Shipping Pier Inspection – Port Welshpool

FOR

GIPPSLAND PORTS

BY

KINA DIVING PTY LTD

2,3,4,5 August 2011

KINA DIVING PTY LTD
commercial diving services

Shipping Pier Inspection – Port Welshpool
for
Gippsland Ports

Dive Supervisor: Johno Rudge

Diver 1: Richard Somerton

Diver 2: Dave Hergstrom

Diver 3: Brendan Wadsworth

All diving operations carried out as per AS/NZ 2299.1:2007
Standard for Occupational Diving.

Method Statement:

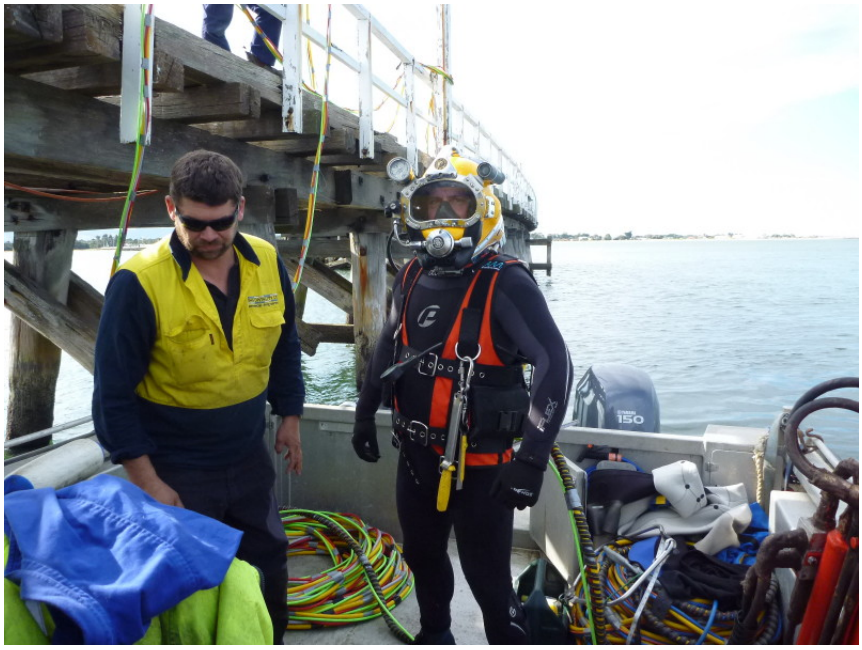
Carry out diver in-water video and visual inspection of timber piles on the Shipping Pier - Port Welshpool.

Gippsland Ports Contact:

Gary Lugton

Site Details

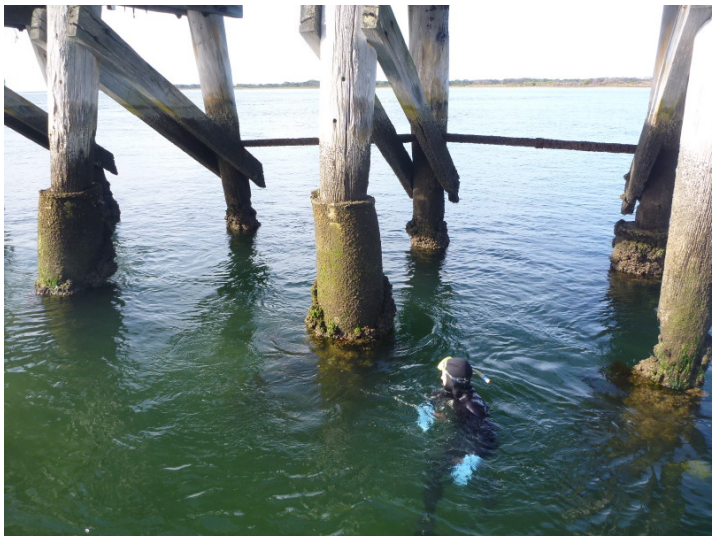
Location: Port Welshpool
Structure: Shipping Pier/Long Jetty
Depth: 10m (Max High Tide)
Visibility: 2m



Inspection Areas

Trestle Area

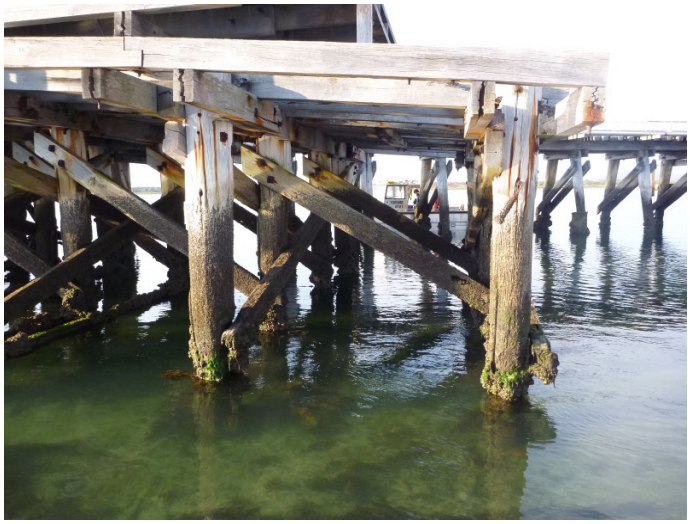
Piles Inspected: Bent 142- 251

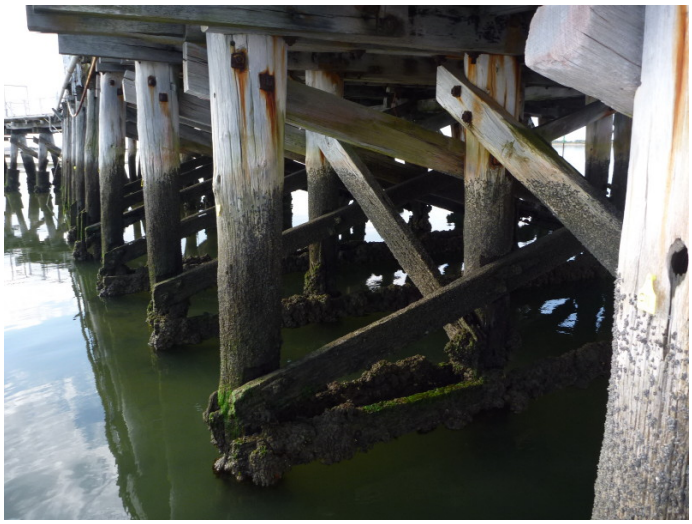


Typical concrete Repairs Trestle pile section

Low- Landing

Slipway Area



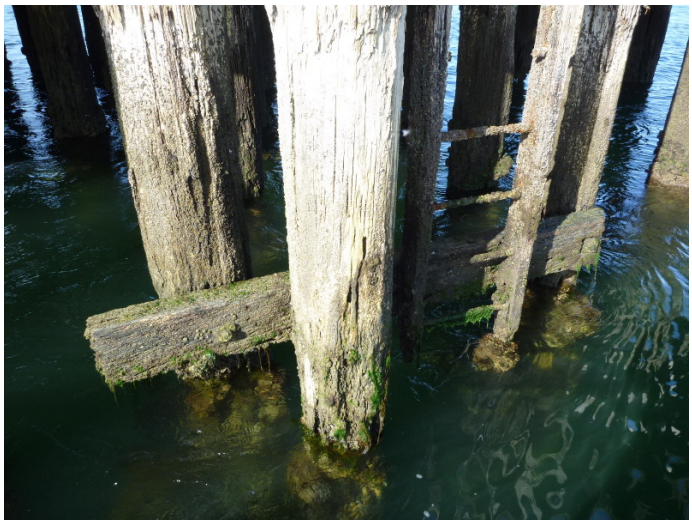


Tank Stand Area

Burnt Out Section

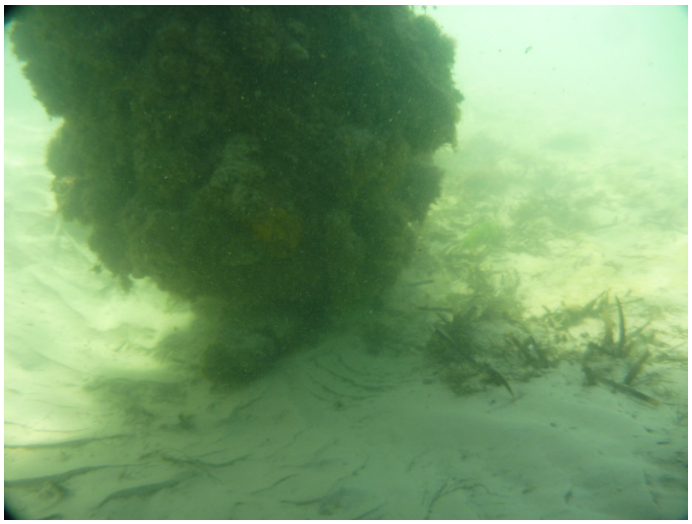
New Area

New Area cont…



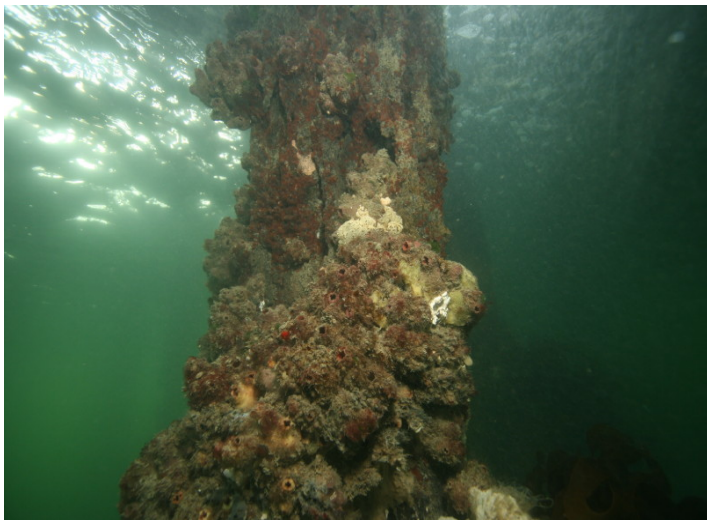
Concrete Repair Examples

Images of seabed scour at the base of concrete repair



Heavy Marine Growth Coverage

Intertidal Zone: 40% coverage



Mid Water: 90% coverage

Seabed: 100% coverage

Pile Condition Grading Examples

Rating: 2

Pile: 302 A
Rating: 2
Comments: Good condition for age, minimal wear, rot and borer activity.

Pile: 310 C
Rating: 2
Comments: Good condition for age, minimal wear, rot and borer activity.

Pile Condition Grading Examples

Rating: 3

Pile: 298 A
Rating: 3
Comments: Fair condition for age, wear, rot and borer activity in splash zone

Pile: 292 C
Rating: 3
Comments: Fair condition for age, wear, rot and borer activity in splash zone.

Pile Condition Grading Examples

Rating: 4

Pile: 228 A
Rating: 4
Comments: Poor condition, excessive wear, timber loss, rot and borer activity in splash zone.

Pile: 276 A
Rating: 4
Comments: Poor condition, excessive wear, timber loss, rot and borer activity in splash zone.

Trestle Area

	Pile A				Pile B			
Bent	Condition	Diam @ Seabed	Min Diam	Concrete Repair	Condition	Diam @ Seabed	Min Diam	Concrete Repair
142	1	325	380		2	347	337	
143	4	355	260		3	370	359	
144	2	360	345		2	322	322	
145	2			yes	2			yes
146	2			yes	4	304	98	
147	3	365	365		4			yes
148	3	427	427		3			yes
149	2	385	385		3	397	320	
150	2	309	309		2	345	345	
151	2			yes	2			yes
152	4	310	0		3	326	279	
153	2	360	340		4	295	295	
154	2	338	338		2			yes
155	2	358	358		3	309	297	
156	3	428	414		4	339	327	
157	4	339	309		2			yes
158	3	390	305		2	424	424	
159	2	N/A	N/A	yes	2	N/A	N/A	yes
160	3	325	294		2	395	376	
161	2	na		yes	2	n	n	yes
162	3	345	316		2	n	n	yes
163	2			yes	2			yes
164	3	375	366		2	350	326	
165	2			yes	2			yes
166	3	344	255		2	330	319	
167	2	357	339		2			yes
168	3	359	338		2	417	344	
169	2			yes	2			yes
170	3	325	275		2	377	384	
171	2	410	410		2			yes
172	2	420	420		2	410	410	
173	2	380	380		2			yes
174	2			yes	2	370	370	
175	3			yes	2	500	500	
176	2			yes	2			yes
177	3	380	380		2	500	500	
178	2			yes	3			yes
179	2			yes	2			yes
180	3	420	380		2			yes
181	2			yes	2	440	410	
182	2			yes	2			yes
183	2			yes	3	420	250	
184	2			yes	2			yes
185	3	410	410		2	420	420	
186	2			yes	2			yes
187	2			yes	2	380	380	
188	2			yes	2			yes
189	2			yes	3	410	410	
190	2	420	420		2			yes
191	2			yes	2			yes
192	3			yes	2			yes
193	3	440	440		3			yes
194	2			yes	2	400	400	
195	2			yes	2			yes
196	2			yes	2			yes

197	2			yes	2	420	420	
198	2			yes	2	380	380	
199	4			yes	2			yes
200	2			yes	3	400	400	
201	2			yes	3			yes
202	2			yes	2			yes
203	3	495	495		2			yes
204	2			yes	2			yes
205	2			yes	2			yes
206	2			yes	3			yes
207	3	355	355		4	280	0	
208	3	360	340		2			yes
209	3	370	360		2			yes
210	3			yes	3	360	295	
211	3			yes	3			yes
212	3	363	340		3	330	330	
213	4			yes	4			yes
214	4			yes	2			yes
215	2			yes	3	378	378	
216	3			yes	3			yes
217	3			yes	3			yes
218	2			yes	3	375	342	
219	2			yes	2			yes
220	3	364	355		3	344	344	
221	3	337	330		3	405	323	
222	3	332	260		2			yes
223	2			yes	3	365	330	
224	3			yes	3	330	327	
225	3			yes	2			yes
226	3	366	325		3			yes
227	2			yes	3	342	315	
228	4	265	90		3	334	305	
229	3	306	277		2	376	376	
230	3	368	368		3	325	323	
231	3			yes	3	318	291	
232	2			yes	2			yes
233	2			yes	3	370	347	
234	2			yes	3	342	312	
235	4	300	300		2			yes
236	3	379	288		3	334	334	
237	3	344	344		3			yes
238	3	385	317		3	354	304	
239	4	354	190		3	403	341	
240	3	420	355		3	405	384	
241	3	382	379		3	338	338	
242	3	374	333		2			yes
243	3	374	374		2	337	337	
244	2			yes	3	324	324	
245	3	378	314		3	344	326	
246	3	374	323		3	364	344	

	Pile A				**Pile B**				**Pile C**			
Bent	Condition	Diam @ Seabed	Min Diam	Concrete Repair	Condition	Diam @ Seabed	Min Diam	Concrete Repair	Condition	Diam @ Seabed	Min Diam	Concrete Repair
247	2			yes	3	364	363		3	Not attached		
248	2			yes	2			yes	2	348	348	
249	3	370	354		3	343	293		3	332	308	
250	3	381	363		3	353	328		4	265	165	
251	3	345	345		3	318	318		4	275	0	

New Area

Bent	Pile A Condition	Pile B Condition	Pile C Condition	Pile D Condition	Pile E Condition	Pile F Condition	Pile G Condition
Burnt Out Area							
252	Missing	3	3				
253	3	4	Missing	Missing	Missing		
254	3	3	Missing	3	3		
255	3	3	Cut off @ seabed	3	3		
256	3	3	3	3			
257	3	3	3	3			
258	4	3	3	3			
259	3	4	3	3	2	3	
260	4	4	2	3	3	3	
261	4	4	3	3	3	3	
262	3	3 [B(1)=3]	3 [C(1)=3]	3	2	3	
263	3	3 [B(1)=3]	4 [C(1)=2]	2	2	3	
264	4	3 [B(1)=3]	3	3 [D(1)=3]	3	3	
265	3	3	3	3	3 [E(1)=3]	3	
266	3	3	4	4 [D(1)=3]	3	3	3
267	4 [A(1)=4]	4 [B(1)=3]	4 [C(1)=3]	3	3	3	3
268	4	4	3	3	3	3	3
269	4	3	3	3	4		
270	4	3	3	3	3		
271	4	4	3	3	3		
272	2	3	3	3	3		
273	3	4	4	3	3		
274	3	4	4	3	3		
275	4	3	3	4	3		
276	4	3	3	3	3		
277	3	3	3	3	3		
278	4	4	3	3	3		
279	4	3	4	4	3		
280	3	3	4	4	3		
281	4	3	3	3	3		
282	3	4	4	3	4		
283	3	4	3	3	4		
284	3	3	4	4	3		
285	3	3	4	4	4		
286	3	4	4	3	3		
287	3	4	4	3	3		
288	3	4	4	4	Missing		
289	4	4	3	3	4		
290	3	4	3	3	3		
291	4	3	3	3	2		
292	2	4	3	3	Missing		
293	3	Missing	3	2	3		
294	Missing	3	3	3	3		
295	3	3	3	2	2		
296	3	2	3	4	3		
297	3	Missing	3	3	2		
298	3	3	2	2	3		
299	3	4	2	2	3		
300	2	2	3	3	3		
301	3	2	3	3	3		
302	2	3	2	3	3		

303	3	3	3	2	3		
304	3	Missing	2	4	3		
305	2	2	3	3	2		
306	3	4	4	3	2		
307	2	2	2	Missing	3		
308	4	3	3	3	2		
309	2	3	3	3	3		
310	4	4	2				
311	2	3	3				

Tank Stand Area

	Pile A	Pile B
Bent	Condition	Condition
T1	3	2
T2	3	3
T3	3	3
T4	2	2
T5	3	3
T6	2	3
T7	3	3
T8	2	2
T9	2	3

Slipway Boat Shed Area

	Pile A				Pile B				Pile C				Pile D			
Bent	Condition	Diam @ Seabed	Min Diam	Concrete Repair	Condition	Diam @ Seabed	Min Diam	Concrete Repair	Condition	Diam @ Seabed	Min Diam	Concrete Repair	Condition	Diam @ Seabed	Min Diam	Concrete Repair
S1	4	312	230													
S2	4	345	277		4	263	230									
S3	3	375	279		3	296	296									
S4	3	368	284		2	360	360									
S5	4	375	N/A		4	350	237		4	306	222					
S6	4	380	N/A		4	315	229		4	312	235					
S7	4	370	N/A		3	362	235		4	340	300					
S8	4	345	280		4	410	230		4	334	N/A					
S9	4	374	212		4	385	N/A		3	405	253		4	314	N/A	
S10	3	400	375		3	381	N/A		3	403	205		4	290	N/A	
S11	3	380	280		4	366	255		4	365	220		4	320	N/A	
S12	4	370	260		4	379	N/A		4	361	1		4	358	225	

Work Summary

The dive team carried out a full video inspection of all the trestle section starting from Bent 142 out to Bent 251 which is where the fire damaged section begins. Due to exceptionally low tides, bents 201-210 were inspected visually in the dry and no video footage taken due to the difficulty of operating the U/W inspection system above water.

Diver inspecting Bents 201-210 at dead low tide.

On the outer section (New Area), bents 285-281 and bents 303-305 were randomly chosen to be inspected from the low waterline to the seabed using the U/W video system in order to capture a typical sample of pile condition in this area.

All other piles on the structure, including the remainder of the new section tank stand area and the Slipway Boat Shed area were inspected visually due to the exceptionally low tides.

Overall the inspection divers reported that most of the deterioration was found in the splash zone/ intertidal zone.