

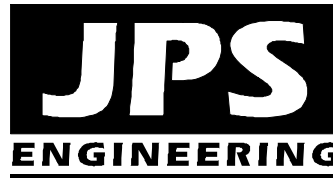
DRAINAGE LETTER REPORT
for
SETTLERS RANCH FILING NO. 2C

Prepared for:

Hodgen Settlers Ranch LLC
PO Box 1488
Monument, CO 80132

March 22, 2019

Prepared by:



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

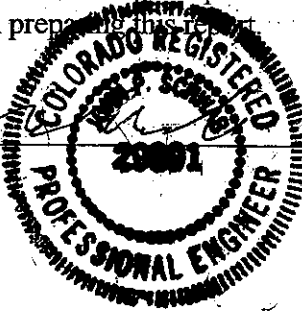
JPS Project No. 111603
PCD File No.: SF-18-018

DRAINAGE STATEMENT

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 of the drainage basin. I accept responsibility for liability caused by negligent acts, errors or omissions on my part in preparing the report.

John P. Schwab, P.E. #29891




5/20/19

Developer's Statement:

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

By:

 MH

Printed Name: Mark Davis, Manager
Hodgen Settlers Ranch, LLC
P.O. Box 1488, Monument, CO 80132

3/25/19
Date

El Paso County's 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.

Jennifer Irvine, P.E.
County Engineer / ECM Administrator

Approved

By: Elizabeth NijKamp

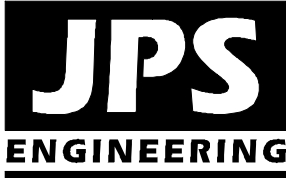
Date: 06/18/2019

El Paso County Planning & Community Development



Date

Conditions:



19 E. Willamette Avenue
Colorado Springs, CO 80903
(719)-477-9429
(719)-471-0766 fax

**SETTLERS RANCH FILING NO. 2 – FILING NO. 2C
DRAINAGE LETTER REPORT
PCD File No. SF-18-018**

A. Background

This Drainage Letter Report has been prepared in support of the final plat submittal for Phase 2C of Settlers Ranch Filing No. 2. The proposed Phase 2C consists of 11 single-family residential lots on a 33.6-acre parcel along Settlers Ranch Road, with minimum lot sizes of 2.5 acres.

El Paso County previously approved the “Final Drainage Report for Settlers Ranch Subdivision Filing No. 2” prepared by JPS Engineering, dated May 30, 2008. As shown in the attached “Figure D1: Developed Drainage Plan,” the majority of the area within Phase 2C of Filing No. 2 lies within Sub-Basins D8a-D8d and D9a-D9c. This area generally sheet flows northwesterly to existing grass-lined drainage swales at Design Points #D8 and #D9. As discussed in the approved subdivision drainage report, the existing stock pond near the north boundary of the Settlers Ranch property will be upgraded to serve as “Detention Pond #4,” mitigating the impact of developed flows from this part of the site (including Design Points #3, D8, and D9). Detention Pond No. 4 is an Extended Detention Basin (EDB) located within Tract A of Settlers Ranch Filing No. 2A, and this pond provides both stormwater detention and water quality. The proposed detention pond improvements were included as part of the previous Filing No. 2B.

B. Drainage Planning Four-Step Process

El Paso County Drainage Criteria require drainage planning to include a Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainageways, and implementing long-term source controls.

As stated in DCM Volume 2, the Four Step Process is applicable to all new and re-development projects with construction activities that disturb 1 acre or greater or that disturb less than 1 acre but are part of a larger common plan of development.

The Four Step Process has been implemented as follows in the planning of this project:

Step 1: Employ Runoff Reduction Practices

- Minimize Impacts: The proposed rural residential subdivision development with 2.5-acre minimum lot sizes provides for inherently minimal drainage impacts based on the limited impervious areas associated with rural residential development.
- Minimize Directly Connected Impervious Areas (MDCIA): The rural residential development will have roadside ditches along all roads, providing for impervious areas to drain across pervious areas. Based on the roadside ditches throughout the subdivision, the subdivision is classified as MDCIA Level One.
- Grass Swales: The proposed roadside ditches will drain to existing and proposed grass-lined drainage swales following historic drainage patterns through the property.

Step 2: Stabilize Drainageways

- Proper erosion control measures will be implemented along the roadside ditches and grass-lined drainage channels to provide stabilized drainageways within the site.

Step 3: Provide Water Quality Capture Volume (WQCV)

- EDB: An existing Extended Detention Basin (EDB) mitigates developed drainage impacts from this filing. Detention Pond #4 was previously upgraded with Filing No. 2B.

Step 4: Consider Need for Industrial and Commercial BMPs

- No industrial or commercial land uses are proposed within this rural residential subdivision.

C. Summary

In summary, the proposed development of Settlers Ranch Filing No. 2C conforms to the previously approved drainage plan for this subdivision as detailed in the “Final Drainage Report for Settlers Ranch Filing No. 2.” This phase of development will include culverts and drainage improvements as detailed in the approved subdivision drainage report.

As noted in the previously approved report, this part of the Settlers Ranch site lies within the West Cherry Creek Drainage Basin, and no drainage basin fees or bridge fees are applicable in this basin.

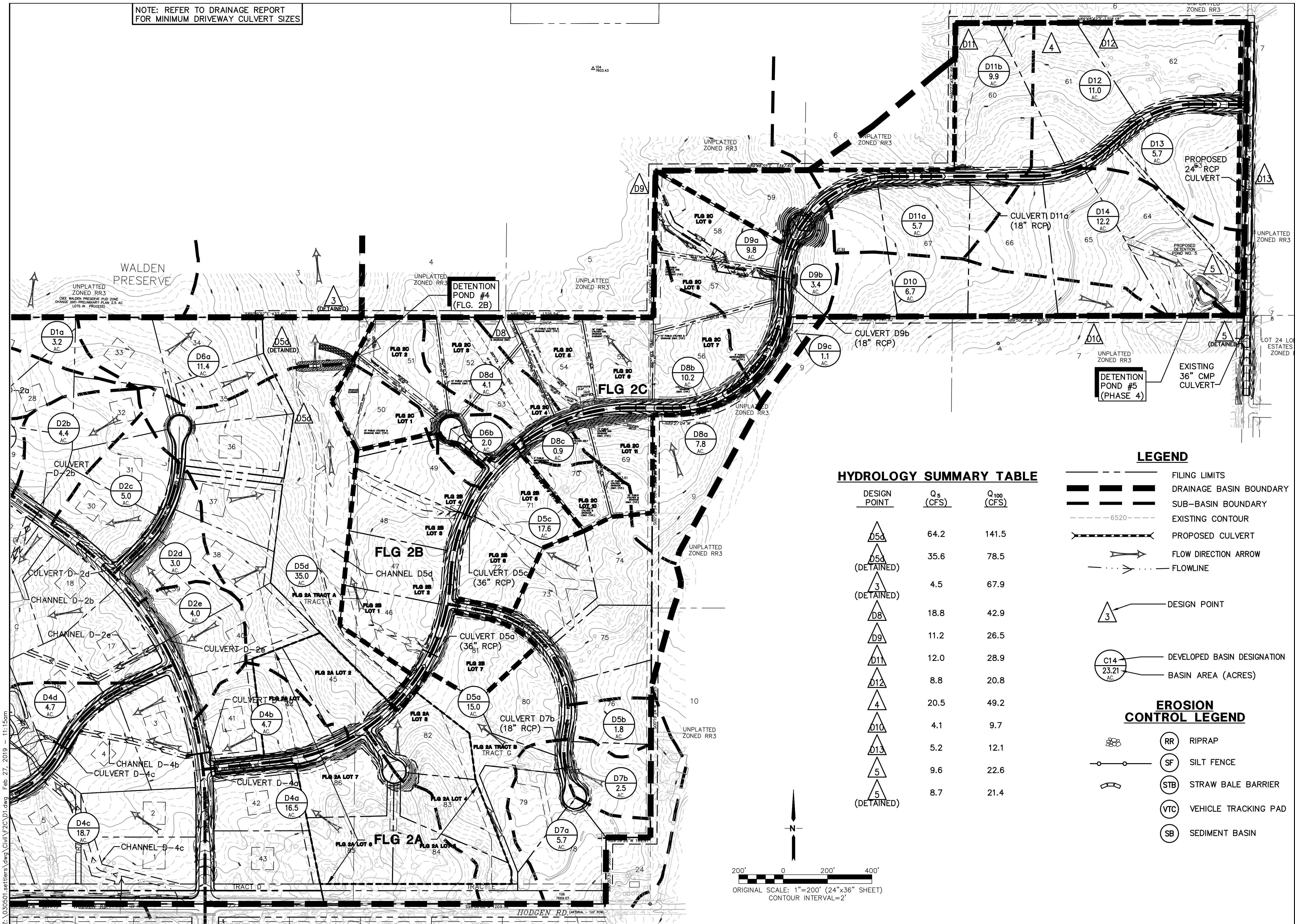
SETTLERS RANCH - FILING NO. 2C
DRIVEWAY CULVERT SUMMARY

LOT	DRAINAGE BASIN	Q5 FLOW (CFS)	CULVERT FLOW % OF BASIN	CULVERT FLOW (CFS)	CULVERT SIZE (IN)	NOTES
1	D6b	2.3	50	1.2	18"	
2	D6b	2.3	50	1.2	18"	
3	D6b	2.3	50	1.2	18"	
4	D6b	2.3	50	1.2	18"	
5	D8b	16.4	15	2.5	18"	ASSUMES CULVERT ON EAST SIDE OF DRG. EASEMENT
6	D8b	16.4	15	2.5	18"	
7	D8b	16.4	15	2.5	18"	
8	D9a	15.8	15	2.4	18"	
9	D9a	15.8	15	2.4	18"	
10	D8c	1.0	100	1.0	18"	
11	D8a	8.7	100	8.7	18"	

ASSUMPTIONS:

- 1) Driveway Culverts sized based on Max HW/D = 1.5 for Q5 Flows
- 2) Culvert Capacity based on Inlet Control Nomographs (DCM Fig. 9-32)
- 3) Driveway Culverts assumed to be RCP or HDPE/CPP
- 4) Driveway Culvert locations shall be field verified; driveway culvert may be deleted in locations where no roadside ditch exists, subject to County approval

NOTE: REFER TO DRAINAGE REPORT
FOR MINIMUM DRIVEWAY CULVERT SIZES



HYDROLOGY SUMMARY TABLE

DESIGN POINT	Q ₅ (CFS)	Q ₁₀₀ (CFS)
D5a	64.2	141.5
D5a (DETAINED)	35.6	78.5
3 (DETAINED)	4.5	67.9
D8	18.8	42.9
D9	11.2	26.5
D11	12.0	28.9
D12	8.8	20.8
4	20.5	49.2
D10	4.1	9.7
D13	5.2	12.1
5	9.6	22.6
5 (DETAINED)	8.7	21.4

LEGEND

- FILING LIMITS
- DRAINAGE BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- EXISTING CONTOUR
- PROPOSED CULVERT
- FLOW DIRECTION ARROW
- FLOWLINE

- DESIGN POINT
- DEVELOPED BASIN DESIGNATION
- BASIN AREA (ACRES)

EROSION
CONTROL LEGEND

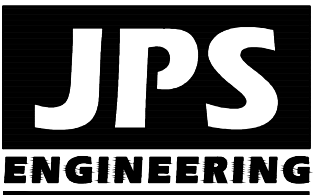
- RR RIPRAP
- SF SILT FENCE
- STB STRAW BALE BARRIER
- VTC VEHICLE TRACKING PAD
- SB SEDIMENT BASIN

SETTLERS RANCH - FILING NO. 2

DEVELOPED DRAINAGE PLAN

HORZ. SCALE: 1"=200'
VERT. SCALE: N/A
SURVEYED: RAMPART
CREATED: 5/2/06
PROJECT NO: 030501
SHEET: D1

DRAWN: RMD
DESIGNED: JPS
CHECKED: JPS
LAST MODIFIED: 2/27/19
MODIFIED BY: BJJ



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