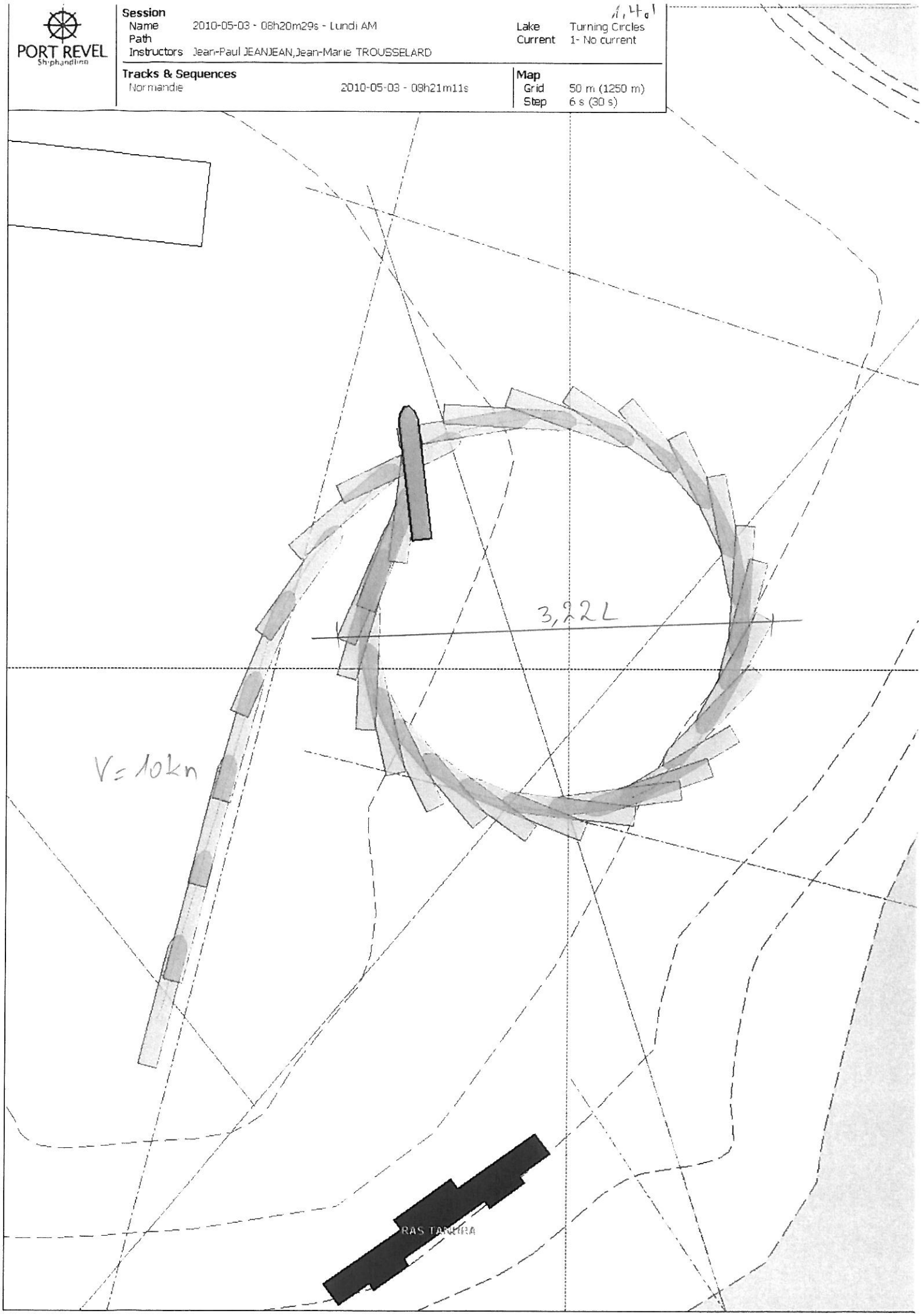
Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : 2010-05-03 - 08h20m29s - Lundi AM Lake : Turning Circles (1.4.)
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : 3 Stop : 4
Students
Notes:
pods à 340 degrés vitesse initiale 10 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	08h53m00s	5.0	10.0	10.5	14	0	0	Stop	72	-1	75	358
	08h53m01s	5.0	10.0	10.5	14	0	0	Stop	72	-1	75	358
	08h53m02s	5.0	10.0	10.5	14	0	0	Stop	72	-1	75	360
	08h53m03s	5.0	10.0	10.5	14	0	0	Stop	72	-1	75	360
	08h53m04s	5.0	10.0	10.5	15	0	0	Stop	72	-0	76	14
	08h53m05s	5.0	10.0	10.5	15	0	0	Stop	72	-0	76	14
	08h53m06s	5.0	10.0	10.5	15	0	0	Stop	72	0	75	358
	08h53m07s	5.0	10.0	10.5	15	0	0	Stop	72	0	75	358
	08h53m08s	5.0	10.0	10.5	15	0	0	Stop	71	0	74	360
	08h53m09s	5.0	10.0	10.5	15	0	0	Stop	71	0	74	360
	08h53m10s	5.0	10.0	10.5	14	0	0	Stop	72	-0	73	360
	08h53m11s	5.0	10.0	10.5	14	0	0	Stop	72	-0	73	360
	08h53m12s	5.0	10.0	10.5	14	0	0	Stop	72	0	74	358
	08h53m13s	5.0	10.0	10.5	14	0	0	Stop	72	0	74	358
	08h53m14s	5.0	10.0	10.5	15	0	0	Stop	72	-1	74	360
	08h53m15s	5.0	10.0	10.5	15	0	0	Stop	72	-1	74	360
	08h53m16s	5.0	10.5	10.5	14	0	0	Stop	72	-1	74	359
	08h53m17s	5.0	10.5	10.5	14	0	0	Stop	72	-1	74	359
	08h53m18s	5.0	10.5	10.5	15	0	0	Stop	72	350	73	339
	08h53m19s	5.0	10.5	10.5	15	0	0	Stop	72	350	73	339
	08h53m20s	5.0	10.0	10.5	16	0	0	Stop	72	349	74	338
	08h53m21s	5.0	10.0	10.5	16	0	0	Stop	72	349	74	338
	08h53m22s	5.0	10.0	10.5	17	0	0	Stop	72	348	74	339
	08h53m23s	5.0	10.0	10.5	17	0	0	Stop	72	348	74	339
	08h53m24s	5.0	10.0	10.5	20	0	0	Stop	72	350	74	337
	08h53m25s	5.0	10.0	10.5	20	0	0	Stop	72	350	74	337
	08h53m26s	5.0	10.0	10.5	23	0	0	Stop	72	349	73	339
	08h53m27s	5.0	10.0	10.5	23	0	0	Stop	72	349	73	339
	08h53m28s	5.0	9.5	10.5	26	0	0	Stop	72	350	74	339
	08h53m29s	5.0	9.5	10.5	26	0	0	Stop	72	350	74	339
	08h53m30s	5.0	9.5	10.0	29	0	0	Stop	72	349	73	339
	08h53m31s	5.0	9.5	10.0	29	0	0	Stop	72	349	73	339
	08h53m32s	5.0	8.5	10.0	35	0	0	Stop	72	348	74	339
	08h53m33s	5.0	8.5	10.0	35	0	0	Stop	72	348	74	339
	08h53m34s	5.0	8.5	10.0	39	0	0	Stop	72	348	73	338
	08h53m35s	5.0	8.5	10.0	39	0	0	Stop	72	348	73	338
	08h53m36s	5.0	8.0	9.5	42	0	0	Stop	72	348	74	339
	08h53m37s	5.0	8.0	9.5	42	0	0	Stop	72	348	74	339
	08h53m38s	5.0	7.0	9.5	49	0	0	Stop	72	348	74	339
	08h53m39s	5.0	7.0	9.5	49	0	0	Stop	72	348	74	339
	08h53m40s	5.0	6.5	9.0	53	0	0	Stop	72	348	74	339
	08h53m41s	5.0	6.5	9.0	53	0	0	Stop	72	348	74	339
	08h53m42s	5.0	6.0	8.5	57	0	0	Stop	72	348	74	339
	08h53m43s	5.0	6.0	8.5	57	0	0	Stop	72	348	74	339
	08h53m44s	5.0	5.0	8.5	64	0	0	Stop	72	347	73	339

	08h54m46s	-0.0	-5.5	6.0	217	0	0	Stop	72	348	73	339
	08h54m47s	-0.0	-5.5	6.0	217	0	0	Stop	72	348	73	339
	08h54m48s	-5.0	-5.5	6.5	220	0	0	Stop	72	348	74	339
	08h54m49s	-5.0	-5.5	6.5	220	0	0	Stop	72	348	74	339
	08h54m50s	-5.0	-5.0	6.0	224	0	0	Stop	72	347	74	341
	08h54m51s	-5.0	-5.0	6.0	224	0	0	Stop	72	347	74	341
	08h54m52s	-5.0	-4.5	6.0	231	0	0	Stop	72	348	74	338
	08h54m53s	-5.0	-4.5	6.0	231	0	0	Stop	72	348	74	338
	08h54m54s	-5.0	-4.5	6.0	235	0	0	Stop	72	349	73	339
	08h54m55s	-5.0	-4.5	6.0	235	0	0	Stop	72	349	73	339
	08h54m56s	-5.0	-4.0	6.0	239	0	0	Stop	72	347	73	339
	08h54m57s	-5.0	-4.0	6.0	239	0	0	Stop	72	347	73	339
	08h54m58s	-5.0	-3.5	5.5	243	0	0	Stop	72	349	74	338
	08h54m59s	-5.0	-3.5	5.5	243	0	0	Stop	72	349	74	338
!	08h55m00s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	08h55m01s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	08h55m00s	-5.0	-3.0	6.0	251	0	0	Stop	72	348	74	339
	08h55m03s	-5.0	-3.0	6.0	251	0	0	Stop	72	348	74	339
!	08h55m01s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	08h55m02s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	08h55m04s	-5.0	-2.5	6.0	258	0	0	Stop	72	347	74	338
	08h55m05s	-5.0	-2.5	6.0	258	0	0	Stop	72	347	74	338
	08h55m06s	-5.0	-2.0	5.5	263	0	0	Stop	72	347	74	338
	08h55m07s	-5.0	-2.0	5.5	263	0	0	Stop	72	347	74	338
	08h55m08s	-5.0	-1.5	5.5	270	0	0	Stop	72	348	74	338
	08h55m09s	-5.0	-1.5	5.5	270	0	0	Stop	72	348	74	338
	08h55m10s	-5.0	-1.0	5.5	273	0	0	Stop	72	348	74	339
	08h55m11s	-5.0	-1.0	5.5	273	0	0	Stop	72	348	74	339
	08h55m12s	-5.0	-1.0	5.5	277	0	0	Stop	72	348	73	339
	08h55m13s	-5.0	-1.0	5.5	277	0	0	Stop	72	348	73	339
	08h55m14s	-5.0	-0.5	6.0	284	0	0	Stop	72	348	74	341
	08h55m15s	-5.0	-0.5	6.0	284	0	0	Stop	72	348	74	341
	08h55m16s	-5.0	0.0	6.0	288	0	0	Stop	72	347	74	340
	08h55m17s	-5.0	0.0	6.0	288	0	0	Stop	72	347	74	340
	08h55m18s	-5.0	0.5	5.5	292	0	0	Stop	72	348	73	339
	08h55m19s	-5.0	0.5	5.5	292	0	0	Stop	72	348	73	339
	08h55m20s	-5.0	1.0	5.5	295	0	0	Stop	72	348	74	340
	08h55m21s	-5.0	1.0	5.5	295	0	0	Stop	72	348	74	340
	08h55m22s	-5.0	1.5	5.5	302	0	0	Stop	72	349	74	339
	08h55m23s	-5.0	1.5	5.5	302	0	0	Stop	72	349	74	339
	08h55m24s	-5.0	2.0	5.5	306	0	0	Stop	72	348	74	338
	08h55m25s	-5.0	2.0	5.5	306	0	0	Stop	72	348	74	338
	08h55m26s	-5.0	2.0	5.5	309	0	0	Stop	72	348	73	338
	08h55m27s	-5.0	2.0	5.5	309	0	0	Stop	72	348	73	338
	08h55m28s	-5.0	3.0	5.5	316	0	0	Stop	72	346	74	339
	08h55m29s	-5.0	3.0	5.5	316	0	0	Stop	72	346	74	339
	08h55m30s	-5.0	3.0	5.5	320	0	0	Stop	72	348	74	339
	08h55m31s	-5.0	3.0	5.5	320	0	0	Stop	72	348	74	339
	08h55m32s	-5.0	3.5	5.5	323	0	0	Stop	72	348	73	337
	08h55m33s	-5.0	3.5	5.5	323	0	0	Stop	72	348	73	337
	08h55m34s	-5.0	4.0	5.5	331	0	0	Stop	72	348	74	340
	08h55m35s	-5.0	4.0	5.5	331	0	0	Stop	72	348	74	340
	08h55m36s	-5.0	4.0	5.5	334	0	0	Stop	72	346	73	340
	08h55m37s	-5.0	4.0	5.5	334	0	0	Stop	72	346	73	340
	08h55m38s	-5.0	4.5	5.5	337	0	0	Stop	72	348	74	339
	08h55m39s	-5.0	4.5	5.5	337	0	0	Stop	72	348	74	339
	08h55m40s	-5.0	4.5	5.5	344	0	0	Stop	73	347	74	337
	08h55m41s	-5.0	4.5	5.5	344	0	0	Stop	73	347	74	337
	08h55m42s	-0.0	5.0	5.5	348	0	0	Stop	72	347	74	340
	08h55m43s	-0.0	5.0	5.5	348	0	0	Stop	72	347	74	340
	08h55m44s	-0.0	5.0	5.5	352	0	0	Stop	72	348	74	339


PORT REVEL
Shiphandling
Session
Name 2010-05-03 - 08h20m29s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
Lake Turning Circles
Current 1- No current
Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
3,22L
V=10kn
RAS TANURA

PORT REVEL
Shiphandling

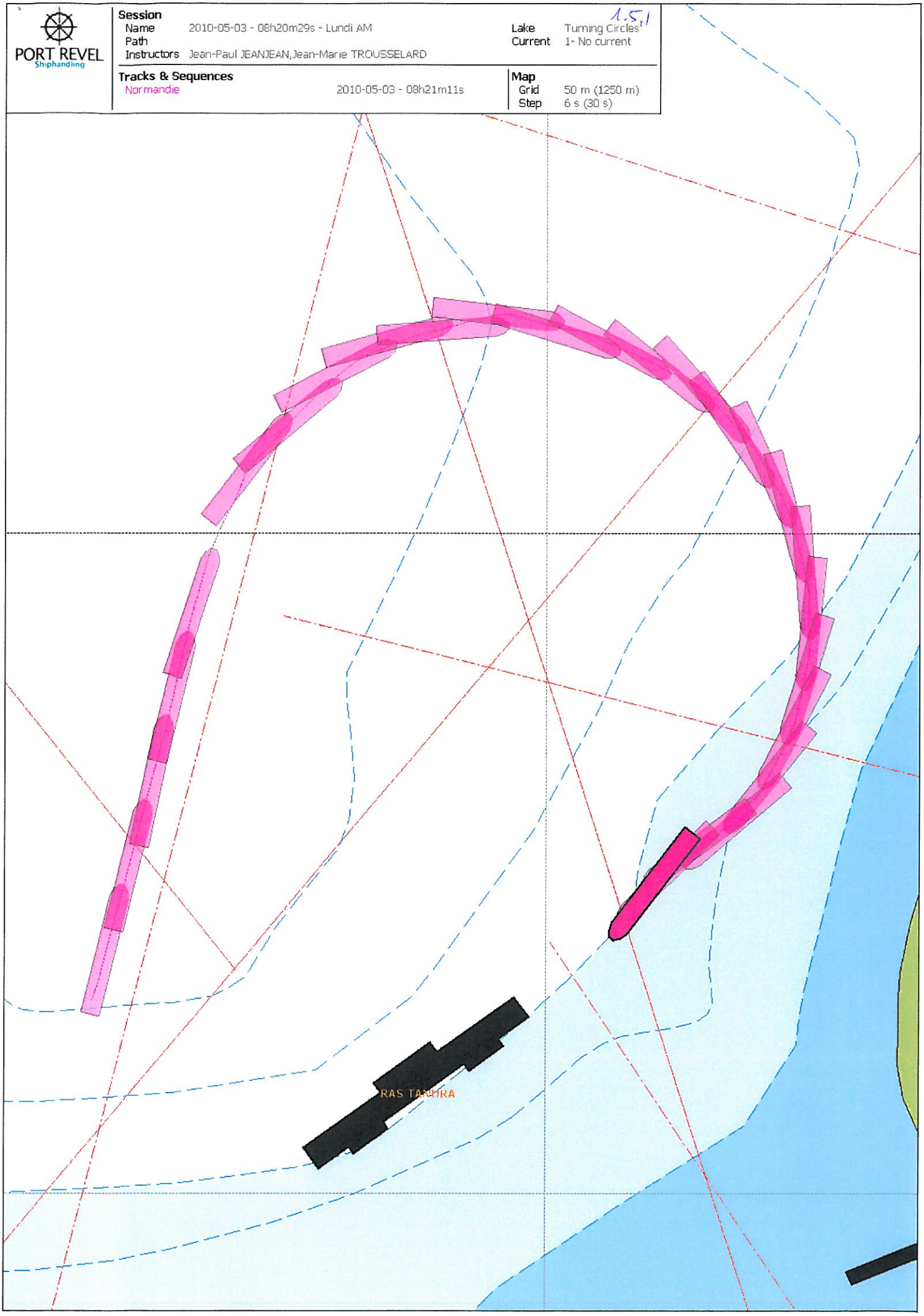
Session
Name 2010-05-03 - 08h20m29s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

1.5.1

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

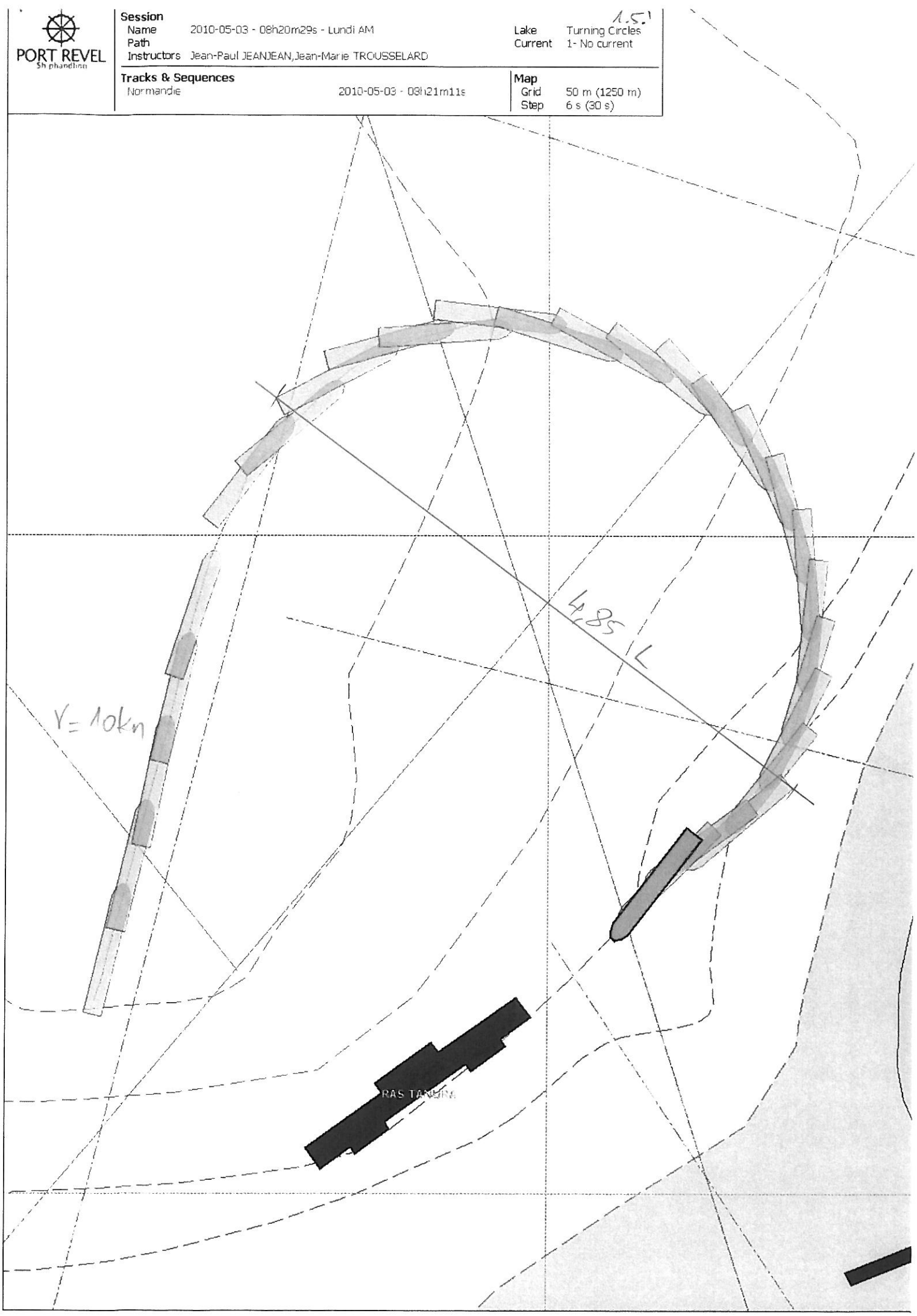
Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : 2010-05-03 - 08h20m29s - Lundi AM Lake : Turning Circles 1.5.1
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : 1 Stop : 2
Students
Notes:
pods à 350 degrés vitesse initiale 10 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	08h38m42s	5.0	10.5	11.0	15	0	0	Stop	73	358	74	349
	08h38m43s	5.0	10.5	11.0	15	0	0	Stop	73	358	74	349
	08h38m44s	5.0	10.5	11.0	14	0	0	Stop	73	358	74	349
	08h38m45s	5.0	10.5	11.0	14	0	0	Stop	73	358	74	349
	08h38m46s	5.0	10.5	11.0	14	0	0	Stop	74	-0	75	359
	08h38m47s	5.0	10.5	11.0	14	0	0	Stop	74	-0	75	359
	08h38m48s	5.0	10.5	11.0	14	0	0	Stop	73	18	75	11
	08h38m49s	5.0	10.5	11.0	14	0	0	Stop	73	18	75	11
	08h38m50s	5.0	10.0	10.5	14	0	0	Stop	70	15	67	12
	08h38m51s	5.0	10.0	10.5	14	0	0	Stop	70	15	67	12
	08h38m52s	5.0	10.0	10.5	14	0	0	Stop	64	17	67	11
	08h38m53s	5.0	10.0	10.5	14	0	0	Stop	64	17	67	11
	08h38m54s	5.0	10.0	10.5	13	0	0	Stop	65	351	67	346
	08h38m55s	5.0	10.0	10.5	13	0	0	Stop	65	351	67	346
	08h38m56s	5.0	10.0	10.5	12	0	0	Stop	64	352	67	346
	08h38m57s	5.0	10.0	10.5	12	0	0	Stop	64	352	67	346
	08h38m58s	0.0	10.0	10.5	12	0	0	Stop	64	351	68	347
	08h38m59s	0.0	10.0	10.5	12	0	0	Stop	64	351	68	347
	08h39m00s	0.0	10.0	10.5	12	0	0	Stop	62	359	67	349
	08h39m01s	0.0	10.0	10.5	12	0	0	Stop	62	359	67	349
	08h39m02s	0.0	10.0	10.0	13	0	0	Stop	61	357	67	347
	08h39m03s	0.0	10.0	10.0	13	0	0	Stop	61	357	67	347
	08h39m04s	0.0	10.0	10.0	14	0	0	Stop	62	356	67	346
	08h39m05s	0.0	10.0	10.0	14	0	0	Stop	62	356	67	346
	08h39m06s	0.0	9.5	10.0	15	0	0	Stop	62	1	67	358
	08h39m07s	0.0	9.5	10.0	15	0	0	Stop	62	1	67	358
	08h39m08s	5.0	9.5	10.0	16	0	0	Stop	62	353	67	339
	08h39m09s	5.0	9.5	10.0	16	0	0	Stop	62	353	67	339
	08h39m10s	5.0	9.5	9.5	18	0	0	Stop	62	353	67	349
	08h39m11s	5.0	9.5	9.5	18	0	0	Stop	62	353	67	349
	08h39m12s	5.0	9.5	9.5	20	0	0	Stop	61	350	67	347
	08h39m13s	5.0	9.5	9.5	20	0	0	Stop	61	350	67	347
	08h39m14s	5.0	9.0	9.5	24	0	0	Stop	62	349	67	347
	08h39m15s	5.0	9.0	9.5	24	0	0	Stop	62	349	67	347
!	08h39m16s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	08h39m17s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	08h39m18s	5.0	8.5	9.5	30	0	0	Stop	62	351	67	347
	08h39m19s	5.0	8.5	9.5	30	0	0	Stop	62	351	67	347
	08h39m20s	5.0	8.0	9.0	35	0	0	Stop	62	350	67	347
	08h39m21s	5.0	8.0	9.0	35	0	0	Stop	62	350	67	347
	08h39m22s	5.0	8.0	9.0	38	0	0	Stop	62	350	67	346
	08h39m23s	5.0	8.0	9.0	38	0	0	Stop	62	350	67	346
	08h39m24s	5.0	7.5	8.5	41	0	0	Stop	62	350	67	348
	08h39m25s	5.0	7.5	8.5	41	0	0	Stop	62	350	67	348
	08h39m26s	5.0	6.5	8.5	47	0	0	Stop	62	350	67	347

08h40m28s	5.0	-5.5	6.5	156	0	0	Stop	62	359	67	349
08h40m29s	5.0	-5.5	6.5	156	0	0	Stop	62	359	67	349
08h40m30s	5.0	-6.0	6.5	160	0	0	Stop	62	359	67	348
08h40m31s	5.0	-6.0	6.5	160	0	0	Stop	62	359	67	348
08h40m32s	5.0	-6.0	7.0	163	0	0	Stop	61	359	67	349
08h40m33s	5.0	-6.0	7.0	163	0	0	Stop	61	359	67	349
08h40m34s	5.0	-6.5	7.0	165	0	0	Stop	62	358	67	349
08h40m35s	5.0	-6.5	7.0	165	0	0	Stop	62	358	67	349
08h40m36s	0.0	-6.5	7.0	171	0	0	Stop	62	358	67	349
08h40m37s	0.0	-6.5	7.0	171	0	0	Stop	62	358	67	349
08h40m38s	0.0	-6.5	6.5	173	0	0	Stop	62	360	67	349
08h40m39s	0.0	-6.5	6.5	173	0	0	Stop	62	360	67	349
08h40m40s	0.0	-6.5	6.5	175	0	0	Stop	62	358	67	347
08h40m41s	0.0	-6.5	6.5	175	0	0	Stop	62	358	67	347
08h40m42s	0.0	-7.0	7.0	181	0	0	Stop	61	358	67	349
08h40m43s	0.0	-7.0	7.0	181	0	0	Stop	61	358	67	349
08h40m44s	0.0	-6.5	6.5	184	0	0	Stop	62	358	67	350
08h40m45s	0.0	-6.5	6.5	184	0	0	Stop	62	358	67	350
08h40m46s	0.0	-7.0	7.0	186	0	0	Stop	62	360	67	349
08h40m47s	0.0	-7.0	7.0	186	0	0	Stop	62	360	67	349
08h40m48s	-0.0	-7.0	7.0	191	0	0	Stop	62	359	67	349
08h40m49s	-0.0	-7.0	7.0	191	0	0	Stop	62	359	67	349
08h40m50s	-0.0	-6.5	6.5	194	0	0	Stop	62	357	67	349
08h40m51s	-0.0	-6.5	6.5	194	0	0	Stop	62	357	67	349
08h40m52s	-0.0	-6.5	6.5	197	0	0	Stop	61	358	67	349
08h40m53s	-0.0	-6.5	6.5	197	0	0	Stop	61	358	67	349
08h40m54s	-0.0	-6.0	6.5	203	0	0	Stop	62	358	67	348
08h40m55s	-0.0	-6.0	6.5	203	0	0	Stop	62	358	67	348
08h40m56s	-0.0	-6.5	6.5	205	0	0	Stop	62	359	67	349
08h40m57s	-0.0	-6.5	6.5	205	0	0	Stop	62	359	67	349
08h40m58s	-0.0	-6.0	6.5	208	0	0	Stop	61	359	67	349
08h40m59s	-0.0	-6.0	6.5	208	0	0	Stop	61	359	67	349
08h41m00s	-5.0	-5.5	6.5	213	0	0	Stop	62	358	68	350
08h41m01s	-5.0	-5.5	6.5	213	0	0	Stop	62	358	68	350
08h41m02s	-5.0	-5.5	6.5	216	0	0	Stop	62	358	67	349
08h41m03s	-5.0	-5.5	6.5	216	0	0	Stop	62	358	67	349
08h41m04s	-5.0	-5.5	6.5	219	0	0	Stop	62	359	67	348
08h41m05s	-5.0	-5.5	6.5	219	0	0	Stop	62	359	67	348
08h41m06s	-5.0	-5.0	6.5	224	0	0	Stop	62	357	67	348
08h41m07s	-5.0	-5.0	6.5	224	0	0	Stop	62	357	67	348
08h41m08s	-5.0	-5.0	6.0	227	0	0	Stop	62	359	67	349
08h41m09s	-5.0	-5.0	6.0	227	0	0	Stop	62	359	67	349
08h41m10s	-5.0	-4.5	6.0	230	0	0	Stop	62	334	67	351
08h41m11s	-5.0	-4.5	6.0	230	0	0	Stop	62	334	67	351
08h41m12s	-5.0	-4.5	6.5	232	0	0	Stop	62	101	55	88
08h41m13s	-5.0	-4.5	6.5	232	0	0	Stop	62	101	55	88
08h41m14s	-5.0	-3.5	5.5	234	0	0	Stop	62	100	37	91
08h41m15s	-5.0	-3.5	5.5	234	0	0	Stop	62	100	37	91
08h41m16s	-5.0	-3.0	5.0	234	0	0	Stop	62	100	37	90
08h41m17s	-5.0	-3.0	5.0	234	0	0	Stop	62	100	37	90
08h41m18s	-5.0	-3.0	5.0	233	0	0	Stop	63	100	37	91
08h41m19s	-5.0	-3.0	5.0	233	0	0	Stop	63	100	37	91
08h41m20s	-5.0	-3.0	5.0	231	0	0	Stop	62	99	37	90
08h41m21s	-5.0	-3.0	5.0	231	0	0	Stop	62	99	37	90
08h41m22s	-5.0	-2.5	4.5	225	0	0	Stop	62	99	37	91
08h41m23s	-5.0	-2.5	4.5	225	0	0	Stop	62	99	37	91
08h41m24s	-5.0	-2.5	4.0	222	0	0	Stop	62	89	37	86
08h41m25s	-5.0	-2.5	4.0	222	0	0	Stop	62	89	37	86
08h41m26s	-5.0	-2.5	4.0	218	0	0	Stop	67	31	56	31
08h41m27s	-5.0	-2.5	4.0	218	0	0	Stop	67	31	56	31
08h41m28s	-5.0	-3.0	4.0	211	0	0	Stop	74	1	72	5


PORT REVEL
Sh phandlinn
Session
Name 2010-05-03 - 08h20m29s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
Lake Turning Circles
Current 1- No current
Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
1.5!
4,8s
V= 10kn
RAS TAMBIN

APPENDIX 5 – DETAILED RESULTS FOR STOPPING MANOEUVRES

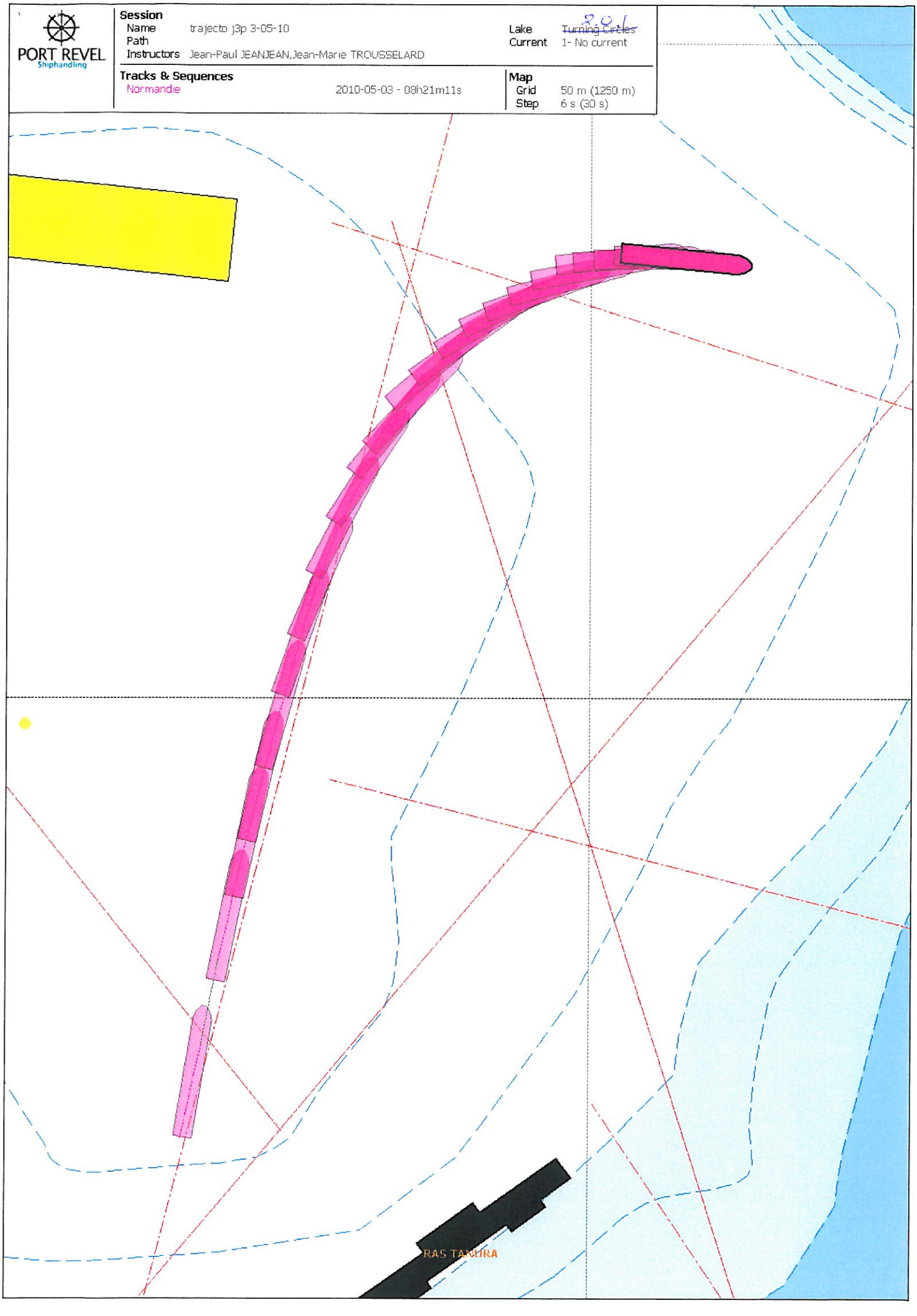
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2 & 6
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : t15 Stop : t16
Students
Notes:
pods en ligne hélices stoppées vitesse 9.5 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	09h46m28s	0.0	9.5	9.5	9	0	0	Stop	72	-2	74	20
	09h46m29s	0.0	9.5	9.5	9	0	0	Stop	72	-2	74	20
	09h46m30s	0.0	9.5	9.5	10	0	0	Stop	72	-0	74	357
	09h46m31s	0.0	9.5	9.5	10	0	0	Stop	72	-0	74	357
	09h46m32s	0.0	9.5	9.5	10	0	0	Stop	72	-1	74	359
	09h46m33s	0.0	9.5	9.5	10	0	0	Stop	72	-1	74	359
	09h46m34s	0.0	9.5	9.5	10	0	0	Stop	72	-0	74	13
	09h46m35s	0.0	9.5	9.5	10	0	0	Stop	72	-0	74	13
	09h46m36s	0.0	9.5	9.5	10	0	0	Stop	72	1	74	226
	09h46m37s	0.0	9.5	9.5	10	0	0	Stop	72	1	74	226
!	09h46m38s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	09h46m39s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	09h46m40s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	09h46m41s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	09h46m42s	0.0	9.5	10.0	11	0	0	Stop	72	-1	74	359
	09h46m43s	0.0	9.5	10.0	11	0	0	Stop	72	-1	74	359
	09h46m44s	0.0	9.5	10.0	12	0	0	Stop	72	-1	75	30
	09h46m45s	0.0	9.5	10.0	12	0	0	Stop	72	-1	75	30
	09h46m46s	0.0	9.5	10.0	12	0	0	Stop	72	-1	74	19
	09h46m47s	0.0	9.5	10.0	12	0	0	Stop	72	-1	74	19
	09h46m48s	0.0	10.0	10.0	11	0	0	Stop	72	-1	75	338
	09h46m49s	0.0	10.0	10.0	11	0	0	Stop	72	-1	75	338
	09h46m50s	0.0	9.5	10.0	12	0	0	Stop	72	0	75	354
	09h46m51s	0.0	9.5	10.0	12	0	0	Stop	72	0	75	354
	09h46m52s	0.0	10.0	10.0	12	0	0	Stop	71	0	75	357
	09h46m53s	0.0	10.0	10.0	12	0	0	Stop	71	0	75	357
	09h46m54s	0.0	9.5	10.0	12	0	0	Stop	60	-0	64	358
	09h46m55s	0.0	9.5	10.0	12	0	0	Stop	60	-0	64	358
	09h46m56s	0.0	9.5	10.0	13	0	0	Stop	-1	0	0	358
	09h46m57s	0.0	9.5	10.0	13	0	0	Stop	-1	0	0	358
	09h46m58s	5.0	9.0	9.5	14	0	0	Stop	4	-1	0	358
	09h46m59s	5.0	9.0	9.5	14	0	0	Stop	4	-1	0	358
	09h47m00s	0.0	9.0	9.0	15	0	0	Stop	4	-1	1	357
	09h47m01s	0.0	9.0	9.0	15	0	0	Stop	4	-1	1	357
	09h47m02s	5.0	8.5	9.0	16	0	0	Stop	4	-1	0	358
	09h47m03s	5.0	8.5	9.0	16	0	0	Stop	4	-1	0	358
	09h47m04s	0.0	8.0	8.5	17	0	0	Stop	-0	1	0	358
	09h47m05s	0.0	8.0	8.5	17	0	0	Stop	-0	1	0	358
	09h47m06s	5.0	8.0	8.5	19	0	0	Stop	0	-2	0	359
	09h47m07s	5.0	8.0	8.5	19	0	0	Stop	0	-2	0	359
	09h47m08s	0.0	7.5	8.0	20	0	0	Stop	-0	-1	1	359
	09h47m09s	0.0	7.5	8.0	20	0	0	Stop	-0	-1	1	359
	09h47m10s	0.0	7.5	7.5	22	0	0	Stop	-0	-2	1	359
	09h47m11s	0.0	7.5	7.5	22	0	0	Stop	-0	-2	1	359
	09h47m12s	0.0	7.0	7.5	22	0	0	Stop	-0	-1	0	359

09h48m14s	5.0	1.0	3.0	75	0	0	Stop	-0	-0	0	359
09h48m15s	5.0	1.0	3.0	75	0	0	Stop	-0	-0	0	359
09h48m16s	5.0	1.0	3.0	77	0	0	Stop	-0	-1	0	358
09h48m17s	5.0	1.0	3.0	77	0	0	Stop	-0	-1	0	358
09h48m18s	5.0	1.0	3.0	79	0	0	Stop	-1	-0	1	358
09h48m19s	5.0	1.0	3.0	79	0	0	Stop	-1	-0	1	358
09h48m20s	5.0	1.0	3.0	80	0	0	Stop	0	-1	1	358
09h48m21s	5.0	1.0	3.0	80	0	0	Stop	0	-1	1	358
09h48m22s	5.0	1.0	3.0	81	0	0	Stop	-0	-0	0	359
09h48m23s	5.0	1.0	3.0	81	0	0	Stop	-0	-0	0	359
09h48m24s	5.0	0.5	3.0	82	0	0	Stop	-0	-0	0	327
09h48m25s	5.0	0.5	3.0	82	0	0	Stop	-0	-0	0	327
09h48m26s	5.0	0.5	3.0	84	0	0	Stop	-0	0	1	359
09h48m27s	5.0	0.5	3.0	84	0	0	Stop	-0	0	1	359
09h48m28s	5.0	0.5	2.5	85	0	0	Stop	-0	-1	0	358
09h48m29s	5.0	0.5	2.5	85	0	0	Stop	-0	-1	0	358
09h48m30s	5.0	0.5	2.5	86	0	0	Stop	-0	-1	0	360
09h48m31s	5.0	0.5	2.5	86	0	0	Stop	-0	-1	0	360
09h48m32s	5.0	0.5	2.5	87	0	0	Stop	-0	0	0	358
09h48m33s	5.0	0.5	2.5	87	0	0	Stop	-0	0	0	358
09h48m34s	5.0	0.5	2.5	89	0	0	Stop	0	-1	0	359
09h48m35s	5.0	0.5	2.5	89	0	0	Stop	0	-1	0	359
09h48m36s	5.0	0.5	2.5	90	0	0	Stop	-0	0	0	357
09h48m37s	5.0	0.5	2.5	90	0	0	Stop	-0	0	0	357

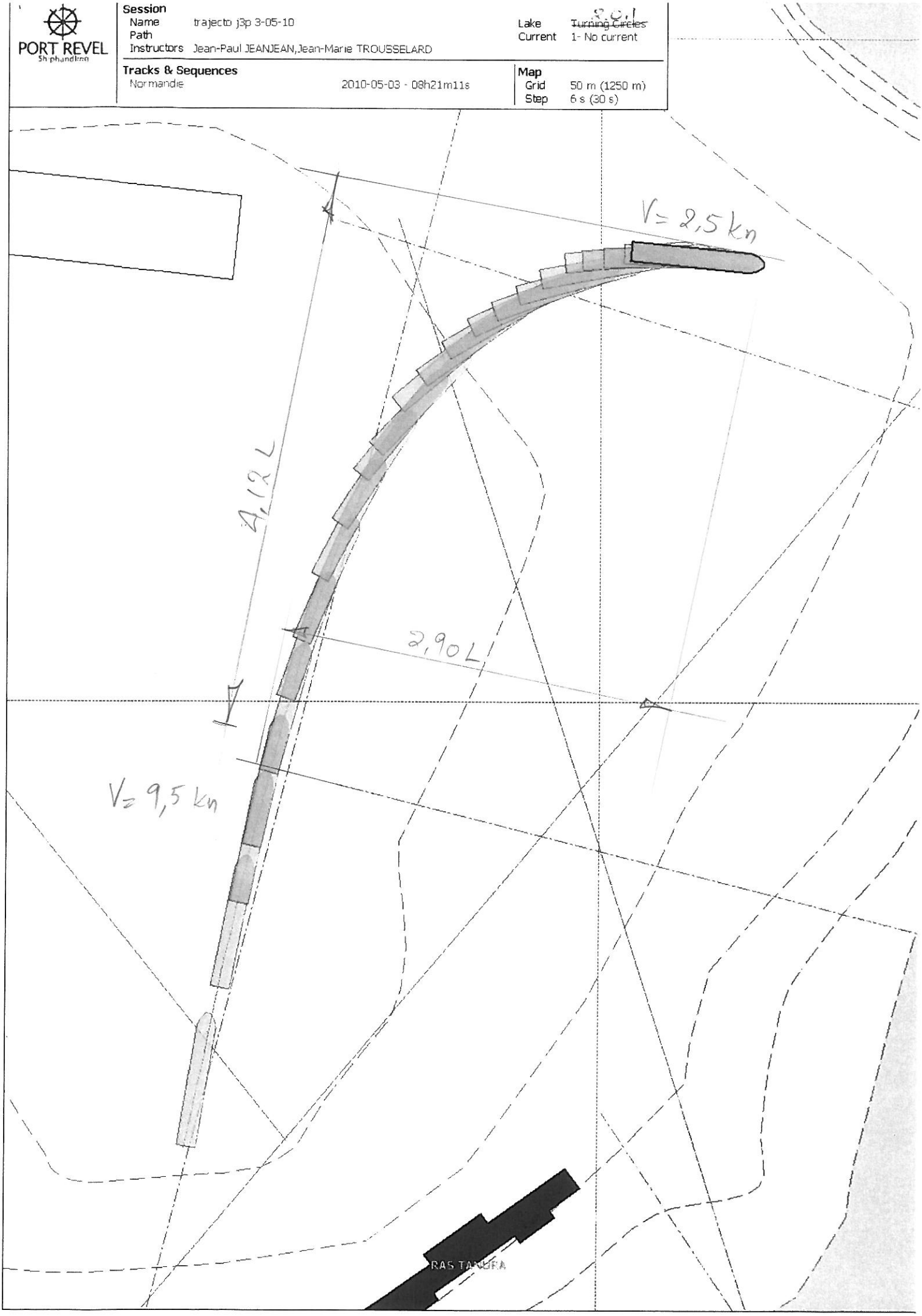
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



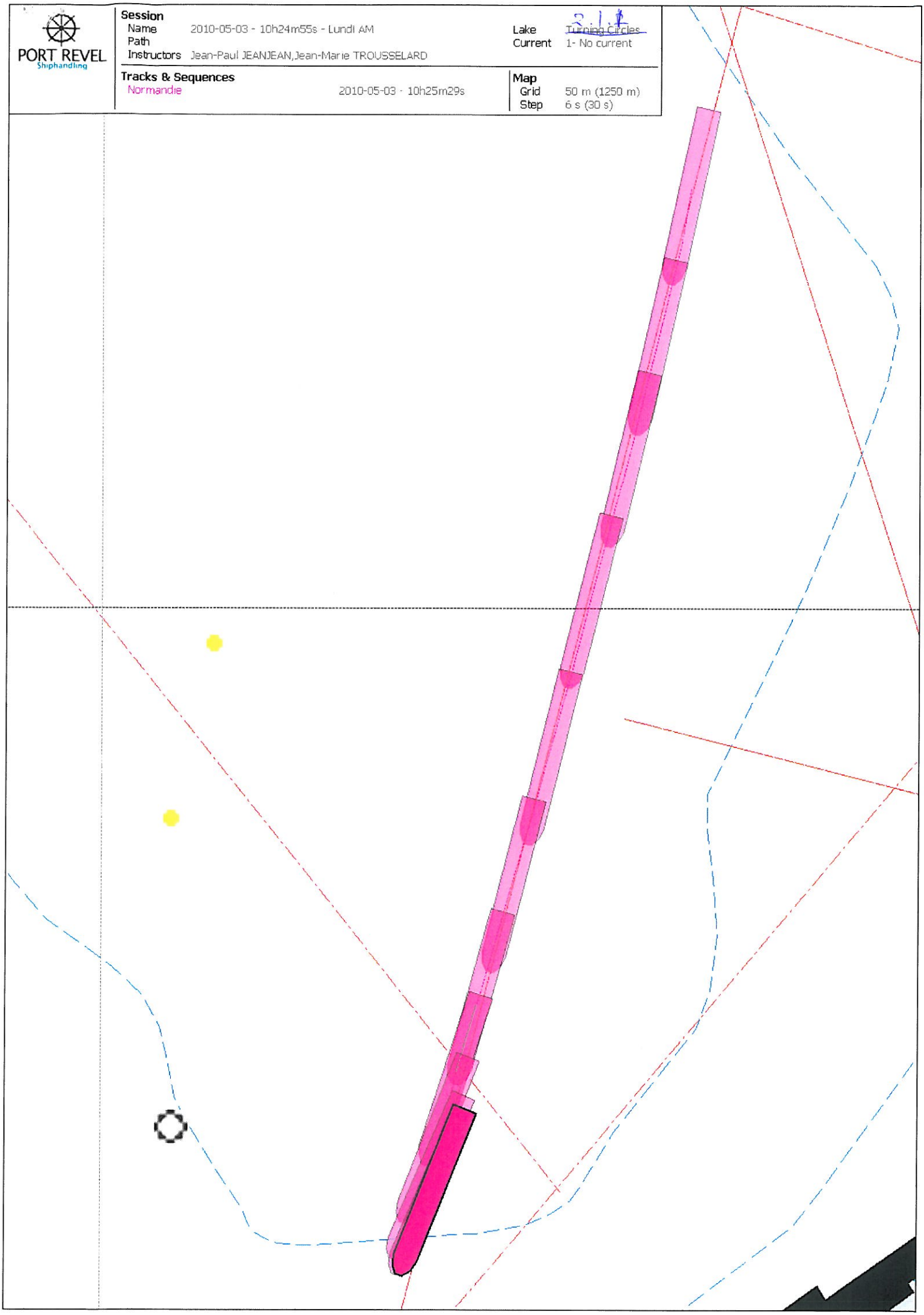
PORT REVEL
Shiphandling

Session
Name 2010-05-03 - 10h24m55s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2 Lit
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.1.1

Session:
Name : 2010-05-03 - 10h24m55s - Lundi AM Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 2 Stop : fin crash stop 2
Students
Notes:
crash stop vitesse 13.5 noeuds pods zéro degré full negative

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	10h50m30s	-5.0	-12.5	13.0	192	0	0	Stop	97	1	98	16
	10h50m31s	-5.0	-12.5	13.0	192	0	0	Stop	97	1	98	16
	10h50m32s	-5.0	-12.5	13.0	193	0	0	Stop	97	0	99	22
	10h50m33s	-5.0	-12.5	13.0	193	0	0	Stop	97	0	99	22
	10h50m34s	-5.0	-13.0	13.0	193	0	0	Stop	97	0	99	325
	10h50m35s	-5.0	-13.0	13.0	193	0	0	Stop	97	0	99	325
	10h50m36s	-5.0	-13.0	13.5	193	0	0	Stop	97	-0	99	353
	10h50m37s	-5.0	-13.0	13.5	193	0	0	Stop	97	-0	99	353
	10h50m38s	-5.0	-13.0	13.5	193	0	0	Stop	97	-0	99	359
	10h50m39s	-5.0	-13.0	13.5	193	0	0	Stop	97	-0	99	359
	10h50m40s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	359
	10h50m41s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	359
	10h50m42s	-5.0	-13.0	13.5	194	0	0	Stop	97	0	99	13
	10h50m43s	-5.0	-13.0	13.5	194	0	0	Stop	97	0	99	13
	10h50m44s	-5.0	-13.5	14.0	194	0	0	Stop	97	-0	98	18
	10h50m45s	-5.0	-13.5	14.0	194	0	0	Stop	97	-0	98	18
	10h50m46s	-5.0	-13.0	13.5	194	0	0	Stop	97	-1	99	13
	10h50m47s	-5.0	-13.0	13.5	194	0	0	Stop	97	-1	99	13
	10h50m48s	-5.0	-13.0	13.5	194	0	0	Stop	97	-0	99	360
	10h50m49s	-5.0	-13.0	13.5	194	0	0	Stop	97	-0	99	360
	10h50m50s	-5.0	-13.5	14.0	194	0	0	Stop	61	-1	62	11
	10h50m51s	-5.0	-13.5	14.0	194	0	0	Stop	61	-1	62	11
	10h50m52s	-5.0	-13.5	14.0	193	0	0	Stop	-17	0	-17	359
	10h50m53s	-5.0	-13.5	14.0	193	0	0	Stop	-17	0	-17	359
	10h50m54s	-5.0	-12.5	13.0	194	0	0	Stop	-57	-1	-57	360
	10h50m55s	-5.0	-12.5	13.0	194	0	0	Stop	-57	-1	-57	360
	10h50m56s	-5.0	-11.5	12.0	194	0	0	Stop	-72	-1	-72	359
	10h50m57s	-5.0	-11.5	12.0	194	0	0	Stop	-72	-1	-72	359
	10h50m58s	-5.0	-11.0	11.5	194	0	0	Stop	-73	-1	-74	360
	10h50m59s	-5.0	-11.0	11.5	194	0	0	Stop	-73	-1	-74	360
	10h51m00s	-5.0	-10.5	11.0	194	0	0	Stop	-76	0	-76	360
	10h51m01s	-5.0	-10.5	11.0	194	0	0	Stop	-76	0	-76	360
	10h51m02s	-5.0	-10.5	10.5	195	0	0	Stop	-78	-0	-78	360
	10h51m03s	-5.0	-10.5	10.5	195	0	0	Stop	-78	-0	-78	360
	10h51m04s	-5.0	-9.5	10.0	195	0	0	Stop	-81	-1	-82	361
	10h51m05s	-5.0	-9.5	10.0	195	0	0	Stop	-81	-1	-82	361
	10h51m06s	-5.0	-9.0	9.5	195	0	0	Stop	-83	0	-84	360
	10h51m07s	-5.0	-9.0	9.5	195	0	0	Stop	-83	0	-84	360
	10h51m08s	-5.0	-9.0	9.0	196	0	0	Stop	-85	-1	-85	361
	10h51m09s	-5.0	-9.0	9.0	196	0	0	Stop	-85	-1	-85	361
!	10h51m10s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	10h51m11s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	10h51m12s	-0.0	-7.0	7.0	198	0	0	Stop	-90	-1	-92	361
	10h51m13s	-0.0	-7.0	7.0	198	0	0	Stop	-90	-1	-92	361
	10h51m14s	-0.0	-6.5	6.5	199	0	0	Stop	-93	-0	-94	359

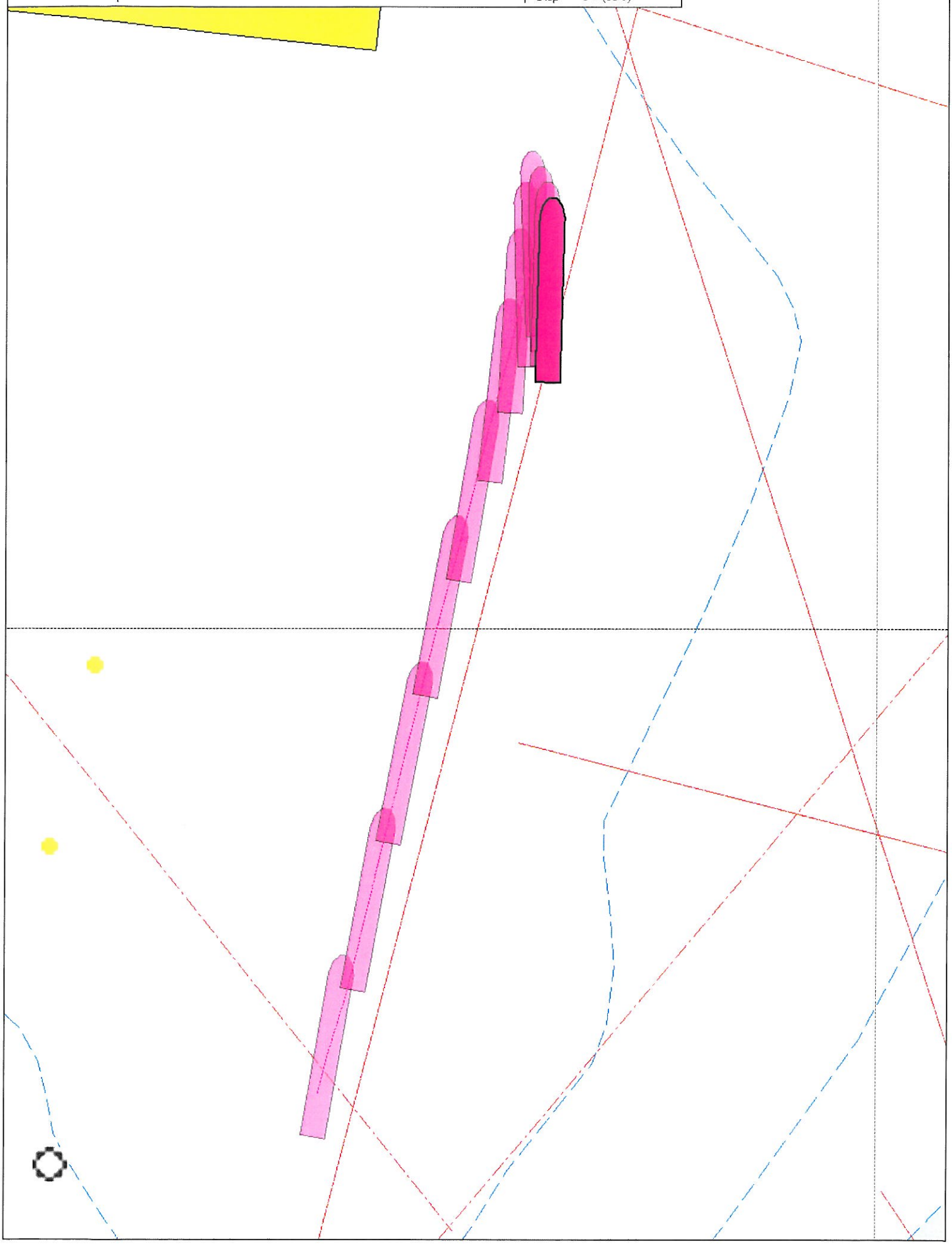
PORT REVEL
Shiphandling

Session
Name 2010-05-03 - 10h24m55s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.1.2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.1.2

Session:
Name : 2010-05-03 - 10h24m55s - Lundi AM Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 1 Stop : fin crash stop 1
Students
Notes:
crash stop vitesse 13.5 noeuds pods zéro degré full negative

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	10h46m40s	5.0	12.5	13.0	10	0	0	Stop	97	0	99	337
	10h46m41s	5.0	12.5	13.0	10	0	0	Stop	97	0	99	337
	10h46m42s	5.0	13.0	13.5	10	0	0	Stop	97	-1	98	338
	10h46m43s	5.0	13.0	13.5	10	0	0	Stop	97	-1	98	338
	10h46m44s	5.0	13.0	13.0	10	0	0	Stop	97	-0	99	361
	10h46m45s	5.0	13.0	13.0	10	0	0	Stop	97	-0	99	361
	10h46m46s	5.0	13.0	13.0	10	0	0	Stop	97	-1	99	360
	10h46m47s	5.0	13.0	13.0	10	0	0	Stop	97	-1	99	360
	10h46m48s	5.0	13.0	13.5	10	0	0	Stop	97	-1	99	361
	10h46m49s	5.0	13.0	13.5	10	0	0	Stop	97	-1	99	361
	10h46m50s	5.0	13.0	13.5	11	0	0	Stop	97	0	99	360
	10h46m51s	5.0	13.0	13.5	11	0	0	Stop	97	0	99	360
	10h46m52s	5.0	13.0	13.5	10	0	0	Stop	86	-0	88	359
	10h46m53s	5.0	13.0	13.5	10	0	0	Stop	86	-0	88	359
	10h46m54s	5.0	13.0	13.5	11	0	0	Stop	34	-1	36	359
	10h46m55s	5.0	13.0	13.5	11	0	0	Stop	34	-1	36	359
	10h46m56s	5.0	12.5	13.0	11	0	0	Stop	-37	0	-37	360
	10h46m57s	5.0	12.5	13.0	11	0	0	Stop	-37	0	-37	360
	10h46m58s	5.0	12.0	12.0	11	0	0	Stop	-70	0	-70	361
	10h46m59s	5.0	12.0	12.0	11	0	0	Stop	-70	0	-70	361
	10h47m00s	5.0	11.5	11.5	11	0	0	Stop	-72	-1	-73	359
	10h47m01s	5.0	11.5	11.5	11	0	0	Stop	-72	-1	-73	359
	10h47m02s	5.0	11.0	11.0	11	0	0	Stop	-74	1	-75	360
	10h47m03s	5.0	11.0	11.0	11	0	0	Stop	-74	1	-75	360
	10h47m04s	5.0	10.0	10.5	10	0	0	Stop	-78	0	-79	361
	10h47m05s	5.0	10.0	10.5	10	0	0	Stop	-78	0	-79	361
	10h47m06s	0.0	9.5	10.0	10	0	0	Stop	-80	-1	-80	359
	10h47m07s	0.0	9.5	10.0	10	0	0	Stop	-80	-1	-80	359
	10h47m08s	0.0	9.5	9.5	9	0	0	Stop	-81	-0	-82	361
	10h47m09s	0.0	9.5	9.5	9	0	0	Stop	-81	-0	-82	361
	10h47m10s	0.0	8.5	8.5	8	0	0	Stop	-86	-0	-86	361
	10h47m11s	0.0	8.5	8.5	8	0	0	Stop	-86	-0	-86	361
	10h47m12s	0.0	8.0	8.0	7	0	0	Stop	-88	1	-89	359
	10h47m13s	0.0	8.0	8.0	7	0	0	Stop	-88	1	-89	359
	10h47m14s	0.0	7.5	7.5	6	0	0	Stop	-90	0	-91	361
	10h47m15s	0.0	7.5	7.5	6	0	0	Stop	-90	0	-91	361
	10h47m16s	0.0	7.0	7.0	5	0	0	Stop	-92	-2	-93	361
	10h47m17s	0.0	7.0	7.0	5	0	0	Stop	-92	-2	-93	361
	10h47m18s	0.0	6.0	6.0	3	0	0	Stop	-94	1	-95	360
	10h47m19s	0.0	6.0	6.0	3	0	0	Stop	-94	1	-95	360
	10h47m20s	0.0	4.5	4.5	1	0	0	Stop	-98	-1	-99	359
	10h47m21s	0.0	4.5	4.5	1	0	0	Stop	-98	-1	-99	359
	10h47m22s	0.0	4.0	4.0	359	0	0	Stop	-98	-1	-98	361
	10h47m23s	0.0	4.0	4.0	359	0	0	Stop	-98	-1	-98	361
	10h47m24s	0.0	3.5	3.5	359	0	0	Stop	-97	-1	-98	361

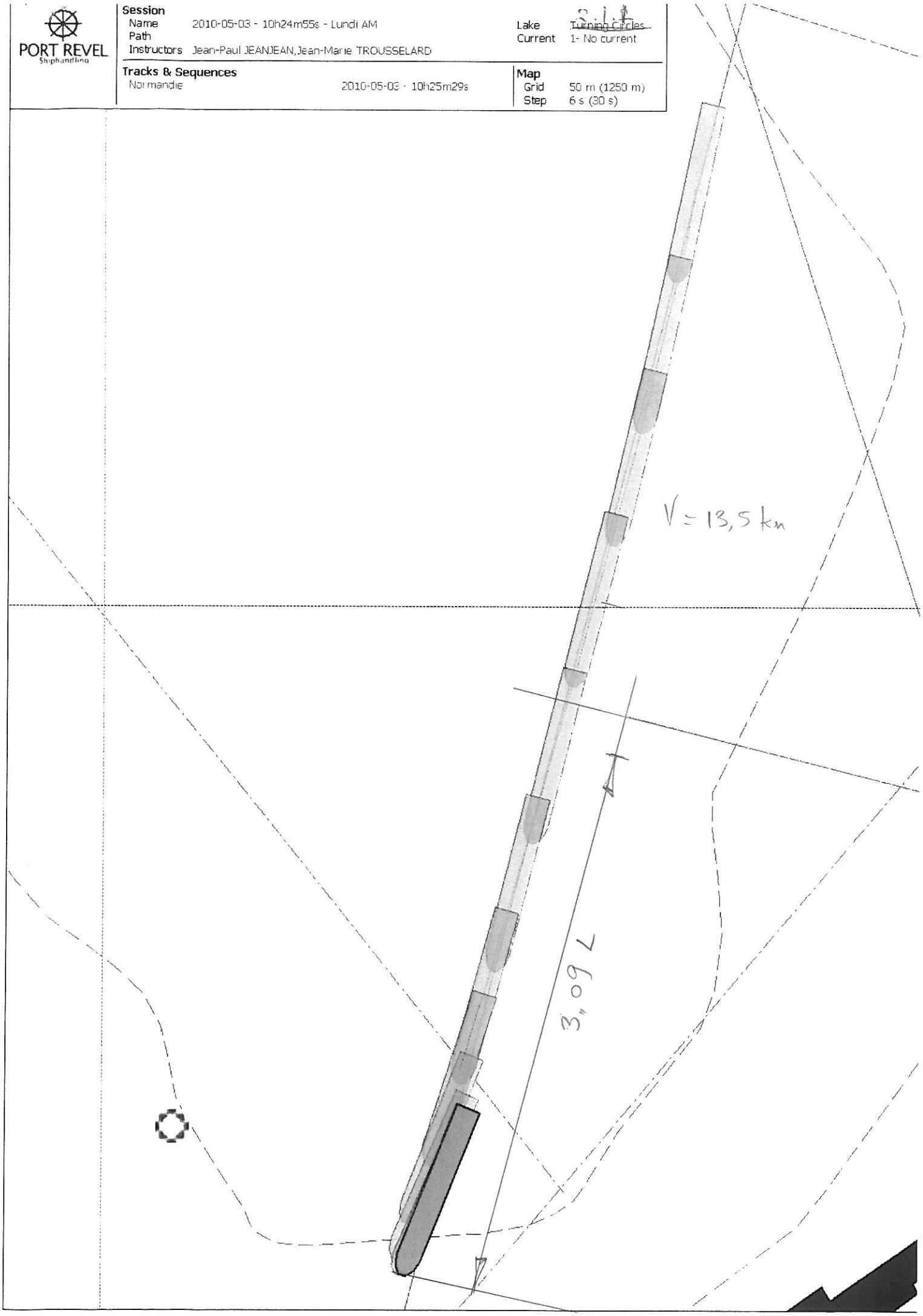
PORT REVEL
Shiphandling

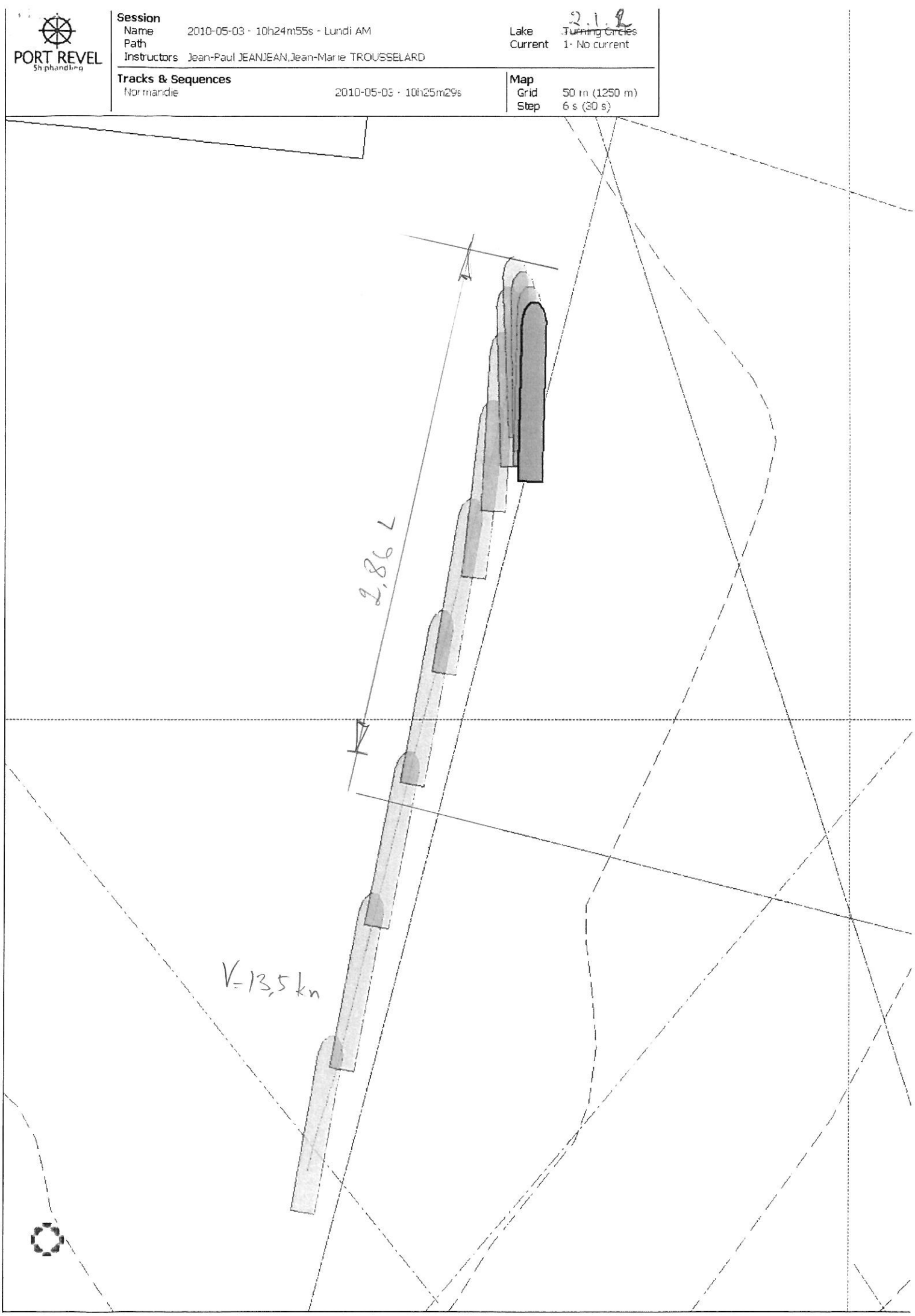
Session
Name 2010-05-03 - 10h24m55s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)




PORT REVEL
Shiphandling
Session
Name 2010-05-03 - 10h24m55s - Lundi AM
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
Lake ~~Turning Circles~~ 2.1.2
Current 1- No current
Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
2,86 L
V=13,5 kn

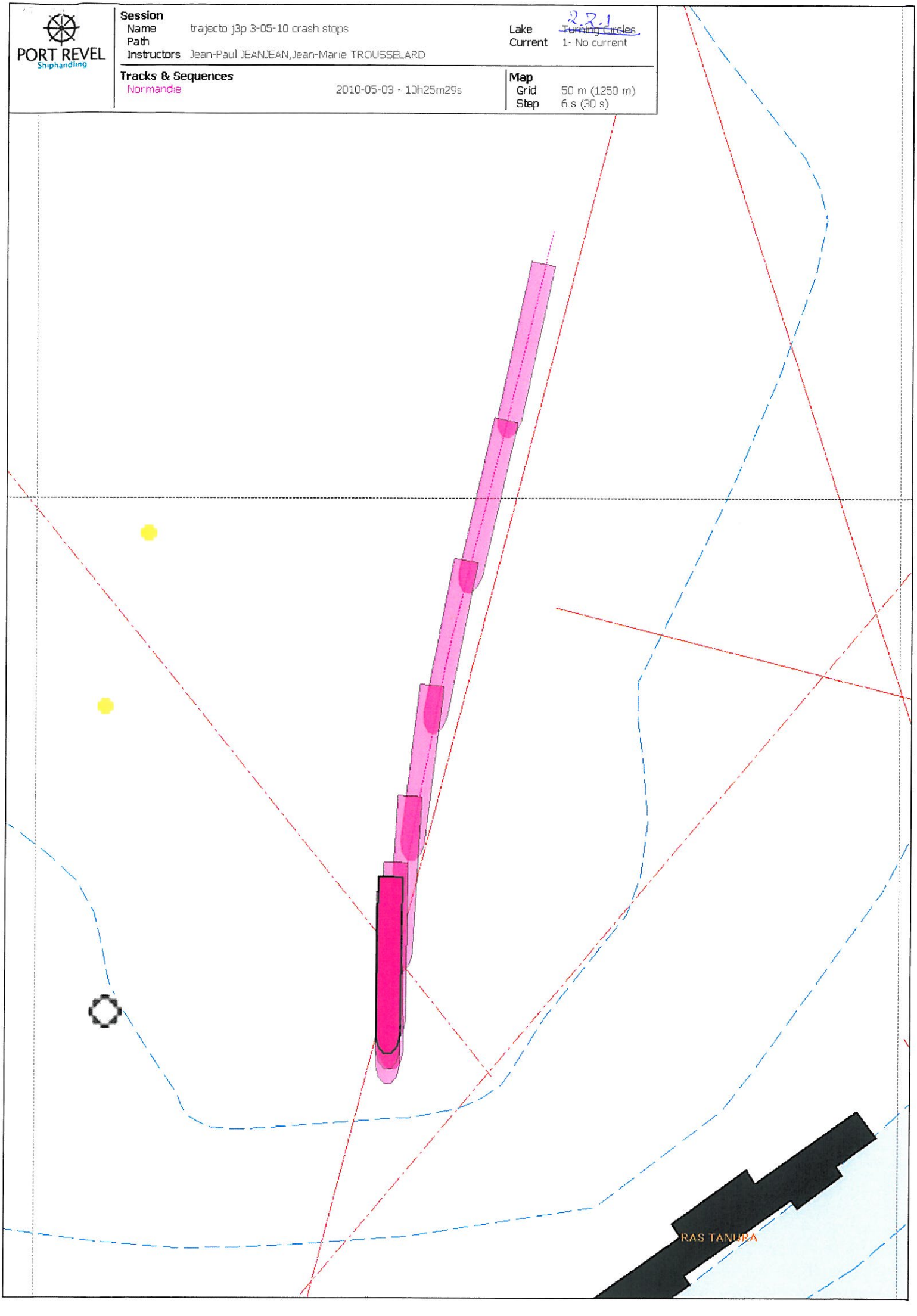
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.2.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~ 2.2.1
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 4 Stop : fin crash stop 4
Students
Notes:
crash stop vitesse 14 noeuds pods 180 deg outboard full positive

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h00m50s	-5.0	-13.5	14.0	193	0	0	Stop	97	0	99	360
	11h00m51s	-5.0	-13.5	14.0	193	0	0	Stop	97	0	99	360
	11h00m52s	-5.0	-13.5	14.0	192	0	0	Stop	97	-1	99	360
	11h00m53s	-5.0	-13.5	14.0	192	0	0	Stop	97	-1	99	360
	11h00m54s	-5.0	-13.5	14.0	192	0	0	Stop	97	-1	99	360
	11h00m55s	-5.0	-13.5	14.0	192	0	0	Stop	97	-1	99	360
	11h00m56s	-5.0	-13.5	14.0	192	0	0	Stop	97	-1	98	360
	11h00m57s	-5.0	-13.5	14.0	192	0	0	Stop	97	-1	98	360
	11h00m58s	-5.0	-14.0	14.0	193	0	0	Stop	97	-1	99	359
	11h00m59s	-5.0	-14.0	14.0	193	0	0	Stop	97	-1	99	359
	11h01m00s	-5.0	-14.0	14.0	193	0	0	Stop	97	-0	99	359
	11h01m01s	-5.0	-14.0	14.0	193	0	0	Stop	97	-0	99	359
	11h01m02s	-5.0	-14.0	14.5	193	0	0	Stop	97	330	99	42
	11h01m03s	-5.0	-14.0	14.5	193	0	0	Stop	97	330	99	42
	11h01m04s	-5.0	-13.0	13.5	192	0	0	Stop	97	179	99	166
	11h01m05s	-5.0	-13.0	13.5	192	0	0	Stop	97	179	99	166
	11h01m06s	-5.0	-12.0	12.5	191	0	0	Stop	97	179	98	16
	11h01m07s	-5.0	-12.0	12.5	191	0	0	Stop	97	179	98	16
	11h01m08s	-5.0	-11.5	12.0	189	0	0	Stop	97	180	99	241
	11h01m09s	-5.0	-11.5	12.0	189	0	0	Stop	97	180	99	241
	11h01m10s	-0.0	-11.0	11.5	188	0	0	Stop	97	178	99	192
	11h01m11s	-0.0	-11.0	11.5	188	0	0	Stop	97	178	99	192
	11h01m12s	-0.0	-10.0	10.0	187	0	0	Stop	97	178	99	191
	11h01m13s	-0.0	-10.0	10.0	187	0	0	Stop	97	178	99	191
	11h01m14s	-0.0	-9.5	9.5	186	0	0	Stop	97	179	99	191
	11h01m15s	-0.0	-9.5	9.5	186	0	0	Stop	97	179	99	191
	11h01m16s	-0.0	-9.0	9.0	185	0	0	Stop	97	178	99	194
	11h01m17s	-0.0	-9.0	9.0	185	0	0	Stop	97	178	99	194
	11h01m18s	-0.0	-8.0	8.0	183	0	0	Stop	97	178	98	192
	11h01m19s	-0.0	-8.0	8.0	183	0	0	Stop	97	178	98	192
	11h01m20s	-0.0	-7.5	7.5	183	0	0	Stop	97	178	99	193
	11h01m21s	-0.0	-7.5	7.5	183	0	0	Stop	97	178	99	193
	11h01m22s	-0.0	-7.0	7.0	182	0	0	Stop	97	179	99	192
	11h01m23s	-0.0	-7.0	7.0	182	0	0	Stop	97	179	99	192
	11h01m24s	-0.0	-5.0	5.0	181	0	0	Stop	97	179	99	191
	11h01m25s	-0.0	-5.0	5.0	181	0	0	Stop	97	179	99	191
	11h01m26s	-0.0	-4.5	4.5	180	0	0	Stop	97	180	99	190
	11h01m27s	-0.0	-4.5	4.5	180	0	0	Stop	97	180	99	190
	11h01m28s	-0.0	-3.5	3.5	179	0	0	Stop	96	179	98	192
	11h01m29s	-0.0	-3.5	3.5	179	0	0	Stop	96	179	98	192
	11h01m30s	-0.0	-2.5	2.5	179	0	0	Stop	97	180	99	192
	11h01m31s	-0.0	-2.5	2.5	179	0	0	Stop	97	180	99	192
	11h01m32s	-0.0	-1.0	1.0	179	0	0	Stop	97	178	99	191
	11h01m33s	-0.0	-1.0	1.0	179	0	0	Stop	97	178	99	191
	11h01m34s	0.0	-0.5	0.5	179	0	0	Stop	97	179	99	192

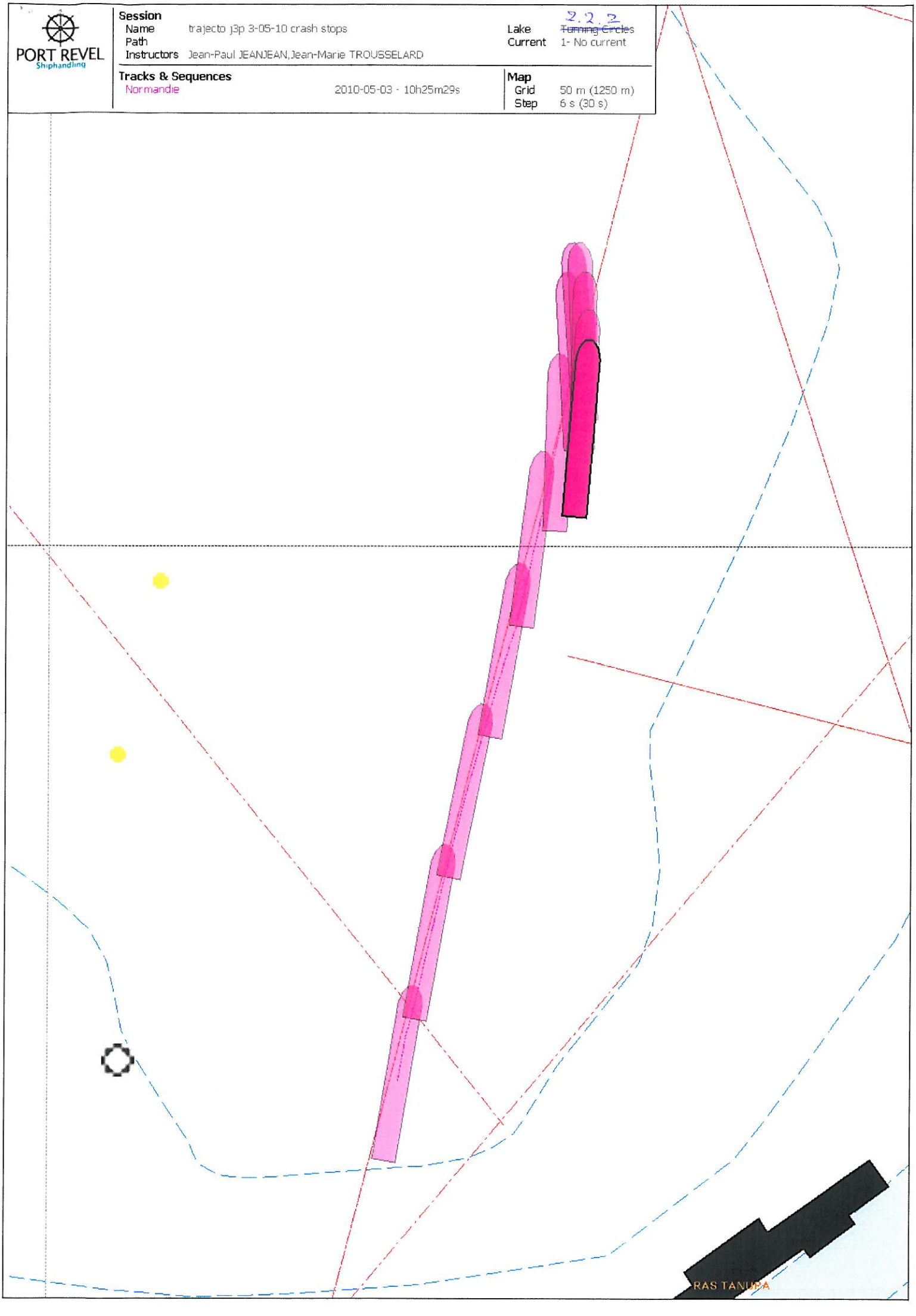
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake 2.2.2 ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 3 Stop : fin crash stop 3
Students
Notes:
crash stop vitesse 13.5 noeuds pods 180 deg outboard full positive

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	10h56m20s	5.0	12.5	13.0	9	0	0	Stop	97	-1	98	359
	10h56m21s	5.0	12.5	13.0	9	0	0	Stop	97	-1	98	359
	10h56m22s	5.0	12.5	13.0	10	0	0	Stop	97	-0	99	345
	10h56m23s	5.0	12.5	13.0	10	0	0	Stop	97	-0	99	345
	10h56m24s	5.0	12.5	13.0	9	0	0	Stop	97	-1	99	360
	10h56m25s	5.0	12.5	13.0	9	0	0	Stop	97	-1	99	360
	10h56m26s	5.0	13.0	13.0	9	0	0	Stop	97	-0	99	360
	10h56m27s	5.0	13.0	13.0	9	0	0	Stop	97	-0	99	360
	10h56m28s	5.0	13.0	13.5	9	0	0	Stop	97	-0	98	346
	10h56m29s	5.0	13.0	13.5	9	0	0	Stop	97	-0	98	346
	10h56m30s	5.0	13.0	13.0	10	0	0	Stop	97	-1	99	359
	10h56m31s	5.0	13.0	13.0	10	0	0	Stop	97	-1	99	359
	10h56m32s	5.0	13.0	13.5	10	0	0	Stop	97	-1	99	342
	10h56m33s	5.0	13.0	13.5	10	0	0	Stop	97	-1	99	342
	10h56m34s	5.0	13.0	13.0	10	0	0	Stop	97	0	99	359
	10h56m35s	5.0	13.0	13.0	10	0	0	Stop	97	0	99	359
	10h56m36s	5.0	13.0	13.5	10	0	0	Stop	96	0	99	343
	10h56m37s	5.0	13.0	13.5	10	0	0	Stop	96	0	99	343
	10h56m38s	5.0	13.0	13.5	11	0	0	Stop	97	0	99	360
	10h56m39s	5.0	13.0	13.5	11	0	0	Stop	97	0	99	360
	10h56m40s	5.0	13.0	13.5	12	0	0	Stop	97	14	99	360
	10h56m41s	5.0	13.0	13.5	12	0	0	Stop	97	14	99	360
	10h56m42s	5.0	13.0	13.5	12	0	0	Stop	97	-1	99	359
	10h56m43s	5.0	13.0	13.5	12	0	0	Stop	97	-1	99	359
	10h56m44s	5.0	13.0	13.5	11	0	0	Stop	97	9	99	360
	10h56m45s	5.0	13.0	13.5	11	0	0	Stop	97	9	99	360
	10h56m46s	5.0	13.0	13.5	12	0	0	Stop	97	-1	99	359
	10h56m47s	5.0	13.0	13.5	12	0	0	Stop	97	-1	99	359
	10h56m48s	5.0	12.5	13.0	10	0	0	Stop	97	221	99	177
	10h56m49s	5.0	12.5	13.0	10	0	0	Stop	97	221	99	177
	10h56m50s	5.0	11.5	12.0	9	0	0	Stop	97	160	99	40
	10h56m51s	5.0	11.5	12.0	9	0	0	Stop	97	160	99	40
	10h56m52s	5.0	11.5	11.5	8	0	0	Stop	97	133	99	264
	10h56m53s	5.0	11.5	11.5	8	0	0	Stop	97	133	99	264
	10h56m54s	5.0	11.0	11.0	7	0	0	Stop	97	186	100	193
	10h56m55s	5.0	11.0	11.0	7	0	0	Stop	97	186	100	193
	10h56m56s	0.0	9.5	10.0	5	0	0	Stop	97	186	99	192
	10h56m57s	0.0	9.5	10.0	5	0	0	Stop	97	186	99	192
	10h56m58s	0.0	9.0	9.0	4	0	0	Stop	97	186	99	193
	10h56m59s	0.0	9.0	9.0	4	0	0	Stop	97	186	99	193
	10h57m00s	0.0	8.0	8.5	2	0	0	Stop	97	187	98	192
	10h57m01s	0.0	8.0	8.5	2	0	0	Stop	97	187	98	192
	10h57m02s	0.0	7.0	7.0	359	0	0	Stop	97	186	99	191
	10h57m03s	0.0	7.0	7.0	359	0	0	Stop	97	186	99	191
	10h57m04s	0.0	6.0	6.0	358	0	0	Stop	97	186	99	193

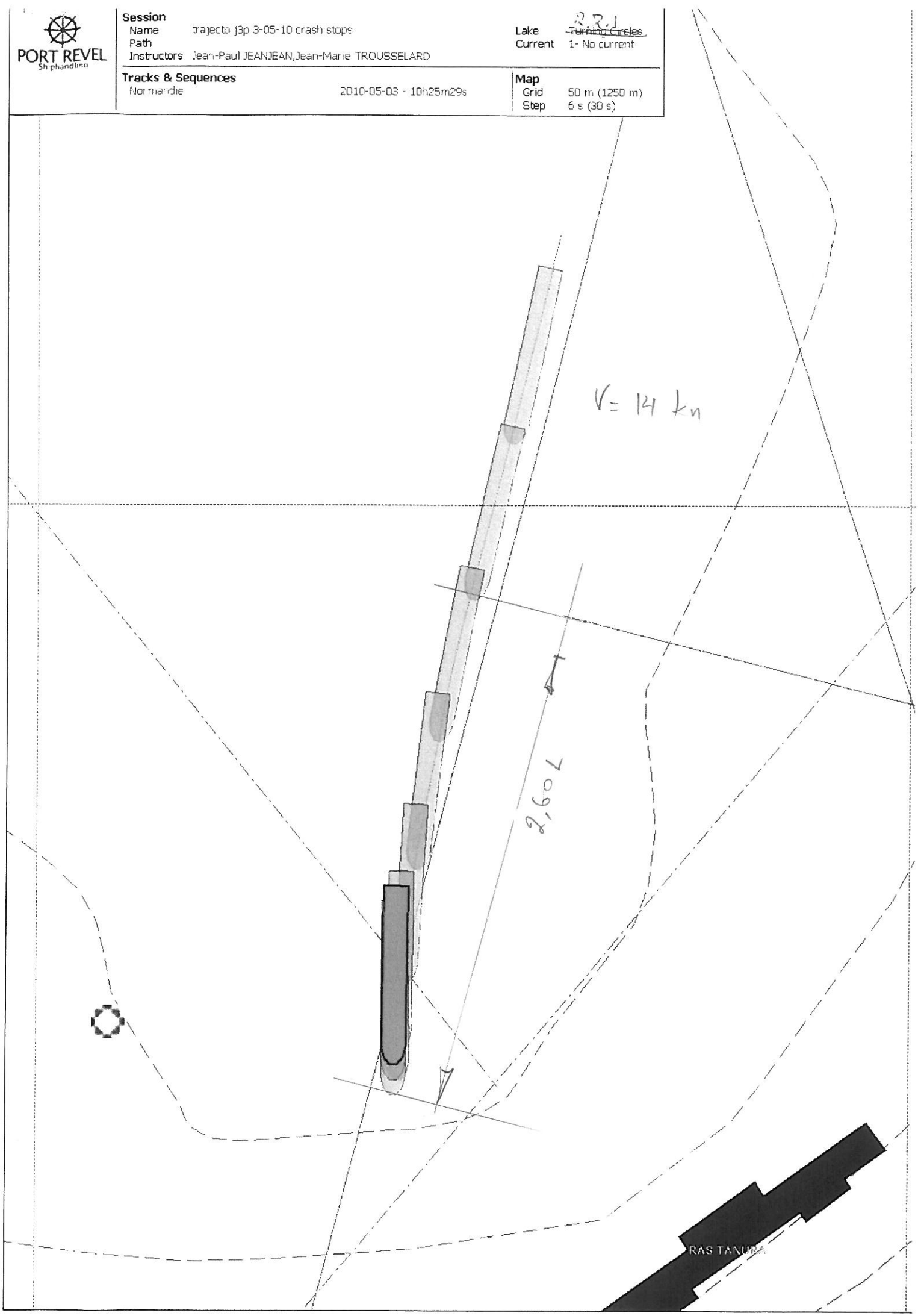
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.2.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



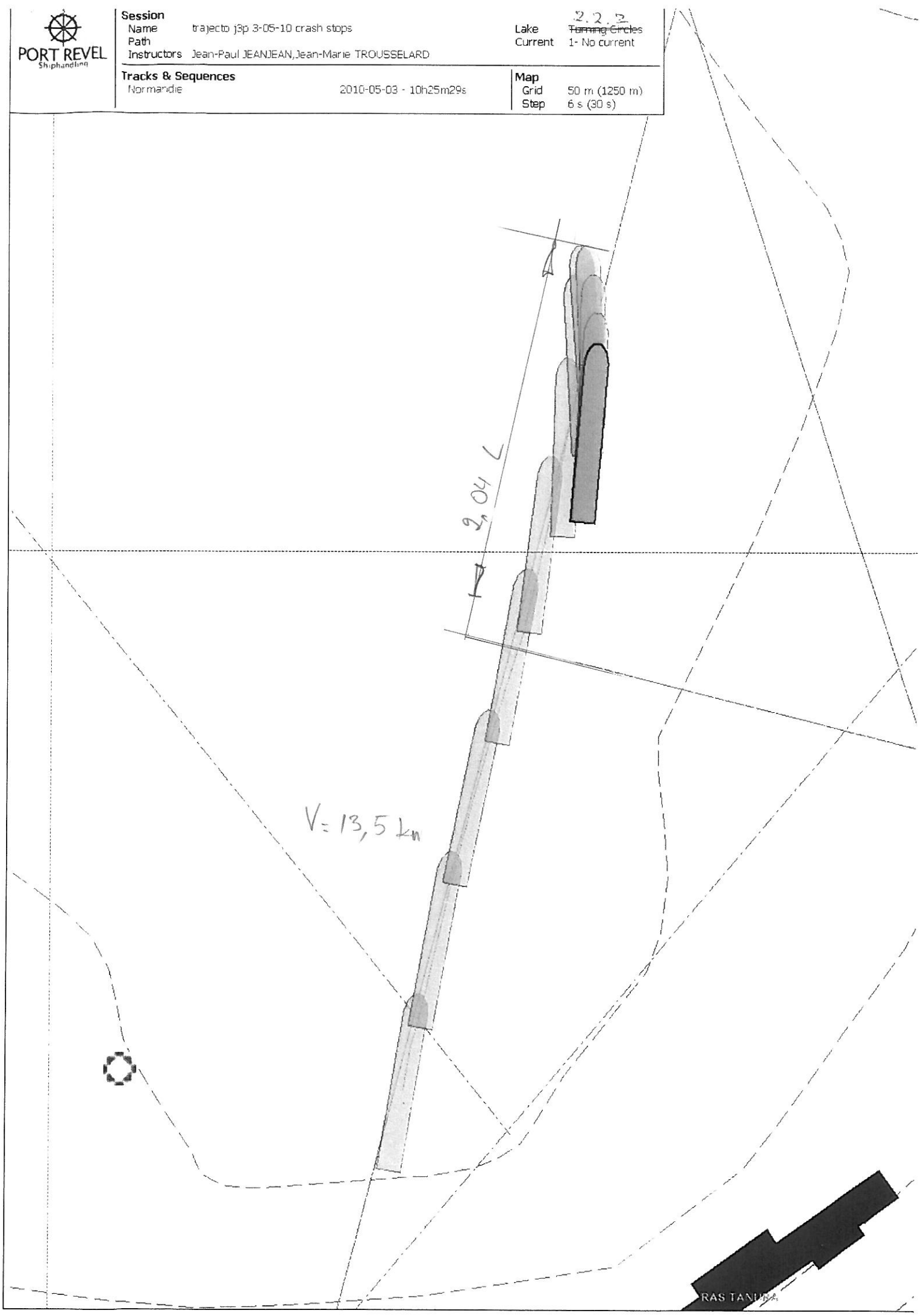
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.2.2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



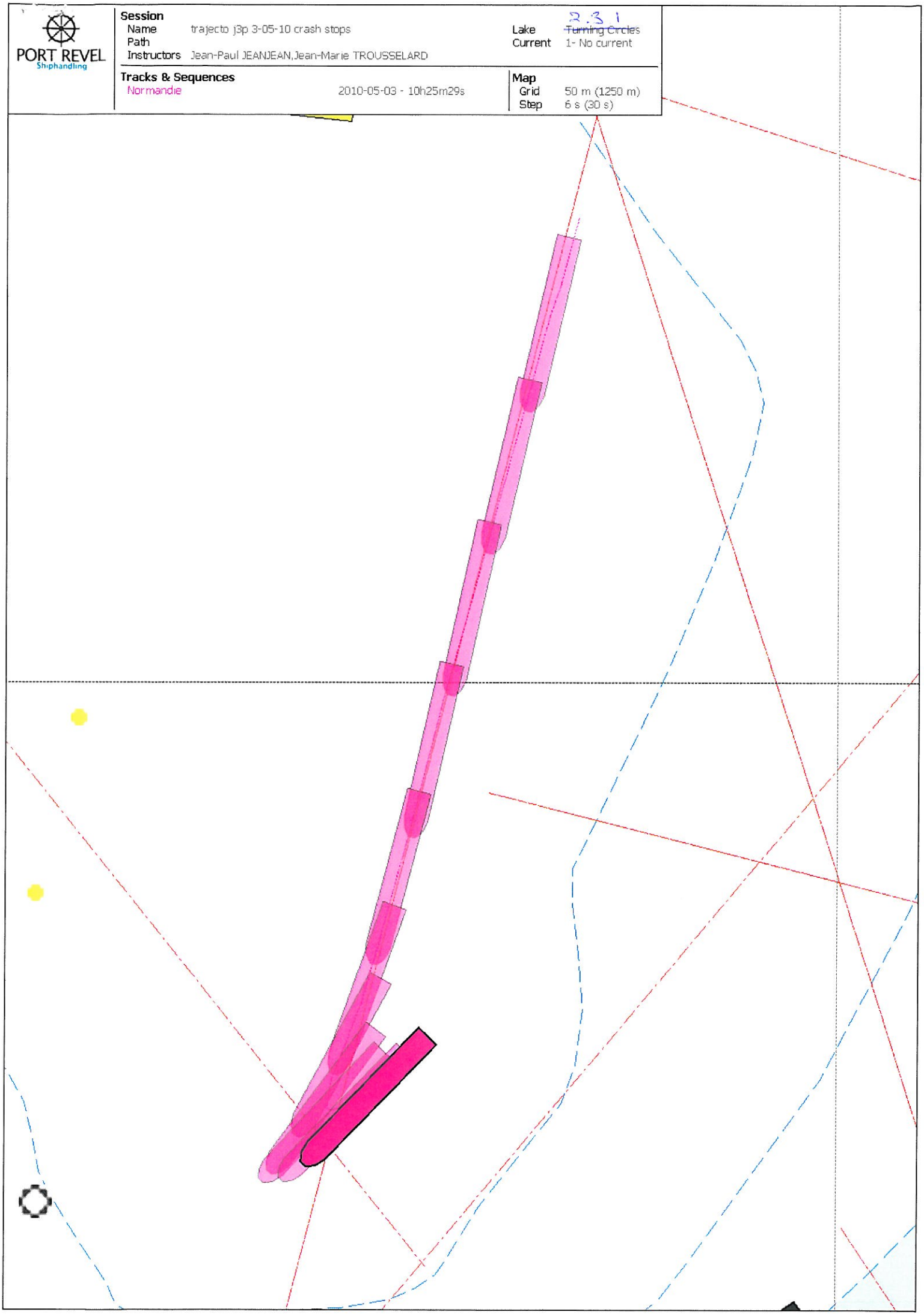
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 3.3.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.3 /

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 6 Stop : fin crash stop 6
Students
Notes:
crash stop vitesse 14 noeuds pods 180 deg inboard full positive

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h09m50s	-5.0	-12.5	12.5	193	0	0	Stop	97	-1	99	13
	11h09m51s	-5.0	-12.5	12.5	193	0	0	Stop	97	-1	99	13
	11h09m52s	-5.0	-12.5	13.0	194	0	0	Stop	97	-2	99	14
	11h09m53s	-5.0	-12.5	13.0	194	0	0	Stop	97	-2	99	14
	11h09m54s	-5.0	-12.5	13.0	193	0	0	Stop	97	1	99	11
	11h09m55s	-5.0	-12.5	13.0	193	0	0	Stop	97	1	99	11
	11h09m56s	-5.0	-12.5	13.0	193	0	0	Stop	97	-0	99	360
	11h09m57s	-5.0	-12.5	13.0	193	0	0	Stop	97	-0	99	360
	11h09m58s	-5.0	-12.5	13.0	194	0	0	Stop	97	-0	99	13
	11h09m59s	-5.0	-12.5	13.0	194	0	0	Stop	97	-0	99	13
	11h10m00s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	361
	11h10m01s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	361
	11h10m02s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	361
	11h10m03s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	361
	11h10m04s	-5.0	-13.0	13.5	193	0	0	Stop	97	0	99	359
	11h10m05s	-5.0	-13.0	13.5	193	0	0	Stop	97	0	99	359
	11h10m06s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	295
	11h10m07s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	99	295
	11h10m08s	-5.0	-13.5	13.5	193	0	0	Stop	97	-1	98	24
	11h10m09s	-5.0	-13.5	13.5	193	0	0	Stop	97	-1	98	24
	11h10m10s	-5.0	-13.0	13.5	193	0	0	Stop	96	-1	98	359
	11h10m11s	-5.0	-13.0	13.5	193	0	0	Stop	96	-1	98	359
	11h10m12s	-5.0	-13.5	14.0	193	0	0	Stop	96	69	99	293
	11h10m13s	-5.0	-13.5	14.0	193	0	0	Stop	96	69	99	293
	11h10m14s	-5.0	-13.0	13.5	194	0	0	Stop	97	149	99	231
	11h10m15s	-5.0	-13.0	13.5	194	0	0	Stop	97	149	99	231
	11h10m16s	-5.0	-11.0	11.5	194	0	0	Stop	97	185	99	193
	11h10m17s	-5.0	-11.0	11.5	194	0	0	Stop	97	185	99	193
	11h10m18s	-5.0	-10.5	11.0	195	0	0	Stop	97	186	99	192
	11h10m19s	-5.0	-10.5	11.0	195	0	0	Stop	97	186	99	192
	11h10m20s	-5.0	-10.0	10.5	196	0	0	Stop	97	185	99	191
	11h10m21s	-5.0	-10.0	10.5	196	0	0	Stop	97	185	99	191
	11h10m22s	-5.0	-9.0	9.5	198	0	0	Stop	97	186	99	191
	11h10m23s	-5.0	-9.0	9.5	198	0	0	Stop	97	186	99	191
	11h10m24s	-5.0	-8.0	8.5	200	0	0	Stop	97	186	99	192
	11h10m25s	-5.0	-8.0	8.5	200	0	0	Stop	97	186	99	192
	11h10m26s	-5.0	-7.5	8.0	202	0	0	Stop	97	185	99	191
	11h10m27s	-5.0	-7.5	8.0	202	0	0	Stop	97	185	99	191
	11h10m28s	-0.0	-6.5	6.5	206	0	0	Stop	97	185	99	192
	11h10m29s	-0.0	-6.5	6.5	206	0	0	Stop	97	185	99	192
	11h10m30s	-0.0	-5.5	6.0	208	0	0	Stop	97	186	99	192
	11h10m31s	-0.0	-5.5	6.0	208	0	0	Stop	97	186	99	192
	11h10m32s	-0.0	-4.5	5.0	211	0	0	Stop	97	186	98	193
	11h10m33s	-0.0	-4.5	5.0	211	0	0	Stop	97	186	98	193
	11h10m34s	-0.0	-3.0	3.5	215	0	0	Stop	96	185	99	191

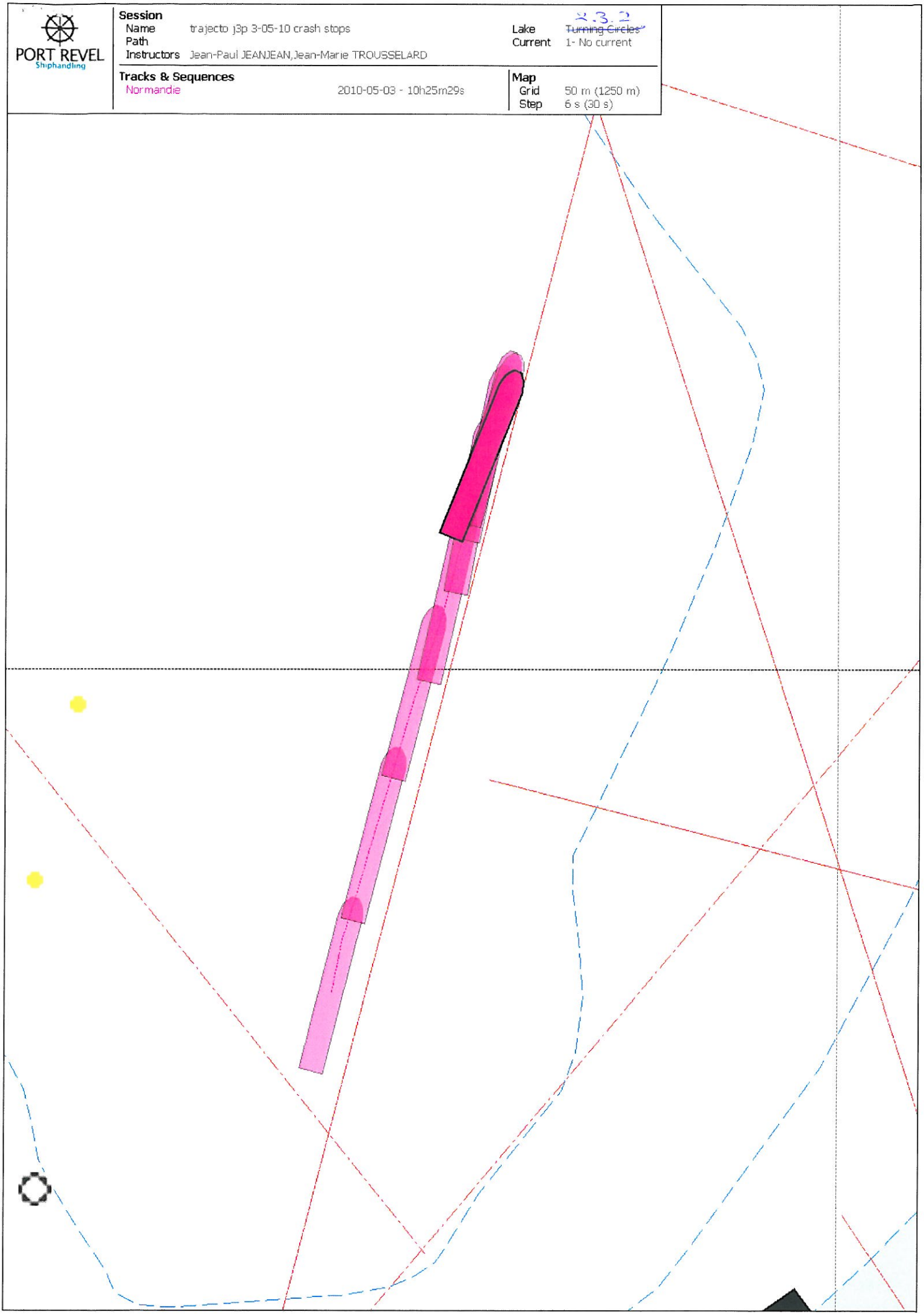
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.3.2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.3.2

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 5 Stop : fin crash stop 5
Students
Notes:
crash stop vitesse 14 noeuds 180 deg inboard full positive

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h05m50s	5.0	13.0	13.5	14	0	0	Stop	97	11	99	361
	11h05m51s	5.0	13.0	13.5	14	0	0	Stop	97	11	99	361
	11h05m52s	5.0	13.0	13.5	15	0	0	Stop	97	11	99	360
	11h05m53s	5.0	13.0	13.5	15	0	0	Stop	97	11	99	360
	11h05m54s	5.0	13.0	13.5	15	0	0	Stop	97	-1	99	361
	11h05m55s	5.0	13.0	13.5	15	0	0	Stop	97	-1	99	361
	11h05m56s	5.0	13.0	13.5	15	0	0	Stop	97	-1	99	361
	11h05m57s	5.0	13.0	13.5	15	0	0	Stop	97	-1	99	361
	11h05m58s	5.0	13.0	13.5	15	0	0	Stop	97	7	99	359
	11h05m59s	5.0	13.0	13.5	15	0	0	Stop	97	7	99	359
	11h06m00s	5.0	13.5	14.0	14	0	0	Stop	97	0	99	361
	11h06m01s	5.0	13.5	14.0	14	0	0	Stop	97	0	99	361
	11h06m02s	5.0	13.0	13.5	15	0	0	Stop	97	-1	99	359
	11h06m03s	5.0	13.0	13.5	15	0	0	Stop	97	-1	99	359
	11h06m04s	5.0	13.5	14.0	15	0	0	Stop	97	7	99	358
	11h06m05s	5.0	13.5	14.0	15	0	0	Stop	97	7	99	358
	11h06m06s	5.0	13.5	14.0	15	0	0	Stop	97	-0	99	360
	11h06m07s	5.0	13.5	14.0	15	0	0	Stop	97	-0	99	360
	11h06m08s	5.0	13.5	14.0	14	0	0	Stop	97	119	99	247
	11h06m09s	5.0	13.5	14.0	14	0	0	Stop	97	119	99	247
	11h06m10s	5.0	12.5	13.0	14	0	0	Stop	97	184	99	215
	11h06m11s	5.0	12.5	13.0	14	0	0	Stop	97	184	99	215
	11h06m12s	5.0	11.0	11.5	15	0	0	Stop	97	186	99	192
	11h06m13s	5.0	11.0	11.5	15	0	0	Stop	97	186	99	192
	11h06m14s	5.0	10.5	11.0	14	0	0	Stop	97	186	99	193
	11h06m15s	5.0	10.5	11.0	14	0	0	Stop	97	186	99	193
	11h06m16s	5.0	10.0	10.5	14	0	0	Stop	97	185	99	193
	11h06m17s	5.0	10.0	10.5	14	0	0	Stop	97	185	99	193
	11h06m18s	5.0	9.0	9.0	13	0	0	Stop	97	185	99	192
	11h06m19s	5.0	9.0	9.0	13	0	0	Stop	97	185	99	192
	11h06m20s	0.0	8.5	9.0	12	0	0	Stop	96	187	99	191
	11h06m21s	0.0	8.5	9.0	12	0	0	Stop	96	187	99	191
	11h06m22s	0.0	7.5	8.0	11	0	0	Stop	97	185	99	191
	11h06m23s	0.0	7.5	8.0	11	0	0	Stop	97	185	99	191
	11h06m24s	0.0	6.0	6.5	11	0	0	Stop	97	186	99	192
	11h06m25s	0.0	6.0	6.5	11	0	0	Stop	97	186	99	192
	11h06m26s	0.0	5.0	5.5	11	0	0	Stop	97	186	99	193
	11h06m27s	0.0	5.0	5.5	11	0	0	Stop	97	186	99	193
	11h06m28s	0.0	4.5	5.0	11	0	0	Stop	97	187	99	192
	11h06m29s	0.0	4.5	5.0	11	0	0	Stop	97	187	99	192
	11h06m30s	0.0	3.0	3.0	12	0	0	Stop	97	185	99	191
	11h06m31s	0.0	3.0	3.0	12	0	0	Stop	97	185	99	191
	11h06m32s	0.0	2.0	2.5	13	0	0	Stop	97	186	99	191
	11h06m33s	0.0	2.0	2.5	13	0	0	Stop	97	186	99	191
	11h06m34s	0.0	1.5	1.5	14	0	0	Stop	97	185	99	192

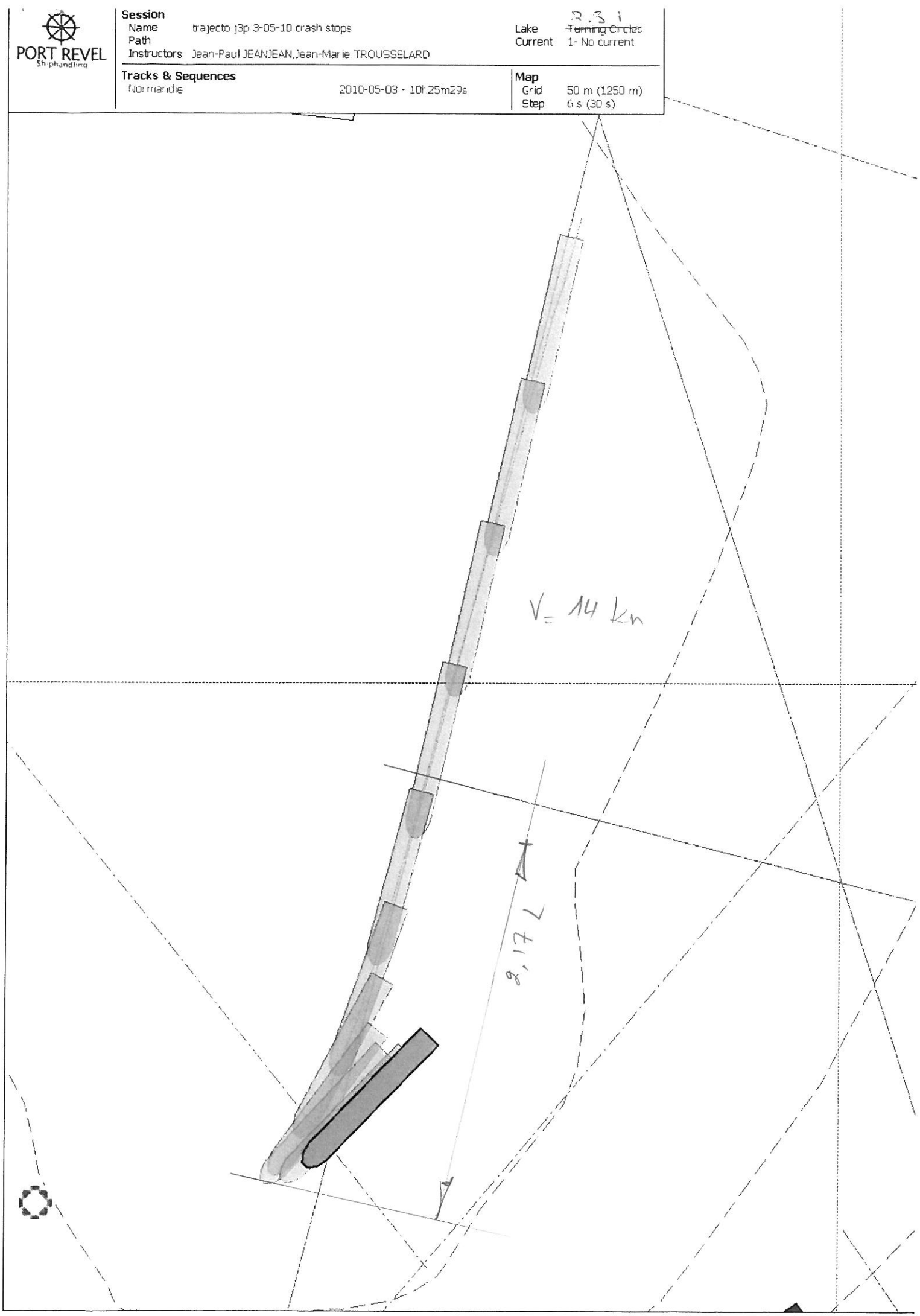
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.3.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



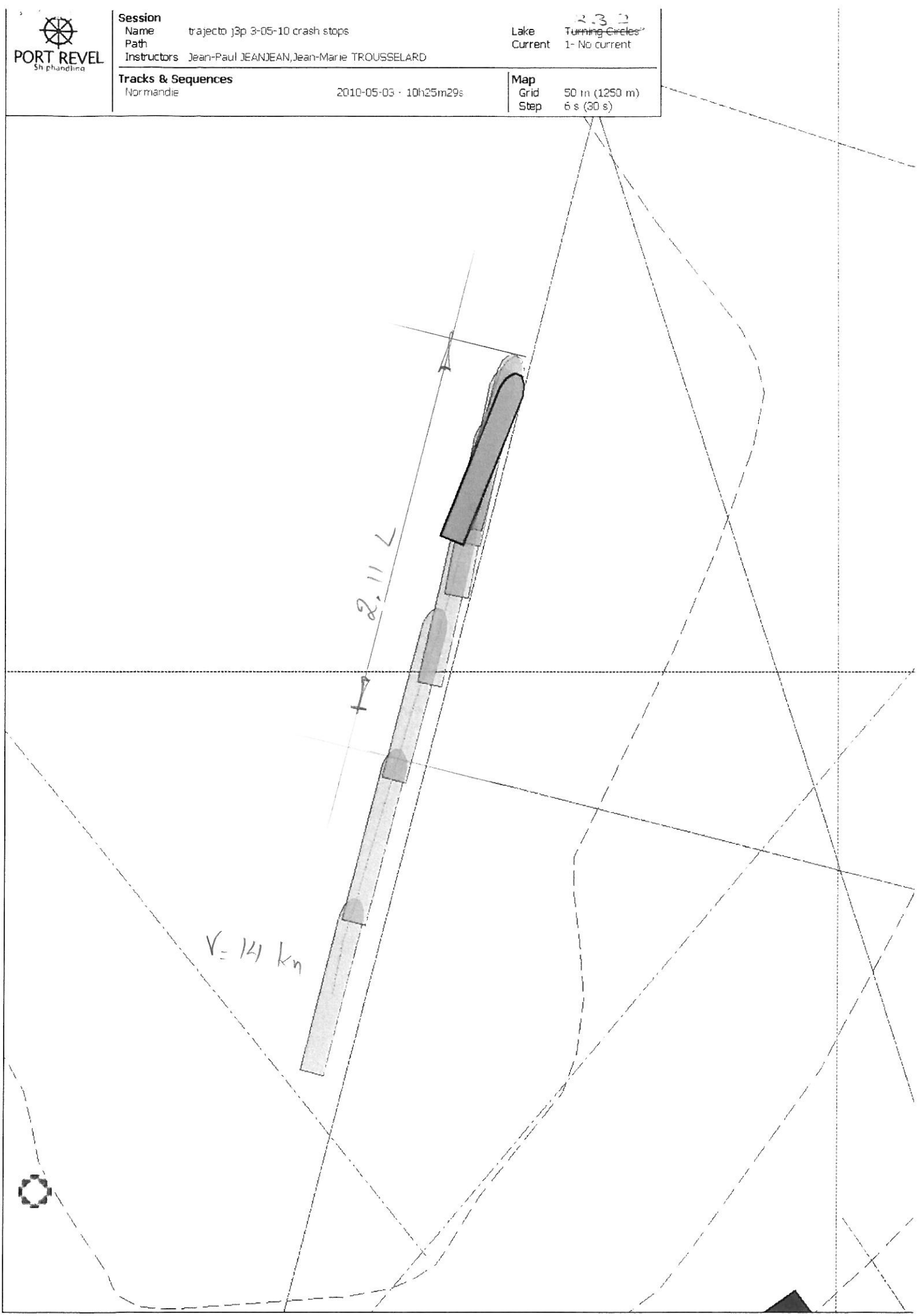
PORT REVEL
Sh phandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.3.2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



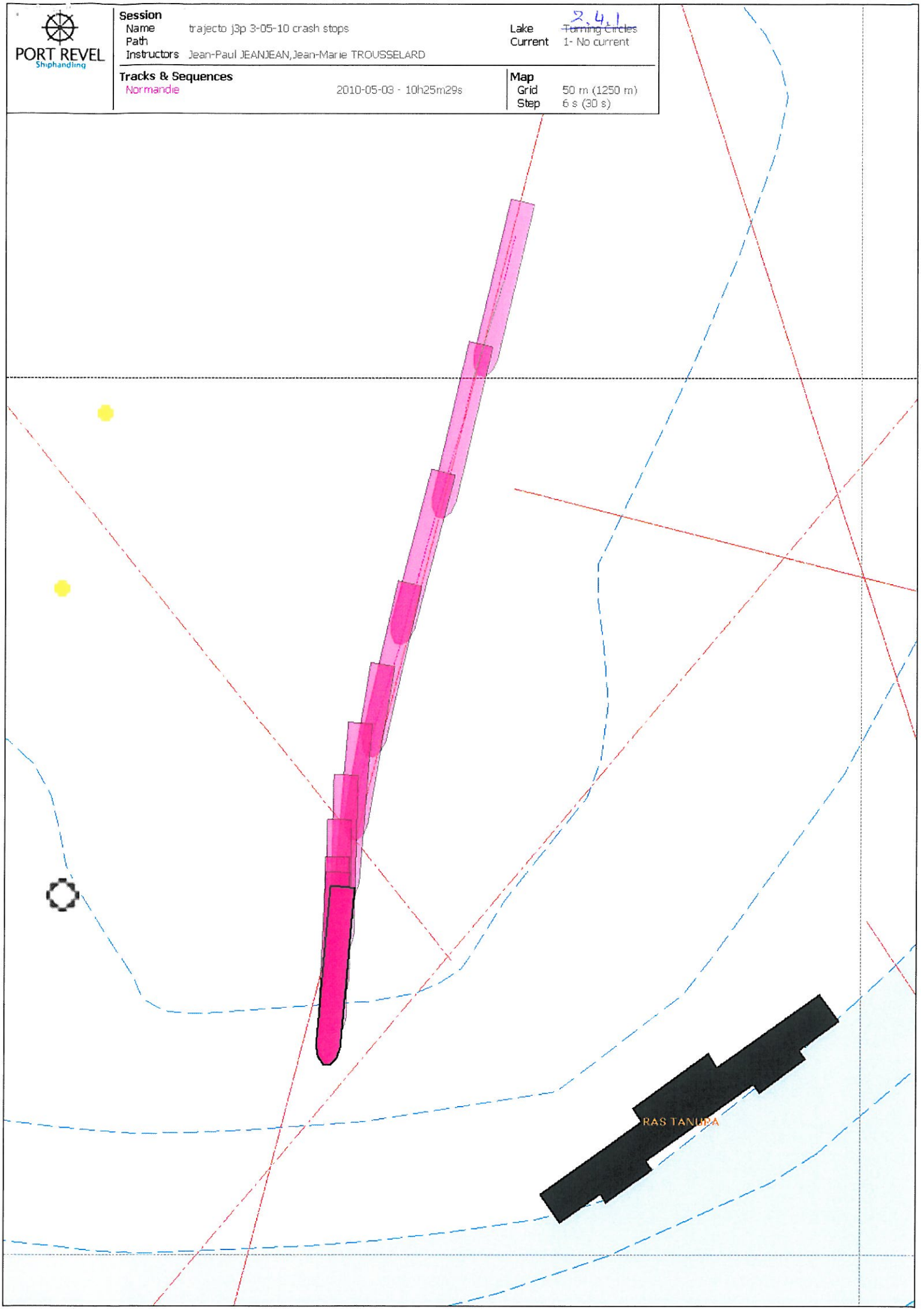
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning circles~~ 2,4,1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~ 2.4.1
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t15 Stop : t16
Students
Notes:
transverse arrest vitesse 14 noeuds
(vent AR aces des rafales à 40 noeuds)

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h19m45s	-5.0	-13.0	13.5	194	0	0	Stop	96	-1	98	359
	11h19m46s	-5.0	-13.5	14.0	194	0	0	Stop	97	-1	99	16
	11h19m47s	-5.0	-13.5	14.0	194	0	0	Stop	97	-1	99	16
	11h19m48s	-5.0	-13.5	14.0	194	0	0	Stop	97	0	98	360
	11h19m49s	-5.0	-13.5	14.0	194	0	0	Stop	97	0	98	360
!	11h19m50s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	11h19m51s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	11h19m52s	-5.0	-13.5	14.0	193	0	0	Stop	96	-1	99	359
	11h19m53s	-5.0	-13.5	14.0	193	0	0	Stop	96	-1	99	359
	11h19m54s	-5.0	-13.5	14.0	193	0	0	Stop	97	44	99	315
	11h19m55s	-5.0	-13.5	14.0	193	0	0	Stop	97	44	99	315
	11h19m56s	-5.0	-13.0	13.5	194	0	0	Stop	97	75	99	278
	11h19m57s	-5.0	-13.0	13.5	194	0	0	Stop	97	75	99	278
	11h19m58s	-5.0	-11.5	12.0	195	0	0	Stop	97	89	99	274
	11h19m59s	-5.0	-11.5	12.0	195	0	0	Stop	97	89	99	274
	11h20m00s	-5.0	-11.0	11.5	195	0	0	Stop	97	87	99	277
	11h20m01s	-5.0	-11.0	11.5	195	0	0	Stop	97	87	99	277
	11h20m02s	-5.0	-10.0	10.5	195	0	0	Stop	97	88	99	275
	11h20m03s	-5.0	-10.0	10.5	195	0	0	Stop	97	88	99	275
	11h20m04s	-5.0	-9.0	9.5	194	0	0	Stop	97	87	99	275
	11h20m05s	-5.0	-9.0	9.5	194	0	0	Stop	97	87	99	275
	11h20m06s	-0.0	-8.5	9.0	193	0	0	Stop	97	87	99	275
	11h20m07s	-0.0	-8.5	9.0	193	0	0	Stop	97	87	99	275
	11h20m08s	-0.0	-7.5	8.0	192	0	0	Stop	97	87	98	274
	11h20m09s	-0.0	-7.5	8.0	192	0	0	Stop	97	87	98	274
	11h20m10s	-0.0	-7.0	7.0	190	0	0	Stop	97	88	99	275
	11h20m11s	-0.0	-7.0	7.0	190	0	0	Stop	97	88	99	275
	11h20m12s	-0.0	-6.5	7.0	190	0	0	Stop	97	88	98	275
	11h20m13s	-0.0	-6.5	7.0	190	0	0	Stop	97	88	98	275
	11h20m14s	-0.0	-5.5	6.0	187	0	0	Stop	97	88	99	276
	11h20m15s	-0.0	-5.5	6.0	187	0	0	Stop	97	88	99	276
	11h20m16s	-0.0	-5.5	6.0	186	0	0	Stop	97	88	99	274
	11h20m17s	-0.0	-5.5	6.0	186	0	0	Stop	97	88	99	274
	11h20m18s	-0.0	-5.0	5.0	185	0	0	Stop	97	88	98	275
	11h20m19s	-0.0	-5.0	5.0	185	0	0	Stop	97	88	98	275
	11h20m20s	-0.0	-4.5	4.5	183	0	0	Stop	97	87	99	276
	11h20m21s	-0.0	-4.5	4.5	183	0	0	Stop	97	87	99	276
	11h20m22s	-0.0	-4.0	4.0	182	0	0	Stop	97	86	99	276
	11h20m23s	-0.0	-4.0	4.0	182	0	0	Stop	97	86	99	276
	11h20m24s	-0.0	-4.0	4.0	181	0	0	Stop	97	87	99	275
	11h20m25s	-0.0	-4.0	4.0	181	0	0	Stop	97	87	99	275
	11h20m26s	-0.0	-3.5	3.5	181	0	0	Stop	97	88	99	276
	11h20m27s	-0.0	-3.5	3.5	181	0	0	Stop	97	88	99	276
	11h20m28s	-0.0	-3.5	3.5	181	0	0	Stop	97	88	98	275

PORT REVEL
Shiphandling

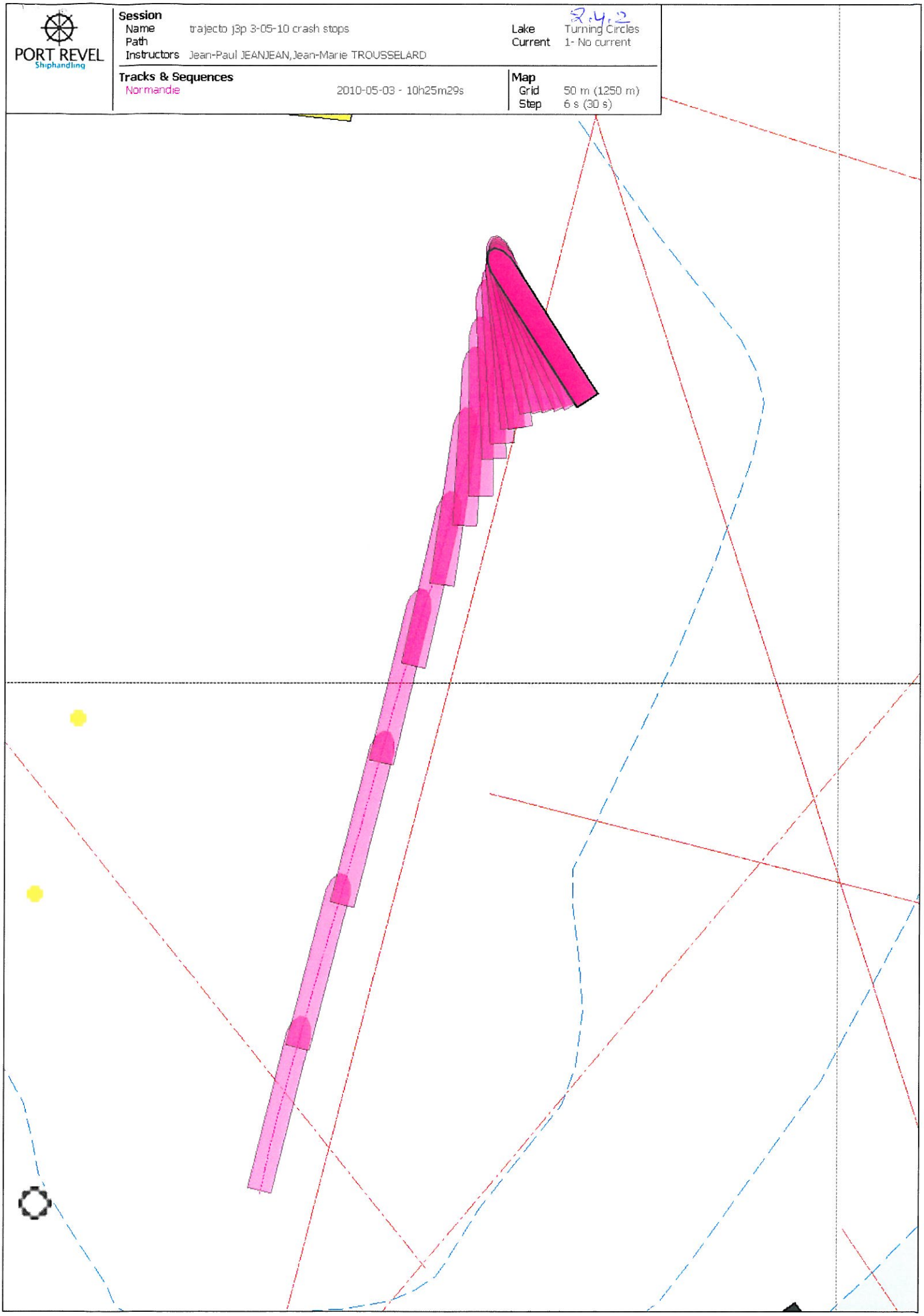
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

2.4.2

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)

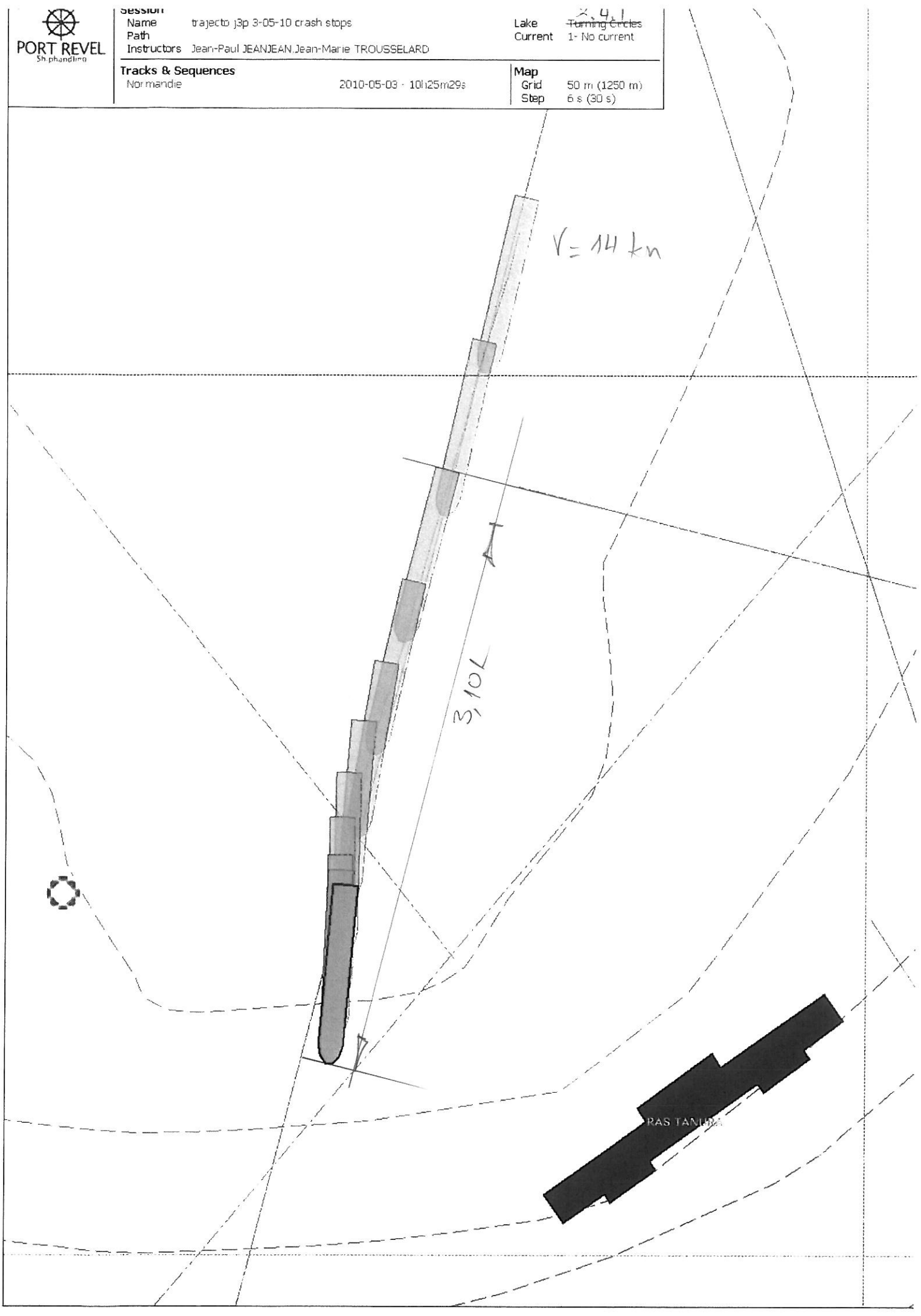


2.4.2

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : début crash stop 7 Stop : fin crash stop 7
Students
Notes:
crash stop transverse arrest (2.4.2) vitesse 13.5 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h14m40s	5.0	12.5	13.0	15	0	0	Stop	97	-1	99	22
	11h14m41s	5.0	12.5	13.0	15	0	0	Stop	97	-1	99	22
	11h14m42s	5.0	12.5	13.0	15	0	0	Stop	97	349	98	359
	11h14m43s	5.0	12.5	13.0	15	0	0	Stop	97	349	98	359
	11h14m44s	5.0	12.5	13.0	14	0	0	Stop	97	-1	99	360
	11h14m45s	5.0	12.5	13.0	14	0	0	Stop	97	-1	99	360
	11h14m46s	5.0	12.5	13.0	14	0	0	Stop	97	-1	99	359
	11h14m47s	5.0	12.5	13.0	14	0	0	Stop	97	-1	99	359
	11h14m48s	5.0	13.0	13.5	15	0	0	Stop	97	0	99	359
	11h14m49s	5.0	13.0	13.5	15	0	0	Stop	97	0	99	359
	11h14m50s	5.0	13.0	13.5	14	0	0	Stop	97	-1	99	317
	11h14m51s	5.0	13.0	13.5	14	0	0	Stop	97	-1	99	317
	11h14m52s	5.0	12.5	13.0	14	0	0	Stop	97	2	99	359
	11h14m53s	5.0	12.5	13.0	14	0	0	Stop	97	2	99	359
	11h14m54s	5.0	13.0	13.5	14	0	0	Stop	97	-0	99	360
	11h14m55s	5.0	13.0	13.5	14	0	0	Stop	97	-0	99	360
	11h14m56s	5.0	13.0	13.5	14	0	0	Stop	97	0	99	19
	11h14m57s	5.0	13.0	13.5	14	0	0	Stop	97	0	99	19
	11h14m58s	5.0	13.0	13.5	15	0	0	Stop	97	0	99	27
	11h14m59s	5.0	13.0	13.5	15	0	0	Stop	97	0	99	27
	11h15m00s	5.0	12.5	13.0	15	0	0	Stop	97	-0	99	14
	11h15m01s	5.0	12.5	13.0	15	0	0	Stop	97	-0	99	14
	11h15m02s	5.0	13.0	13.5	14	0	0	Stop	97	-0	99	359
	11h15m03s	5.0	13.0	13.5	14	0	0	Stop	97	-0	99	359
	11h15m04s	5.0	13.0	13.5	14	0	0	Stop	97	-2	99	356
	11h15m05s	5.0	13.0	13.5	14	0	0	Stop	97	-2	99	356
	11h15m06s	5.0	13.0	13.5	14	0	0	Stop	97	9	99	266
	11h15m07s	5.0	13.0	13.5	14	0	0	Stop	97	9	99	266
	11h15m08s	5.0	13.0	13.5	14	0	0	Stop	97	84	99	273
	11h15m09s	5.0	13.0	13.5	14	0	0	Stop	97	84	99	273
	11h15m10s	5.0	11.5	12.0	13	0	0	Stop	97	88	99	276
	11h15m11s	5.0	11.5	12.0	13	0	0	Stop	97	88	99	276
	11h15m12s	5.0	10.5	11.0	13	0	0	Stop	97	88	98	275
	11h15m13s	5.0	10.5	11.0	13	0	0	Stop	97	88	98	275
	11h15m14s	5.0	10.0	10.5	14	0	0	Stop	97	90	99	274
	11h15m15s	5.0	10.0	10.5	14	0	0	Stop	97	90	99	274
	11h15m16s	5.0	8.5	9.0	13	0	0	Stop	97	88	99	274
	11h15m17s	5.0	8.5	9.0	13	0	0	Stop	97	88	99	274
	11h15m18s	5.0	8.0	8.5	13	0	0	Stop	97	89	99	275
	11h15m19s	5.0	8.0	8.5	13	0	0	Stop	97	89	99	275
	11h15m20s	0.0	7.5	8.0	12	0	0	Stop	97	89	99	275
	11h15m21s	0.0	7.5	8.0	12	0	0	Stop	97	89	99	275
	11h15m22s	0.0	6.5	7.0	10	0	0	Stop	96	89	99	275
	11h15m23s	0.0	6.5	7.0	10	0	0	Stop	96	89	99	275
	11h15m24s	0.0	6.0	6.5	8	0	0	Stop	97	90	98	275

11h16m26s	0.0	0.0	1.0	335	0	0	Stop	97	89	99	275
11h16m27s	0.0	0.0	1.0	335	0	0	Stop	97	89	99	275
11h16m28s	0.0	0.0	0.5	334	0	0	Stop	77	89	75	276
11h16m29s	0.0	0.0	0.5	334	0	0	Stop	77	89	75	276


PORT REVEL
Shiphandling
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
Lake ~~Turning circles~~ 2.4.1
Current 1- No current
Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
V = 14 kn
3,10L
RAS TANURA

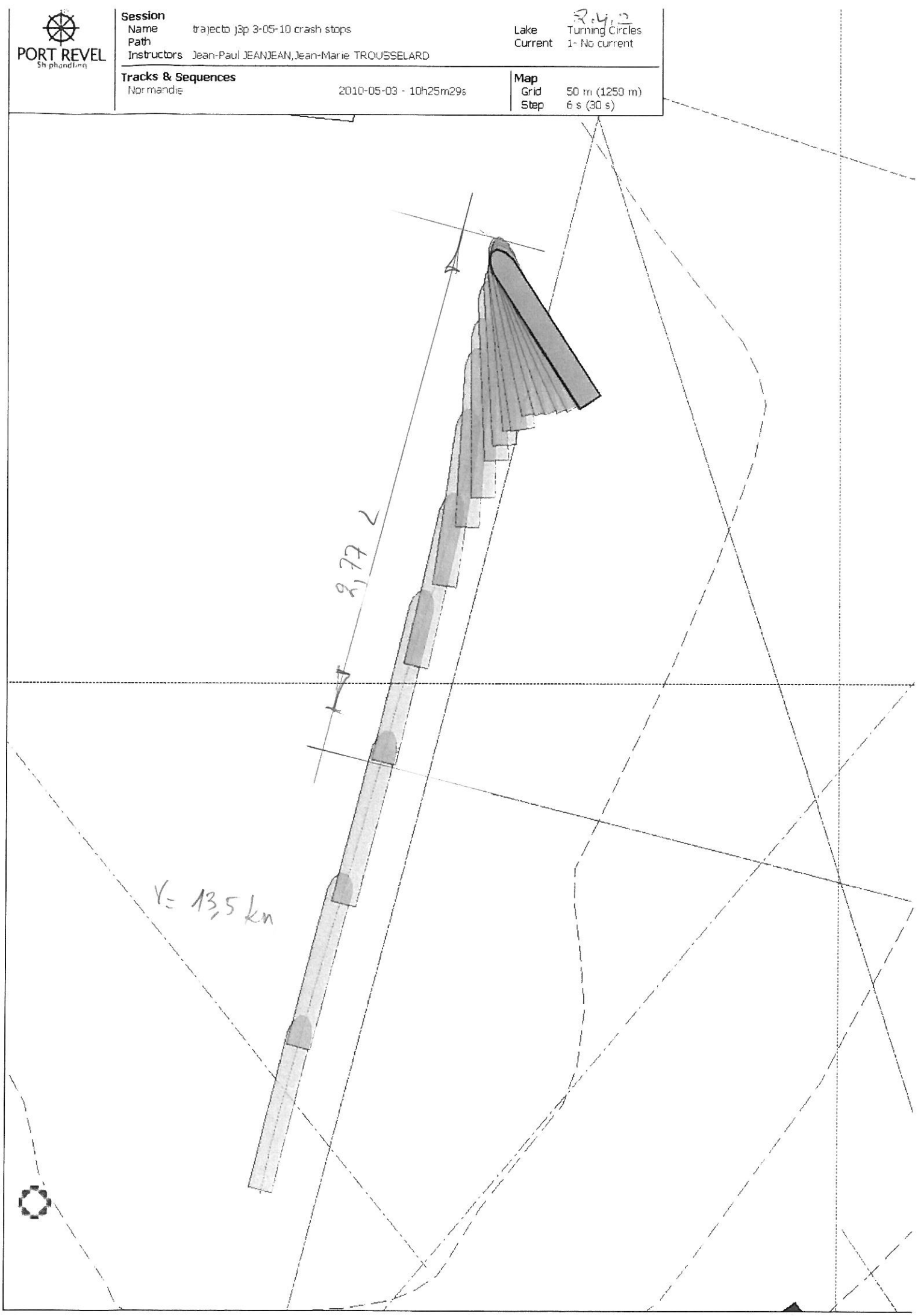
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



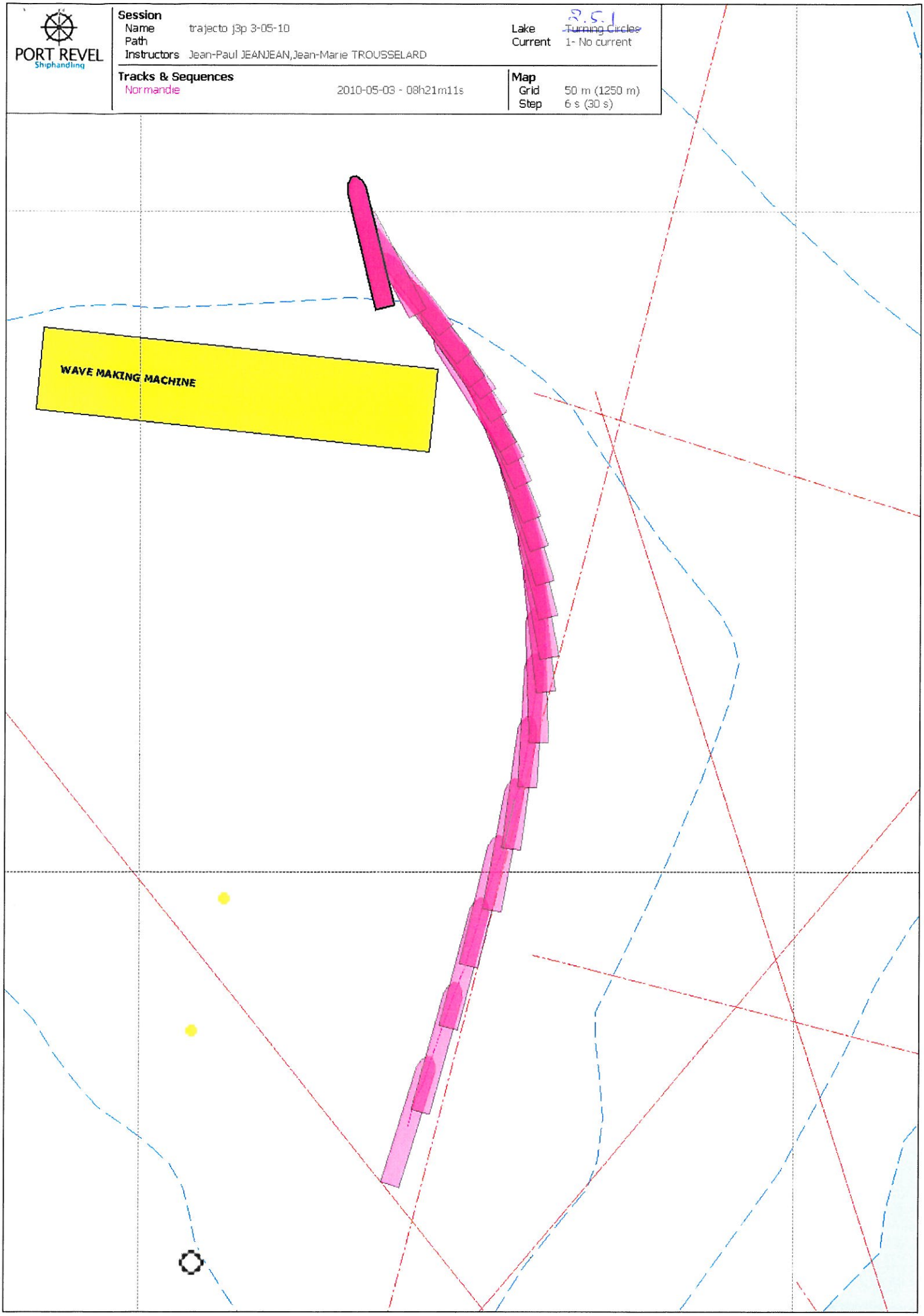
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circle~~ 3.5.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.5.1

Session:
Name : trajecto j3p 3-05-10 Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : t11 Stop : t12
Students
Notes:
2 hélices stoppées et les pods à 90° avec les hélices vers l'intérieur
3.5 noeuds à la machine à vague

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs		knots		°	kts	°		rpm	°	rpm	°
	09h30m04s	5.0	9.0	9.5	17	0	0	Stop	72	0	73	360
	09h30m05s	5.0	9.0	9.5	17	0	0	Stop	72	0	73	360
	09h30m06s	5.0	9.0	9.5	17	0	0	Stop	73	-1	73	353
	09h30m07s	5.0	9.0	9.5	17	0	0	Stop	73	-1	73	353
	09h30m08s	5.0	9.0	10.0	17	0	0	Stop	72	0	73	359
	09h30m09s	5.0	9.0	10.0	17	0	0	Stop	72	0	73	359
	09h30m10s	5.0	9.5	10.0	16	0	0	Stop	72	-1	74	357
	09h30m11s	5.0	9.5	10.0	16	0	0	Stop	72	-1	74	357
	09h30m12s	5.0	9.5	10.0	15	0	0	Stop	72	-1	75	358
	09h30m13s	5.0	9.5	10.0	15	0	0	Stop	72	-1	75	358
	09h30m14s	5.0	9.5	10.0	15	0	0	Stop	72	-1	74	360
	09h30m15s	5.0	9.5	10.0	15	0	0	Stop	72	-1	74	360
	09h30m16s	5.0	9.5	10.0	15	0	0	Stop	9	32	11	310
	09h30m17s	5.0	9.5	10.0	15	0	0	Stop	9	32	11	310
	09h30m18s	5.0	9.0	9.5	14	0	0	Stop	9	70	0	276
	09h30m19s	5.0	9.0	9.5	14	0	0	Stop	9	70	0	276
	09h30m20s	5.0	9.0	9.5	14	0	0	Stop	9	69	5	272
	09h30m21s	5.0	9.0	9.5	14	0	0	Stop	9	69	5	272
	09h30m22s	5.0	8.5	9.0	14	0	0	Stop	10	88	4	273
	09h30m23s	5.0	8.5	9.0	14	0	0	Stop	10	88	4	273
	09h30m24s	0.0	8.0	8.5	12	0	0	Stop	9	89	4	272
	09h30m25s	0.0	8.0	8.5	12	0	0	Stop	9	89	4	272
	09h30m26s	0.0	8.0	8.0	12	0	0	Stop	0	88	0	273
	09h30m27s	0.0	8.0	8.0	12	0	0	Stop	0	88	0	273
	09h30m28s	0.0	7.5	8.0	11	0	0	Stop	-0	89	0	272
	09h30m29s	0.0	7.5	8.0	11	0	0	Stop	-0	89	0	272
!	09h30m30s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
!	09h30m31s	0.0	0.0	0.0	0	0	0	LeftStro	0	0	0	0
	09h30m32s	0.0	7.0	7.5	8	0	0	Stop	-0	90	-0	271
	09h30m33s	0.0	7.0	7.5	8	0	0	Stop	-0	90	-0	271
	09h30m34s	0.0	7.0	7.0	8	0	0	Stop	-0	88	0	273
	09h30m35s	0.0	7.0	7.0	8	0	0	Stop	-0	88	0	273
	09h30m36s	0.0	6.5	6.5	5	0	0	Stop	-0	88	1	273
	09h30m37s	0.0	6.5	6.5	5	0	0	Stop	-0	88	1	273
	09h30m38s	0.0	6.5	6.5	4	0	0	Stop	-1	88	0	272
	09h30m39s	0.0	6.5	6.5	4	0	0	Stop	-1	88	0	272
	09h30m40s	0.0	6.0	6.5	3	0	0	Stop	-0	89	1	272
	09h30m41s	0.0	6.0	6.5	3	0	0	Stop	-0	89	1	272
	09h30m42s	0.0	6.0	6.0	0	0	0	Stop	-1	88	0	272
	09h30m43s	0.0	6.0	6.0	0	0	0	Stop	-1	88	0	272
	09h30m44s	0.0	5.5	6.0	360	0	0	Stop	0	89	1	272
	09h30m45s	0.0	5.5	6.0	360	0	0	Stop	0	89	1	272
	09h30m46s	0.0	5.5	5.5	358	0	0	Stop	-0	89	0	271
	09h30m47s	0.0	5.5	5.5	358	0	0	Stop	-0	89	0	271

09h31m49s	-0.0	2.5	3.0	325	0	0	Stop	-0	90	1	276
09h31m50s	-0.0	2.5	3.0	324	0	0	Stop	-0	-0	0	359
09h31m51s	-0.0	2.5	3.0	324	0	0	Stop	-0	-0	0	359
09h31m52s	-0.0	2.0	2.5	324	0	0	Stop	0	-1	0	360
09h31m53s	-0.0	2.0	2.5	324	0	0	Stop	0	-1	0	360
09h31m54s	-0.0	2.5	2.5	323	0	0	Stop	3	0	1	359
09h31m55s	-0.0	2.5	2.5	323	0	0	Stop	3	0	1	359
09h31m56s	-0.0	2.0	2.5	323	0	0	Stop	30	1	15	360
09h31m57s	-0.0	2.0	2.5	323	0	0	Stop	30	1	15	360
09h31m58s	-0.0	2.5	3.0	323	0	0	Stop	57	23	25	16
09h31m59s	-0.0	2.5	3.0	323	0	0	Stop	57	23	25	16
09h32m00s	-0.0	2.5	3.0	322	0	0	Stop	57	21	25	11
09h32m01s	-0.0	2.5	3.0	322	0	0	Stop	57	21	25	11
09h32m02s	-0.0	2.5	3.0	321	0	0	Stop	57	4	28	42

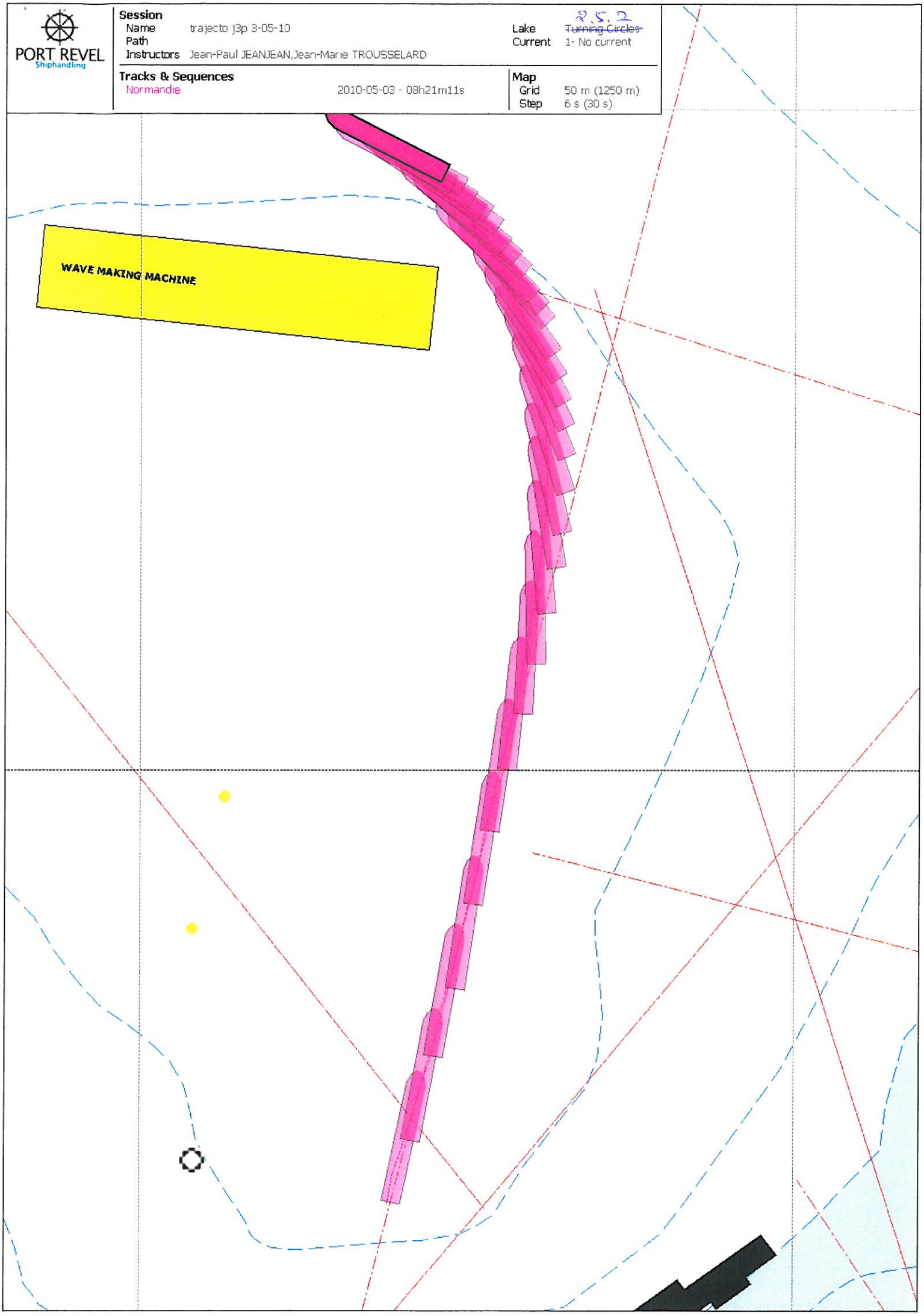
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 8,5,2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 Lake : ~~Turning Circles~~ 2.5.2
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 08h21m11s
Start : t13 Stop : t14
Students
Notes:
2 hélices stoppées et les pods à 90 avec les hélices vers l'exterieurs
2.5 noeuds à la machines à vague

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	09h37m36s	5.0	9.0	9.5	13	0	0	Stop	73	-1	73	16
	09h37m37s	5.0	9.0	9.5	13	0	0	Stop	73	-1	73	16
	09h37m38s	5.0	9.0	9.5	13	0	0	Stop	73	-1	73	13
	09h37m39s	5.0	9.0	9.5	13	0	0	Stop	73	-1	73	13
	09h37m40s	5.0	9.5	9.5	12	0	0	Stop	73	-1	73	360
	09h37m41s	5.0	9.5	9.5	12	0	0	Stop	73	-1	73	360
	09h37m42s	5.0	9.5	9.5	11	0	0	Stop	73	-0	73	358
	09h37m43s	5.0	9.5	9.5	11	0	0	Stop	73	-0	73	358
	09h37m44s	5.0	9.5	9.5	11	0	0	Stop	73	-0	73	357
	09h37m45s	5.0	9.5	9.5	11	0	0	Stop	73	-0	73	357
	09h37m46s	5.0	9.5	9.5	11	0	0	Stop	73	0	73	350
	09h37m47s	5.0	9.5	9.5	11	0	0	Stop	73	0	73	350
	09h37m48s	5.0	9.5	10.0	10	0	0	Stop	73	-1	73	359
	09h37m49s	5.0	9.5	10.0	10	0	0	Stop	73	-1	73	359
	09h37m50s	5.0	9.5	9.5	10	0	0	Stop	73	0	73	361
	09h37m51s	5.0	9.5	9.5	10	0	0	Stop	73	0	73	361
	09h37m52s	5.0	9.5	10.0	10	0	0	Stop	73	-1	73	360
	09h37m53s	5.0	9.5	10.0	10	0	0	Stop	73	-1	73	360
	09h37m54s	0.0	9.5	10.0	9	0	0	Stop	73	0	73	360
	09h37m55s	0.0	9.5	10.0	9	0	0	Stop	73	0	73	360
	09h37m56s	0.0	9.5	10.0	9	0	0	Stop	73	-1	72	336
	09h37m57s	0.0	9.5	10.0	9	0	0	Stop	73	-1	72	336
	09h37m58s	0.0	9.5	10.0	9	0	0	Stop	73	-1	73	345
	09h37m59s	0.0	9.5	10.0	9	0	0	Stop	73	-1	73	345
	09h38m00s	0.0	9.5	10.0	8	0	0	Stop	73	-1	73	359
	09h38m01s	0.0	9.5	10.0	8	0	0	Stop	73	-1	73	359
	09h38m02s	0.0	9.5	9.5	9	0	0	Stop	0	5	0	171
	09h38m03s	0.0	9.5	9.5	9	0	0	Stop	0	5	0	171
	09h38m04s	0.0	9.5	9.5	9	0	0	Stop	-4	255	0	98
	09h38m05s	0.0	9.5	9.5	9	0	0	Stop	-4	255	0	98
	09h38m06s	0.0	9.0	9.0	9	0	0	Stop	-4	274	0	92
	09h38m07s	0.0	9.0	9.0	9	0	0	Stop	-4	274	0	92
	09h38m08s	0.0	8.5	8.5	8	0	0	Stop	-4	274	0	93
	09h38m09s	0.0	8.5	8.5	8	0	0	Stop	-4	274	0	93
	09h38m10s	0.0	8.0	8.5	8	0	0	Stop	-0	272	0	93
	09h38m11s	0.0	8.0	8.5	8	0	0	Stop	-0	272	0	93
	09h38m12s	0.0	7.5	8.0	8	0	0	Stop	0	273	0	92
	09h38m13s	0.0	7.5	8.0	8	0	0	Stop	0	273	0	92
	09h38m14s	0.0	7.5	7.5	7	0	0	Stop	-1	273	0	93
	09h38m15s	0.0	7.5	7.5	7	0	0	Stop	-1	273	0	93
	09h38m16s	0.0	7.5	7.5	6	0	0	Stop	-1	273	0	92
	09h38m17s	0.0	7.5	7.5	6	0	0	Stop	-1	273	0	92
	09h38m18s	0.0	7.0	7.0	5	0	0	Stop	-0	273	1	92
	09h38m19s	0.0	7.0	7.0	5	0	0	Stop	-0	273	1	92

09h39m21s	-0.0	2.5	2.5	324	0	0	Stop	-1	273	0	91
09h39m22s	-0.0	2.5	2.5	324	0	0	Stop	-0	272	0	92
09h39m23s	-0.0	2.5	2.5	324	0	0	Stop	-0	272	0	92
09h39m24s	-0.0	2.5	2.5	323	0	0	Stop	-0	272	0	92
09h39m25s	-0.0	2.5	2.5	323	0	0	Stop	-0	272	0	92
09h39m26s	-0.0	2.5	2.5	320	0	0	Stop	-1	272	0	91
09h39m27s	-0.0	2.5	2.5	320	0	0	Stop	-1	272	0	91
09h39m28s	-0.0	2.0	2.5	319	0	0	Stop	-0	274	0	91
09h39m29s	-0.0	2.0	2.5	319	0	0	Stop	-0	274	0	91
09h39m30s	-0.0	2.0	2.5	318	0	0	Stop	-0	273	1	91
09h39m31s	-0.0	2.0	2.5	318	0	0	Stop	-0	273	1	91
09h39m32s	-0.0	2.0	2.5	316	0	0	Stop	-0	273	0	93
09h39m33s	-0.0	2.0	2.5	316	0	0	Stop	-0	273	0	93
09h39m34s	-0.0	2.0	2.5	315	0	0	Stop	-0	273	1	92
09h39m35s	-0.0	2.0	2.5	315	0	0	Stop	-0	273	1	92
09h39m36s	-0.0	2.0	2.5	315	0	0	Stop	-0	272	0	92
09h39m37s	-0.0	2.0	2.5	315	0	0	Stop	-0	272	0	92
09h39m38s	-0.0	2.0	2.0	314	0	0	Stop	-0	273	0	92
09h39m39s	-0.0	2.0	2.0	314	0	0	Stop	-0	273	0	92
09h39m40s	-0.0	2.0	2.0	313	0	0	Stop	-0	272	0	93
09h39m41s	-0.0	2.0	2.0	313	0	0	Stop	-0	272	0	93
09h39m42s	-0.0	1.5	2.0	313	0	0	Stop	0	273	0	92
09h39m43s	-0.0	1.5	2.0	313	0	0	Stop	0	273	0	92
09h39m44s	-0.0	1.5	2.0	312	0	0	Stop	-0	272	0	91
09h39m45s	-0.0	1.5	2.0	312	0	0	Stop	-0	272	0	91
09h39m46s	-0.0	2.0	2.0	312	0	0	Stop	0	272	1	92
09h39m47s	-0.0	2.0	2.0	312	0	0	Stop	0	272	1	92
09h39m48s	-0.0	1.5	2.0	311	0	0	Stop	-0	272	0	93
09h39m49s	-0.0	1.5	2.0	311	0	0	Stop	-0	272	0	93
09h39m50s	-0.0	1.5	2.0	310	0	0	Stop	-0	271	0	92
09h39m51s	-0.0	1.5	2.0	310	0	0	Stop	-0	271	0	92
09h39m52s	-0.0	1.5	2.0	310	0	0	Stop	-0	273	0	92
09h39m53s	-0.0	1.5	2.0	310	0	0	Stop	-0	273	0	92
09h39m54s	-0.0	1.5	2.0	309	0	0	Stop	-0	272	0	92
09h39m55s	-0.0	1.5	2.0	309	0	0	Stop	-0	272	0	92
09h39m56s	-0.0	1.5	2.0	309	0	0	Stop	0	273	0	92
09h39m57s	-0.0	1.5	2.0	309	0	0	Stop	0	273	0	92
09h39m58s	-0.0	1.5	2.0	308	0	0	Stop	-0	273	0	92
09h39m59s	-0.0	1.5	2.0	308	0	0	Stop	-0	273	0	92
09h40m00s	-0.0	1.5	2.0	307	0	0	Stop	-0	273	0	92
09h40m01s	-0.0	1.5	2.0	307	0	0	Stop	-0	273	0	92
09h40m02s	-0.0	1.5	2.0	307	0	0	Stop	-0	272	0	91
09h40m03s	-0.0	1.5	2.0	307	0	0	Stop	-0	272	0	91
09h40m04s	-0.0	1.0	1.5	306	0	0	Stop	0	273	0	92
09h40m05s	-0.0	1.0	1.5	306	0	0	Stop	0	273	0	92
09h40m06s	-0.0	1.5	1.5	305	0	0	Stop	-0	272	0	92
09h40m07s	-0.0	1.5	1.5	305	0	0	Stop	-0	272	0	92
09h40m08s	-0.0	1.5	2.0	305	0	0	Stop	-1	273	-0	92
09h40m09s	-0.0	1.5	2.0	305	0	0	Stop	-1	273	-0	92
09h40m10s	-0.0	1.5	2.0	304	0	0	Stop	0	274	1	92
09h40m11s	-0.0	1.5	2.0	304	0	0	Stop	0	274	1	92
09h40m12s	-0.0	1.0	1.5	304	0	0	Stop	-0	273	1	93
09h40m13s	-0.0	1.0	1.5	304	0	0	Stop	-0	273	1	93
09h40m14s	-0.0	1.0	1.5	303	0	0	Stop	-1	272	0	91
09h40m15s	-0.0	1.0	1.5	303	0	0	Stop	-1	272	0	91
09h40m16s	-0.0	1.5	1.5	303	0	0	Stop	0	272	0	93
09h40m17s	-0.0	1.5	1.5	303	0	0	Stop	0	272	0	93
09h40m18s	-0.0	1.0	1.5	302	0	0	Stop	0	73	0	322
09h40m19s	-0.0	1.0	1.5	302	0	0	Stop	0	73	0	322
09h40m20s	-0.0	1.0	1.5	301	0	0	Stop	-1	0	0	359
09h40m21s	-0.0	1.0	1.5	301	0	0	Stop	-1	0	0	359

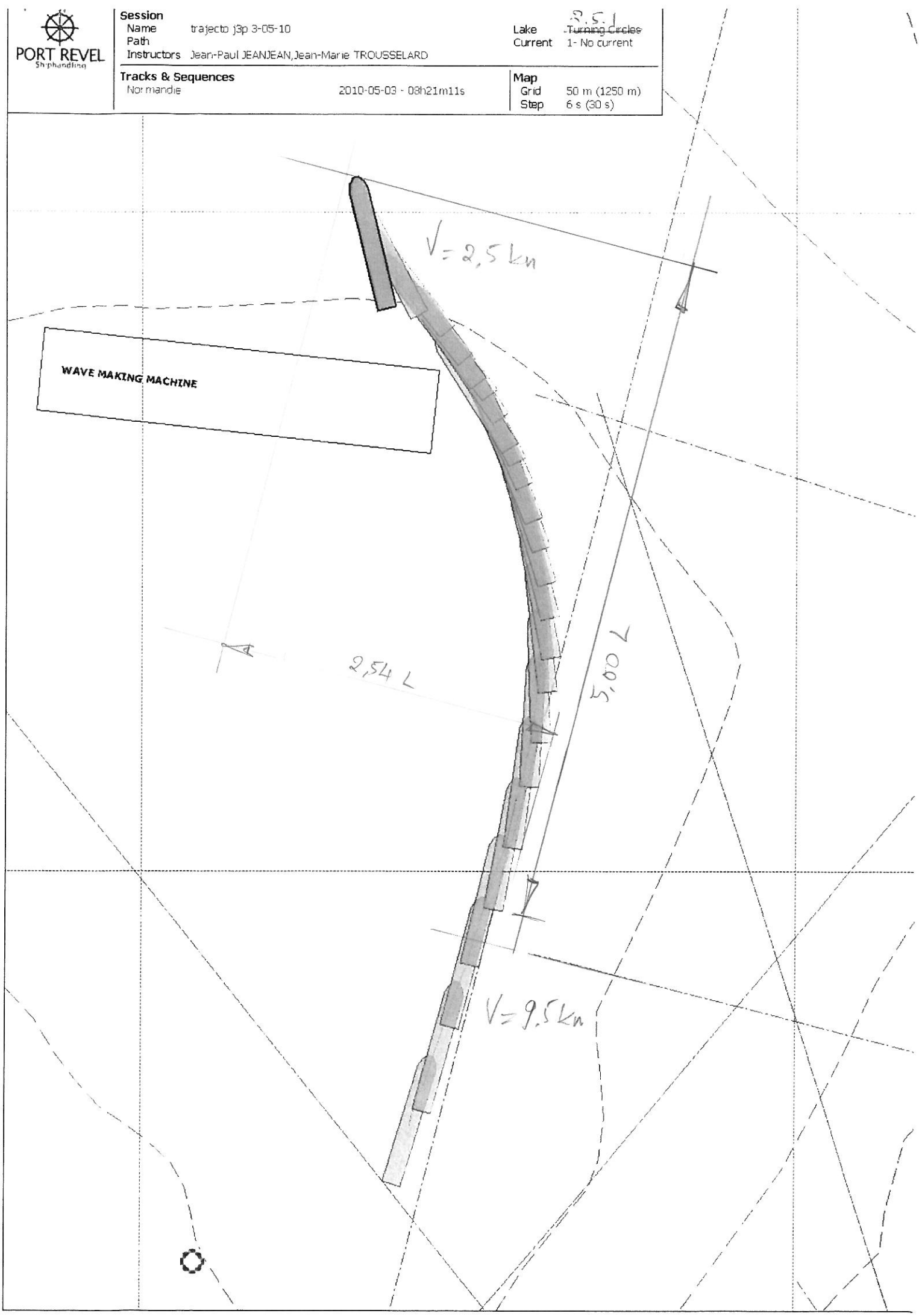
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 3.5.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 08h21m11s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)




PORT REVEL
Shiphandling
Session
Name trajecto j3p 3-05-10
Path
Instructors Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Lake ~~Turning Circles~~ 2.5.2
Current 1- No current
Tracks & Sequences
Normandie
2010-05-03 - 08h21m11s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
V = 1,5 kn
WAVE MAKING MACHINE
2,48 L
3,05 L
V = 9,5 kn

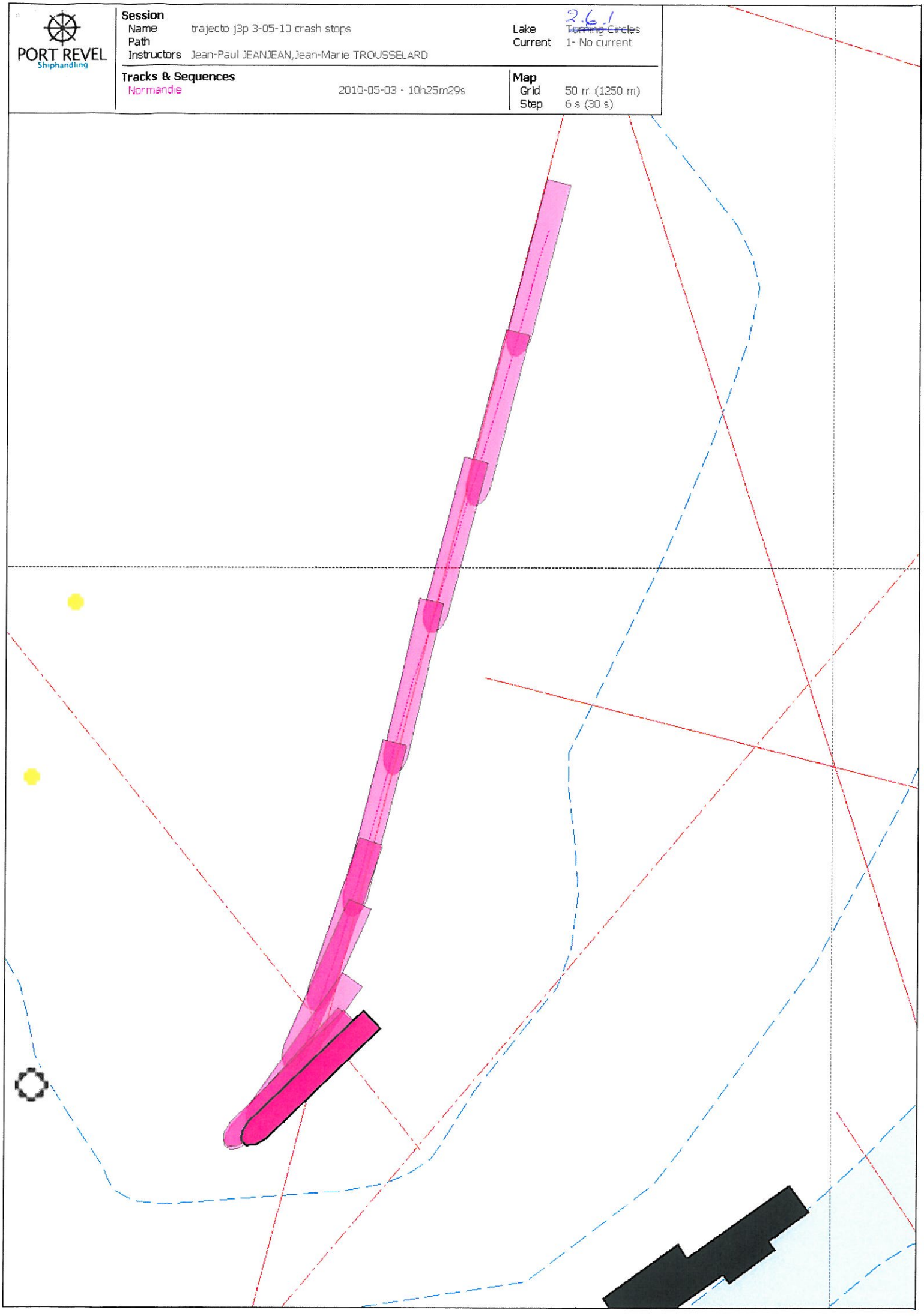
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake 2.6.1 ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



Session:
Name : trajecto j3p 3-05-10 crash stops
Path :
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Lake : ~~Turning Circles~~ 2.6.1
Current : 1- No current
Sequence:
Tracks : Normandie
Start : t19
Students
Sequence : 2010-05-03 - 10h25m29s
Stop : t20
Notes:
vitesse 13.8 noeuds 2.6.1.a turn both pods 60° outboard full negative rpm

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h29m33s	-5.0	-12.5	13.0	195	0	0	Stop	97	-1	99	21
	11h29m34s	-5.0	-12.5	13.0	195	0	0	Stop	97	-0	99	360
	11h29m35s	-5.0	-12.5	13.0	195	0	0	Stop	97	-0	99	360
	11h29m36s	-5.0	-12.5	13.0	195	0	0	Stop	97	-1	99	358
	11h29m37s	-5.0	-12.5	13.0	195	0	0	Stop	97	-1	99	358
	11h29m38s	-5.0	-12.5	13.0	195	0	0	Stop	97	0	98	17
	11h29m39s	-5.0	-12.5	13.0	195	0	0	Stop	97	0	98	17
	11h29m40s	-5.0	-12.5	13.0	195	0	0	Stop	97	-1	99	361
	11h29m41s	-5.0	-12.5	13.0	195	0	0	Stop	97	-1	99	361
	11h29m42s	-5.0	-13.0	13.5	195	0	0	Stop	97	0	99	25
	11h29m43s	-5.0	-13.0	13.5	195	0	0	Stop	97	0	99	25
	11h29m44s	-5.0	-13.0	13.5	195	0	0	Stop	97	0	99	29
	11h29m45s	-5.0	-13.0	13.5	195	0	0	Stop	97	0	99	29
	11h29m46s	-5.0	-13.0	13.5	195	0	0	Stop	97	0	99	37
	11h29m47s	-5.0	-13.0	13.5	195	0	0	Stop	97	0	99	37
	11h29m48s	-5.0	-13.0	13.5	195	0	0	Stop	97	-1	99	240
	11h29m49s	-5.0	-13.0	13.5	195	0	0	Stop	97	-1	99	240
	11h29m50s	-5.0	-13.0	13.5	195	0	0	Stop	97	1	99	32
	11h29m51s	-5.0	-13.0	13.5	195	0	0	Stop	97	1	99	32
	11h29m52s	-5.0	-13.0	14.0	193	0	0	Stop	54	337	55	44
	11h29m53s	-5.0	-13.0	14.0	193	0	0	Stop	54	337	55	44
	11h29m54s	-5.0	-12.5	13.5	193	0	0	Stop	-22	336	-23	48
	11h29m55s	-5.0	-12.5	13.5	193	0	0	Stop	-22	336	-23	48
	11h29m56s	-5.0	-12.5	13.0	193	0	0	Stop	-58	330	-58	49
	11h29m57s	-5.0	-12.5	13.0	193	0	0	Stop	-58	330	-58	49
	11h29m58s	-5.0	-11.0	11.5	194	0	0	Stop	-72	308	-73	51
	11h29m59s	-5.0	-11.0	11.5	194	0	0	Stop	-72	308	-73	51
	11h30m00s	-5.0	-10.5	10.5	194	0	0	Stop	-74	309	-74	58
	11h30m01s	-5.0	-10.5	10.5	194	0	0	Stop	-74	309	-74	58
	11h30m02s	-5.0	-10.0	10.0	195	0	0	Stop	-76	308	-77	57
	11h30m03s	-5.0	-10.0	10.0	195	0	0	Stop	-76	308	-77	57
	11h30m04s	-5.0	-9.5	9.5	196	0	0	Stop	-78	308	-79	58
	11h30m05s	-5.0	-9.5	9.5	196	0	0	Stop	-78	308	-79	58
	11h30m06s	-0.0	-8.0	8.5	199	0	0	Stop	-82	308	-83	59
	11h30m07s	-0.0	-8.0	8.5	199	0	0	Stop	-82	308	-83	59
	11h30m08s	-0.0	-7.5	8.0	200	0	0	Stop	-84	310	-84	57
	11h30m09s	-0.0	-7.5	8.0	200	0	0	Stop	-84	310	-84	57
	11h30m10s	-0.0	-7.0	7.5	202	0	0	Stop	-86	309	-86	58
	11h30m11s	-0.0	-7.0	7.5	202	0	0	Stop	-86	309	-86	58
	11h30m12s	-0.0	-6.5	7.0	204	0	0	Stop	-88	309	-88	57
	11h30m13s	-0.0	-6.5	7.0	204	0	0	Stop	-88	309	-88	57
	11h30m14s	-0.0	-5.5	5.5	210	0	0	Stop	-91	335	-92	21
	11h30m15s	-0.0	-5.5	5.5	210	0	0	Stop	-91	335	-92	21
	11h30m16s	-0.0	-5.0	5.5	213	0	0	Stop	-93	-0	-94	361
	11h30m17s	-0.0	-5.0	5.5	213	0	0	Stop	-93	-0	-94	361

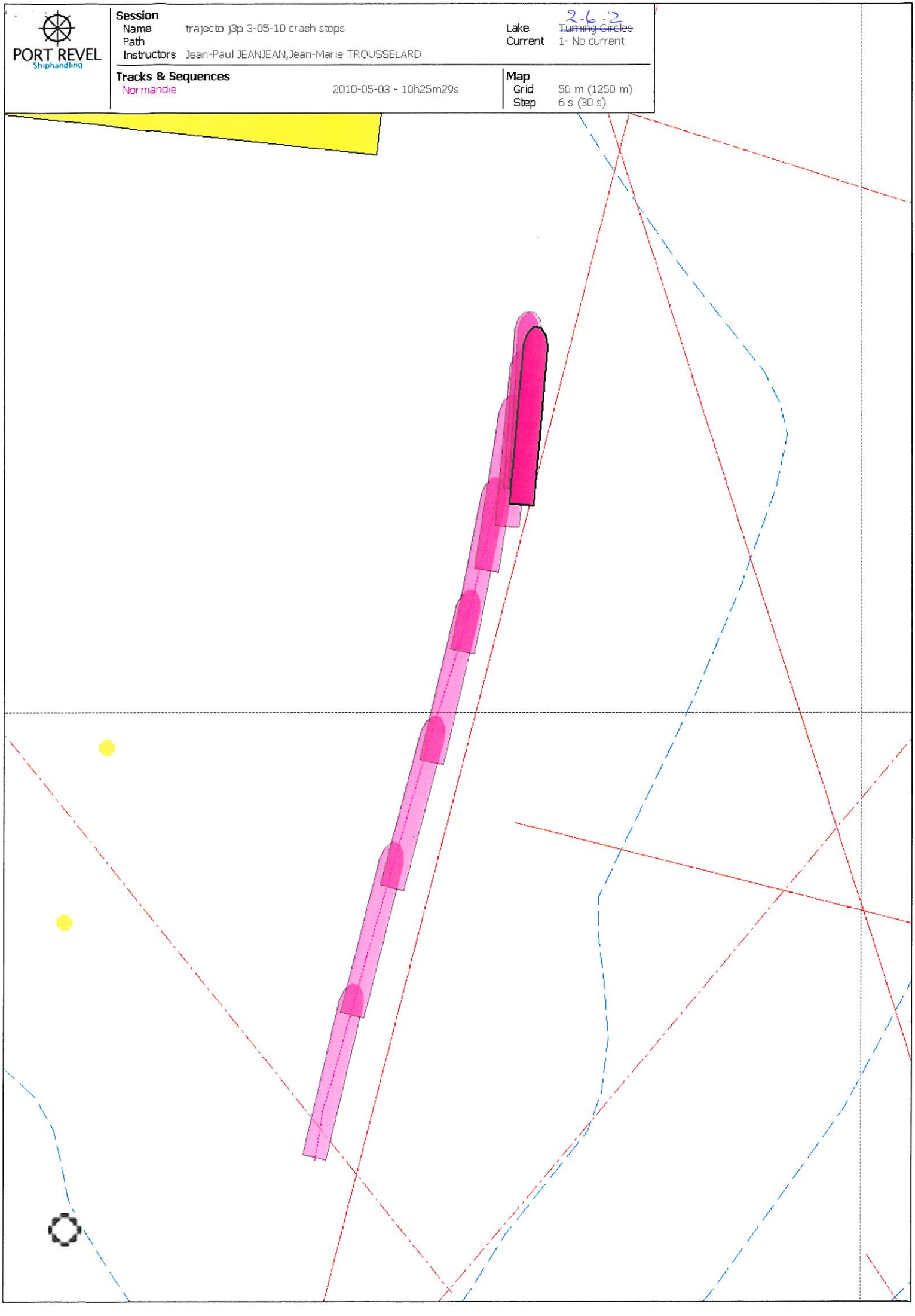
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake 2-6-2 ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.6.2

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t17 Stop : t18
Students
Notes:
vitesse 13.5 noeuds 2.6.1 ~~2~~ Turn both pods 60° outboard full Negative rpm

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h25m49s	5.0	12.5	12.5	12	0	0	Stop	97	-1	99	12
	11h25m50s	5.0	12.5	13.0	13	0	0	Stop	97	-1	99	359
	11h25m51s	5.0	12.5	13.0	13	0	0	Stop	97	-1	99	359
	11h25m52s	5.0	12.5	13.0	14	0	0	Stop	97	1	99	17
	11h25m53s	5.0	12.5	13.0	14	0	0	Stop	97	1	99	17
	11h25m54s	5.0	12.5	13.0	14	0	0	Stop	96	-1	98	180
	11h25m55s	5.0	12.5	13.0	14	0	0	Stop	96	-1	98	180
	11h25m56s	5.0	13.0	13.0	14	0	0	Stop	97	0	99	13
	11h25m57s	5.0	13.0	13.0	14	0	0	Stop	97	0	99	13
	11h25m58s	5.0	12.5	13.0	15	0	0	Stop	97	-2	99	17
	11h25m59s	5.0	12.5	13.0	15	0	0	Stop	97	-2	99	17
	11h26m00s	5.0	12.5	13.5	14	0	0	Stop	97	1	99	359
	11h26m01s	5.0	12.5	13.5	14	0	0	Stop	97	1	99	359
	11h26m02s	5.0	13.0	13.5	15	0	0	Stop	97	0	99	15
	11h26m03s	5.0	13.0	13.5	15	0	0	Stop	97	0	99	15
	11h26m04s	5.0	13.0	13.5	15	0	0	Stop	86	308	88	73
	11h26m05s	5.0	13.0	13.5	15	0	0	Stop	86	308	88	73
	11h26m06s	5.0	12.5	13.0	15	0	0	Stop	38	310	40	50
	11h26m07s	5.0	12.5	13.0	15	0	0	Stop	38	310	40	50
	11h26m08s	5.0	11.5	12.0	15	0	0	Stop	-60	310	-60	52
	11h26m09s	5.0	11.5	12.0	15	0	0	Stop	-60	310	-60	52
	11h26m10s	5.0	11.0	11.5	15	0	0	Stop	-69	310	-69	52
	11h26m11s	5.0	11.0	11.5	15	0	0	Stop	-69	310	-69	52
	11h26m12s	5.0	10.0	10.5	13	0	0	Stop	-72	309	-72	58
	11h26m13s	5.0	10.0	10.5	13	0	0	Stop	-72	309	-72	58
	11h26m14s	5.0	9.5	9.5	12	0	0	Stop	-76	309	-76	57
	11h26m15s	5.0	9.5	9.5	12	0	0	Stop	-76	309	-76	57
	11h26m16s	5.0	8.5	9.0	12	0	0	Stop	-77	309	-79	57
	11h26m17s	5.0	8.5	9.0	12	0	0	Stop	-77	309	-79	57
	11h26m18s	0.0	8.0	8.0	11	0	0	Stop	-80	309	-80	58
	11h26m19s	0.0	8.0	8.0	11	0	0	Stop	-80	309	-80	58
	11h26m20s	0.0	7.5	7.5	10	0	0	Stop	-84	309	-84	56
	11h26m21s	0.0	7.5	7.5	10	0	0	Stop	-84	309	-84	56
	11h26m22s	0.0	6.5	7.0	9	0	0	Stop	-85	308	-86	56
	11h26m23s	0.0	6.5	7.0	9	0	0	Stop	-85	308	-86	56
	11h26m24s	0.0	6.0	6.0	9	0	0	Stop	-87	310	-88	58
	11h26m25s	0.0	6.0	6.0	9	0	0	Stop	-87	310	-88	58
	11h26m26s	0.0	5.0	5.5	7	0	0	Stop	-91	0	-92	359
	11h26m27s	0.0	5.0	5.5	7	0	0	Stop	-91	0	-92	359
	11h26m28s	0.0	4.5	4.5	7	0	0	Stop	-93	-0	-94	360
	11h26m29s	0.0	4.5	4.5	7	0	0	Stop	-93	-0	-94	360
	11h26m30s	0.0	4.0	4.0	5	0	0	Stop	-95	-1	-95	360
	11h26m31s	0.0	4.0	4.0	5	0	0	Stop	-95	-1	-95	360
	11h26m32s	0.0	3.0	3.0	5	0	0	Stop	-97	0	-98	359
	11h26m33s	0.0	3.0	3.0	5	0	0	Stop	-97	0	-98	359

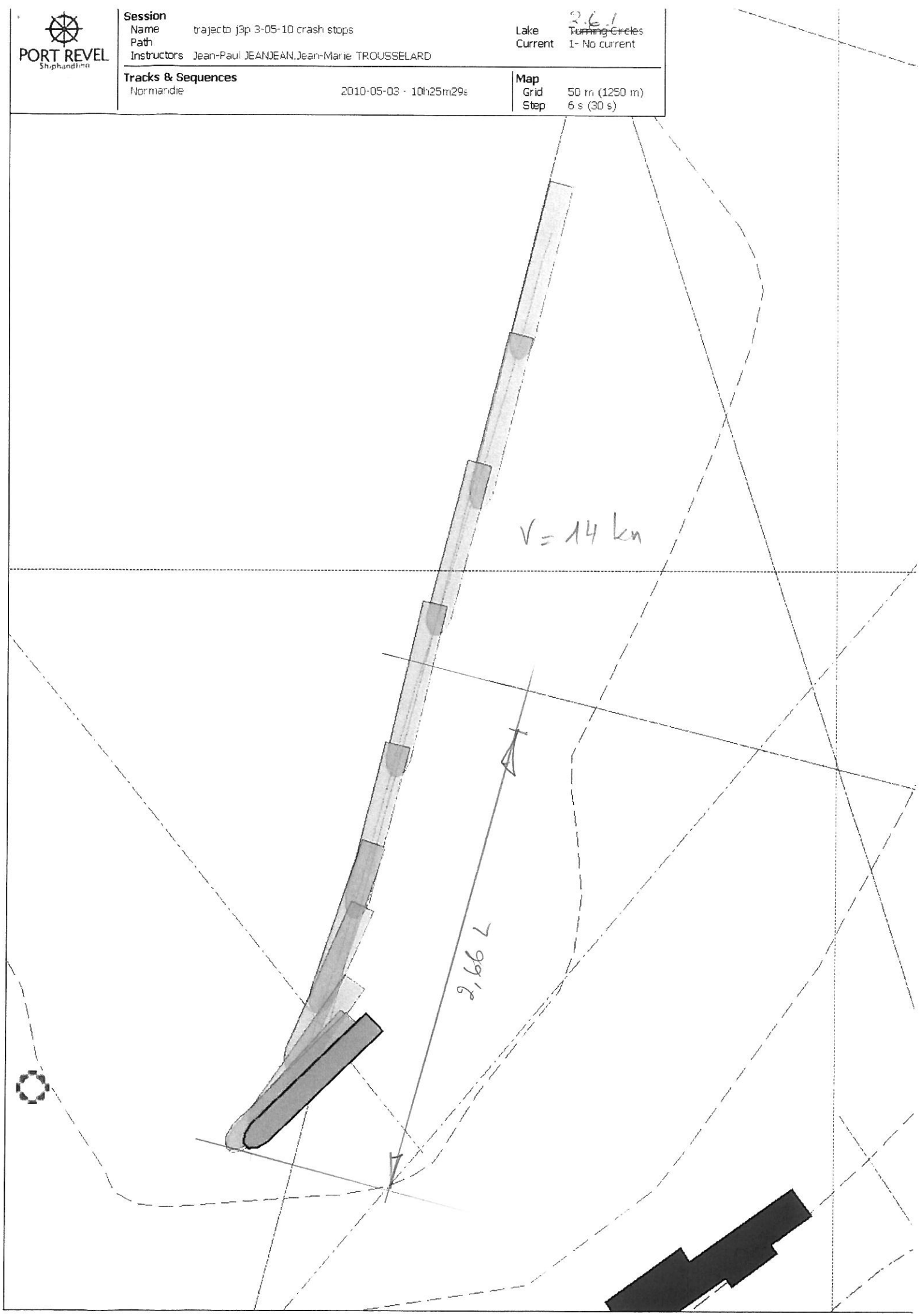
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake 2.6.1 ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



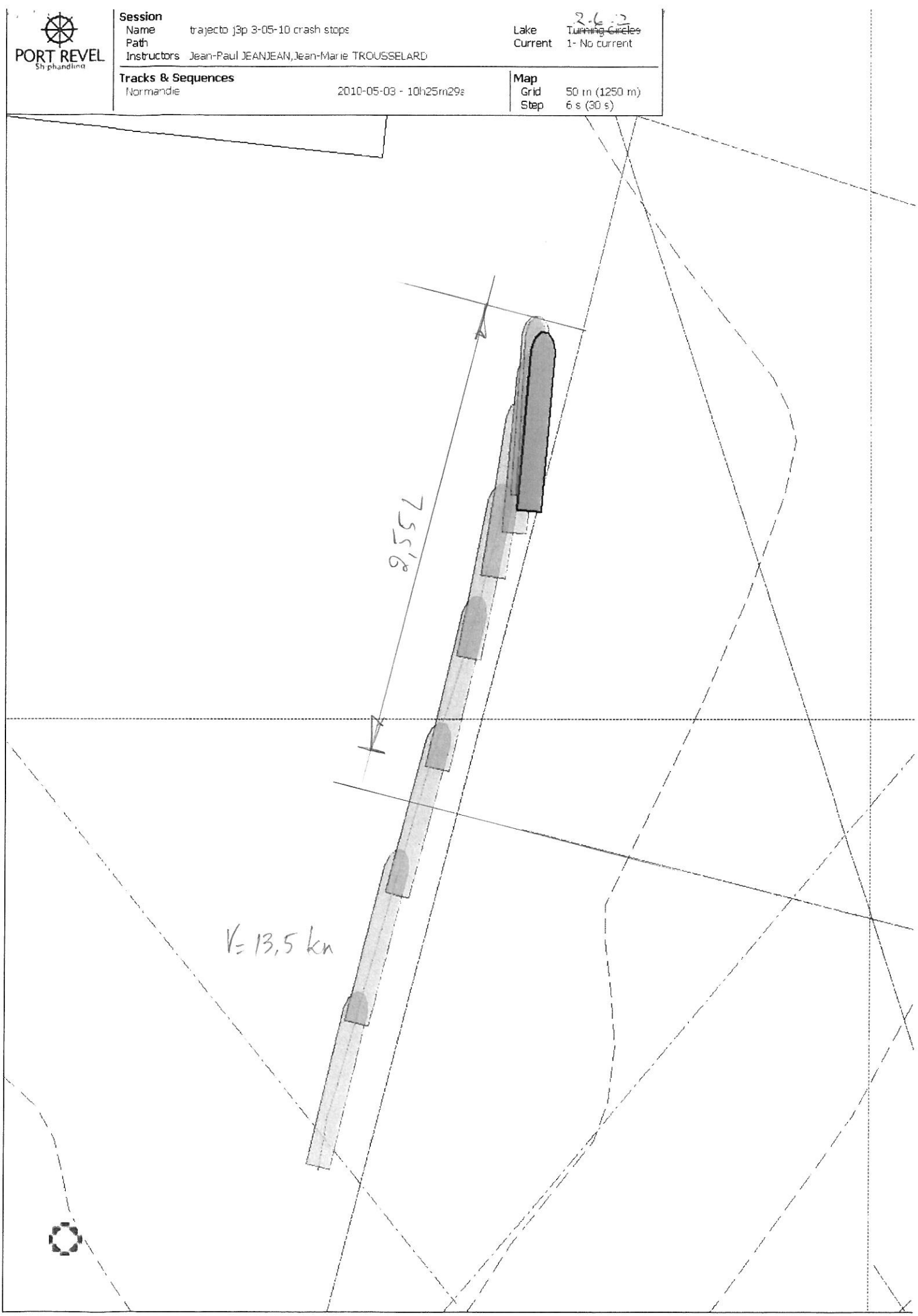
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2-6-5
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



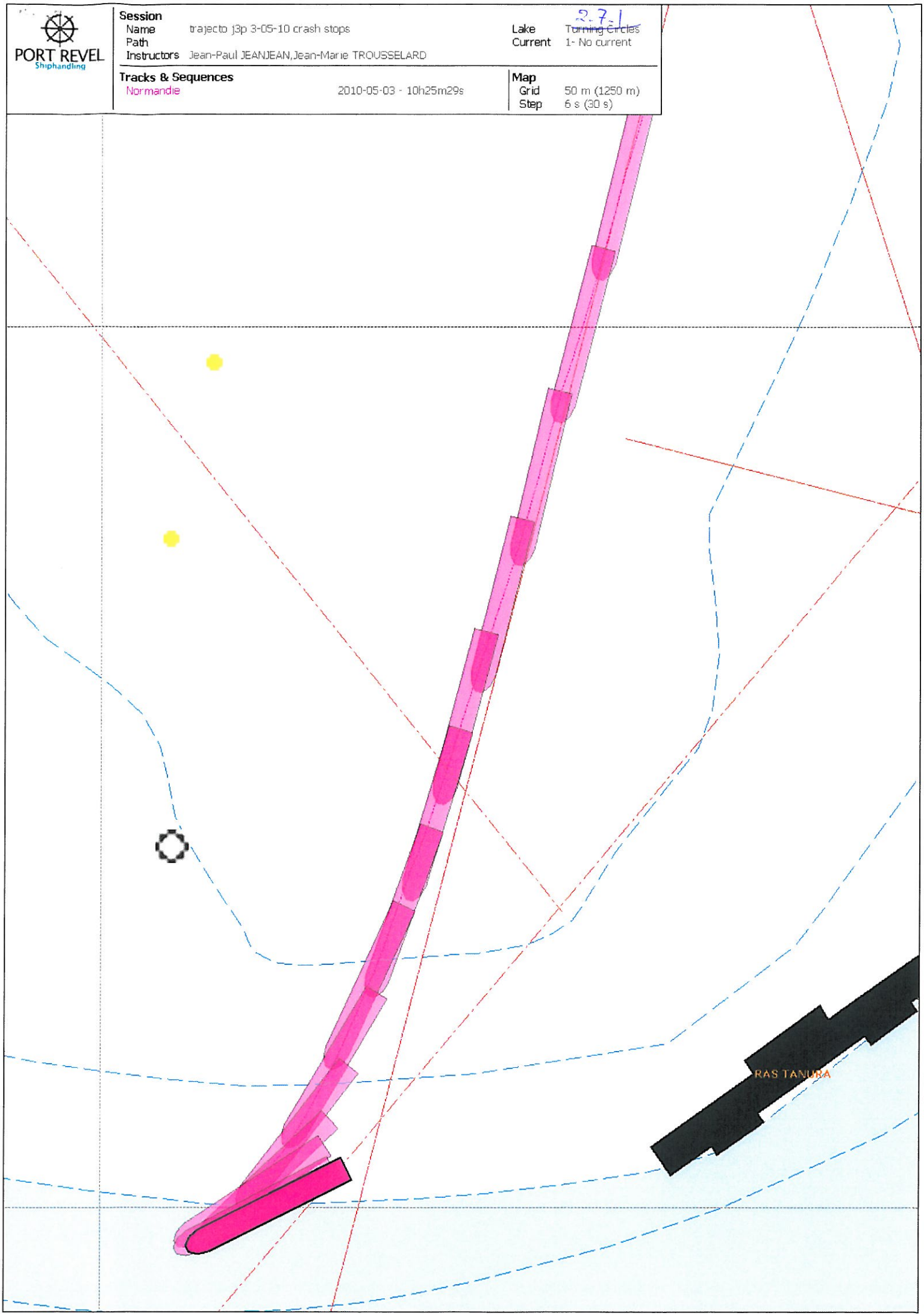
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning circles~~ 2.7.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.7.1

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t23 Stop : t24
Students
Notes:
deceleration vitesse 13.5 noeuds 2.7.1.

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h38m04s	-5.0	-12.5	13.0	194	0	0	Stop	97	-1	98	26
	11h38m05s	-5.0	-12.5	13.0	194	0	0	Stop	97	-1	98	26
	11h38m06s	-5.0	-12.5	13.0	194	0	0	Stop	97	0	99	104
	11h38m07s	-5.0	-12.5	13.0	194	0	0	Stop	97	0	99	104
	11h38m08s	-5.0	-12.5	13.5	194	0	0	Stop	97	-1	99	12
	11h38m09s	-5.0	-12.5	13.5	194	0	0	Stop	97	-1	99	12
	11h38m10s	-5.0	-13.0	13.5	194	0	0	Stop	97	-1	99	360
	11h38m11s	-5.0	-13.0	13.5	194	0	0	Stop	97	-1	99	360
	11h38m12s	-5.0	-13.0	13.5	195	0	0	Stop	97	-1	99	23
	11h38m13s	-5.0	-13.0	13.5	195	0	0	Stop	97	-1	99	23
	11h38m14s	-5.0	-13.0	13.5	194	0	0	Stop	97	-1	99	172
	11h38m15s	-5.0	-13.0	13.5	194	0	0	Stop	97	-1	99	172
	11h38m16s	-5.0	-13.0	13.5	195	0	0	Stop	96	328	98	31
	11h38m17s	-5.0	-13.0	13.5	195	0	0	Stop	96	328	98	31
	11h38m18s	-5.0	-12.5	13.5	194	0	0	Stop	61	328	62	32
	11h38m19s	-5.0	-12.5	13.5	194	0	0	Stop	61	328	62	32
	11h38m20s	-5.0	-12.5	13.0	194	0	0	Stop	36	328	31	32
	11h38m21s	-5.0	-12.5	13.0	194	0	0	Stop	36	328	31	32
	11h38m22s	-5.0	-12.0	13.0	194	0	0	Stop	11	328	14	33
	11h38m23s	-5.0	-12.0	13.0	194	0	0	Stop	11	328	14	33
	11h38m24s	-5.0	-11.5	12.0	194	0	0	Stop	0	330	0	32
	11h38m25s	-5.0	-11.5	12.0	194	0	0	Stop	0	330	0	32
	11h38m26s	-5.0	-11.0	11.5	194	0	0	Stop	-1	329	0	33
	11h38m27s	-5.0	-11.0	11.5	194	0	0	Stop	-1	329	0	33
	11h38m28s	-5.0	-11.0	11.5	195	0	0	Stop	-0	328	-0	33
	11h38m29s	-5.0	-11.0	11.5	195	0	0	Stop	-0	328	-0	33
	11h38m30s	-5.0	-10.0	10.5	195	0	0	Stop	-0	328	0	33
	11h38m31s	-5.0	-10.0	10.5	195	0	0	Stop	-0	328	0	33
	11h38m32s	-5.0	-10.0	10.5	195	0	0	Stop	0	328	1	33
	11h38m33s	-5.0	-10.0	10.5	195	0	0	Stop	0	328	1	33
	11h38m34s	-5.0	-9.5	10.0	196	0	0	Stop	-0	328	1	33
	11h38m35s	-5.0	-9.5	10.0	196	0	0	Stop	-0	328	1	33
	11h38m36s	-5.0	-9.5	9.5	197	0	0	Stop	0	328	0	31
	11h38m37s	-5.0	-9.5	9.5	197	0	0	Stop	0	328	0	31
	11h38m38s	-5.0	-9.0	9.0	198	0	0	Stop	-0	327	0	33
	11h38m39s	-5.0	-9.0	9.0	198	0	0	Stop	-0	327	0	33
	11h38m40s	-5.0	-8.5	9.0	200	0	0	Stop	-0	328	0	32
	11h38m41s	-5.0	-8.5	9.0	200	0	0	Stop	-0	328	0	32
	11h38m42s	-5.0	-8.0	8.5	200	0	0	Stop	-0	328	0	32
	11h38m43s	-5.0	-8.0	8.5	200	0	0	Stop	-0	328	0	32
	11h38m44s	-5.0	-7.5	8.5	203	0	0	Stop	-1	327	0	32
	11h38m45s	-5.0	-7.5	8.5	203	0	0	Stop	-1	327	0	32
	11h38m46s	-5.0	-7.5	8.0	204	0	0	Stop	-0	327	0	33
	11h38m47s	-5.0	-7.5	8.0	204	0	0	Stop	-0	327	0	33
	11h38m48s	-5.0	-7.5	8.0	205	0	0	Stop	-0	327	0	33

PORT REVEL
Shiphandling

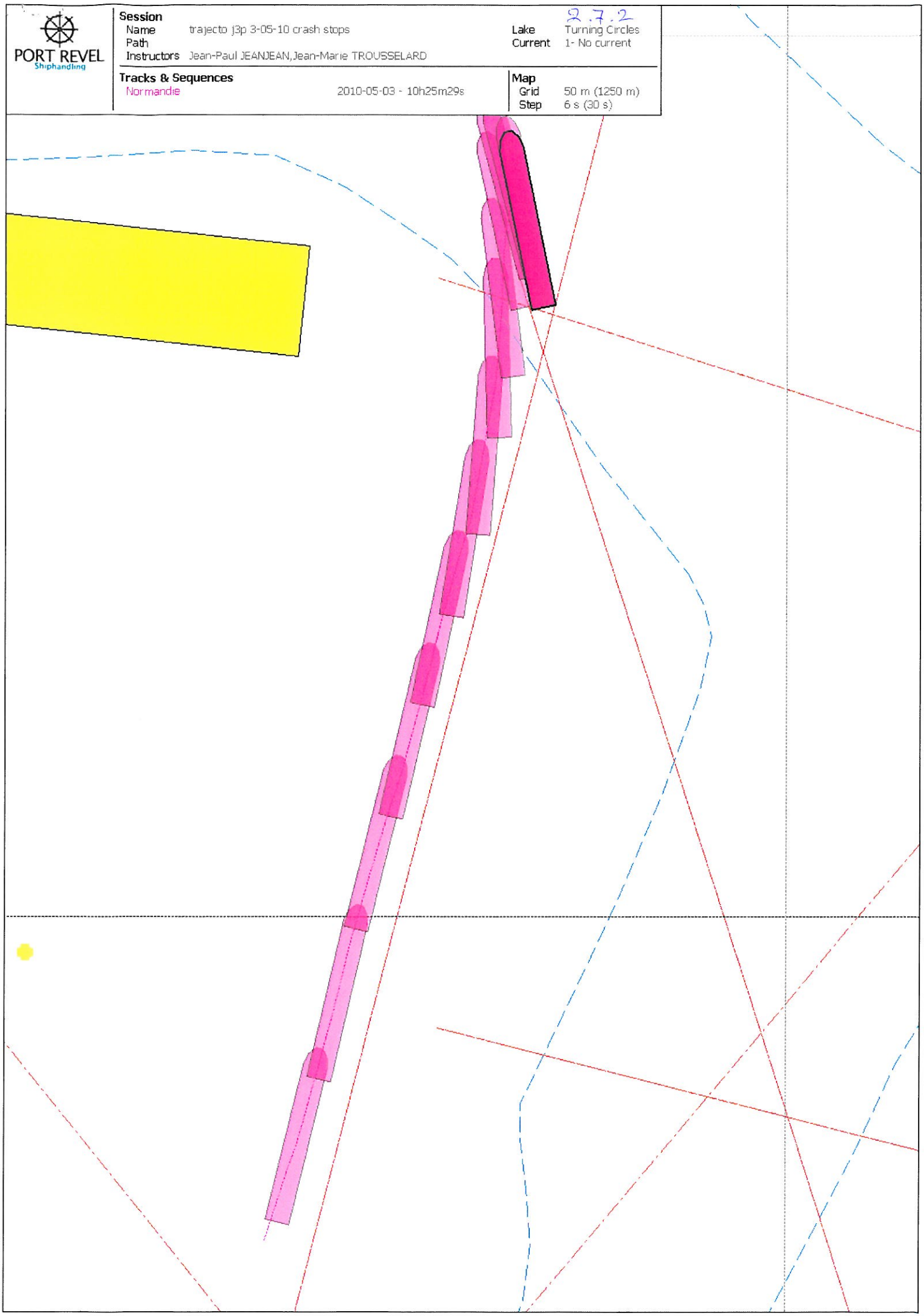
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake Turning Circles
Current 1- No current

2.7.2

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.7.2

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t21 Stop : t22
Students
Notes:
deceleration vitesse 13.5 noeuds 2.7.2a ~~&~~ turn both pods 35° outboard with reduced rpm until speed is reduced to 8 kN then both pods to 180° with increased rpm -

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h34m20s	5.0	12.5	13.5	15	0	0	Stop	97	0	99	358
	11h34m21s	5.0	12.5	13.5	15	0	0	Stop	97	0	99	358
	11h34m22s	5.0	13.0	13.5	14	0	0	Stop	97	42	99	358
	11h34m23s	5.0	13.0	13.5	14	0	0	Stop	97	42	99	358
	11h34m24s	5.0	13.0	13.5	14	0	0	Stop	97	-1	99	359
	11h34m25s	5.0	13.0	13.5	14	0	0	Stop	97	-1	99	359
	11h34m26s	5.0	13.0	13.5	14	0	0	Stop	97	0	99	359
	11h34m27s	5.0	13.0	13.5	14	0	0	Stop	97	0	99	359
	11h34m28s	5.0	13.0	13.5	14	0	0	Stop	93	328	92	35
	11h34m29s	5.0	13.0	13.5	14	0	0	Stop	93	328	92	35
	11h34m30s	5.0	12.5	13.0	13	0	0	Stop	79	328	77	35
	11h34m31s	5.0	12.5	13.0	13	0	0	Stop	79	328	77	35
	11h34m32s	5.0	12.5	13.0	14	0	0	Stop	65	328	67	35
	11h34m33s	5.0	12.5	13.0	14	0	0	Stop	65	328	67	35
	11h34m34s	5.0	12.0	12.5	14	0	0	Stop	60	328	54	35
	11h34m35s	5.0	12.0	12.5	14	0	0	Stop	60	328	54	35
	11h34m36s	5.0	11.5	12.0	14	0	0	Stop	43	327	37	35
	11h34m37s	5.0	11.5	12.0	14	0	0	Stop	43	327	37	35
	11h34m38s	5.0	11.5	11.5	14	0	0	Stop	42	329	35	36
	11h34m39s	5.0	11.5	11.5	14	0	0	Stop	42	329	35	36
	11h34m40s	5.0	10.5	11.0	14	0	0	Stop	41	329	28	35
	11h34m41s	5.0	10.5	11.0	14	0	0	Stop	41	329	28	35
	11h34m42s	5.0	10.0	10.5	13	0	0	Stop	31	328	27	36
	11h34m43s	5.0	10.0	10.5	13	0	0	Stop	31	328	27	36
	11h34m44s	5.0	10.0	10.5	13	0	0	Stop	30	328	21	34
	11h34m45s	5.0	10.0	10.5	13	0	0	Stop	30	328	21	34
	11h34m46s	5.0	9.5	10.0	12	0	0	Stop	6	328	21	35
	11h34m47s	5.0	9.5	10.0	12	0	0	Stop	6	328	21	35
	11h34m48s	5.0	9.5	9.5	12	0	0	Stop	19	330	1	34
	11h34m49s	5.0	9.5	9.5	12	0	0	Stop	19	330	1	34
	11h34m50s	0.0	9.0	9.5	12	0	0	Stop	23	329	22	35
	11h34m51s	0.0	9.0	9.5	12	0	0	Stop	23	329	22	35
	11h34m52s	0.0	9.0	9.0	10	0	0	Stop	-1	329	1	33
	11h34m53s	0.0	9.0	9.0	10	0	0	Stop	-1	329	1	33
	11h34m54s	0.0	8.5	9.0	9	0	0	Stop	-0	329	0	34
	11h34m55s	0.0	8.5	9.0	9	0	0	Stop	-0	329	0	34
	11h34m56s	0.0	8.5	8.5	8	0	0	Stop	42	329	35	35
	11h34m57s	0.0	8.5	8.5	8	0	0	Stop	42	329	35	35
	11h34m58s	0.0	8.0	8.0	6	0	0	Stop	42	328	62	34
	11h34m59s	0.0	8.0	8.0	6	0	0	Stop	42	328	62	34
	11h35m00s	0.0	7.5	8.0	5	0	0	Stop	43	329	62	33
	11h35m01s	0.0	7.5	8.0	5	0	0	Stop	43	329	62	33
	11h35m02s	0.0	7.5	8.0	4	0	0	Stop	42	329	61	34
	11h35m03s	0.0	7.5	8.0	4	0	0	Stop	42	329	61	34
	11h35m04s	0.0	7.5	7.5	0	0	0	Stop	37	239	62	134

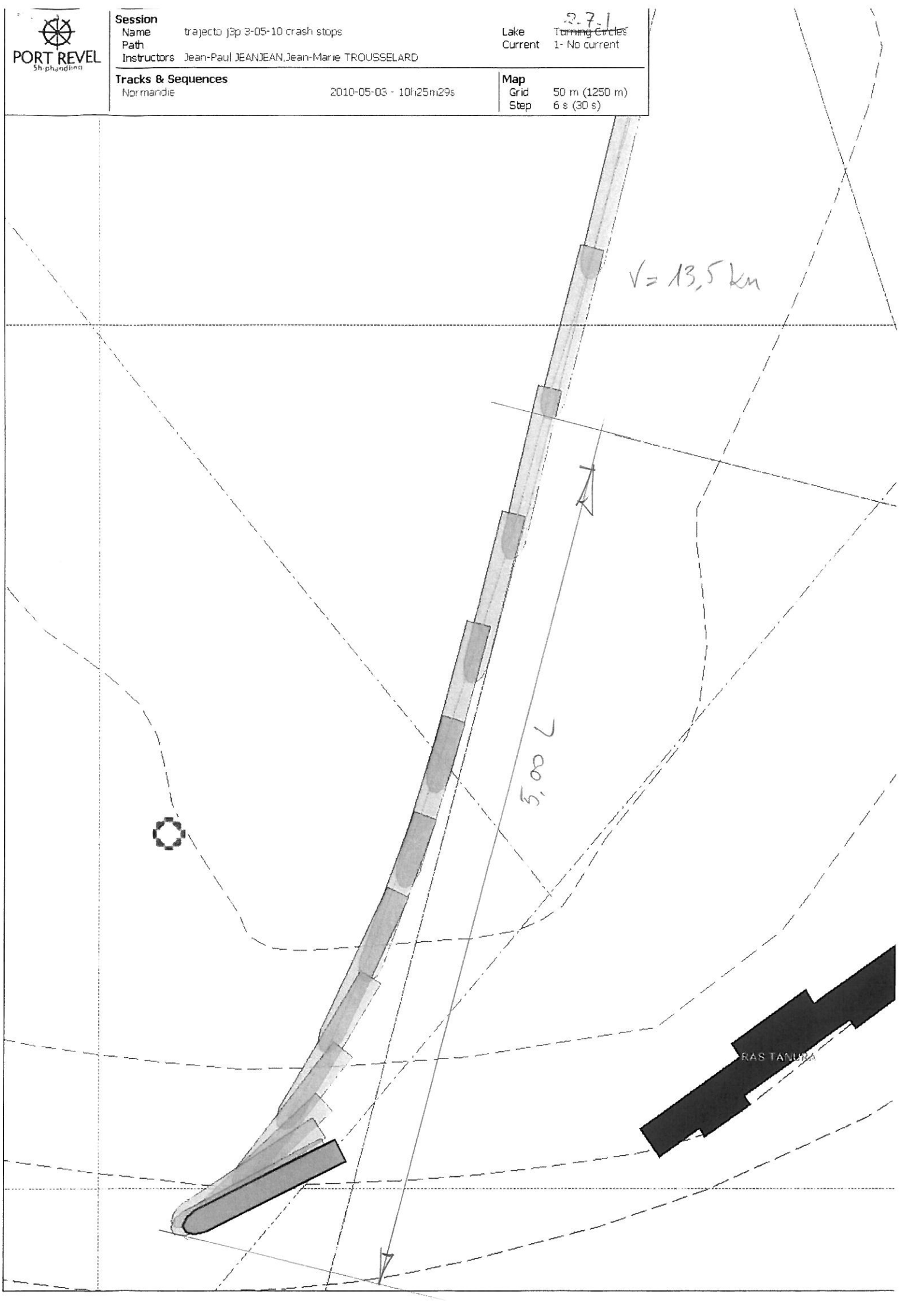
PORT REVEL
Shiphandling

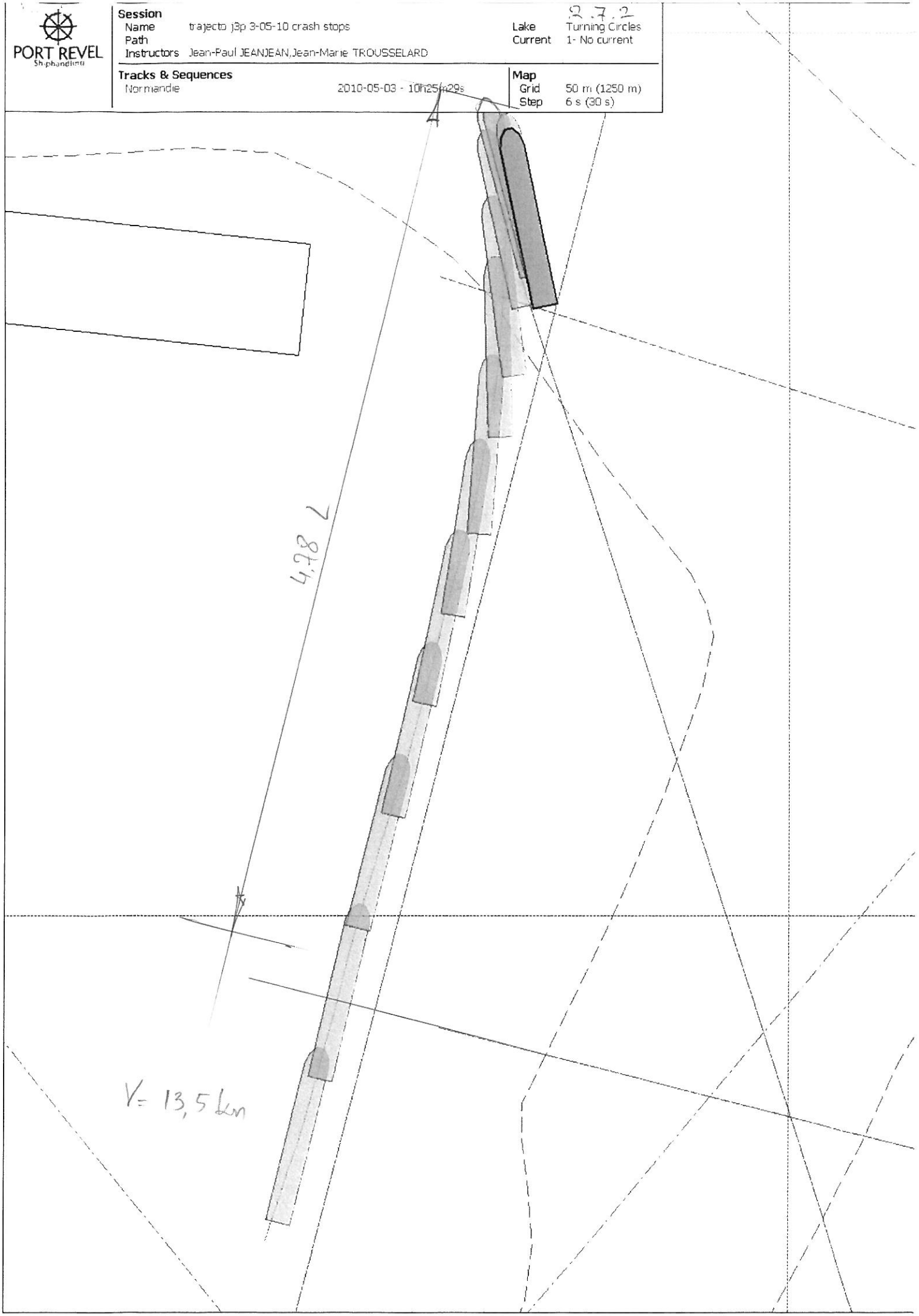
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 3.7.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)




PORT REVEL
Shiphandling
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
Lake Turning Circles
Current 1- No current
Tracks & Sequences
Normandie
2010-05-03 - 10h25m29s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
2.7.2
4
4,78 L
V= 13,5 kn

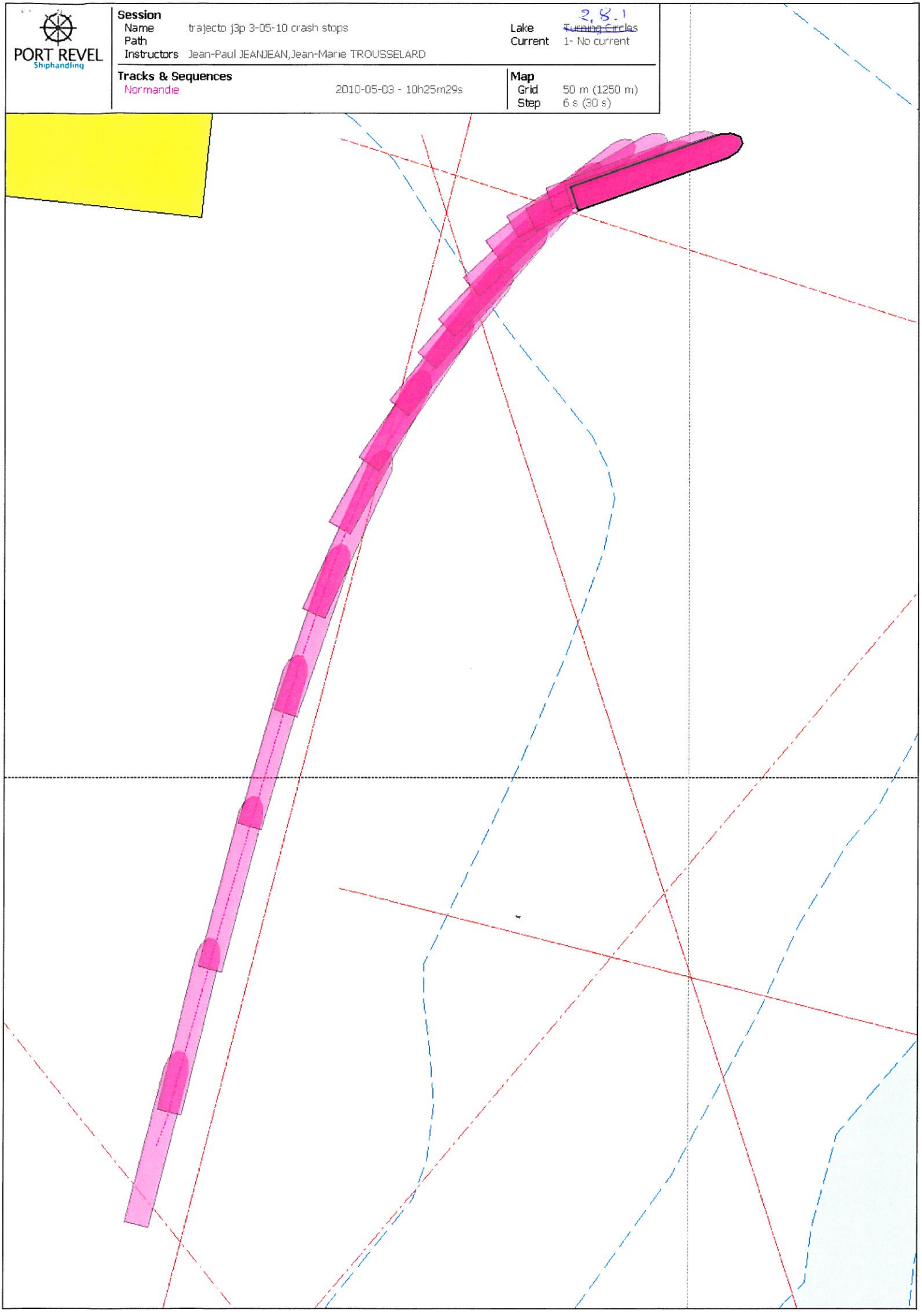
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2,8.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

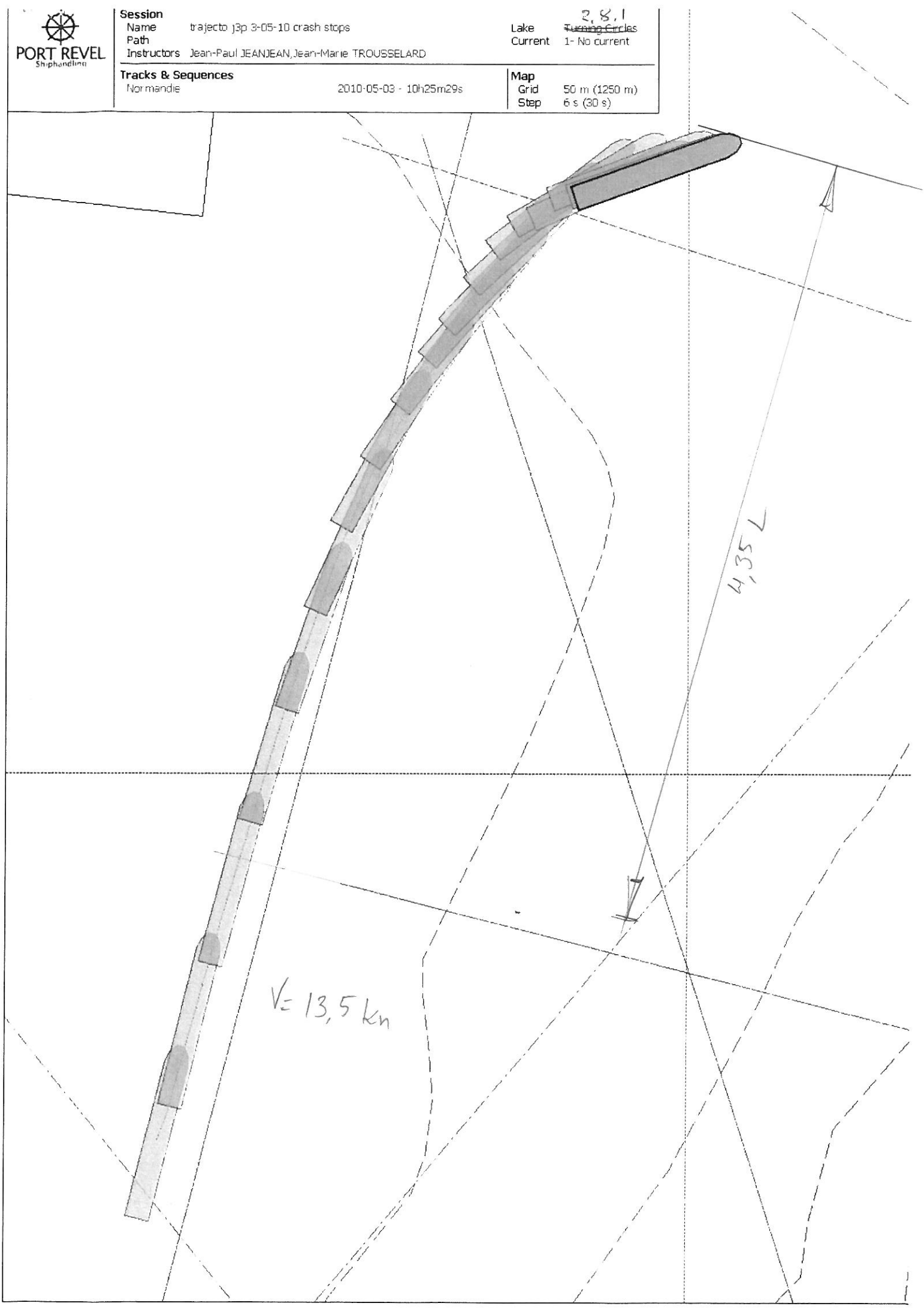
Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.8.1

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t25 Stop : t26
Students
Notes:
(2.8) vitesse 13.5 noeuds (obligé des s'arreter car ligne flottante) Reduce to 80 rp.m, then turn 180° outboard, then 11kn / 50 rp.m 8kn / 30 rp.m

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h43m47s	5.0	12.5	13.0	14	0	0	Stop	97	160	99	360
	11h43m48s	5.0	13.0	13.5	14	0	0	Stop	97	342	99	16
	11h43m49s	5.0	13.0	13.5	14	0	0	Stop	97	342	99	16
	11h43m50s	5.0	13.0	13.5	14	0	0	Stop	97	358	99	349
	11h43m51s	5.0	13.0	13.5	14	0	0	Stop	97	358	99	349
	11h43m52s	5.0	13.0	13.5	14	0	0	Stop	97	357	99	359
	11h43m53s	5.0	13.0	13.5	14	0	0	Stop	97	357	99	359
	11h43m54s	5.0	13.0	13.5	14	0	0	Stop	97	167	99	360
	11h43m55s	5.0	13.0	13.5	14	0	0	Stop	97	167	99	360
	11h43m56s	5.0	13.0	13.5	14	0	0	Stop	97	358	99	12
	11h43m57s	5.0	13.0	13.5	14	0	0	Stop	97	358	99	12
	11h43m58s	5.0	13.0	13.5	14	0	0	Stop	94	323	97	360
	11h43m59s	5.0	13.0	13.5	14	0	0	Stop	94	323	97	360
	11h44m00s	5.0	13.0	13.5	15	0	0	Stop	71	26	79	359
	11h44m01s	5.0	13.0	13.5	15	0	0	Stop	71	26	79	359
	11h44m02s	5.0	13.0	13.5	16	0	0	Stop	71	362	77	359
	11h44m03s	5.0	13.0	13.5	16	0	0	Stop	71	362	77	359
	11h44m04s	5.0	12.5	13.0	16	0	0	Stop	66	241	74	92
	11h44m05s	5.0	12.5	13.0	16	0	0	Stop	66	241	74	92
	11h44m06s	5.0	11.5	12.0	17	0	0	Stop	66	27	75	314
	11h44m07s	5.0	11.5	12.0	17	0	0	Stop	66	27	75	314
	11h44m08s	5.0	11.0	11.5	17	0	0	Stop	65	142	74	196
	11h44m09s	5.0	11.0	11.5	17	0	0	Stop	65	142	74	196
	11h44m10s	5.0	10.0	10.5	19	0	0	Stop	71	184	75	197
	11h44m11s	5.0	10.0	10.5	19	0	0	Stop	71	184	75	197
	11h44m12s	5.0	9.5	10.0	19	0	0	Stop	72	183	75	196
	11h44m13s	5.0	9.5	10.0	19	0	0	Stop	72	183	75	196
	11h44m14s	5.0	9.0	9.5	20	0	0	Stop	72	183	74	197
	11h44m15s	5.0	9.0	9.5	20	0	0	Stop	72	183	74	197
	11h44m16s	5.0	8.0	8.5	23	0	0	Stop	45	184	36	195
	11h44m17s	5.0	8.0	8.5	23	0	0	Stop	45	184	36	195
	11h44m18s	5.0	7.5	8.0	24	0	0	Stop	46	184	36	195
	11h44m19s	5.0	7.5	8.0	24	0	0	Stop	46	184	36	195
	11h44m20s	5.0	7.0	7.5	26	0	0	Stop	46	184	38	191
	11h44m21s	5.0	7.0	7.5	26	0	0	Stop	46	184	38	191
	11h44m22s	5.0	6.5	7.0	27	0	0	Stop	39	183	26	193
	11h44m23s	5.0	6.5	7.0	27	0	0	Stop	39	183	26	193
	11h44m24s	5.0	6.0	7.0	29	0	0	Stop	27	183	26	191
	11h44m25s	5.0	6.0	7.0	29	0	0	Stop	27	183	26	191
	11h44m26s	5.0	5.5	6.5	31	0	0	Stop	26	184	26	191
	11h44m27s	5.0	5.5	6.5	31	0	0	Stop	26	184	26	191
	11h44m28s	5.0	5.5	6.5	32	0	0	Stop	27	183	26	192
	11h44m29s	5.0	5.5	6.5	32	0	0	Stop	27	183	26	192
	11h44m30s	5.0	5.0	6.0	35	0	0	Stop	26	183	25	192
	11h44m31s	5.0	5.0	6.0	35	0	0	Stop	26	183	25	192


PORT REVEL
Shiphandling
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
2,8,1
Lake ~~Turning Circles~~
Current 1- No current
Tracks & Sequences
Normandie
2010-05-03 - 10h25m29s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
4,35 L
V= 13,5 kn

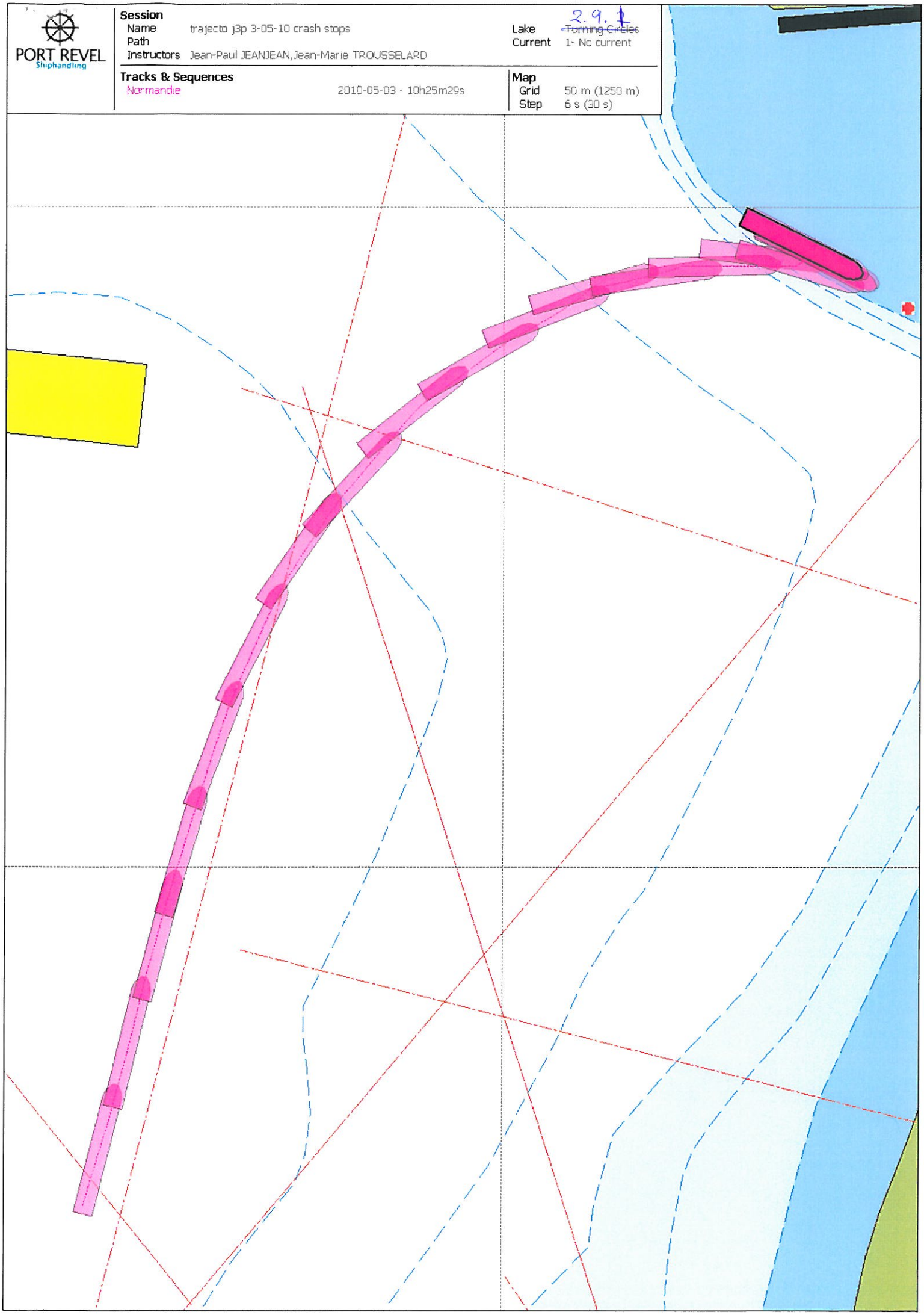
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake 2.9.1 ~~Turning Circles~~
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



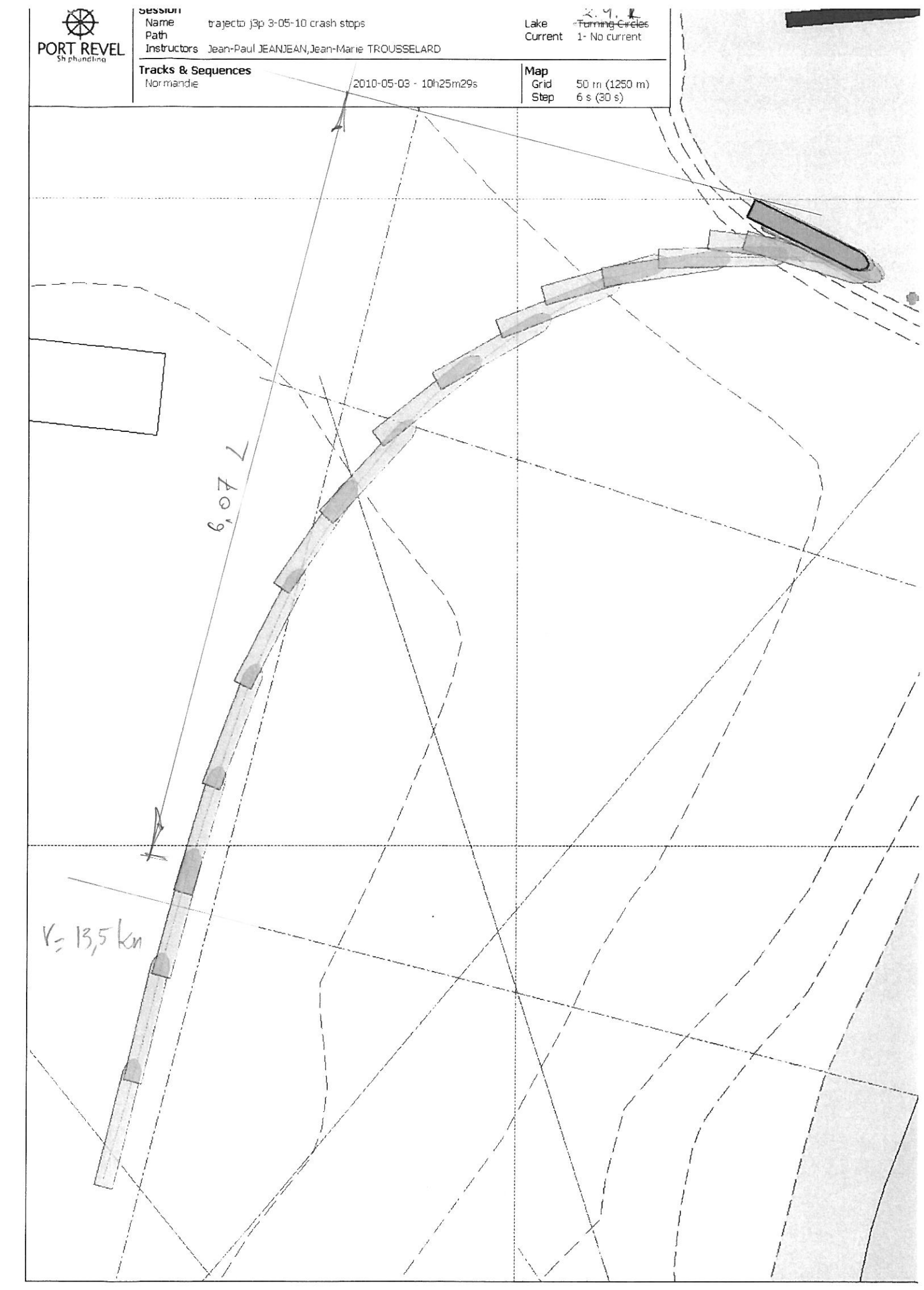
2.9.1

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t29 Stop : t30
Students
Notes:
essai 25 (2.9.1) vitesse 13.5 test pas significatifs
(la décélération n'est pas à l'echelle du Normandie)

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	11h53m40s	5.0	13.0	13.5	13	0	0	Stop	97	360	99	360
	11h53m41s	5.0	13.0	13.5	13	0	0	Stop	97	360	99	360
	11h53m42s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	20
	11h53m43s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	20
	11h53m44s	5.0	13.0	13.5	14	0	0	Stop	96	360	99	260
	11h53m45s	5.0	13.0	13.5	14	0	0	Stop	96	360	99	260
	11h53m46s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	360
	11h53m47s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	360
	11h53m48s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	360
	11h53m49s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	360
	11h53m50s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	359
	11h53m51s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	359
	11h53m52s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	217
	11h53m53s	5.0	13.0	13.5	14	0	0	Stop	97	360	99	217
	11h53m54s	5.0	13.0	13.5	15	0	0	Stop	93	360	90	361
	11h53m55s	5.0	13.0	13.5	15	0	0	Stop	93	360	90	361
	11h53m56s	5.0	12.5	13.5	15	0	0	Stop	93	360	91	361
	11h53m57s	5.0	12.5	13.5	15	0	0	Stop	93	360	91	361
	11h53m58s	5.0	13.0	13.5	17	0	0	Stop	93	359	91	360
	11h53m59s	5.0	13.0	13.5	17	0	0	Stop	93	359	91	360
	11h54m00s	5.0	13.0	13.5	17	0	0	Stop	83	360	82	359
	11h54m01s	5.0	13.0	13.5	17	0	0	Stop	83	360	82	359
	11h54m02s	5.0	13.0	13.5	19	0	0	Stop	79	359	79	360
	11h54m03s	5.0	13.0	13.5	19	0	0	Stop	79	359	79	360
	11h54m04s	5.0	12.5	13.0	20	0	0	Stop	79	360	79	359
	11h54m05s	5.0	12.5	13.0	20	0	0	Stop	79	360	79	359
	11h54m06s	5.0	12.0	13.0	21	0	0	Stop	75	360	78	359
	11h54m07s	5.0	12.0	13.0	21	0	0	Stop	75	360	78	359
	11h54m08s	5.0	11.5	12.5	24	0	0	Stop	75	360	78	361
	11h54m09s	5.0	11.5	12.5	24	0	0	Stop	75	360	78	361
	11h54m10s	5.0	11.5	12.5	26	0	0	Stop	75	359	78	359
	11h54m11s	5.0	11.5	12.5	26	0	0	Stop	75	359	78	359
	11h54m12s	5.0	11.5	12.5	27	0	0	Stop	75	360	79	359
	11h54m13s	5.0	11.5	12.5	27	0	0	Stop	75	360	79	359
	11h54m14s	5.0	11.0	12.0	31	0	0	Stop	75	361	76	360
	11h54m15s	5.0	11.0	12.0	31	0	0	Stop	75	361	76	360
	11h54m16s	5.0	10.5	12.0	33	0	0	Stop	75	360	73	359
	11h54m17s	5.0	10.5	12.0	33	0	0	Stop	75	360	73	359
	11h54m18s	5.0	10.0	12.0	35	0	0	Stop	75	359	73	359
	11h54m19s	5.0	10.0	12.0	35	0	0	Stop	75	359	73	359
	11h54m20s	5.0	9.5	11.5	39	0	0	Stop	75	359	73	359
	11h54m21s	5.0	9.5	11.5	39	0	0	Stop	75	359	73	359
	11h54m22s	5.0	9.0	11.5	41	0	0	Stop	75	361	72	359
	11h54m23s	5.0	9.0	11.5	41	0	0	Stop	75	361	72	359

11h54m24s	5.0	9.0	11.5	43	0	0	Stop	57	360	46	360
11h54m25s	5.0	9.0	11.5	43	0	0	Stop	57	360	46	360
11h54m26s	5.0	8.5	11.0	45	0	0	Stop	57	359	42	360
11h54m27s	5.0	8.5	11.0	45	0	0	Stop	57	359	42	360
11h54m28s	5.0	7.5	10.5	49	0	0	Stop	46	359	42	360
11h54m29s	5.0	7.5	10.5	49	0	0	Stop	46	359	42	360
11h54m30s	10.0	7.0	10.5	52	0	0	Stop	46	360	45	360
11h54m31s	10.0	7.0	10.5	52	0	0	Stop	46	360	45	360
11h54m32s	5.0	7.0	10.0	54	0	0	Stop	47	360	51	359
11h54m33s	5.0	7.0	10.0	54	0	0	Stop	47	360	51	359
11h54m34s	10.0	6.0	9.5	58	0	0	Stop	46	358	51	360
11h54m35s	10.0	6.0	9.5	58	0	0	Stop	46	358	51	360
11h54m36s	10.0	5.5	9.5	61	0	0	Stop	47	360	51	360
11h54m37s	10.0	5.5	9.5	61	0	0	Stop	47	360	51	360
11h54m38s	10.0	5.0	9.0	63	0	0	Stop	47	360	52	359
11h54m39s	10.0	5.0	9.0	63	0	0	Stop	47	360	52	359
11h54m40s	10.0	4.5	9.0	65	0	0	Stop	46	360	52	361
11h54m41s	10.0	4.5	9.0	65	0	0	Stop	46	360	52	361
11h54m42s	10.0	4.0	8.5	69	0	0	Stop	41	360	51	361
11h54m43s	10.0	4.0	8.5	69	0	0	Stop	41	360	51	361
11h54m44s	10.0	4.0	8.5	71	0	0	Stop	29	359	51	361
11h54m45s	10.0	4.0	8.5	71	0	0	Stop	29	359	51	361
11h54m46s	10.0	3.5	8.5	73	0	0	Stop	29	360	51	359
11h54m47s	10.0	3.5	8.5	73	0	0	Stop	29	360	51	359
11h54m48s	10.0	3.0	8.0	74	0	0	Stop	29	360	51	359
11h54m49s	10.0	3.0	8.0	74	0	0	Stop	29	360	51	359
11h54m50s	5.0	2.5	7.5	78	0	0	Stop	29	360	51	360
11h54m51s	5.0	2.5	7.5	78	0	0	Stop	29	360	51	360
11h54m52s	5.0	2.0	7.5	80	0	0	Stop	29	360	43	359
11h54m53s	5.0	2.0	7.5	80	0	0	Stop	29	360	43	359
11h54m54s	5.0	2.0	7.5	82	0	0	Stop	29	359	41	359
11h54m55s	5.0	2.0	7.5	82	0	0	Stop	29	359	41	359
11h54m56s	5.0	1.5	7.0	86	0	0	Stop	29	360	25	361
11h54m57s	5.0	1.5	7.0	86	0	0	Stop	29	360	25	361
11h54m58s	5.0	1.0	7.0	87	0	0	Stop	-0	359	9	359
11h54m59s	5.0	1.0	7.0	87	0	0	Stop	-0	359	9	359
11h55m00s	5.0	1.0	7.0	89	0	0	Stop	2	30	-29	54
11h55m01s	5.0	1.0	7.0	89	0	0	Stop	2	30	-29	54
11h55m02s	5.0	0.5	6.5	91	0	0	Stop	55	167	44	320
11h55m03s	5.0	0.5	6.5	91	0	0	Stop	55	167	44	320
11h55m04s	5.0	0.0	6.0	95	0	0	Stop	71	181	71	207
11h55m05s	5.0	0.0	6.0	95	0	0	Stop	71	181	71	207
11h55m06s	5.0	0.0	5.0	97	0	0	Stop	72	183	73	191
11h55m07s	5.0	0.0	5.0	97	0	0	Stop	72	183	73	191
11h55m08s	5.0	0.0	5.0	99	0	0	Stop	75	182	75	193
11h55m09s	5.0	0.0	5.0	99	0	0	Stop	75	182	75	193
11h55m10s	5.0	-0.5	3.5	104	0	0	Stop	78	183	79	192
11h55m11s	5.0	-0.5	3.5	104	0	0	Stop	78	183	79	192
11h55m12s	5.0	1.0	3.5	107	0	0	Stop	81	182	81	190
11h55m13s	5.0	1.0	3.5	107	0	0	Stop	81	182	81	190
11h55m14s	0.0	-0.5	2.5	110	0	0	Stop	83	182	83	191
11h55m15s	0.0	-0.5	2.5	110	0	0	Stop	83	182	83	191
11h55m16s	0.0	1.0	2.0	113	0	0	Stop	86	183	87	192
11h55m17s	0.0	1.0	2.0	113	0	0	Stop	86	183	87	192
11h55m18s	0.0	0.0	1.0	115	0	0	Stop	88	182	89	191
11h55m19s	0.0	0.0	1.0	115	0	0	Stop	88	182	89	191
11h55m20s	0.0	-0.0	0.0	116	0	0	Stop	90	183	91	192
11h55m21s	0.0	-0.0	0.0	116	0	0	Stop	90	183	91	192
11h55m22s	0.0	1.0	1.0	116	0	0	Stop	81	182	70	191
11h55m23s	0.0	1.0	1.0	116	0	0	Stop	81	182	70	191
11h55m24s	-0.0	1.0	1.0	117	0	0	Stop	55	183	-5	191

11h55m25s	-0.0	1.0	1.0	117	0	0	Stop	55	183	-5	191
11h55m26s	-0.0	1.0	1.0	117	0	0	Stop	65	183	-4	192
11h55m27s	-0.0	1.0	1.0	117	0	0	Stop	65	183	-4	192
11h55m28s	-0.0	0.5	1.5	117	0	0	Stop	71	175	-5	190
11h55m29s	-0.0	0.5	1.5	117	0	0	Stop	71	175	-5	190


PORT REVEL
Sh phandling
Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD
Lake ~~Turning Circles~~
Current 1- No current
Tracks & Sequences
Normandie
2010-05-03 - 10h25m29s
Map
Grid 50 m (1250 m)
Step 6 s (30 s)
7 to 9
V= 13,5 kn

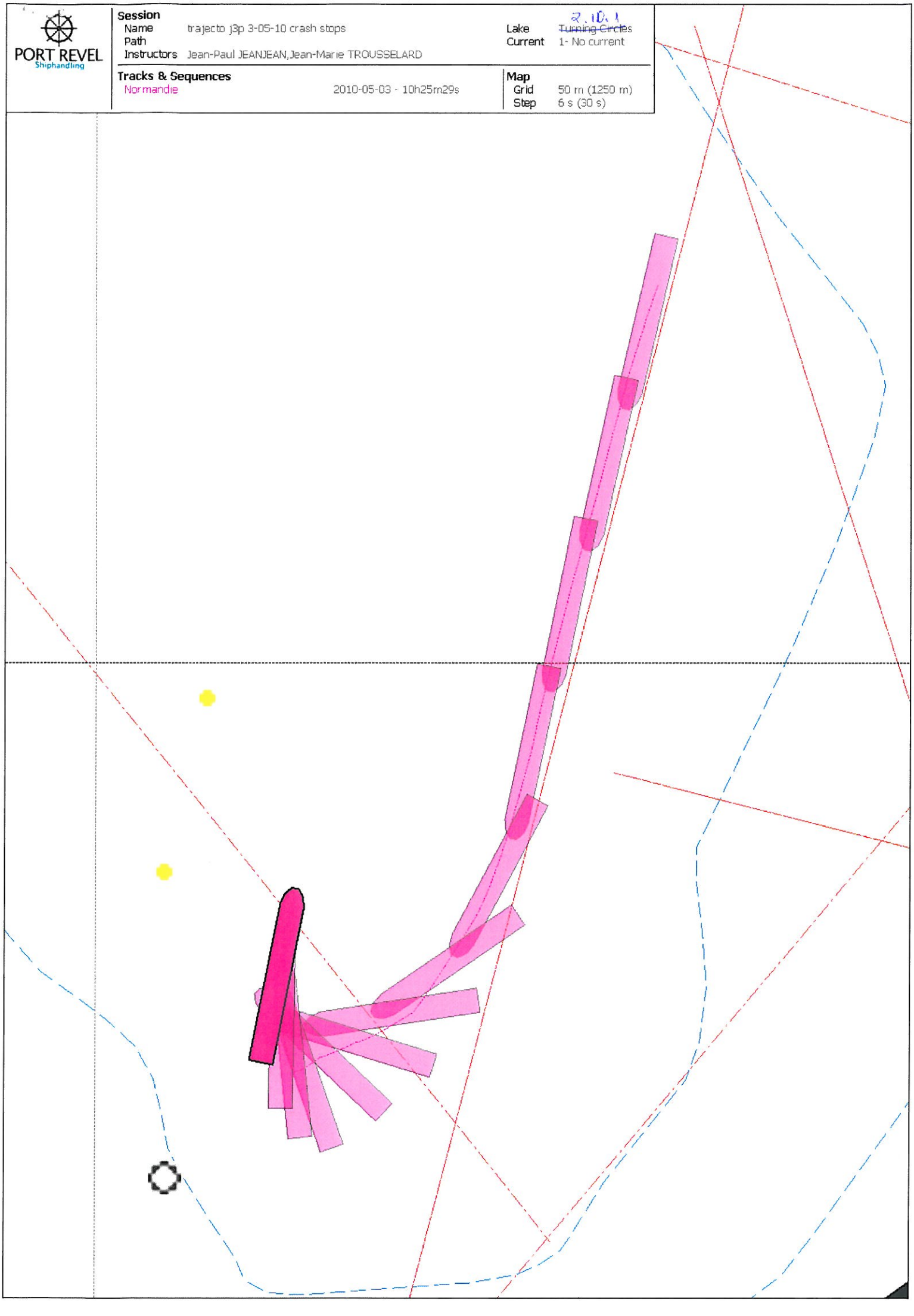
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.10.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.10.1

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t35 Stop : t36
Students
Notes:
essai 27 (2.10) vitesse 13.5 noeuds stoppé sur 2.6 longeurs

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	12h07m40s	-5.0	-12.5	13.0	194	0	0	Stop	97	-1	99	360
	12h07m41s	-5.0	-12.5	13.0	194	0	0	Stop	97	-1	99	360
	12h07m42s	-5.0	-12.5	13.0	193	0	0	Stop	97	1	99	21
	12h07m43s	-5.0	-12.5	13.0	193	0	0	Stop	97	1	99	21
	12h07m44s	-5.0	-12.5	13.0	193	0	0	Stop	97	-2	99	359
	12h07m45s	-5.0	-12.5	13.0	193	0	0	Stop	97	-2	99	359
	12h07m46s	-5.0	-12.5	13.0	192	0	0	Stop	97	-1	98	360
	12h07m47s	-5.0	-12.5	13.0	192	0	0	Stop	97	-1	98	360
	12h07m48s	-5.0	-12.5	13.0	193	0	0	Stop	97	-1	99	354
	12h07m49s	-5.0	-12.5	13.0	193	0	0	Stop	97	-1	99	354
	12h07m50s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	98	28
	12h07m51s	-5.0	-13.0	13.5	193	0	0	Stop	97	-1	98	28
	12h07m52s	-5.0	-13.0	13.5	192	0	0	Stop	97	-1	99	21
	12h07m53s	-5.0	-13.0	13.5	192	0	0	Stop	97	-1	99	21
	12h07m54s	-5.0	-13.0	13.5	192	0	0	Stop	97	346	99	360
	12h07m55s	-5.0	-13.0	13.5	192	0	0	Stop	97	346	99	360
	12h07m56s	-5.0	-13.5	13.5	191	0	0	Stop	97	-1	99	361
	12h07m57s	-5.0	-13.5	13.5	191	0	0	Stop	97	-1	99	361
	12h07m58s	-5.0	-13.0	13.5	192	0	0	Stop	97	328	99	360
	12h07m59s	-5.0	-13.0	13.5	192	0	0	Stop	97	328	99	360
	12h08m00s	-5.0	-13.5	14.0	192	0	0	Stop	97	311	98	327
	12h08m01s	-5.0	-13.5	14.0	192	0	0	Stop	97	311	98	327
	12h08m02s	-5.0	-12.5	13.0	197	0	0	Stop	97	307	99	236
	12h08m03s	-5.0	-12.5	13.0	197	0	0	Stop	97	307	99	236
	12h08m04s	-5.0	-11.5	12.0	202	0	0	Stop	97	316	99	237
	12h08m05s	-5.0	-11.5	12.0	202	0	0	Stop	97	316	99	237
	12h08m06s	-5.0	-11.0	11.5	208	0	0	Stop	97	316	99	234
	12h08m07s	-5.0	-11.0	11.5	208	0	0	Stop	97	316	99	234
	12h08m08s	-5.0	-8.5	9.5	222	0	0	Stop	97	315	98	235
	12h08m09s	-5.0	-8.5	9.5	222	0	0	Stop	97	315	98	235
	12h08m10s	-5.0	-7.5	9.0	229	0	0	Stop	97	315	99	235
	12h08m11s	-5.0	-7.5	9.0	229	0	0	Stop	97	315	99	235
	12h08m12s	-5.0	-6.5	8.0	236	0	0	Stop	97	316	99	235
	12h08m13s	-5.0	-6.5	8.0	236	0	0	Stop	97	316	99	235
	12h08m14s	-5.0	-4.5	7.0	249	0	0	Stop	97	316	98	235
	12h08m15s	-5.0	-4.5	7.0	249	0	0	Stop	97	316	98	235
	12h08m16s	-5.0	-4.0	6.5	256	0	0	Stop	97	316	99	236
	12h08m17s	-5.0	-4.0	6.5	256	0	0	Stop	97	316	99	236
	12h08m18s	-5.0	-3.5	5.5	261	0	0	Stop	97	316	99	236
	12h08m19s	-5.0	-3.5	5.5	261	0	0	Stop	97	316	99	236
	12h08m20s	-5.0	-2.0	4.5	274	0	0	Stop	97	315	99	237
	12h08m21s	-5.0	-2.0	4.5	274	0	0	Stop	97	315	99	237
	12h08m22s	-5.0	-2.0	4.0	281	0	0	Stop	97	315	99	234
	12h08m23s	-5.0	-2.0	4.0	281	0	0	Stop	97	315	99	234
	12h08m24s	-5.0	-1.5	4.0	287	0	0	Stop	97	316	99	236

12h08m25s	-5.0	-1.5	4.0	287	0	0	Stop	97	316	99	236
12h08m26s	-5.0	-1.0	3.0	300	0	0	Stop	97	316	99	236
12h08m27s	-5.0	-1.0	3.0	300	0	0	Stop	97	316	99	236
12h08m28s	-0.0	-1.0	2.5	306	0	0	Stop	97	316	99	235
12h08m29s	-0.0	-1.0	2.5	306	0	0	Stop	97	316	99	235
12h08m30s	-0.0	-1.0	2.5	313	0	0	Stop	97	316	99	237
12h08m31s	-0.0	-1.0	2.5	313	0	0	Stop	97	316	99	237
12h08m32s	-0.0	-1.0	2.5	320	0	0	Stop	97	317	99	235
12h08m33s	-0.0	-1.0	2.5	320	0	0	Stop	97	317	99	235
12h08m34s	-0.0	-1.0	2.0	334	0	0	Stop	97	0	99	251
12h08m35s	-0.0	-1.0	2.0	334	0	0	Stop	97	0	99	251
12h08m36s	-0.0	-1.0	1.5	341	0	0	Stop	97	-1	99	361
12h08m37s	-0.0	-1.0	1.5	341	0	0	Stop	97	-1	99	361
12h08m38s	-0.0	-0.5	1.5	345	0	0	Stop	96	-0	99	360
12h08m39s	-0.0	-0.5	1.5	345	0	0	Stop	96	-0	99	360
12h08m40s	-0.0	1.0	1.5	351	0	0	Stop	97	-0	99	362
12h08m41s	-0.0	1.0	1.5	351	0	0	Stop	97	-0	99	362
12h08m42s	-0.0	1.5	2.0	354	0	0	Stop	97	-0	99	360
12h08m43s	-0.0	1.5	2.0	354	0	0	Stop	97	-0	99	360
12h08m44s	-0.0	2.5	2.5	356	0	0	Stop	97	-0	99	360
12h08m45s	-0.0	2.5	2.5	356	0	0	Stop	97	-0	99	360
12h08m46s	-0.0	3.5	3.5	360	0	0	Stop	97	191	99	361
12h08m47s	-0.0	3.5	3.5	360	0	0	Stop	97	191	99	361
12h08m48s	-0.0	4.0	4.0	1	0	0	Stop	97	287	99	360
12h08m49s	-0.0	4.0	4.0	1	0	0	Stop	97	287	99	360

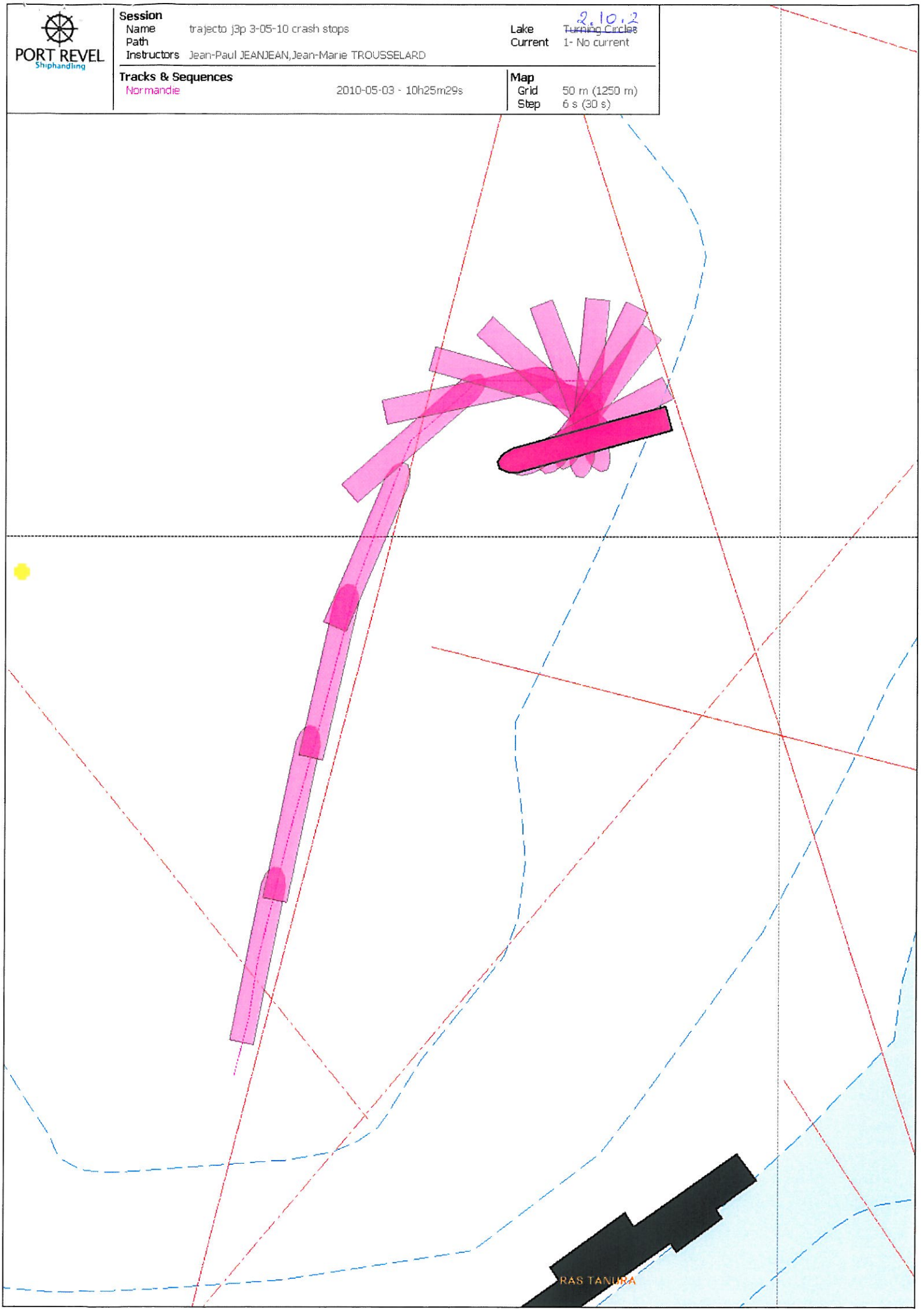
PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.10.2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)



2.10.2

Session:
Name : trajecto j3p 3-05-10 crash stops Lake : ~~Turning Circles~~
Path : Current : 1- No current
Instructors: Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD
Sequence:
Tracks : Normandie Sequence : 2010-05-03 - 10h25m29s
Start : t33 Stop : t34
Students
Notes:
essai 2~~8~~ (2.10.2) vitesse 13.5 noeuds

T	Time	VL	VT	V	Heading	Wind Speed	Wind Direction	Bow Thruster	Portside Pod RPM	Portside Pod Angle	Starboard Pod RPM	Starboard Pod Angle
	HHhMMmSSs	knots			°	kts	°		rpm	°	rpm	°
	12h03m20s	5.0	12.5	13.0	10	0	0	Stop	97	-0	99	10
	12h03m21s	5.0	12.5	13.0	10	0	0	Stop	97	-0	99	10
	12h03m22s	5.0	13.0	13.0	11	0	0	Stop	97	316	99	359
	12h03m23s	5.0	13.0	13.0	11	0	0	Stop	97	316	99	359
	12h03m24s	5.0	13.0	13.5	11	0	0	Stop	97	-1	99	22
	12h03m25s	5.0	13.0	13.5	11	0	0	Stop	97	-1	99	22
	12h03m26s	5.0	13.0	13.0	12	0	0	Stop	97	0	98	15
	12h03m27s	5.0	13.0	13.0	12	0	0	Stop	97	0	98	15
	12h03m28s	5.0	13.0	13.5	12	0	0	Stop	97	0	98	359
	12h03m29s	5.0	13.0	13.5	12	0	0	Stop	97	0	98	359
	12h03m30s	5.0	13.0	13.5	12	0	0	Stop	97	-1	98	21
	12h03m31s	5.0	13.0	13.5	12	0	0	Stop	97	-1	98	21
	12h03m32s	5.0	13.0	13.5	12	0	0	Stop	97	-0	99	359
	12h03m33s	5.0	13.0	13.5	12	0	0	Stop	97	-0	99	359
	12h03m34s	5.0	13.0	13.5	13	0	0	Stop	96	0	98	22
	12h03m35s	5.0	13.0	13.5	13	0	0	Stop	96	0	98	22
	12h03m36s	5.0	13.0	13.5	13	0	0	Stop	97	332	99	361
	12h03m37s	5.0	13.0	13.5	13	0	0	Stop	97	332	99	361
	12h03m38s	5.0	13.0	13.5	14	0	0	Stop	97	326	99	268
	12h03m39s	5.0	13.0	13.5	14	0	0	Stop	97	326	99	268
	12h03m40s	5.0	12.0	12.5	18	0	0	Stop	97	327	99	236
	12h03m41s	5.0	12.0	12.5	18	0	0	Stop	97	327	99	236
	12h03m42s	5.0	11.5	12.0	23	0	0	Stop	97	327	99	236
	12h03m43s	5.0	11.5	12.0	23	0	0	Stop	97	327	99	236
	12h03m44s	5.0	10.5	11.0	29	0	0	Stop	97	317	98	235
	12h03m45s	5.0	10.5	11.0	29	0	0	Stop	97	317	98	235
	12h03m46s	5.0	8.0	9.5	42	0	0	Stop	97	316	99	234
	12h03m47s	5.0	8.0	9.5	42	0	0	Stop	97	316	99	234
	12h03m48s	5.0	7.5	8.5	49	0	0	Stop	97	316	99	235
	12h03m49s	5.0	7.5	8.5	49	0	0	Stop	97	316	99	235
	12h03m50s	5.0	6.0	8.0	56	0	0	Stop	97	316	99	235
	12h03m51s	5.0	6.0	8.0	56	0	0	Stop	97	316	99	235
	12h03m52s	5.0	4.0	6.5	71	0	0	Stop	96	317	99	236
	12h03m53s	5.0	4.0	6.5	71	0	0	Stop	96	317	99	236
	12h03m54s	5.0	3.0	6.0	78	0	0	Stop	97	316	99	235
	12h03m55s	5.0	3.0	6.0	78	0	0	Stop	97	316	99	235
	12h03m56s	5.0	2.5	5.5	85	0	0	Stop	97	316	99	235
	12h03m57s	5.0	2.5	5.5	85	0	0	Stop	97	316	99	235
	12h03m58s	5.0	1.0	4.0	99	0	0	Stop	97	316	99	234
	12h03m59s	5.0	1.0	4.0	99	0	0	Stop	97	316	99	234
	12h04m00s	5.0	1.0	4.0	106	0	0	Stop	97	316	99	233
	12h04m01s	5.0	1.0	4.0	106	0	0	Stop	97	316	99	233
	12h04m02s	5.0	0.5	3.5	112	0	0	Stop	97	315	99	234
	12h04m03s	5.0	0.5	3.5	112	0	0	Stop	97	315	99	234
	12h04m04s	5.0	-0.0	3.0	126	0	0	Stop	97	318	99	233

12h04m05s	5.0	-0.0	3.0	126	0	0	Stop	97	318	99	233
12h04m06s	5.0	-0.0	2.5	132	0	0	Stop	97	317	99	235
12h04m07s	5.0	-0.0	2.5	132	0	0	Stop	97	317	99	235
12h04m08s	0.0	0.0	2.5	138	0	0	Stop	97	317	99	233
12h04m09s	0.0	0.0	2.5	138	0	0	Stop	97	317	99	233
12h04m10s	0.0	-0.5	2.0	152	0	0	Stop	97	316	99	235
12h04m11s	0.0	-0.5	2.0	152	0	0	Stop	97	316	99	235
12h04m12s	0.0	-0.0	2.0	159	0	0	Stop	97	316	99	235
12h04m13s	0.0	-0.0	2.0	159	0	0	Stop	97	316	99	235
12h04m14s	0.0	-0.5	1.5	166	0	0	Stop	97	316	99	234
12h04m15s	0.0	-0.5	1.5	166	0	0	Stop	97	316	99	234
12h04m16s	0.0	-0.0	1.5	172	0	0	Stop	97	316	99	233
12h04m17s	0.0	-0.0	1.5	172	0	0	Stop	97	316	99	233
12h04m18s	0.0	-0.0	1.5	186	0	0	Stop	97	317	99	236
12h04m19s	0.0	-0.0	1.5	186	0	0	Stop	97	317	99	236

PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN, Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.10.2
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)

PORT REVEL
Shiphandling

Session
Name trajecto j3p 3-05-10 crash stops
Path
Instructors Jean-Paul JEANJEAN,Jean-Marie TROUSSELARD

Lake ~~Turning Circles~~ 2.10.1
Current 1- No current

Tracks & Sequences
Normandie 2010-05-03 - 10h25m29s

Map
Grid 50 m (1250 m)
Step 6 s (30 s)