FINAL DRAINAGE REPORT – ADDENDUM NO. 1

for

WALDEN PRESERVE 2 – FILING NO. 4

Prepared for:

Walden Holdings I, LLC
1230 Scarsbrook Court
Monument, CO 80132

November 12, 2026

Prepared by:

19 E. Willamette Ave.
Colorado Springs, CO 80903
(719)-477-9429
www.jpsengr.com

JPS Project No. 040201
SF-18-034 / ASB2529

WALDEN PRESERVE 2 – FILING NO. 4
DRAINAGE REPORT STATEMENTS

1. Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the master plan for the drainage basin. I accept responsibility for liability caused by negligent acts, errors or omissions on my part in preparing this report:



John P. Schwab, Colorado P.E. No. 29891

2. Developer's Statement:

I, the developer, have read and will comply with all the requirements specified in this drainage report and plan.

By: Matthew Dunston _____ 11/12/26

Printed Name: Matthew Dunston Date
Title: President, Walden Holdings I, LLC

3. El Paso County Statement:

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, Volumes 1 and 2, and Engineering Criteria Manual as amended.

Joshua J. Palmer, P.E. Date
County Engineer / ECM Administrator

Conditions:

JPS ENGINEERING
19 E. Willamette Avenue
Colorado Springs, CO 80903
(719)-477-9429
www.jpsengr.com

WALDEN PRESERVE 2 – FILING NO. 4 – FINAL DRAINAGE REPORT ADDENDUM NO. 1

I. GENERAL

Walden Holdings I, LLC has completed development of Walden Preserve 2 – Filing No. 4, consisting of 23 residential lots in the Walden community of northern El Paso County. During the course of construction, several field changes were implemented as depicted in the project record drawings (ASB2529).

JPS Engineering, Inc. prepared the "Final Drainage Report (FDR) for Walden Preserve 2 – Filing No. 4," revised September 30, 2019 (approved by El Paso County on 10/30/19; SF-18-034). The purpose of this Addendum to the previously approved FDR is to provide documentation regarding as-built changes to a pond forebay and two drainage channels.

II. DEVELOPED DRAINAGE CONDITIONS – AS-BUILT REVISIONS

The location of Forebay B8 was reconfigured during construction as Forebay B8 was shifted to the west edge of the drainage channel upstream of Pond B, minimizing impacts on the channel. Updated calculations for sizing of Forebay B8 are enclosed in Appendix A.

As detailed in the FDR, Rain Garden C2 provides water quality treatment for Drainage Basins C1 and C2. Drainage Channel C1 conveys the flow from Culvert C1 (crossing Pinehurst Circle) easterly to Rain Garden C2. While this channel was originally designed to be ECB-lined, the as-built conditions allowed for a broader channel section than originally envisioned, and Channel C1 has been constructed as a stable, grass-lined channel (see revised channel calculation in Appendix B).

Drainage Channel C2 conveys the flow from the outlet of Rain Garden C2 northeasterly to daylight, ultimately flowing to the West Cherry Creek tributary channel. While this channel was originally designed to be ECB-lined with a concrete crosspan crossing the downstream private trail, the as-built conditions allowed for preservation of the existing vegetation, and Channel C2 has been constructed to match into existing conditions, minimizing impacts on the existing stable, grass-lined channel (see revised channel calculation in Appendix B).

Walden Holdings I, LLC (developer) is the owner of the open space tracts encompassing Pond B and Rain Garden C4, as well as Channels C1 and C2 (Tract B, Walden Preserve 2, Filing No. 5), and Walden Holdings I, LLC accepts responsibility for inspection and maintenance of the as-built drainage facilities.

The as-built drainage facility revisions are clouded in red on the attached Developed Drainage Plan (Sh. D1.03).

III. SUMMARY

This Addendum No. 1 to the "Final Drainage Report for Walden Preserve 2 – Filing No. 4" provides documentation regarding as-built drainage channel and forebay improvements constructed with this subdivision filing. The completed as-built changes are consistent with the design intent of the previously approved Final Drainage Report, and proper ongoing inspection and maintenance of the as-built drainage facilities will ensure that this development has no significant adverse drainage impact on downstream or surrounding areas.

APPENDIX A

DRAINAGE CALCULATIONS

Design Procedure Form: Extended Detention Basin (EDB)

UD-BMP (Version 3.06, November 2016)

Designer: JPS
Company: JPS
Date: July 14, 2022
Project: WALDEN PRESERVE - FILING NO. 4
Location: POND B - FOREBAY B8

1. Basin Storage Volume

A) Effective Imperviousness of Tributary Area, I_a — I_a = 17.4 %

B) Tributary Area's Imperviousness Ratio ($i = I_a / 100$) — i = 0.174

C) Contributing Watershed Area — Area = 44.670 ac

D) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm — d_6 = ____ in

E) Design Concept (Select EURV when also designing for flood control)

Choose One
- ○ Water Quality Capture Volume (WQCV)
- ◉ Excess Urban Runoff Volume (EURV)

F) Design Volume (WQCV) Based on 40-hour Drain Time
($V_{DESIGN} = (1.0 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i) / 12 * Area$)
V_{DESIGN} = 0.390 ac-ft

G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume
($V_{WQCV\ OTHER} = (d_6 * (V_{DESIGN} / 0.43))$)
$V_{DESIGN\ OTHER}$ = ____ ac-ft

H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired)
$V_{DESIGN\ USER}$ = ____ ac-ft

I) Predominant Watershed NRCS Soil Group

Choose One
- ○ A
- ◉ B
- ○ C / D

J) Excess Urban Runoff Volume (EURV) Design Volume
For HSG A: $EURV_A = 1.68 * i^{1.28}$
For HSG B: $EURV_B = 1.36 * i^{1.08}$
For HSG C/D: $EURV_{C/D} = 1.20 * i^{1.08}$
EURV = 0.768 ac-ft

2. Basin Shape: Length to Width Ratio
(A basin length to width ratio of at least 2:1 will improve TSS reduction.)
L : W = 2.0 : 1

3. Basin Side Slopes

A) Basin Maximum Side Slopes
(Horizontal distance per unit vertical, 4:1 or flatter preferred)
Z = 0.00 ft / ft
DIFFICULT TO MAINTAIN, INCREASE WHERE POSSIBLE

4. Inlet

A) Describe means of providing energy dissipation at concentrated inflow locations:
Concrete Forebay

Design Procedure Form: Extended Detention Basin (EDB)

Designer: JPS
Company: JPS
Date: July 14, 2022
Project: WALDEN PRESERVE - FILING NO. 4
Location: POND B - FOREBAY B8

5. Forebay

A) Minimum Forebay Volume (V_{FMIN} = 3% of the WQCV) — V_{FMIN} = 0.012 ac-ft

B) Actual Forebay Volume — V_F = 0.014 ac-ft

C) Forebay Depth (D_F = 18 inch maximum) — D_F = 18.0 in

D) Forebay Discharge

i) Undetained 100-year Peak Discharge — Q_{100} = 85.10 cfs

ii) Forebay Discharge Design Flow ($Q_F = 0.02 * Q_{100}$) — Q_F = 1.70 cfs

E) Forebay Discharge Design

Choose One
- ○ Berm With Pipe
- ◉ Wall with Rect. Notch
- ○ Wall with V-Notch Weir

(flow too small for berm w/ pipe)

F) Discharge Pipe Size (minimum 8-inches) — Calculated D_P = in

G) Rectangular Notch Width — Calculated W_N = 6.9 in

6. Trickle Channel

A) Type of Trickle Channel

Choose One
- ○ Concrete
- ○ Soft Bottom

F) Slope of Trickle Channel — S = ft / ft

7. Micropool and Outlet Structure

A) Depth of Micropool (2.5-feet minimum) — D_M = ft

B) Surface Area of Micropool (10 ft^2 minimum) — A_M = sq ft

C) Outlet Type

Choose One
- ○ Orifice Plate
- ○ Other (Describe):

D) Smallest Dimension of Orifice Opening Based on Hydrograph Routing (Use UD-Detention) — $D_{orifice}$ = inches

E) Total Outlet Area — A_{ot} = square inches

WALDEN PRESERVE 2 - FILING NO. 4
CHANNEL CALCULATIONS
DEVELOPED FLOWS

Provide calcs for the additional channel/rundown per my comment on PDF page 21 of 24 of the As-Built CDs

PROPOSED CHANNELS

CHANNEL	DESIGN POINT	MAX. SLOPE (%)	BOTTOM WIDTH (B, FT)	SIDE SLOPE (Z)	CHANNEL DEPTH (FT)	FRICTION FACTOR (n)	EASEMENT WIDTH (ft)	Q100 FLOW (CFS)	Q100 DEPTH (FT)	Q100 VELOCITY (FT/S)	CHANNEL LINING
B8	B8	4.0	8	4:1	2.0	0.030	24	85.1	0.9	7.8	**ECB**
B9	B9	10.0	8	4:1	2.0	0.030	24	23.7	0.4	7.1	**ECB**
C1	C1	6.3	32	4:1	2.0	0.030		26.7	0.2	4.1	**GRASS**
C2	C2	4.0	38	4:1	2.0	0.030		46.8	0.3	4.2	**GRASS**

1) Channel flow calculations based on Manning's Equation
2) Channel depth includes 1' minimum freeboard
3) n = 0.03 for grass-lined non-irrigated channels (minimum)
4) n = 0.035 for riprap-lined channels
5) Vmax = 5.0 fps for 100-year flows w/ grass-lined channels
6) Vmax = 8.0 fps for 100-year flows w/ Erosion Control Blankets (Tensar Eronet SC150 or equal)
7) Vmax = 10.0 fps for 100-year flows w/ Erosion Control Blankets (Tensar Eronet C125 or equal)

Hydraulic Analysis Report

Project Data

Project Title: Project - Walden WP2 - Flg. 4 - As-Built Channels

Designer: JPS

Project Date: Tuesday, November 10, 2026

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel Analysis - C1

Notes:

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 4.0000 ft/ft

Side Slope 2 (Z2): 4.0000 ft/ft

Channel Width: 32.0000 ft

Longitudinal Slope: 0.0630 ft/ft

Manning's n: 0.0300

Flow: 26.7000 cfs

Result Parameters

Depth: 0.1970 ft

Area of Flow: 6.4600 ft^2

Wetted Perimeter: 33.6247 ft

Hydraulic Radius: 0.1921 ft

Average Velocity: 4.1331 ft/s

Top Width: 33.5762 ft

Froude Number: 1.6605

Critical Depth: 0.2753 ft

Critical Velocity: 2.9298 ft/s

Critical Slope: 0.0205 ft/ft

Critical Top Width: 34.20 ft

Calculated Max Shear Stress: 0.7745 lb/ft^2

Calculated Avg Shear Stress: 0.7553 lb/ft^2

Channel Analysis: Channel Analysis - C2

Notes:

Input Parameters

Channel Type: Trapezoidal

Side Slope 1 (Z1): 4.0000 ft/ft

Side Slope 2 (Z2): 4.0000 ft/ft

Channel Width: 38.0000 ft

Longitudinal Slope: 0.0400 ft/ft

Manning's n: 0.0300

Flow: 46.8000 cfs

Result Parameters

Depth: 0.2849 ft

Area of Flow: 11.1501 ft^2

Wetted Perimeter: 40.3492 ft

Hydraulic Radius: 0.2763 ft

Average Velocity: 4.1973 ft/s

Top Width: 40.2790 ft

Froude Number: 1.4059

Critical Depth: 0.3565 ft

Critical Velocity: 3.3297 ft/s

Critical Slope: 0.0188 ft/ft

Critical Top Width: 40.85 ft

Calculated Max Shear Stress: 0.7111 lb/ft^2

Calculated Avg Shear Stress: 0.6897 lb/ft^2