

**Underwater Sediment/Timber Samples and Probes
Joe Batt's Arm, Newfoundland**

Performed for:
AFN Engineering

Prepared by:

Sea-Force Diving Ltd.
24 Dundee Avenue
Donovan's Industrial Park
Mt. Pearl, NL A1N 4R7

**Underwater Probes/Timber/Sediment Samples
Joe Batt's Arm, Newfoundland**

DATE OF INSPECTION:

April 7th & 8th, 2015

LOCATION:

Joe Batt's Arm, NL

REPORT WRITTEN BY:

Tony O'Driscoll, Operations Manager
Sea-Force Diving Ltd.

DIVING CREW:

Dennis Tulk, Supervisor
Dave Pritchard, Diver
Phil Brace, Diver
Chris O'Driscoll, Diver

WEATHER CONDITIONS:

Temperature: -5 °C
Wind: NW - 40 km
Visibility: Overcast
Tide: N/A

UNDERWATER CONDITIONS:

Temperature: + 2°C
Visibility: .2 m – .3 m
Current: Tidal

**Underwater Probes/Timber/Sediment Samples
Joe Batt's Arm, Newfoundland**

INTRODUCTION:

A diving crew was mobilized Joe Batt's Arm, NL. Sea-Force Diving obtained probes and sediment samples in area of proposed dredging area. In addition, timber samples were obtained on the existing wharf structure. Sea-Force Diving was provided drawings with locations to reference by PWGSC representative Mr. Eddie Bearns.

RESULTS:

See attached drawings for probe results and type of seafloor in area for reference.

Location	Sediment Samples	Timber samples	Probes
Joe Batt's Arm	There is a total of eight sediment samples (2 x 9oz jars per sample) taken at this location. All samples taken at locations identified on drawing supplied by PWGSC. Samples were collected at the top layer of the substrate.	The timber samples were taken at areas identified by PWGSC as per drawings provided. Samples were taken at from several areas i.e. wales, chokes & fenders.	See attached drawing for location of probes and found results. The diver used a 2000mm long X 15mm piece of rebar with a 2.5kg hammer. Any readings over 2000mm are noted as 2m+ on drawing.

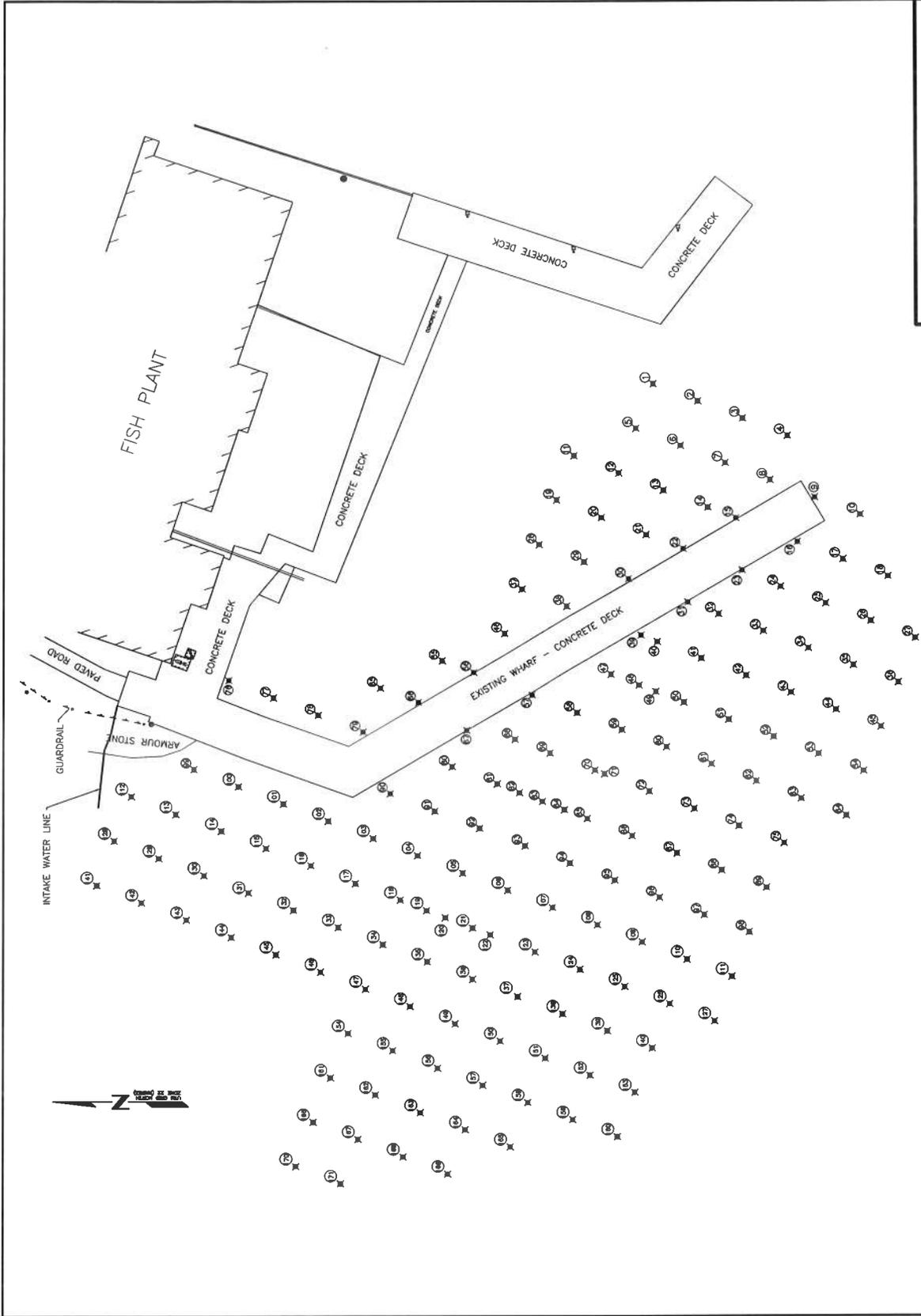
NOTE: All samples delivered to Maxxam on April 8th, 2015 for analysis. See attached chain of custody.

UNDERWATER PHOTOS:

Due to extremely poor site conditions from high winds blowing onshore underwater pictures could not be obtained. Pictures where attempted and found to be to grainy and dark due to particles in the water column.

CONCLUSION:

If you have any further concerns regarding these probes and samples please contact Tony O'Driscoll by phone (709) 753-2021, cell phone (709) 687-8123 and by facsimile (709) 753-2035 or by e-mail tony@seaforcediving.com.



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 APRIL 2015

PROBE LOCATIONS AT JOE BATTS ARM, NL

PROBE #	PENETRATION	TYPE OF MATERIAL
# 1	0.30m	SAND THEN HARD BOTTOM
# 2	0.30m	SAND THEN HARD BOTTOM
# 3	0.30m	SAND THEN HARD BOTTOM
# 4	0.30m	SAND THEN HARD BOTTOM
# 5	0.40m	SAND THEN HARD BOTTOM
# 6	0.40m	SAND THEN HARD BOTTOM
# 7	0.30m	SAND THEN HARD BOTTOM
# 8	0.00m	HARD BOTTOM
# 9	0.20m	SAND THEN HARD BOTTOM
# 10	0.20m	SAND THEN HARD BOTTOM
# 11	0.30m	SAND THEN HARD BOTTOM
# 12	0.30m	SAND THEN HARD BOTTOM
# 13	0.40m	SAND THEN HARD BOTTOM
# 14	0.20m	SAND THEN HARD BOTTOM
# 15	0.00m	HARD BOTTOM
# 16	0.00m	HARD BOTTOM
# 17	0.30m	SAND THEN HARD BOTTOM
# 18	0.30m	SAND THEN HARD BOTTOM
# 19	0.15m	SAND THEN HARD BOTTOM
# 20	0.15m	SAND THEN HARD BOTTOM
# 21	0.30m	SAND THEN HARD BOTTOM
# 22	0.30m	SAND THEN HARD BOTTOM
# 23	0.00m	HARD BOTTOM
# 24	0.30m	SAND THEN HARD BOTTOM
# 25	0.40m	SAND THEN HARD BOTTOM
# 26	0.30m	SAND THEN HARD BOTTOM
# 27	0.40m	SAND THEN HARD BOTTOM
# 28	0.30m	SAND THEN HARD BOTTOM
# 29	0.10m	SAND THEN HARD BOTTOM
# 30	0.10m	SAND THEN HARD BOTTOM
# 31	0.00m	HARD BOTTOM
# 32	0.20m	SAND THEN HARD BOTTOM

NOTES:

- DIVERS USED 2m STEEL ROD & 5LB. HAMMER
- BOTTOM CONSIST OF GRAVEL, ROCKY, SILT, SANDY, MUDDY AND VERY SOFT AT THE PROBE LOCATIONS.
- ⊗ (45) - INDICATES APPROX. LOCATION OF PROBE AND NUMBER.

PROBE INFORMATION FROM JOE BATTS ARM, NL

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PROBE #	PENETRATION	TYPE OF MATERIAL
# 33	0.30m	SAND THEN HARD BOTTOM
# 34	0.50m	SAND THEN HARD BOTTOM
# 35	0.30m	SAND THEN HARD BOTTOM
# 36	0.30m	SAND THEN HARD BOTTOM
# 37	0.30m	SAND THEN HARD BOTTOM
# 38	0.30m	SAND THEN HARD BOTTOM
# 39	0.00m	HARD BOTTOM
# 40	0.00m	HARD BOTTOM
# 41	0.20m	SAND THEN HARD BOTTOM
# 42	0.20m	SAND THEN HARD BOTTOM
# 43	0.30m	SAND THEN HARD BOTTOM
# 44	0.30m	SAND THEN HARD BOTTOM
# 45	0.40m	SAND THEN HARD BOTTOM
# 46	0.10m	SAND THEN HARD BOTTOM
# 47	0.20m	SAND THEN HARD BOTTOM
# 48	0.30m	SAND THEN HARD BOTTOM
# 49	0.20m	SAND THEN HARD BOTTOM
# 50	0.20m	SAND THEN HARD BOTTOM
# 51	0.10m	SAND THEN HARD BOTTOM
# 52	0.40m	SAND THEN HARD BOTTOM
# 53	0.40m	SAND THEN HARD BOTTOM
# 54	0.40m	SAND THEN HARD BOTTOM
# 55	0.10m	SAND THEN HARD BOTTOM
# 56	0.10m	SAND THEN HARD BOTTOM
# 57	0.20m	SAND THEN HARD BOTTOM
# 58	0.30m	SAND THEN HARD BOTTOM
# 59	0.20m	SAND THEN HARD BOTTOM
# 60	0.20m	SAND THEN HARD BOTTOM
# 61	0.30m	SAND THEN HARD BOTTOM
# 62	0.30m	SAND THEN HARD BOTTOM
# 63	0.30m	SAND THEN HARD BOTTOM
# 64	0.30m	SAND THEN HARD BOTTOM
# 65	0.30m	SAND THEN HARD BOTTOM
# 66	0.30m	SAND THEN HARD BOTTOM
# 67	0.10m	SAND THEN HARD BOTTOM
# 68	0.30m	SAND THEN HARD BOTTOM
# 69	0.30m	SAND THEN HARD BOTTOM

PROBE INFORMATION FROM JOE BATTS ARM, NL

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PROBE #	PENETRATION	TYPE OF MATERIAL
# 70	0.30m	SAND THEN HARD BOTTOM
# 71	0.30m	SAND THEN HARD BOTTOM
# 72	0.20m	SAND THEN HARD BOTTOM
# 73	0.30m	SAND THEN HARD BOTTOM
# 74	0.30m	SAND THEN HARD BOTTOM
# 75	0.40m	SAND THEN HARD BOTTOM
# 76	0.00m	HARD BOTTOM
# 77	0.00m	HARD BOTTOM
# 78	0.20m	SAND THEN HARD BOTTOM
# 79	0.30m	SAND THEN HARD BOTTOM
# 80	0.15m	SAND THEN HARD BOTTOM
# 81	0.00m	HARD BOTTOM
# 82	0.30m	SAND THEN HARD BOTTOM
# 83	0.30m	SAND THEN HARD BOTTOM
# 84	0.20m	SAND THEN HARD BOTTOM
# 85	0.30m	SAND THEN HARD BOTTOM
# 86	0.30m	SAND THEN HARD BOTTOM
# 87	0.20m	SAND THEN HARD BOTTOM
# 88	0.30m	SAND THEN HARD BOTTOM
# 89	0.40m	SAND THEN HARD BOTTOM
# 90	0.00m	HARD BOTTOM
# 91	0.00m	HARD BOTTOM
# 92	0.20m	SAND THEN HARD BOTTOM
# 93	0.30m	SAND THEN HARD BOTTOM
# 94	0.20m	SAND THEN HARD BOTTOM
# 95	0.20m	SAND THEN HARD BOTTOM
# 96	0.30m	SAND THEN HARD BOTTOM
# 97	0.40m	SAND THEN HARD BOTTOM
# 98	0.30m	SAND THEN HARD BOTTOM
# 99	0.00m	HARD BOTTOM
# 100	0.00m	HARD BOTTOM
# 101	0.10m	SAND THEN HARD BOTTOM
# 102	0.00m	HARD BOTTOM
# 103	0.30m	SAND THEN HARD BOTTOM
# 104	0.20m	SAND THEN HARD BOTTOM
# 105	0.20m	SAND THEN HARD BOTTOM
# 106	0.30m	SAND THEN HARD BOTTOM

PROBE INFORMATION FROM JOE BATTS ARM, NL

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PROBE #	PENETRATION	TYPE OF MATERIAL
# 107	0.30m	SAND THEN HARD BOTTOM
# 108	0.20m	SAND THEN HARD BOTTOM
# 109	0.30m	SAND THEN HARD BOTTOM
# 110	0.30m	SAND THEN HARD BOTTOM
# 111	0.40m	SAND THEN HARD BOTTOM
# 112	0.00m	HARD BOTTOM
# 113	0.00m	HARD BOTTOM
# 114	0.00m	HARD BOTTOM
# 115	0.00m	HARD BOTTOM
# 116	0.10m	SAND THEN HARD BOTTOM
# 117	0.20m	SAND THEN HARD BOTTOM
# 118	0.30m	SAND THEN HARD BOTTOM
# 119	0.30m	SAND THEN HARD BOTTOM
# 120	0.30m	SAND THEN HARD BOTTOM
# 121	0.30m	SAND THEN HARD BOTTOM
# 122	0.30m	SAND THEN HARD BOTTOM
# 123	0.30m	SAND THEN HARD BOTTOM
# 124	0.30m	SAND THEN HARD BOTTOM
# 125	0.40m	SAND THEN HARD BOTTOM
# 126	0.30m	SAND THEN HARD BOTTOM
# 127	0.30m	SAND THEN HARD BOTTOM
# 128	0.00m	HARD BOTTOM
# 129	0.00m	HARD BOTTOM
# 130	0.00m	HARD BOTTOM
# 131	0.20m	SAND THEN HARD BOTTOM
# 132	0.10m	SAND THEN HARD BOTTOM
# 133	0.20m	SAND THEN HARD BOTTOM
# 134	0.30m	SAND THEN HARD BOTTOM
# 135	0.30m	SAND THEN HARD BOTTOM
# 136	0.30m	SAND THEN HARD BOTTOM
# 137	0.30m	SAND THEN HARD BOTTOM
# 138	0.35m	SAND THEN HARD BOTTOM
# 139	0.40m	SAND THEN HARD BOTTOM
# 140	0.40m	SAND THEN HARD BOTTOM
# 141	0.00m	HARD BOTTOM
# 142	0.00m	HARD BOTTOM
# 143	0.10m	SAND THEN HARD BOTTOM

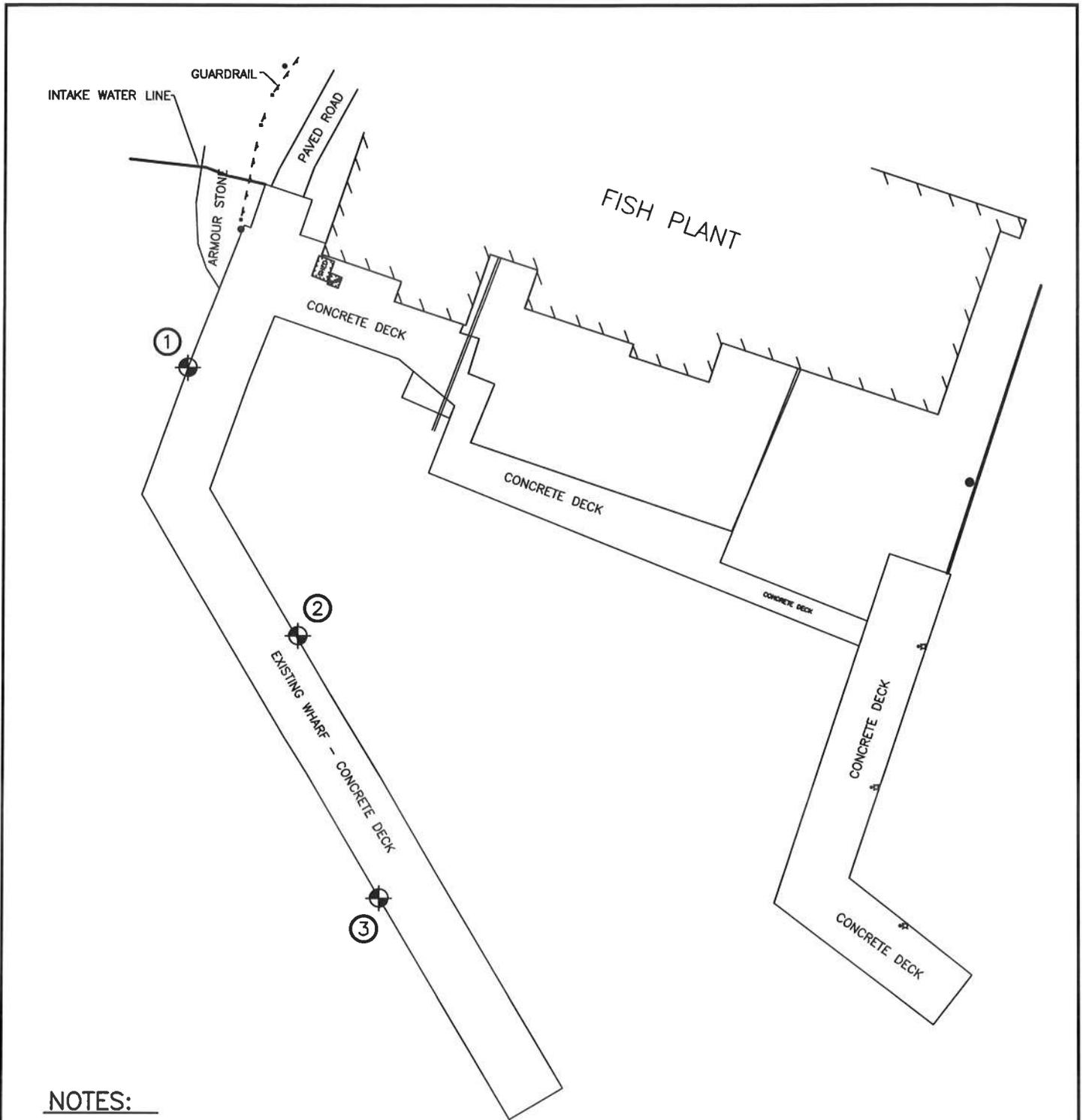
PROBE INFORMATION FROM JOE BATTS ARM, NL

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PROBE #	PENETRATION	TYPE OF MATERIAL
# 144	0.10m	SAND THEN HARD BOTTOM
# 145	0.30m	SAND THEN HARD BOTTOM
# 146	0.20m	SAND THEN HARD BOTTOM
# 147	0.20m	SAND THEN HARD BOTTOM
# 148	0.20m	SAND THEN HARD BOTTOM
# 149	0.20m	SAND THEN HARD BOTTOM
# 150	0.20m	SAND THEN HARD BOTTOM
# 151	0.30m	SAND THEN HARD BOTTOM
# 152	0.20m	SAND THEN HARD BOTTOM
# 153	0.20m	SAND THEN HARD BOTTOM
# 154	0.20m	SAND THEN HARD BOTTOM
# 155	0.20m	SAND THEN HARD BOTTOM
# 156	0.30m	SAND THEN HARD BOTTOM
# 157	0.40m	SAND THEN HARD BOTTOM
# 158	0.40m	SAND THEN HARD BOTTOM
# 159	0.20m	SAND THEN HARD BOTTOM
# 160	0.40m	SAND THEN HARD BOTTOM
# 161	0.30m	SAND THEN HARD BOTTOM
# 162	0.30m	SAND THEN HARD BOTTOM
# 163	0.40m	SAND THEN HARD BOTTOM
# 164	0.40m	SAND THEN HARD BOTTOM
# 165	0.40m	SAND THEN HARD BOTTOM
# 166	0.30m	SAND THEN HARD BOTTOM
# 167	0.40m	SAND THEN HARD BOTTOM
# 168	0.40m	SAND THEN HARD BOTTOM
# 169	0.40m	SAND THEN HARD BOTTOM
# 170	0.30m	SAND THEN HARD BOTTOM
# 171	0.30m	SAND THEN HARD BOTTOM

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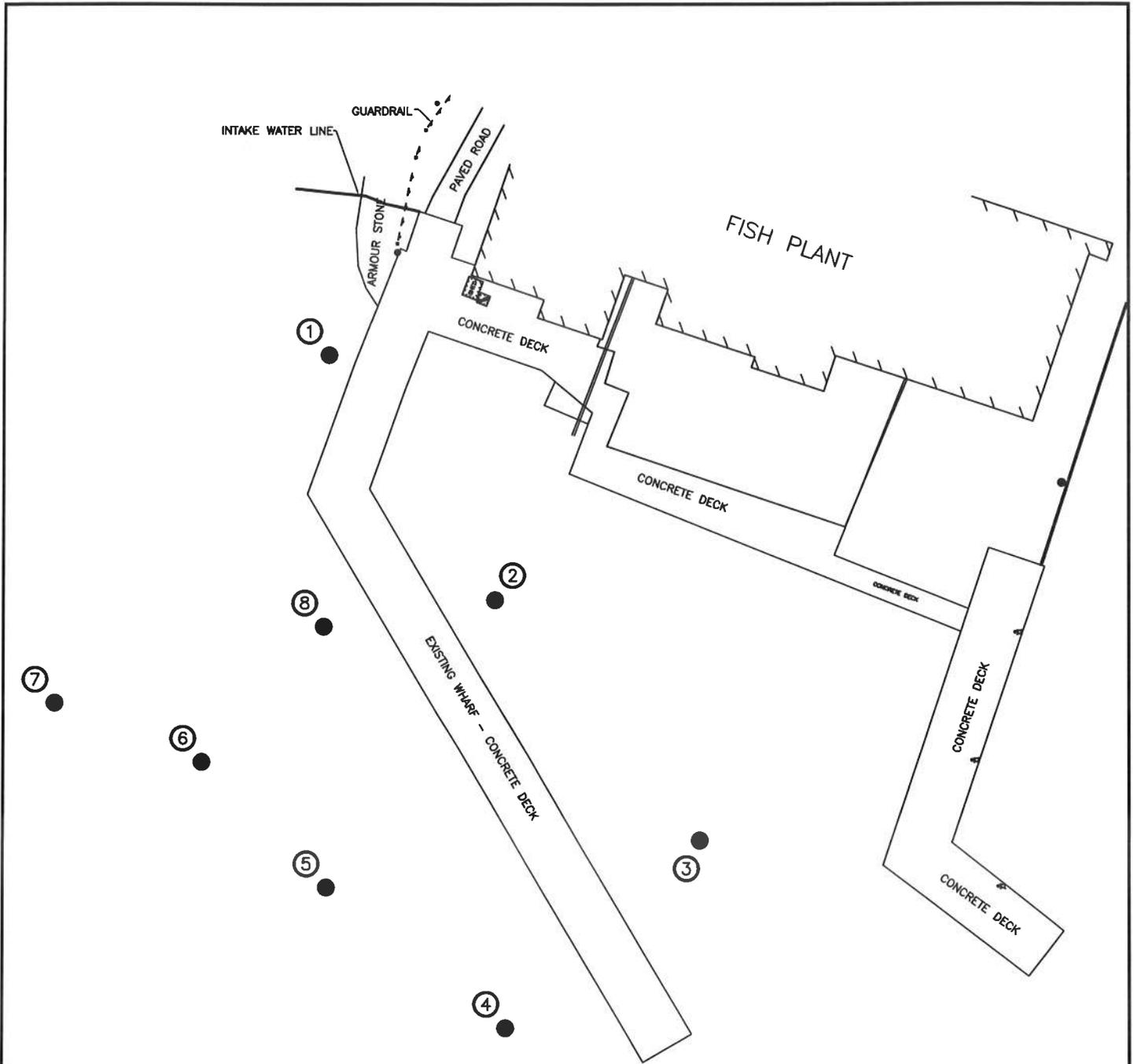


NOTES:

⊕ ① - INDICATES APPROX. LOCATION & NUMBER OF TIMBER SAMPLE.

TIMBER SAMPLE LOCATIONS AT JOE BATTS ARM, NL

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NOTES:

- ① - INDICATES APPROX. LOCATION & NUMBER OF BOTTOM SEDIMENT SAMPLE.

SEDIMENT SAMPLE LOCATIONS AT JOE BATTS ARM, NL

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