

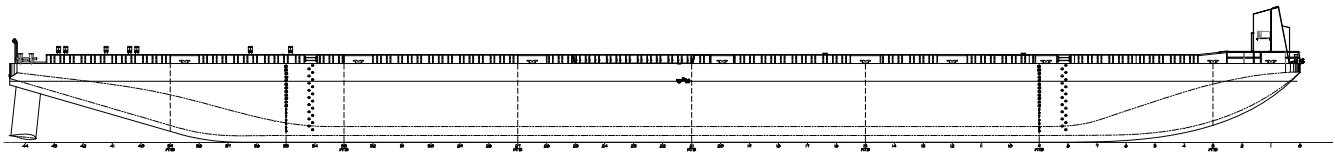
SKAGWAY PROVIDER

(O.N. 1 268 891)

360.0' x 100.0'x 22.0' Deck Cargo Barge

DEADWEIGHT SURVEY PROCEDURE

DATE	DOC NO.	REV
07.01.2016	1509-100-24	-



HOCKEMA & WHALEN ASSOCIATES

NAVAL ARCHITECTS ♦ MARINE ENGINEERS ♦ ELECTRICAL ENGINEERS

SEATTLE WA ♦ BEND OR
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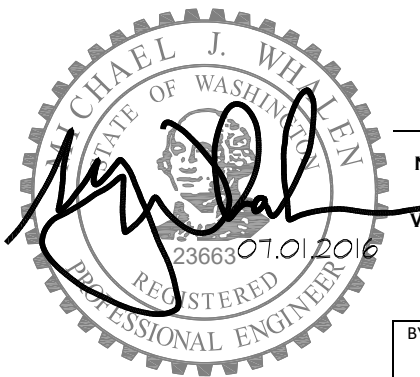
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-	All	1. Initial issue.	MJW	07.01.2016

REFERENCES
1. ASTM F 1321, "Standard Guide for Conducting a Stability Test"

I. PARTICULARS

VESSEL NAME:	SKAGWAY PROVIDER
OFFICIAL NUMBER / ABSID:	1 268 891 / YY265142
SHIPYARD HULL NUMBER:	Gunderson Marine Hull 112
DATE/TIME:	18 July 2016
LOCATION OF THE VESSEL	Alaska Marine Lines Terminal 115 6700 W Marginal Way SW Seattle, WA 98103 Contact: George Williamson Phone: 206-799-4555 Email: georgw@lynden.com
CONTACT FOR INFORMATION:	Michael Whalen Hockema & Whalen Associates Phone: 206-365-0919 Email: michaelw@hockema.com

II. DEADWEIGHT PROCEDURE

A. Introduction

This vessel is a general deck cargo freight barge, fitted with a flush main deck and breakwater at the bow. The barge is fitted with 7 transverse bulkheads and 2 longitudinal bulkheads, dividing the barge into 24 compartments. There are two ballast tanks and one deck runoff tank in the aft rake. There is a pump room on the port side in the No 6 compartment just forward of the ballast tank. All other compartments are designated as voids.

The vessel is fitted with a 5" concrete wear deck.

The vessel will be essentially complete at the time of the deadweight survey. Any items that are not installed at the time of the test shall be documented by the owner in writing, including weight and center of gravity.

The deadweight survey will consist of two tasks, as follows:

- 1. Survey of weights to add, deduct, relocate / compartment survey**
- 2. Draft, freeboard and specific gravity readings**

Normally the tasks will be performed in this order. If weather threatens to deteriorate, and the naval architect is certain that the condition and weight status of the vessel are acceptable, the order of the tasks may be changed.

B. Weight / Tankage Survey

The following items shall be accomplished prior to the survey, and will be verified during the survey.

1. Weight Items:

The vessel shall be in, as near as possible, a complete condition. Weights, which will be part of the light ship weight, and are not onboard, shall be documented by the owner prior to the survey. All foreign weights (scrap, waste material, staging, tools etc.) shall be removed from the vessel before the survey is conducted. No stores onboard is preferred, however, a small accountable amount may stay onboard. There are no anticipated deductions from light ship for the deadweight survey.

2. Condition of Tanks:

All tanks and compartments shall be empty and dry at the time of the survey. **Manholes to all tanks and voids shall be open to enable visual inspection. All empty tanks and voids shall be gas freed and certified "Safe for Entry".**

3. Machinery Liquids:

The barge is fitted with a 99 kW generator in the breakwater. If possible, the fuel tank shall be at normal operating level. The tank level will be determined at the time of the survey. The effect of any machinery liquids is negligible to the results of the test however, due to the small size of the equipment and fuel tank.

4. Piping Cross Connections:

All ballast tanks will be empty at the time of the survey. However all valves to the ballast piping system shall be closed.

5. Moorings:

If possible, lines should be arranged to an opposite pier during the survey to keep the vessel off the dock, with lines led to the centerline of the vessel. Vessel shall be in an area protected from the wind.

6. Water Depth:

The vessel shall be moored in an area where the water depth will not cause the vessel to touch the bottom at any time during the survey.

7. Trim / List:

It is estimated that the barge will have approximately .13 degrees of aft trim at the time of the survey. The vessel will have less than 1/2 degree of list at the time of the survey. All hydrostatics will be performed for the "as-trimmed" condition using the GHS stability software.

8. Manpower:

Nobody, except those associated with the survey can be onboard, and the number should be limited to a maximum of four (4) persons.

9. Skiff:

A skiff shall be available to assist in taking draft readings.

10. Permanent Ballast:

The vessel is not fitted with permanent ballast.

The naval architect will conduct the weight survey as described below. There are no expected additions or deductions to arrive at the light ship. Any unexpected items to be added or deducted for light ship shall be weighed by the shipyard. A written log of weight and location of any such items shall be provided. Estimates of the anticipated displacement and draft of the vessel at the time of the survey are included in this document.

All compartments shall be inspected for liquids. If any liquids are found, they will either be pumped out, or measured and corrected for, at the discretion of the naval architect.

Any vessel downflooding points will be identified and recorded, and noted if different than previously documented.

The total amount of weights to add and deduct (excluding any tankage, certified leveling weights and people) shall not exceed 2% of the estimated lightship weight. Items of known weight (through weighing or from manufacturer's spec sheets) may be excluded from the 2%. The attending Surveyor is to be provided with the list of weights to add, deduct and relocate onboard the vessel. This list is to be verified by the Surveyor prior to the survey. It is the responsibility of the person conducting the test to ensure that the condition of the vessel will enable the limit to be met. Failure to comply with the 2% limit may render the test results unacceptable by the office reviewing the results and require the test to be repeated.

C. Freeboard, Draft and Specific Gravity Readings

Freeboard readings shall be taken in at least 5 locations (P/S). It is expected that readings will be taken at the following locations:

- 36" fwd of Bhd 3
- Bhd 9
- 36" fwd of Bhd 15
- 76" fwd of Bhd 21
- 12" fwd of Bhd 27
- 12" fwd of Bhd 33
- 12" fwd of Bhd 39

Additionally, drafts at the forward and aft marks shall be recorded, to compare with the freeboard readings. The shipyard shall have a skiff available, if necessary, to assist in taking draft readings.

The naval architect shall measure the specific gravity and temperature of the water. The naval architect will provide a hydrometer of appropriate scale.

Immediately following draft and/or freeboard readings, a plot of the drafts is to be made using an exaggerated scale. Any readings which are suspect based on the plot are to be rechecked.

D. Drawings and Supporting Information

The following documents/files are available on the ABS O2E portal, for reference:

- Dwg: 1509-001-10 Rev F General Arrangement (Also See Section V)
- Dwg: 1509-001-20 Rev - Lines Plan

The following documents/files have been submitted with this deadweight survey procedure:

- 1509.gf GHS computer model, including shell and skeg (via email)
- 1509MLD.gf GHS molded hull computer model (via email)
- 1509-100-20 Rev - Skagway Provider StabCalcBook (Prelim)

The following documents will be forwarded to ABS shortly after completion of the deadweight survey:

- 1509-100-21 Rev – Skagway Provider Deadweight Survey Data
- 1509-100-20 Rev A- Skagway Provider StabCalcBook (Final)

III. ESTIMATED LIGHT SHIP CONDITION

06/29/16 10:54:33 Hockema & Whalen Associates Inc
GHS 15.00 SKAGWAY PROVIDER: 360.0' X 100.0' DECK BARGE 1509

ESTIMATED CONDITION AT DEADWEIGHT SURVEY

SUMMARY OF LOADING

0.0 Gals. (0%) SALT WATER

WEIGHT and DISPLACEMENT STATUS

Baseline draft: 5.157 @ 72.75a, 5.633 @ 282.92a
Trim: Aft 0.48/210.17, Heel: zero

Part-----	Weight(ST)----	LCG-----	TCG-----	VCG-----		
WEIGHT	3,944.07	178.63a	0.00	15.28		
	SpGr-----	Displ(ST)---- <td>LCB-----</td> <td>TCB-----</td> <td>VCB-----</td> <td>RefHt-----</td>	LCB-----	TCB-----	VCB-----	RefHt-----
HULL	1.000	3,944.08	178.66a	0.00	3.11	-4.99

	Righting Arms:		0.00	0.00		
Distances in FEET.-----						

FREEBOARD STATUS

Baseline draft: 5.157 @ 72.75a, 5.633 @ 282.92a
Trim: Aft 0.48/210.17, Heel: zero
Least freeboard is 16.19 Ft located at 360.00a
Least extra freeboard (to margin line) is 16.19 Ft located at 360.00a

HYDROSTATIC PROPERTIES

Trim: Aft 0.48/210.17, No Heel, VCG = 15.28

LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/					
Draft----	Weight(ST)----	LCB-----	VCB-----	Inch-----	LCF---	In trim----	GML-----	GMT-----	
5.389	3,944.08	178.66a	3.11	76.54	175.13a	2621.09	1676.1	176.46	
Distances in FEET.-----Specific Gravity = 1.000.-----Moment in Ft-ST.									
Trim is per 210.17Ft									

Draft is from Baseline.

IV. HYDROSTATICS

06/30/16 14:11:46
 GHS 15.00

Hockema & Whalen Associates Inc
 SKAGWAY PROVIDER: 360.0' X 100.0' DECK BARGE

1509

HYDROSTATIC PROPERTIES

No Trim, No Heel, Fixed VCG = 0.00

LCF Draft	Displacement Weight (ST)	Buoyancy-Ctr. LCB	Weight/ VCB	Weight/ Inch	Moment/ LCF	Moment/ In trim	KML	KMT
17.198	16,347.19	176.70a	9.39	94.99	181.31a	4835.58	746.0	67.16
17.000	16,121.84	176.64a	9.28	94.83	181.35a	4809.39	752.4	67.68
16.750	15,837.80	176.55a	9.15	94.56	181.43a	4767.38	759.2	68.35
16.500	15,554.44	176.46a	9.01	94.40	181.21a	4743.36	769.1	69.12
16.250	15,271.74	176.38a	8.87	94.10	181.08a	4697.84	775.8	69.80
16.000	14,990.00	176.29a	8.74	93.74	180.99a	4643.06	781.2	70.49
15.750	14,709.32	176.20a	8.60	93.39	180.79a	4590.16	787.0	71.28
15.500	14,429.54	176.11a	8.47	93.09	180.54a	4546.06	794.6	72.11
15.250	14,151.01	176.02a	8.33	92.63	180.67a	4478.21	798.1	72.89
15.000	13,873.74	175.93a	8.20	92.22	180.75a	4417.36	803.0	73.78
14.750	13,597.16	175.84a	8.07	92.35	179.56a	4434.57	822.5	75.11
14.500	13,320.84	175.76a	7.93	92.21	179.73a	4414.07	835.7	76.15
14.250	13,045.25	175.68a	7.80	91.74	179.28a	4346.73	840.4	77.08
14.000	12,770.83	175.60a	7.66	91.33	178.95a	4288.65	846.9	78.13
13.750	12,497.53	175.53a	7.53	90.98	178.71a	4237.97	855.2	79.26
13.500	12,225.26	175.45a	7.39	90.65	178.53a	4191.55	864.7	80.45
13.250	11,954.11	175.38a	7.26	90.25	178.22a	4136.59	872.7	81.56
13.000	11,683.92	175.32a	7.12	90.07	178.33a	4111.04	887.4	82.87
12.750	11,414.62	175.25a	6.99	89.61	177.91a	4048.16	894.4	84.11
12.500	11,146.51	175.18a	6.86	89.20	177.63a	3992.66	903.4	85.48
12.250	10,879.54	175.12a	6.72	88.83	177.47a	3941.27	913.6	86.92
12.000	10,613.80	175.06a	6.59	88.36	177.52a	3879.50	921.8	88.30
11.750	10,349.50	174.99a	6.45	87.87	177.41a	3814.74	929.6	89.72
11.500	10,086.25	174.93a	6.32	87.60	177.61a	3779.49	945.1	91.43
11.250	9,824.18	174.86a	6.19	87.11	177.30a	3715.76	953.9	93.13
11.000	9,562.24	174.82a	6.05	87.21	176.10a	3727.94	983.2	95.52
10.750	9,301.39	174.77a	5.92	86.85	175.94a	3681.02	998.1	97.52
10.500	9,041.62	174.74a	5.79	86.50	175.81a	3636.45	1014.3	99.61
10.250	8,783.04	174.70a	5.65	86.08	175.56a	3584.05	1029.2	101.67
10.000	8,525.26	174.67a	5.52	85.85	175.67a	3554.86	1051.6	104.02
9.750	8,268.71	174.64a	5.39	85.37	175.35a	3495.26	1066.1	106.36
9.500	8,013.47	174.61a	5.25	84.88	175.25a	3435.77	1081.3	108.83
9.250	7,759.62	174.58a	5.12	84.40	175.33a	3376.68	1097.5	111.47
9.000	7,507.10	174.55a	4.99	83.95	175.33a	3322.23	1116.1	114.31
8.750	7,255.98	174.53a	4.86	83.75	175.69a	3299.30	1146.8	117.58
8.500	7,005.67	174.50a	4.72	83.21	175.28a	3235.18	1164.7	120.71
8.250	6,756.02	174.49a	4.59	83.21	174.10a	3235.78	1207.9	124.88
8.000	6,507.34	174.50a	4.46	82.78	173.95a	3185.44	1234.6	128.72
7.750	6,259.90	174.51a	4.32	82.38	173.88a	3139.78	1265.0	132.88
7.500	6,013.66	174.53a	4.19	81.95	173.81a	3090.56	1296.1	137.20
7.250	5,768.82	174.55a	4.06	81.60	174.39a	3050.87	1333.8	141.80
7.000	5,525.20	174.56a	3.93	80.95	174.22a	2978.58	1359.6	146.57
6.750	5,283.15	174.57a	3.79	80.42	174.10a	2919.50	1393.7	152.11
6.500	5,042.51	174.60a	3.66	79.97	174.00a	2871.02	1436.0	158.33
6.250	4,803.11	174.63a	3.53	79.60	173.92a	2830.04	1486.0	165.20

06/30/16 14:11:46 Hockema & Whalen Associates Inc
GHS 15.00 SKAGWAY PROVIDER: 360.0' X 100.0' DECK BARGE 1509

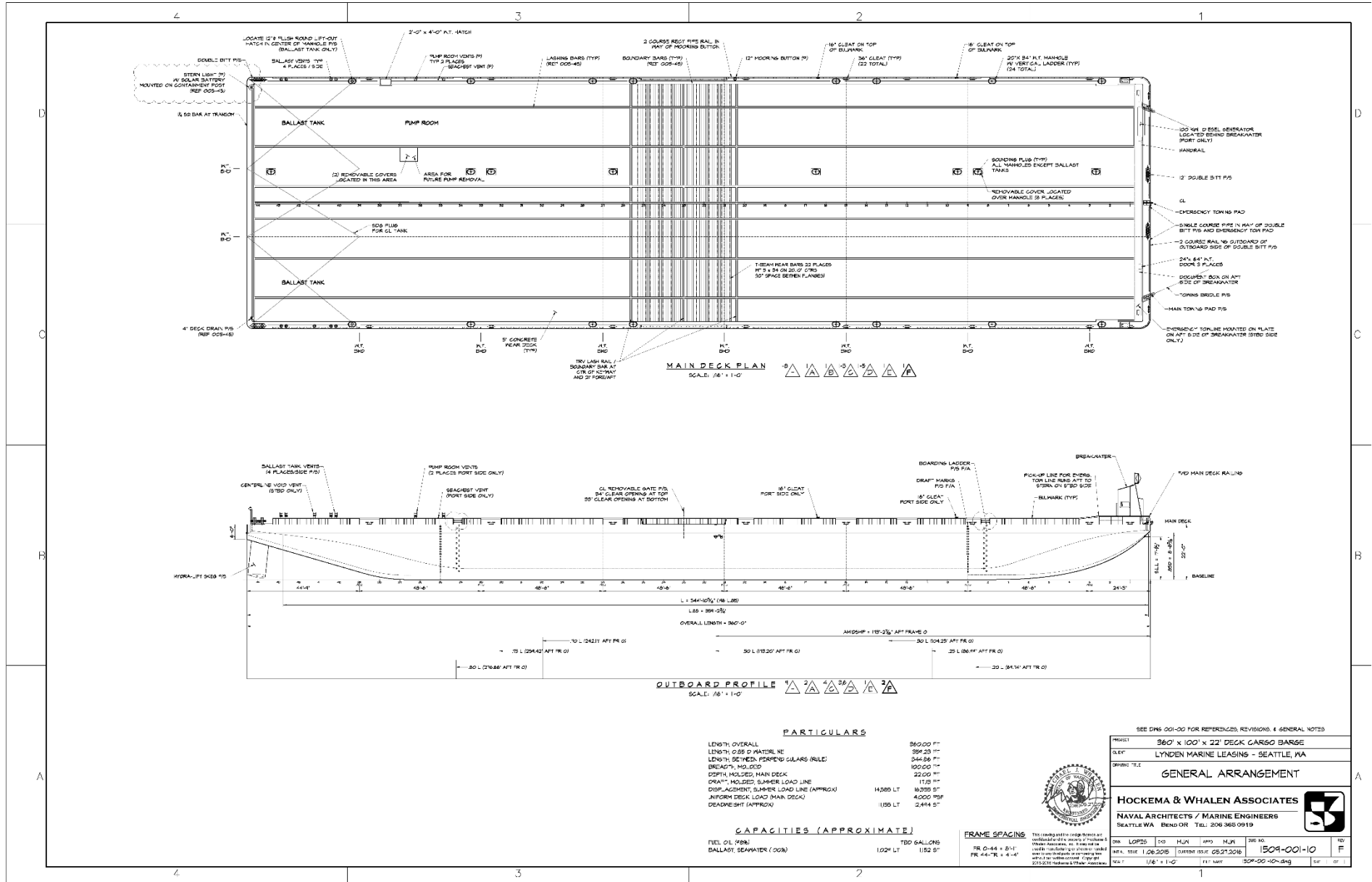
LCF	Displacement	Buoyancy-Ctr.	Weight/	Moment/					
Draft----	Weight(ST)-----	LCB-----	VCB-----	Inch-----	LCF---	In trim----	KML-----	KMT	
6.000	4,564.15	174.69a	3.40	79.59	173.00a	2830.57	1564.1	173.29	
5.750	4,326.34	174.76a	3.26	79.25	173.44a	2795.56	1629.7	181.35	
5.500	4,089.99	174.83a	3.13	78.52	173.50a	2717.93	1676.0	189.62	
5.345	3,944.07	174.87a	3.05	78.12	173.53a	2677.17	1711.9	195.54	

Distances in FEET.-----Specific Gravity = 1.025.-----Moment in Ft-ST.
Trim is per 210.17Ft

Draft is from Keel.

Load line draft is shown in bold. Light Ship draft is shown in bold italics.

V. GENERAL ARRANGEMENT



END OF DOCUMENT