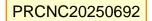
These calculations must be on site and made available by the Permittee for all inspections.



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Project: East Town Crossing Date: March 21, 2025 Page: 1

2902 E Pioneer Parcel No. 0420264053 & 0420264054
Puyallup, WA Contractor: Pleasure Pools & Spas

Job No: 2252761 Engineer: Engineering Consultants Northwest Inc.

## **Swimming Pool and Wading Pool**

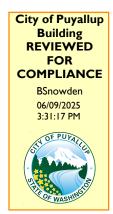
# City of Puyallup Development & Permitting Services ISSUED PERMIT Building Planning Engineering Public Works Fire Traffic

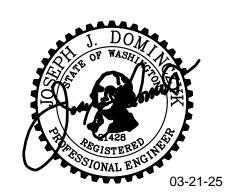
**TABLE OF CONTENTS** 

BASIS FOR DESIGN 2

POOL WALL ANALYSIS 3-5

STRUCTURAL DETAILS See Plans





ecnw

 Project:
 East Town Crossing
 Date:
 March 21, 2025
 Page:

 2902 E Pioneer
 Parcel No. 0420264053 & 0420264054

Puyallup, WA Contractor: Pleasure Pools & Spas

Job No: 2252761 Engineer: Engineering Consultants Northwest Inc.

2

### **BASIS FOR DESIGN**

BUILDING CODE: International Building Code, 2021

LOADS: Active Earth Pressure = 35 PCF (Equivalent Fluid Pressure)

CONCRETE: Minimum 28 Day Strength = 2500 psi

REINFORCING: Bars #5 and Larger; FY = 40000 psi

Bars #3 and Larger; FY = 40000 psi

### **ASSUMPTIONS**

1. Pool full case is okay by inspection.

2. Bars placed in the center of the wall.

3. Lap splices in reinforcing bars

a. Non-contact splices shall have 2 inch minimum clear between bars.

b. Contact splices must be constructed with the bars aligned so that a line through the center of the two spliced bars is perpendicular to the surface of the concrete wall.

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Project: East Town Crossing

2902 E Pioneer Puyallup, WA

Job No: 2252761

Date: March 21, 2025

Page:

3

Parcel No. 0420264053 & 0420264054 Contractor: Pleasure Pools & Spas

Engineering Consultants Northwest Inc. Engineer:

#### **CASE ONE ANALYSIS**

Analyze the pool shallow end:

Vertical Wall Height = 3.00 feet

Radius = 2.00 feet

Simplified Conservative 3.00 feet Depth Assumption: +2.00/2 feet 4.00 feet

35 pcf (4.00 ft) = 140.00 psf $\gamma h =$ 

P = 140.00 psf (4.00 ft)(1/2) = 280.0 plf

y = 1/3 (4.00 ft) = 1.33 ft

 $M_A =$ 1.33 ft (280.00 ft) = 373.2 lb-ft/ft

Determine the Ultimate Moment Mu:

Mu = 1.7 (373.2 lb-ft/ft) = 634.4 lb-ft/ft

 $A_S =$ Area of steel per foot for #4 Bars at 12 inch spacing (A Bars)

Rebar Cross-Sectional Area = 0.1963 square inches

 $A_S =$ (0.1963 sq. inches) (12/12) = 0.1963 square inches/ft

=  $\frac{(0.1963)(40000)}{0.85(2500)(12)}$  = 0.3079 inches

Determine the Allowable Moment φM<sub>N:</sub>

 $\phi M_N = \phi As F_Y (d - a/2) = 0.90 (0.1963) (40000) (3 - 0.3079 / 2) (1/12) = 1676.0 lb-ft/ft$ 

1676.0 > 634.4  $\phi M_N > M_U$ OK

Steel is acceptable for a wall height up to 5.00 feet

Steel is also acceptable for wading pools