

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

Delete this section and add the following:

- A. Revegetation will be measured and paid by the lump sum (LPSM) including all labor, equipment, materials and incidentals required for the completion of the work.
- B. Placing conserved topsoil will not be measured for payment and is considered incidental to other work items in this Contract.

END OF SECTION 02910

SECTION 03310

STRUCTURAL CONCRETE

All applicable portions of this specification section in the MPWSS shall apply with the following additions, deletions and/or modifications.

PART 1 GENERAL

1.1 DESCRIPTION

Add the following:

- B. FWP will provide a grooving tool(s) for producing a grooved finish on the concrete surface. The tool(s) provided by FWP shall be returned cleaned. The finishing tool surfaces shall be free of hardened concrete and in good condition. A cleaning cost of \$250.00 will be retained if the tool(s) are returned not cleaned or poorly cleaned. Additional costs for repair or replacement of damaged tools may also be retained.

PART 2 PRODUCT

2.1 CLASSIFICATION

Add the following to Subsection A.1:

1. Use M-4000 concrete for all boat ramp concrete.

PART 3 EXECUTION

3.4 PLACING CONCRETE

- A. Delete the last sentence.

Add the following:

- B. Provide written and/or verbal communication notice to the Project Manager three (3) working days, excluding Saturday and Sunday, prior to any project concrete pour, regardless of pour quantity. For clarification, all written communication notices have to be received in the FWP Design and Construction Office per this requirement. Failure to provide notification will result in a deduct of pour quantity from the associated bid item. Lump sum bid items will be deducted based on the concrete placed percentage.

3.4A CONCRETE V-GROOVE FINISHING

A. Required Accuracy

1. The Contractor shall construct all specified work as shown on the project drawings within the specified tolerances, shown in Table 1. The following are reasonable tolerances that allow for a maximum specified deviation which may occur in the field during construction. Deviations beyond any values listed below may result in reduction in payment, or rejection, in part due to poor aesthetics, loss of functionality, or does not meet desired design criteria.
2. If the Contractor fails to meet specified tolerances, that portion of the work area, as specified below, may be reduced in payment or rejected, removed and replaced in accordance with General Conditions, ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK.

Table 1. V-Groove Finish Tolerances

Criteria	Tolerance
V-Groove Angle Orientation	10 degrees
V-Groove Depth	0.25”
V-Groove Connections (End to End Alignment)	0.5”

B. Concrete V-Groove Finish

1. Provide a v-groove finish on all ramp surfaces as shown in the project drawings or directed by the Project Representative. Provide adequate laborers to begin concrete v-groove finish during concrete placement. Timing of v-grooving finish is critical.
2. Factors that may influence the v-groove finish and concrete performance include air content, water content, add-mixtures and strength. Some Contractors delay starting the finish, or may have a tendency to add water to the concrete surface, in order to achieve a “perfect” ramp finish. This must be avoided, as significant amounts of water in the surface layer will result in weak strength of the v-grooves, which at best contain less quantity of large aggregate due to the nature of the finish process. Refer to the Technical Specifications for other influential factors including, but not limited to: mix design, mixing and placement time, weather, correct placement of rebar, and correct thickness of ramp.

C. V-Groove Rating Score

1. The following rating score shall be used to determine allowable tolerances for all v-groove concrete finishes. The Project Representative shall make the final determination on any deficient or unacceptable area, determine the rating score, and conduct measurements as deemed necessary for evaluation. Three

(3) v-grooving evaluation criteria will be considered in determining the rating score including: appearance; angle orientation; and depth. A criteria rating score will be assigned for each based on the V-Groove Rating System, shown in Table 2. An overall, or final, rating score is made by averaging the three criteria rating scores. Finalrating scores will be rounded to the nearest whole number.

Rating Score

- 1 Unacceptable, Contractor shall replace that portion of the ramp.
- 2 Poor, Reduction of 50% in payment for that portion of the ramp, or Contractor shall replace that portion of the ramp.
- 3 Fair, Minimum acceptance range.
- 4 Good.
- 5 Excellent, Letter of commendation to Contractor.

Table 2. V-Groove Evaluation Rating System

Evaluation Criteria	Criteria	Area	Score
V-Groove Appearance (top or bottom of groove)	Shallow, Uneven, Rough, Torn	40+ sf	-5
	Rounded, Flat, Semi-Rough	80+ sf	0
	Sharp, Crisp, Clean, Smooth		5
V-Groove Angle Orientation	0-5 or >56 degrees	40+ sf	1
	6-10 or 51-55 degrees	40+ sf	2
	11-15 or 46-50 degrees	80+ sf	3
	16-24 or 41-34 degrees	80+ sf	4
	25-35 degrees		5
V-Groove Depth	0.00” to 0.20”	40+ sf	1
	0.21” to 0.40”	40+ sf	2
	0.41” to 0.50”	80+ sf	3
	0.51” to 0.60”	80+ sf	4
	0.61” to 0.75”		5

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

Add the following:

- B. Cast-in-Place concrete boat ramp slab will be measured and paid for by the square foot (SF) in place including all labor, equipment, materials, and incidental required for the completion of the work.
- C. Cast-in-Place Concrete Sidewalk will be measured and paid for by the square foot (SF) in place including all labor, equipment, materials, and incidental required for the completion of the work.

END OF SECTION 03310

SECTION 03311

PUSH-IN-SLAB CONCRETE BOAT RAMP

Added Section.

PART 1 GENERAL

1.1 DESCRIPTION

- A. This work consists of furnishing and installing a submerged concrete push-in-slab boat ramp surface.

PART 2 PRODUCTS

2.1 GENERAL

- A. Refer to Section 03310 for structural concrete materials and ramp surface finish.
- B. Refer to Section 03210 for reinforcing steel materials.
- C. Rail System
 - 1. Furnish new material consisting of W6x20 steel beams to support push-in slab during installation.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Casting
 - 1. Push-in-slab shall be poured on approximately a matching grade to that of the final grade of the ramp. Imported embankment material may be necessary to construct the push-in slab at the matching ramp grade, as well as provide a cushion for mechanical pushing equipment.
 - 2. Push-in-slabs shall be poured on a layer of compacted aggregate (4 inch minimum thickness) and shall be allowed to cure for a minimum of 14 days prior to movement. Provide a smooth surface to reduce friction forces during push-in slab movement (i.e. plastic sheeting).
 - 3. Push-in-slabs shall be built to a size that can be handled by the Contractor's equipment, preferably one slab per site. Each slab shall be constructed to a length that can be controlled and placed in the desired position.

4. Remove all imported embankment from the ramp surface after the push-in slab is in place. Cleanliness of the ramp surface must be approved by the Project Representative, prior to final acceptance.

B. Rail System

1. Rails shall be placed at the grade specified in the plans. Space steel beams longitudinally as shown on the project drawings. Beams shall have adequate cross braces to insure beams remain parallel as slab is pushed over beams.
2. Six inches (6") of clean, screened crushed $\frac{3}{4}$ " gravel leveling course shall be placed around the railing system and screeded to top of rail system prior to push-in slab installation. See Section 02236.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

- A. Push-In-Slab Concrete Boat Ramp including excavation, preparation, rail system installation will be measured and paid for by the square foot (SF) in place including all labor, equipment, materials, and incidental required for the completion of the work.

END OF SECTION 03311