

4. Inspection Results

The inspection findings summarized below have informed the projects that the team recommends the Port of Richmond pursues in order to continue and potentially expand operations. Details of the inspection findings for Berths 5-8 can be found in Section 8.2. Details of the Whirley Crane assessment can be found in Section 8.3. Details of the inspection findings for the graving basin and finger piers are Attachment 8.4.

4.1. Graving Basins

The graving basin structures are rated as fair overall. Various levels of concrete deterioration were observed at the graving basin structures through cracks, exposed reinforcing steel, and delaminations. However, the overall condition rating for the graving basin structures is fair due to the large bearing capacity of the rock foundation. The condition rating of structural components is summarized in Table 6.

Table 6 Condition Rating Summary: Graving Basins

Structure or Structural Element	Condition Rating
Columns	Fair to Poor
Slab and Soffit	Fair to Poor
Deck	Fair to Poor
Overall Structure	Fair

4.2. Finger Piers

The finger pier structures are rated as fair to poor. The inspection team observed concrete delaminations, spalling, and exposed reinforcing at the soffit and up to 50% of the exterior face at the deep longitudinal and transverse beams at the finger piers. This is likely due to the continual exposure of the beams during high tide levels. Additionally, the internal row of piles typically exhibited moderate to major damage, and two piles at the south ends of the piers exhibited severe damage likely due to impact. The finger piers were rated as fair to poor due to structural deterioration of deep beams, which are typically delaminated and spalled with exposed reinforcing. The condition rating of these structures and their components is summarized in Table 7.

Table 7 Condition Rating Summary: Finger Piers

Structure or Structural Element	Condition Rating
Piles	Fair to Poor
Beams	Poor
Soffit	Good
Deck	Fair
Overall Structure	Fair to Poor

4.3. Berths 5-6

The structure at Berths 5-6 is in poor condition. There is corrosive damage of several structural elements throughout the wharf structure, including face and crane beams, concrete struts, and steel piles. The double bitt bollards are severely corroded and have limited capacity. The inspection findings are discussed in detail in Attachment 8.2.

4.4. Berths 7-8

The overall condition rating at Berths 7 and 8 ranges from poor to serious. The beam failure at the southernmost tip of Berth 7 is due to overloading caused by severely deteriorated/broken timber pile supports. Additionally, seismic tie beam failure and pavement settlement are caused by various missing



and damaged piles and soil erosion. Damage was observed throughout the structure at concrete and timber piles, the wharf soffit, the concrete sheet pile wall, crane girders, and face beams and seismic tie beams. Damage observed includes corrosion damage with exposed reinforcing. The inspection findings are discussed in detail in Attachment 8.2.

4.5. Whirley Crane Assessment

Liftech completed a visual assessment of the Whirley Crane. The team found that the primary crane structure has extensive corrosion and coating system failure, mostly minor with some localized areas with major corrosion and other damage. Some secondary structures including ladders, railings, and gratings are hazards for access and falling due to major or severe corrosion damage; **public access on or under the crane should not be allowed**. Overall, the crane is obsolete, has negative value, and is not practical to restore for operation. The team provided recommendations for immediate, short-term, and long-term actions regarding the crane and accompanying cost estimates, detailed in Attachment 8.3.

