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FINAL DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 4

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PCD Project No. SF26xx
SF2615

CLASSIC CONSULTING

FINAL DRAINAGE REPORT FOR STERLING RANCH EAST FILING NO. 4

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

Marc A. Whorton Colorado P.E. #37155 Date

OWNER'S/DEVELOPER'S STATEMENT:

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

Business Name: CLASSIC SRJ LAND, LLC

By:

Title:

Address: 2138 Flying Horse Club Drive

Colorado Springs, CO 80921

EL PASO COUNTY:

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

Joshua J. Palmer, P.E. Date

County Engineer, / ECM Administrator

Conditions:

FINAL DRAINAGE REPORT FOR
STERLING RANCH EAST FILING NO. 4

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PURPOSE

The purpose of this Final Drainage Report is to address on-site and off-site drainage patterns and identify specific drainage improvements and facilities required to minimize impacts to the adjacent properties.

GENERAL DESCRIPTION

The Sterling ranch East Filing No. 4 Final Plat is 65.32-acre site located in portions sections 27, 28, 33 and 34, township 12 south, range 65 west of the sixth principal meridian. 238 urban residential lots are planned. The Sterling Ranch East Phase 1 Preliminary Plan (SP224), approved May 2023, included this area as Filing No. 4. The intent is to develop both the adjacent Filing 8 to the south and Filing No. 6 to the east before Filing 4, which will provide the needed public access from Sterling Ranch Road.

The site is bounded on the north by Retreat at TimberRidge Filing No. 2 residential development, to the south by proposed Sterling Ranch East Filing No. 8 residential development, to the west by existing Sand Creek as platted with Homestead North at Sterling Ranch Filing No. 2 and to the east by proposed public ROW (Sterling Ranch Road) anticipated to be platted with Filing No. 6. The site is in the upper portion of the Sand Creek East Fork Drainage Basin. Urban single family residential is proposed in this Filing that is consistent with the latest approved Sterling Ranch Sketch Plan Amendment and the Sterling Ranch East Phase 1 Preliminary Plan. The majority of this property will drain to and be treated by Pond FSD-16. This facility is described in the most recent drainage report for this area (“Final Drainage Report for Sterling Ranch East Filing No. 2 & Sterling Ranch East Filing No. 8”, dated Sept. 2025 – SF2526) and handles nearly this entire development along with multiple other surrounding filings along with 100+ acres of future Sterling Ranch residential development to the north.

The average soil condition reflects a mix of both Hydrologic Group “B” (Pring Coarse Sandy Loam) and Hydrologic Group “A” (Columbine gravelly sandy loam) as determined by the “Web Soil

Survey of El Paso County Area," prepared by the Natural Resources Conservation Service (see map in Appendix). A mix a both Type A and Type B soils are utilized for developed site conditions.

EXISTING DRAINAGE CONDITIONS

The Sterling Ranch East Filing No. 4 property is located in the upper portion of the Sand Creek East Fork Drainage Basin. Only existing gravel access roads traversing the site are the areas of the property that are currently disturbed. The rest of the site is covered with native grasses with no trees or other vegetation.

This site has been previously studied in the "MDDP Amendment for Sterling Ranch", prepared by JR Engineering, LLC, dated September 2022 and "Sterling Ranch MDDP Amendment No. 2 & Preliminary Drainage Report for Sterling Ranch East Preliminary Plan 1", prepared by Classic Consulting, dated January 2023. The latter report analyzed the pre-development conditions for the flows off-site to the south. The entire site currently drains as sheet flow in a southerly direction within the previously studied pre-development basins EX-5, EX-7 and EX-9. These are referenced in the Appendix. However, the most recent reports covering this property are "Final Drainage Report for Sterling Ranch East Filing No. 2 & Sterling Ranch East Filing No. 8" – SF2526 and "Preliminary Drainage Report for Sterling Ranch East Filing No. 6 Preliminary Plan and Final Drainage Report for Early Grading" – SP244.

The following descriptions represent the pre-development basins for the property:

Design Point EX1 (Basin EX-5 Q_5 = 4 cfs, Q_{100} = 30 cfs) consists of approximately 17.2 acres of property along the west edge of the proposed site that sheet flows in a westerly direction towards Sand Creek. This basin is consistent with the upper portion of the original MDDP Basin EX-5.

Design Point EX2 (Basin EX-7 Q_5 = 2 cfs, Q_{100} = 13 cfs) consists of approximately 8.9 acres of property that sheet flows in a southerly direction through the southwest portion of the proposed site. This basin represents the very top end of the original EX-7 Basin described in the MDDP.

The flows seem to remain as sheet flows as they travel off-site towards the currently constructed Briargate Pkwy.

Design Point EX3 (Basin EX-9 Q_5 = 7 cfs, Q_{100} = 46 cfs) consists of approximately 38.9 acres of property that sheet flows in a southerly direction through the central portion of the proposed site. Again, this basin represents the very top end of the original EX-9 Basin described in the MDDP. The flows seem to remain as sheet flows as they travel through the site and then off-site towards the currently constructed Briargate Pkwy.

Design Point EX4 (Basin EX10A Q_5 = 0.3 cfs, Q_{100} = 3 cfs) consists of approximately 1.7 acres of property that sheet flows in a southerly direction through the very southeast edge of the proposed site. This basin represents just a small area of the original EX10A Basin described in the MDDP. The flows seem to remain as sheet flows as they travel off-site towards the existing Pond FSD-16 that currently remains under construction. This facility will remain a TSB until the development of either Sterling Ranch East Filing No. 2, Sterling Ranch East Filing No. 8, Sterling Ranch East Filing No. 6 or the proposed Sterling Ranch East Filing No. 4, whichever comes first. At that time the proposed pond structures (concrete forebays, trickle channels, outlet structure and emergency overflow spillway) will be installed based on the pond design plans approved originally with Sterling Ranch East Filing 8 and now modified with the proposed Sterling Ranch East Filing No. 6 Final Plat. (See Detention/SWQ Facilities section of this report below)

PROPOSED DRAINAGE CONDITIONS

As described in the General Description of the report, this proposed Final Plat contains 65.32 acres of urban residential lots including multiple tracts for open space/parks. This report remains consistent with the approved Preliminary Drainage Report for Sterling Ranch East Filing No. 6 and Final Drainage Report for Sterling Ranch East Filing No. 8.

This section is I.6.1.B now with updated appendix I

Per the El Paso County ECM, Section I.7.1.B, all urban lots are required to provide Water Quality Capture Volume (WQCV). Thus, the proposed FSD-16 facility within this development will provide WQCV along with an Excess Urban Runoff Volume (EURV) in the lower portion of the facility storage volume with an outlet control device. Frequent and infrequent inflows are released at rates approximating undeveloped conditions. This concept provides some mitigation of increased runoff volume by releasing a portion of the increased runoff at a low rate over an extended period of time, up to 72 hours. This means that frequent storms, smaller than the 2-year event, will be reduced to very low flows near or below the sediment carrying threshold value for downstream drainage ways. Also, by incorporating an outlet structure that limits the 100-year runoff to the undeveloped condition rate, the discharge hydrograph for storms between the 2 year and the 100-year event will approximate the hydrograph for the undeveloped conditions and will help effectively mitigate the effects of development. WQCV will be provided for all proposed roads and urban lots, except for the rear yards of lots 34-38 and 62-77. The rear yards of these lots will utilize runoff reduction prior to directly entering Sand Creek. (See Appendix for SWQ map)

The following developed basin descriptions will start at the north end of the project and move south and describe how this development proposes to handle both the off-site and on-site drainage conditions and consistency with the previous designs described under Sterling Ranch East Filing No. 8 (SF2526) and Sterling Ranch East Filing No. 6 (SF2610).

Pond FSD-16 Phasing:

Pond FSD-16 will be phased from an outlet plate standpoint and will be reflected in the final construction drawings. The **"Interim" condition** accounts for the full-buildout of Sterling Ranch East Filings 4, 6 and 8 with the future Sterling Ranch residential area to the north remaining undeveloped. Basin P-INT represents this undeveloped area currently tributary to Pond FSD-16 with a total acreage of 34.1 ac. that includes Basins OS-4 and OS-5. The **"Ultimate" condition** then accounts for the full-buildout of all filings, including the anticipated future development represented by Basin P1-F1 (60.6 ac.).

Clarify what projects the interim and ultimate condition will be approved under, and clarify what the difference is between in interim and ultimate condition. Is it just an orifice plate change or are grading or inflow point changes anticipated?

Design Points 1-20 reflect the Ultimate Condition:

Design Point 1 (Q_5 = 7 cfs, Q_{100} = 18 cfs) represents developed flows from Basins OS-1 (1.3 ac.), A (1.8 ac.) and B (3.1 ac.) that are tributary to the proposed low point. A 10’ Type R sump inlet will completely collect both the 5-yr and 100-yr developed flows. The collected flows will be routed downstream via a public 24” RCP within the ROW.

Design Point 2 (Q_5 = 3 cfs, Q_{100} = 8 cfs) represents developed flows from Basins OS-2 (0.14 ac.) and C (2.7 ac.) that are tributary to the proposed low point. A 5’ Type R sump inlet will completely collect both the 5-yr and 100-yr developed flows. The collected flows will be routed downstream via a public 18” RCP within the ROW. **Pipe Run 3 (Q_5 = 10 cfs, Q_{100} = 25 cfs)** represents the total flow in the public storm system at this point.

Design Point 3 (Q_5 = 3 cfs, Q_{100} = 7 cfs) represents developed flows from Basin D (2.2 ac.) that are tributary to the proposed sump condition at Design Point 3. At this location, a 10’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. An 18” private RCP within a drainage easement will convey these developed flows further downstream. **Pipe Run 5 (Q_5 = 12 cfs, Q_{100} = 31 cfs)** represents the total flow in the 30” RCP public storm system after these developed flows combine with collected flows from Design Points 1 and 2.

Design Point 4 (Q_5 = 4 cfs, Q_{100} = 11 cfs) represents developed flows from Basins OS-3 (0.13 ac.) and E (3.1 ac.) that are tributary to the proposed at-grade condition at Design Point 4. At this location, a 10’ Type R at-grade inlet will be installed to collect Q_5 = 3.9 cfs, Q_{100} = 7.4 cfs with flow-by of Q_5 = 0.1 cfs, Q_{100} = 3.6 cfs. This flow-by will then travel further downstream towards Design Point 12. The collected flows will be routed downstream via a public 18” RCP within the ROW. **Pipe Run 7 (Q_5 = 15 cfs, Q_{100} = 38 cfs)** represents the total flow in the 30” RCP public storm system at this point.

Design Point 5 (Q_5 = 1 cfs, Q_{100} = 3 cfs) represents developed flows from Basin F (1.0 ac.) that are tributary to the proposed 6' County std. crosspan at Design Point 5. At this location, developed flows will cross the street and travel towards Design Point 6.

Design Point 6 (Q_5 = 9 cfs, Q_{100} = 27 cfs) represents developed flows from Basin G (9.5 ac.) and the upstream Design Point 5 that are tributary to the proposed sump condition at Design Point 6. At this location, a 15' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 30" RCP within the ROW will convey these developed flows further downstream.

Design Point 7 (Q_5 = 0.6 cfs, Q_{100} = 1.2 cfs) represents developed flows from Basin H (0.24 ac.) that are tributary to the proposed sump condition at Design Point 7. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 10 (Q_5 = 24 cfs, Q_{100} = 64 cfs)** represents the total flow in the 36" RCP public storm system once combined with the upstream flows from PR-7.

Design Point 8 (Q_5 = 4 cfs, Q_{100} = 9 cfs) represents developed flows from Basin I (2.8 ac.) that are tributary to the proposed 6' County std. crosspan at Design Point 8. At this location, developed flows will cross the street and travel towards Design Point 9.

Design Point 9 (Q_5 = 6 cfs, Q_{100} = 14 cfs) represents developed flows from Basin J (1.6 ac.) and the upstream Design Point 8 that are tributary to the proposed sump condition at Design Point 9. At this location, a 10' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24" RCP within the ROW will convey these developed flows further downstream.

Design Point 10 (Q_5 = 0.3 cfs, Q_{100} = 0.7 cfs) represents developed flows from Basin K (0.11 ac.) that are tributary to the proposed sump condition at Design Point 10. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows.

A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 13 (Q_5 = 33 cfs, Q_{100} = 84 cfs)** represents the total flow in the 42” RCP public storm system just downstream of this sump condition.

Design Point 11 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin L (1.7 ac.) that are tributary to the proposed sump condition at Design Point 11. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream.

Design Point 12 (Q_5 = 2 cfs, Q_{100} = 8 cfs) represents developed flows from Basin M (1.8 ac.) and the flow-by from Design Point 4 that are tributary to the proposed sump condition at Design Point 12. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 16 (Q_5 = 4 cfs, Q_{100} = 13 cfs)** represents the total flow in the 30” RCP public storm system just downstream of this sump condition.

Design Point 13 (Q_5 = 5 cfs, Q_{100} = 13 cfs) represents developed flows from Basin N (4.2 ac.) that are tributary to the proposed sump condition at Design Point 13. At this location, a 10’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24” RCP within the ROW will convey these developed flows further downstream.

Design Point 14 (Q_5 = 4 cfs, Q_{100} = 9 cfs) represents developed flows from Basin O (2.9 ac.) that are tributary to the proposed sump condition at Design Point 14. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 19 (Q_5 = 9 cfs, Q_{100} = 21 cfs)** represents the total flow in the public storm system just downstream of this sump condition. Once combined with the upstream developed flows from PR-16, **Pipe Run 20 (Q_5 = 12 cfs, Q_{100} = 33 cfs)** represents the total flow in the 36” RCP public storm system within the public ROW.

Design Point 15 (Q_5 = 0.9 cfs, Q_{100} = 1.9 cfs) represents developed flows from Basin P (0.33 ac.) that are tributary to the proposed sump condition at Design Point 15. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream.

Design Point 16 (Q_5 = 1.4 cfs, Q_{100} = 2.9 cfs) represents developed flows from Basin Q (0.65 ac.) that are tributary to the proposed sump condition at Design Point 16. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 23 (Q_5 = 14 cfs, Q_{100} = 36 cfs)** represents the total flow in the 36" RCP public storm system just downstream of this sump condition.

Design Point 17 (Q_5 = 4 cfs, Q_{100} = 10 cfs) represents developed flows from Basin R (3.5 ac.) that are tributary to the proposed sump condition at Design Point 17. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. The collected flows will be routed downstream via a public 24" RCP within the ROW.

Design Point 18 (Q_5 = 1 cfs, Q_{100} = 2 cfs) represents developed flows from Basin S (0.44 ac.) that are tributary to the proposed sump condition at Design Point 18. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 26 (Q_5 = 18 cfs, Q_{100} = 47 cfs)** represents the total flow in the 36" RCP public storm system just downstream of this sump condition.

Design Point 19 (Q_5 = 4 cfs, Q_{100} = 10 cfs) represents developed flows from Basin T (3.3 ac.) that are tributary to the proposed sump condition at Design Point 19. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24" RCP within the ROW will convey these developed flows further downstream.

Design Point 20 (Q_5 = 3 cfs, Q_{100} = 7 cfs) represents developed flows from Basin U (2.5 ac.) that are tributary to the proposed sump condition at Design Point 20. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24” RCP within the ROW will convey the total developed flows further downstream. Once combined with the upstream developed flows from PR-26, **Pipe Run 29 (Q_5 = 27 cfs, Q_{100} = 71 cfs)** represents the total flow in the 42” RCP public storm system just downstream of this sump condition.

The following Design Point is proposed to collect anticipated future residential development to the north and west of Sterling Ranch Road that are tributary to Pond FSD-16. The P1-F1, OS-4, V, OS-5 and W basins are anticipated areas for future development within Sterling Ranch to the north as planned and consistent with the approved “Sterling Ranch East Phase 1 Preliminary Plan - Filings 1-4” (SP224).

Ultimate & Interim Condition:

Design Point 21 (Q_5 = 5 cfs, Q_{100} = 16 cfs) represents the anticipated ultimate condition from Basin V (0.93 ac.) and future development flows from the undeveloped property to the north within Basin OS-4 (4.9 ac.) that are tributary to a future sump condition. Type R sump inlets will be sized in a future Final Drainage Report for the ultimate condition. However, in the interim condition, a temporary sediment basin will be installed just north of Sterling Ranch Road (Design Point 23) to collect off-site undeveloped flows from basin P-INT (34.1 ac.) prior to them entering Sterling Ranch Road. The outfall for this basin will be downstream towards the proposed sump condition in Sterling Ranch Road. Two public 42” RCP stubs will be provided at the north end of the Sterling Ranch Road extension to handle the anticipated future development within the off-site basin P1-F1 (60.6 ac.) to the north. **Pipe Run 30 (Q_5 = 30 cfs, Q_{100} = 72 cfs)** represents an anticipated 50% of this off-site basin with **Pipe Run 31 (Q_5 = 33 cfs, Q_{100} = 84 cfs)** representing the other half of the basin along with basins W (0.94 ac.) and OS-5 (3.4 ac.) in the ultimate condition.

Ultimate Condition:

Design Point 22 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin F6-EE (1.3 ac.) that are tributary to the proposed sump condition at Design Point 22. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream.

Ultimate Condition:

Design Point 23 (Q_5 = 5 cfs, Q_{100} = 13 cfs) represents developed flows from Basins OS-5 (3.4 ac.) and W (0.94 ac.) that are tributary to the proposed sump condition at Design Point 23. At this location, a 10' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 30" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 35 (Q_5 = 67 cfs, Q_{100} = 167 cfs)** represents the total flow in the 48" RCP public storm system just downstream of this sump condition.

Design Points 24-31 represent the Ultimate Condition as planned for Sterling Ranch East No. 6 (Reference Final Drainage Report prepared under SF2610):

Design Point 24 (Q_5 = 3 cfs, Q_{100} = 7 cfs) represents the developed flows from the planned Sterling Ranch East Filing No. 6 residential use within Basin F6-V (2.7 ac.) that are tributary to the proposed County Std. 6' wide crosspan at Design Point 24. This facility will convey the flows into Basin F6-X towards Design Point 25. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 21: Q_5 = 3 cfs, Q_{100} = 7 cfs)

Design Point 25 (Q_5 = 6 cfs, Q_{100} = 16 cfs) represents the developed flows from the planned Sterling Ranch East Filing No. 6 residential use within Basins F6-W (0.97 ac.) and F6-X (2.0 ac.) that are tributary to the proposed sump condition at Design Point 25. At this location, a 10' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24" RCP storm system within the ROW will convey these developed flows further downstream. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 22: Q_5 = 6 cfs, Q_{100} = 16 cfs)

Design Point 26 (Q_5 = 4 cfs, Q_{100} = 9 cfs) represents the developed flows from the planned Sterling Ranch East Filing No. 6 residential use within Basin F6-Y (3.2 ac.) that are tributary to Design Point 26. At this location, a 10' Type R sump inlet will be installed to collect developed flows. A private storm system within a drainage easement and tract will convey these developed flows further downstream. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 23: Q_5 = 4 cfs, Q_{100} = 9 cfs) **Pipe Run 42 (Q_5 = 10 cfs, Q_{100} = 25 cfs)** represents the total flow in the 30" RCP private storm system just downstream of this sump condition.

Design Point 27 (Q_5 = 5 cfs, Q_{100} = 9 cfs) represents the developed flows from Basin F6-HH (2.0 ac.) along the south side of Sterling Ranch Road that are tributary to Design Point 27. A 15' Type R at-grade inlet is proposed at this location that will completely collect the 5-yr. developed flows with some minimal flow-by of the 100-yr. flows. A public storm system within the ROW will convey the collected flows towards the public storm system within Sterling Ranch Road. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 38: Q_5 = 5 cfs, Q_{100} = 9 cfs)

Design Point 28 (Q_5 = 5 cfs, Q_{100} = 10 cfs) represents anticipated developed flows from Basin F-6GG (2.5 ac.) along the north side of Sterling Ranch Road that are tributary to Design Point 28. A 15' Type R at-grade inlet is proposed at this location that will completely collect the 5-yr. developed flows with some minimal flow-by of the 100-yr. flows. A 30" RCP public storm system within the ROW will convey the collected flows towards the public storm system within Sterling Ranch Road. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 37: Q_5 = 5 cfs, Q_{100} = 10 cfs)

Design Point 29 (Q_5 = 128 cfs, Q_{100} = 320 cfs) represents the total collected developed flows during the ultimate condition to this **northwest storm system outfall into Pond FSD-16**. Sizing of this storm outfall and the proposed concrete forebay/impact structure is based on the ultimate condition. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 39: Q_5 = 123 cfs, Q_{100} = 307 cfs)

Design Point 30 (Q_5 = 4 cfs, Q_{100} = 11 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 8 residential use within Basin F8-1 (3.7 ac.) that are tributary to the future sump condition at Design Point 30. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in the future FDR for Sterling Ranch East Filing No. 8. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 40: Q_5 = 4 cfs, Q_{100} = 10 cfs)

Design Point 31 (Q_5 = 1.2 cfs, Q_{100} = 3 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 8 residential use within Basin F8-2 (1.0 ac.) that are tributary to the proposed sump condition at Design Point 31. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in the future FDR for Sterling Ranch East Filing No. 8. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 41: Q_5 = 1.2 cfs, Q_{100} = 3 cfs)

Design Point 32 (Q_5 = 39 cfs, Q_{100} = 91 cfs) represents the total collected developed flows during the ultimate condition to the **southwest storm system outfall into Pond FSD-16**. Sizing of this storm outfall and the proposed concrete forebay is based on the ultimate condition. These flows remain consistent with the FDR for Sterling Ranch East Filing No. 8 (Design Point 17: Q_5 = 48 cfs, Q_{100} = 112 cfs)

Design Point 33 (Q_5 = 37 cfs, Q_{100} = 90 cfs) represents the total collected developed flows during the ultimate condition to the **East storm system outfall into Pond FSD-16**. Sizing of this storm outfall and the proposed concrete forebay is based on the ultimate condition. These flows taken from and remain consistent with the FDR for Sterling Ranch East Filing No. 6 (Design Point 20: Q_5 = 37 cfs, Q_{100} = 90 cfs)

Basin SC (Q_5 = 7 cfs, Q_{100} = 26 cfs) consists of rear yards, open space tracts B and F and existing Sand Creek contained within Tract A. These rear yards (34-38 and 62-77) adjacent to Sand Creek are not reasonably able to be captured and routed to Pond FSD-16. However, these lots will utilize runoff reduction as treatment for the developed flows prior to directly sheet flowing into Sand Creek. (Reference the UD BMP Runoff Reduction Form in Appendix)

The proposed open space tracts within this basin utilize multiple exclusions as allowed by the ECM under I.~~7~~.1.B.7, I.~~7~~.1.B.8 and I.~~7~~.1.B.9.

I.6.1.B._

Exclusion I.~~7~~.1.B.7 – Disturbance to undev. Land to remain undeveloped covers 1.7 ac.
Exclusion I.~~7~~.1.B.8 – Stream Stabilization covers 3.3 ac.
Exclusion I.~~7~~.1.B.9 – Trails covers 0.58 ac.
(Reference the Water Quality Treatment Map in Appendix)

The following represent pipe runs in the Interim and Ultimate Conditions:

All other pipe runs represent the Ultimate Condition.

	Interim Condition	**Ultimate Condition**
Pipe Run 30:	Q_5 = 0 cfs, Q_{100} = 0 cfs	Q_5 = 30 cfs, Q_{100} = 72 cfs
Pipe Run 31:	Q_5 = 7 cfs, Q_{100} = 43 cfs	Q_5 = 33 cfs, Q_{100} = 84 cfs
Pipe Run 32:	Q_5 = 7 cfs, Q_{100} = 43 cfs	Q_5 = 63 cfs, Q_{100} = 156 cfs
Pipe Run 34:	Q_5 = 3 cfs, Q_{100} = 6 cfs	Q_5 = 7 cfs, Q_{100} = 18 cfs
Pipe Run 35:	Q_5 = 8 cfs, Q_{100} = 45 cfs	Q_5 = 67 cfs, Q_{100} = 167 cfs
Pipe Run 36:	Q_5 = 28 cfs, Q_{100} = 96 cfs	Q_5 = 93 cfs, Q_{100} = 233 cfs

This filing does not receive treatment from FSD-14A.

TSBs cannot provide permanent WQ treatment. Please revise.

Pipe Run 40: Q_5 = 49 cfs, Q_{100} = 148 cfs Q_5 = 121 cfs, Q_{100} = 302 cfs

Pipe Run 43: Q_5 = 55 cfs, Q_{100} = 162 cfs Q_5 = 128 cfs, Q_{100} = 320 cfs

Discuss runoff reduction RPA(s)

DETENTION / STORMWATER QUALITY FACILITES

As required, storm water quality measures will be utilized in order to reduce the amount of sediment, debris and pollutants that are allowed to enter Sand Creek. These features include but are not limited to Pond FSD-16, existing downstream Pond FSD-14A and temporary sediment basins (All owned and maintained by Sterling Ranch Metro District No. 3). All urban areas require detention and will provide a Water Quality Capture Volume (WQCV) and Excess Urban Runoff Volume (EURV) in the lower portion of the facility storage volume that will release the more frequent storms at a slower rate to help minimize the effects of development of the property. The proposed facilities are to be private facilities with ownership and maintenance by the Sterling Ranch Metropolitan District No. 3. After completion of construction and upon the Board of County Commissioners acceptance, all the drainage facilities within the public Right-of-Way will be owned and maintained by El Paso County.

The following represents the proposed **Pond FSD-16 design:**
(See MHFD-Detention Design Sheets in Appendix)

Ultimate Condition:

Total Tributary acreage: 211.8 Ac.

3.593 Ac.-ft. WQCV required

8.101 Ac.-ft. EURV required

7.449 Ac.-ft. 100-yr. Storage

19.142 Ac.-ft. Total

Total In-flow: **Q_5 = 194 cfs, Q_{100} = 483 cfs**

Pond Design Release: **Q_5 = 3.9 cfs, Q_{100} = 118.6 cfs**

(Ownership and maintenance by the Sterling Ranch Metro District No. 3)

DRAINAGE CRITERIA

Hydrologic calculations were performed using the City of Colorado Springs/El Paso County Drainage Criteria Manual, as revised in November 1991 and October 1994 with County adopted Chapter 6 and Section 3.2.1 of Chapter 13 of the City of Colorado Springs/El Paso County Drainage Criteria Manual as revised in May 2014. Individual on-site developed basin design used for detention/SWQ basin sizing was calculated using the Rational Method. Runoff Coefficients are based on the imperviousness of the particular land use and the hydrologic soil type in accordance with Table 6-6. The average rainfall intensity, by recurrence interval found in the Intensity-Duration-Frequency (IDF) curves in Figure 6-5. (See Appendix)

The City of Colorado Springs/El Paso County DCM requires the Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainage ways, and implementing long-term source controls. The Four Step Process pertains to management of smaller, frequently occurring storm events, as opposed to larger storms for which drainage and flood control infrastructure are sized. Implementation of these four steps helps to achieve storm water permit requirements.
This site adheres to this **Four Step Process** as follows:

1. **Employ Runoff Reduction Practices:** All proposed lot impervious area (roof tops, patios, etc.) will sheet flow across landscaped portions of front and rear yards and through open space areas to slow runoff and increase time of concentration prior to being conveyed to the proposed public streets or detention facilities. This will minimize directly connected impervious areas within the project site. The rear yards of lots 34-38 and 62-77 will utilize runoff reduction for 100% treatment of these UIAs. (Reference UD BMP Runoff Reduction Form in Appendix)

2. **Stabilize Drainageways:** After developed flows utilize the runoff reduction practices through the front and rear yards, developed flows will travel via curb and gutter within

the public streets and eventually public/private storm systems. These collected flows are then routed directly to the proposed extended detention basin (Pond FSD-16, full-spectrum facility). Where developed flows are not able to be routed to public street, sheet flows will travel across landscaped rear yards and then through undeveloped property prior to being released off-site.

3. **Provide Water Quality Capture Volume (WQCV):** Runoff from this development will be treated through capture and slow release of the WQCV and excess urban runoff volume (EURV) in the proposed Full-Spectrum permanent Extended Detention Basin (Pond FSD-16) designed per current El Paso County drainage criteria. For any area that is not able to be captured and routed to a permanent EDB, Runoff Reduction practices are required and will be provided in the rear setbacks of the lots or within the open space tract within these specific basins.

The RPA is only shown in the tract

4. **Consider need for Industrial and Commercial BMPs**: No industrial or commercial uses are proposed within this development. However, a site-specific storm water quality and erosion control plan and narrative along with the grading and erosion control plan has been submitted with this Final Plat submittal. Details such as site-specific sediment and erosion control construction BMP's as well as temporary and permanent BMP's will be detailed in this plan and narrative to protect receiving waters. BMP's will be constructed and maintained as the development has been graded and erosion control methods employed.

FLOODPLAIN STATEMENT

A portion of this site is located within a floodplain as determined by the Flood Insurance Rate Maps (F.I.R.M.) Map Number 08041C0533G and 08041C535G with effective date of December 7, 2018 (See Appendix). However, no proposed lots are within the current floodplain. All property within the floodplain is platted as Tract A, to be owned by the Sterling Ranch Metropolitan District No. 3 and maintained by El Paso County per maintenance agreement.

DRAINAGE AND BRIDGE FEES

This subdivision lies entirely within the Sand Creek Drainage Basin boundaries. The following are the drainage and bridge fees using the following impervious acreage method approved by El Paso County.

Total Final Plat area equals 65.32 acres with the following different land uses proposed:

13.68 Ac.	Park/Open Space/Sand Creek Tracts (Tracts A-F)
40.74 Ac.	Urban Lots (RS-5000 zone with avg. Lot Size = 7,456 SF)
10.90 Ac.	Public Right-of-Way
65.32 Ac.	**Total**

The percent imperviousness for this subdivision is calculated as follows:

Fees for Park/Open Space/Pond Tracts

(Per El Paso County Percent Impervious Chart: 7**%**)

13.68 Ac. x 7% = **0.96 Impervious Ac.**

Fees for Urban Lots (Avg. Lot Size of 7,456 SF)

(Per El Paso County Percent Impervious Chart: 47**%**)

40.74 Ac. x 47% = **19.15 Impervious Ac.**

Fees for Public Right-of-Way

(Per El Paso County Percent Impervious Chart: 80**%**)

10.90 Ac. x 80% = **8.72 Impervious Ac.**

Total Impervious Acreage: **28.83 Imp. Ac.** (Drainage Fees)

Total Impervious Acreage: **28.83 Imp. Ac.** (Bridge Fees)

The following calculations are based on the 2026 Sand Creek drainage/bridge fees:

ESTIMATED FEE TOTALS:

Bridge Fees

$ 11,518.00 x 28.83 Impervious Ac.	=	**$ 332,063.94**

Drainage Fees (Credits may be used)

$ 28,160.00 x 28.83 Impervious Ac.	=	**$ 811,852.80**

Credits within the basin may be used for Drainage Fees only. Please reference the "Pre-credits" table below. Bridge Fees will be paid at plat recordation.

cannot locate table

SUMMARY

The proposed Sterling Ranch East Filing No. 4 Final Plat is within the Sand Creek Drainage Basin. Recommendations are made within this report concerning necessary improvements that will be required as a result of development of this property. The points of storm water release from the proposed site are required to be at or below the calculated pre-developed flow quantities. The development of the proposed site does not significantly impact any downstream facility or property to an extent greater than that which currently exists in the pre-development conditions. All drainage facilities within this report were sized according to the Drainage Criteria Manuals and the full-spectrum storm water quality requirements.

PREPARED BY:

Classic Consulting Engineers & Surveyors, LLC

Marc A. Whorton, P.E.
Project Manager

REFERENCES

1. City of Colorado Springs/County of El Paso Drainage Criteria Manual as revised in November 1991 and October 1994 with County adopted Chapter 6 and Section 3.2.1 of Chapter 13 of the City of Colorado Springs/El Paso County Drainage Criteria Manual as revised in May 2014.

2. "Urban Storm Drainage Criteria Manual Volume 1, 2 & 3" Urban Drainage and Flood Control District, dated January 2016.

3. "Final Drainage Report for Forest Gate Subdivision" Law & Mariotti Consultants, Inc. dated October 2004.

4. "Sand Creek Drainage Basin Planning Study," Kiowa Engineering Corporation, dated March 1996.

5. "2018 Sterling Ranch MDDP", M&S Civil Consultants, Inc., June 2018

6. "Final Drainage Report for Retreat at TimberRidge Filing No. 1", Classic Consulting, approved November, 2020.

7. "Final Drainage Report for Retreat at TimberRidge Filing No. 2", Classic Consulting, approved September, 2022.

8. "Sterling Ranch MDDP Amendment No. 2 & Preliminary Drainage Report for Sterling Ranch East Preliminary Plan No. 1", Classic Consulting, approved January, 2023.

9. "Final Drainage Report for Sterling Ranch East Filing No. 2 and Foursquare at Sterling Ranch East Filing No. 1", Classic Consulting, dated August, 2024

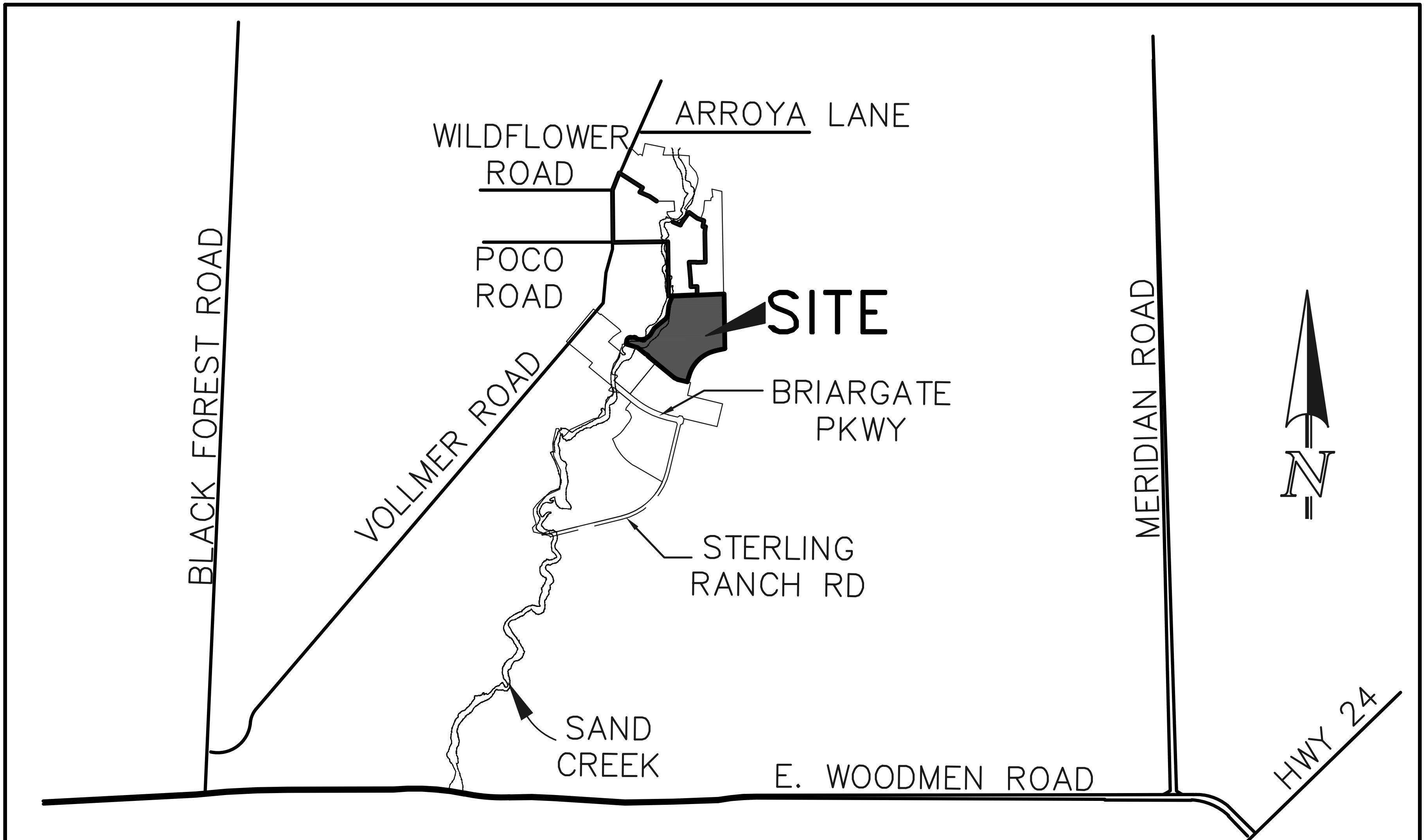
10. "Final Drainage Report for Sterling Ranch East Filing No. 8", Classic Consulting, dated January 2026

11. "Preliminary Drainage Report for Sterling Ranch East Filing No. 6 Preliminary Plan and Final Drainage Report for Early Grading", Classic Consulting, dated April 2025

12. "Final Drainage Report for Sterling Ranch East Filing No. 6", Classic Consulting, dated May 2026

APPENDIX

VICINITY MAP

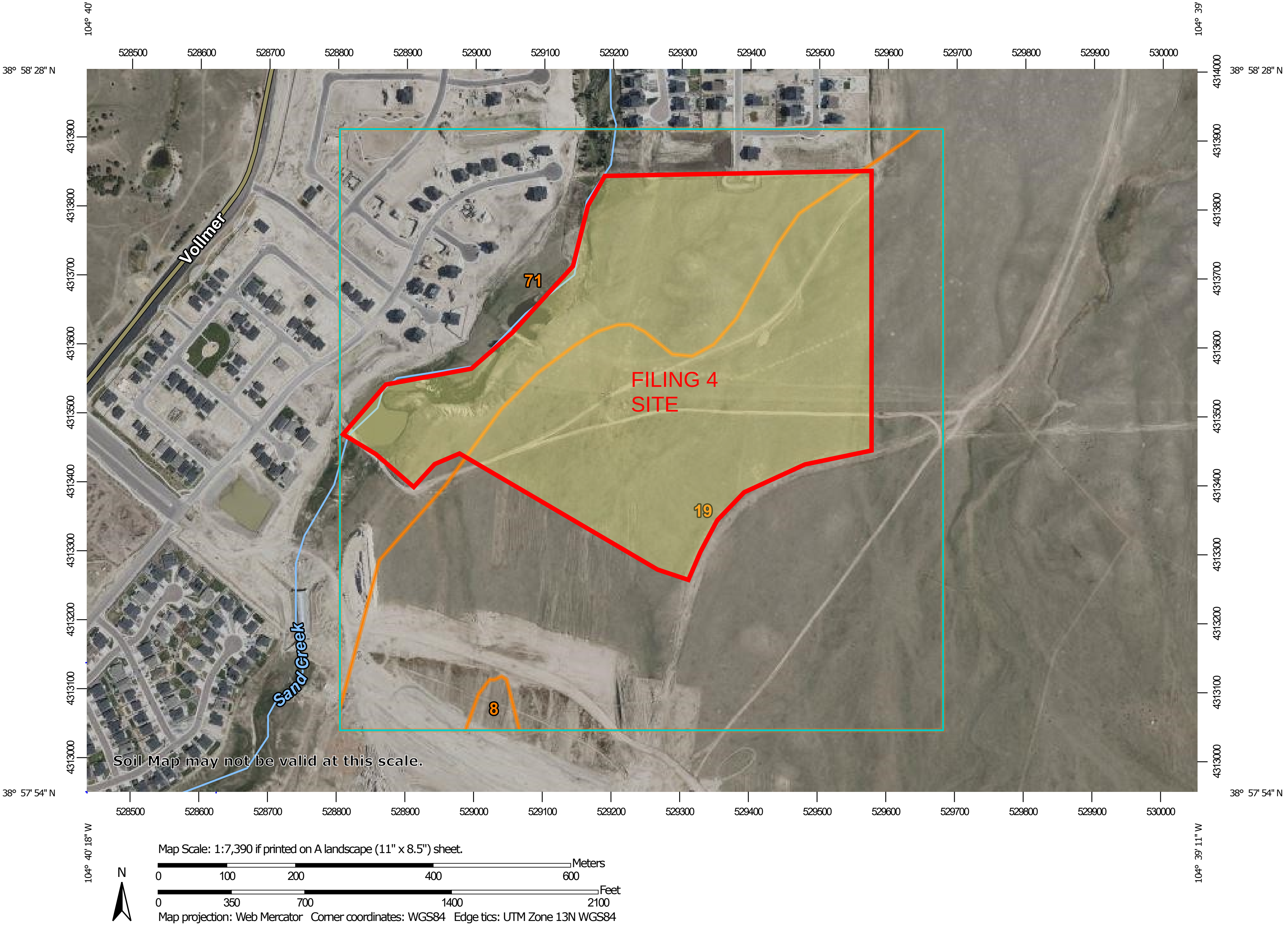

ARROYA LANE
WILDFLOWER ROAD
POCO ROAD
SITE
BLACK FOREST ROAD
VOLLMER ROAD
BRIARGATE PKWY
MERIDIAN ROAD
N
STERLING RANCH RD
SAND CREEK
E. WOODMEN ROAD
HWY 24

VICINITY MAP

N.T.S.

SOILS MAP (S.C.S SURVEY)

Soil Map—El Paso County Area, Colorado


104° 40' 18" W
104° 39' 11" W
38° 58' 28" N
38° 57' 54" N
528500
528600
528700
528800
528900
529000
529100
529200
529300
529400
529500
529600
529700
529800
529900
530000
4314000
4313900
4313800
4313700
4313600
4313500
4313400
4313300
4313200
4313100
4313000
Vollmer
Sand Creek
71
19
8
FILING 4
SITE
Soil Map may not be valid at this scale.
N
Meters
0
100
200
400
600
Feet
0
350
700
1400
2100

Map Scale: 1:7,390 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- ☐ Area of Interest (AOI)

Soils

- ☐ Soil Map Unit Polygons
- ∿ Soil Map Unit Lines
- ■ Soil Map Unit Points

Special Point Features

- ⊙ Blowout
- ☒ Borrow Pit
- ✱ Clay Spot
- ◇ Closed Depression
- ✕ Gravel Pit
- ∴ Gravelly Spot
- ● Landfill
- Λ Lava Flow
- ⫫ Marsh or swamp
- ⚒ Mine or Quarry
- ◎ Miscellaneous Water
- ○ Perennial Water
- ∨ Rock Outcrop
- + Saline Spot
- ⁘ Sandy Spot
- ⊖ Severely Eroded Spot
- ◈ Sinkhole
- ⤳ Slide or Slip
- ø Sodic Spot
- ≡ Spoil Area
- ◊ Stony Spot
- ◊◊ Very Stony Spot
- ψ Wet Spot
- △ Other
- ‐‐ Special Line Features

Water Features

- ∼ Streams and Canals

Transportation

- ┼┼┼ Rails
- ∼ Interstate Highways
- ∼ US Routes
- ∼ Major Roads
- ∼ Local Roads

Background

- ▨ Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 23, 2024—Aug 4, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	1.0	0.5%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	121.2	63.8%
71	Pring coarse sandy loam, 3 to 8 percent slopes	67.7	35.7%
Totals for Area of Interest		**189.9**	**100.0%**

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Fans, Fan terraces, Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit: 1 percent

Landform: Swales
Hydric soil rating: Yes

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025

El Paso County Area, Colorado

71—Pring coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369k
Landscape: Uplands
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Pring and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pring

Setting

Landscape: Uplands
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025

F.E.M.A. MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2006.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

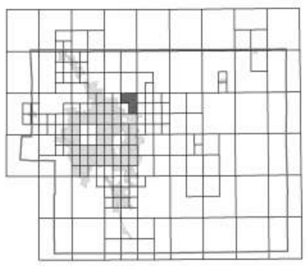
Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

El Paso County Vertical Datum Offset Table

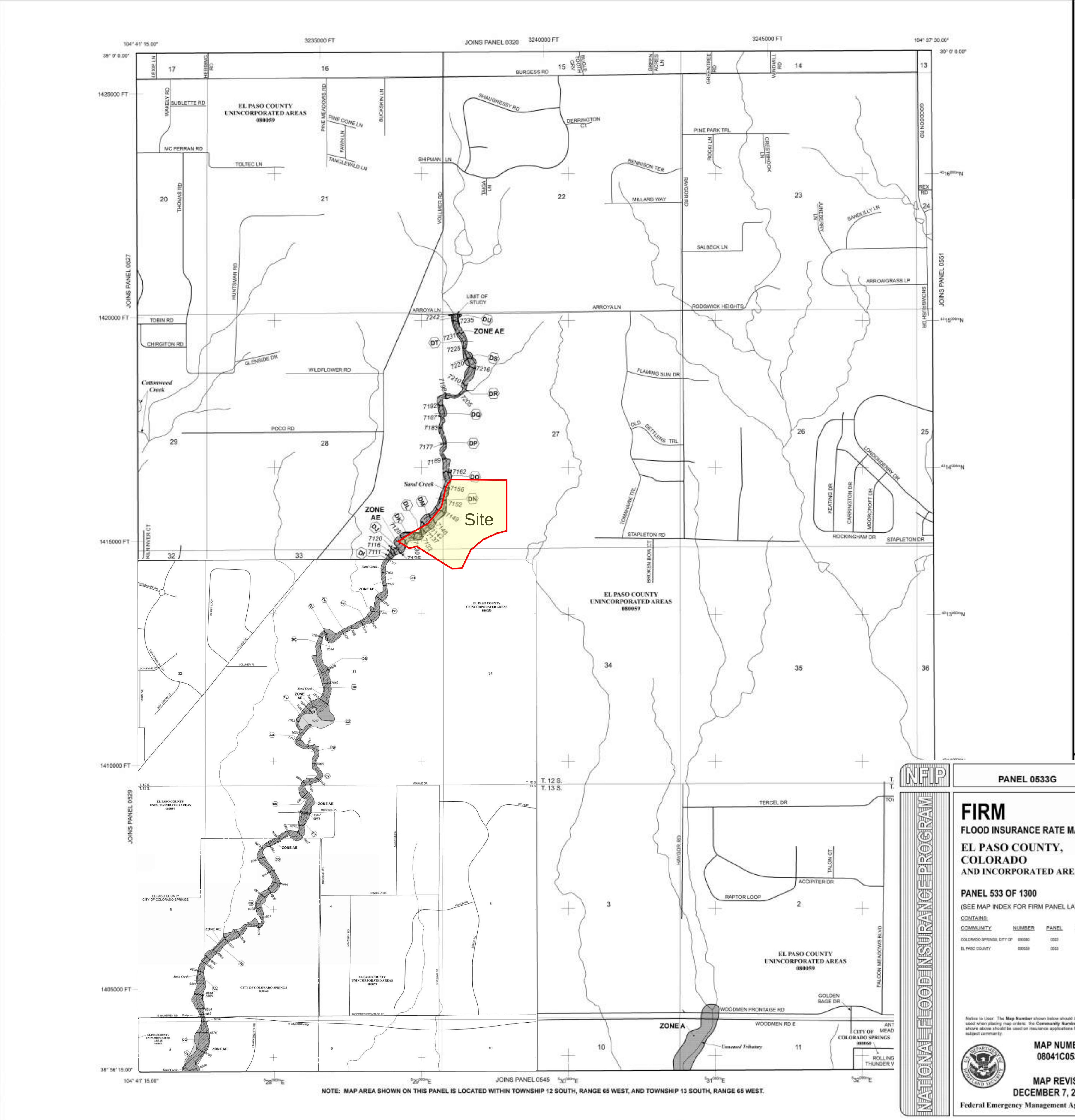
Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).

Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 65 WEST, AND TOWNSHIP 13 SOUTH, RANGE 65 WEST.

LEGEND

▨ SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

▨ FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

▨ OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

☐ OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

▨ COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

▨ OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

———————	Floodplain boundary
—— —— —	Floodway boundary
——— ———	Zone D Boundary
•••••••••••••	CBRS and OPA boundary
▬	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~ *513* ~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)———(A)	Cross section line
(23)-------(23)	Transect line
97° 07' 30.00" 32° 22' 30.00"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
$^{42}75^{000m}$N	1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 FT	5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0533G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 533 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0533	G
EL PASO COUNTY	080059	0533	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0533G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0535G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 535 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0535	G
EL PASO COUNTY	080059	0535	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0535G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

HYDROLOGIC CALCULATIONS

For Colorado Springs and much of the Fountain Creek watershed, the 1-hour depths are fairly uniform and are summarized in Table 6-2. Depending on the location of the project, rainfall depths may be calculated using the described method and the NOAA Atlas maps shown in Figures 6-6 through 6-17.

Table 6-2. Rainfall Depths for Colorado Springs

Return Period	1-Hour Depth	6-Hour Depth	24-Hour Depth
2	1.19	1.70	2.10
5	1.50	2.10	2.70
10	1.75	2.40	3.20
25	2.00	2.90	3.60
50	2.25	3.20	4.20
100	2.52	3.50	4.60

Where Z= 6,840 ft/100

These depths can be applied to the design storms or converted to intensities (inches/hour) for the Rational Method as described below. However, as the basin area increases, it is unlikely that the reported point rainfalls will occur uniformly over the entire basin. To account for this characteristic of rain storms an adjustment factor, the Depth Area Reduction Factor (DARF) is applied. This adjustment to rainfall depth and its effect on design storms is also described below. The UDFCD UD-Rain spreadsheet, available on UDFCD's website, also provides tools to calculate point rainfall depths and Intensity-Duration-Frequency curves[2] and should produce similar depth calculation results.

2.2 Design Storms

Design storms are used as input into rainfall/runoff models and provide a representation of the typical temporal distribution of rainfall events when the creation or routing of runoff hydrographs is required. It has long been observed that rainstorms in the Front Range of Colorado tend to occur as either short-duration, high-intensity, localized, convective thunderstorms (cloud bursts) or longer-duration, lower-intensity, broader, frontal (general) storms. The significance of these two types of events is primarily determined by the size of the drainage basin being studied. Thunderstorms can create high rates of runoff within a relatively small area, quickly, but their influence may not be significant very far downstream. Frontal storms may not create high rates of runoff within smaller drainage basins due to their lower intensity, but tend to produce larger flood flows that can be hazardous over a broader area and extend further downstream.

- **Thunderstorms**: Based on the extensive evaluation of rain storms completed in the Carlton study (Carlton 2011), it was determined that typical thunderstorms have a duration of about 2 hours. The study evaluated over 300,000 storm cells using gage-adjusted NEXRAD data, collected over a 14-year period (1994 to 2008). Storms lasting longer than 3 hours were rarely found. Therefore, the results of the Carlton study have been used to define the shorter duration design storms.

  To determine the temporal distribution of thunderstorms, 22 gage-adjusted NEXRAD storm cells were studied in detail. Through a process described in a technical memorandum prepared by the City of Colorado Springs (City of Colorado Springs 2012), the results of this analysis were interpreted and normalized to the 1-hour rainfall depth to create the distribution shown in Table 6-3 with a 5 minute time interval for drainage basins up to 1 square mile in size. This distribution represents the rainfall

Table 6-6. Runoff Coefficients for Rational Method

(Source: UDFCD 2001)

Land Use or Surface Characteristics	Percent Impervious	Runoff Coefficients											
		2-year		5-year		10-year		25-year		50-year		100-year	
		HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D
Business													
Commercial Areas	95	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.88	0.89
Neighborhood Areas	70	0.45	0.49	0.49	0.53	0.53	0.57	0.58	0.62	0.60	0.65	0.62	0.68
Residential													
1/8 Acre or less	65	0.41	0.45	0.45	0.49	0.49	0.54	0.54	0.59	0.57	0.62	0.59	0.65
1/4 Acre	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
1/3 Acre	30	0.18	0.22	0.25	0.30	0.32	0.38	0.39	0.47	0.43	0.52	0.47	0.57
1/2 Acre	25	0.15	0.20	0.22	0.28	0.30	0.36	0.37	0.46	0.41	0.51	0.46	0.56
1 Acre	20	0.12	0.17	0.20	0.26	0.27	0.34	0.35	0.44	0.40	0.50	0.44	0.55
Industrial													
Light Areas	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Heavy Areas	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Parks and Cemeteries	7	0.05	0.09	0.12	0.19	0.20	0.29	0.30	0.40	0.34	0.46	0.39	0.52
Playgrounds	13	0.07	0.13	0.16	0.23	0.24	0.31	0.32	0.42	0.37	0.48	0.41	0.54
Railroad Yard Areas	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
Undeveloped Areas													
Historic Flow Analysis-- Greenbelts, Agriculture	2	0.03	0.05	0.09	0.16	0.17	0.26	0.26	0.38	0.31	0.45	0.36	0.51
Pasture/Meadow	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Forest	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Exposed Rock	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Offsite Flow Analysis (when landuse is undefined)	45	0.26	0.31	0.32	0.37	0.38	0.44	0.44	0.51	0.48	0.55	0.51	0.59
Streets													
Paved	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Gravel	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Drive and Walks	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Roofs	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Lawns	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50

3.2 Time of Concentration

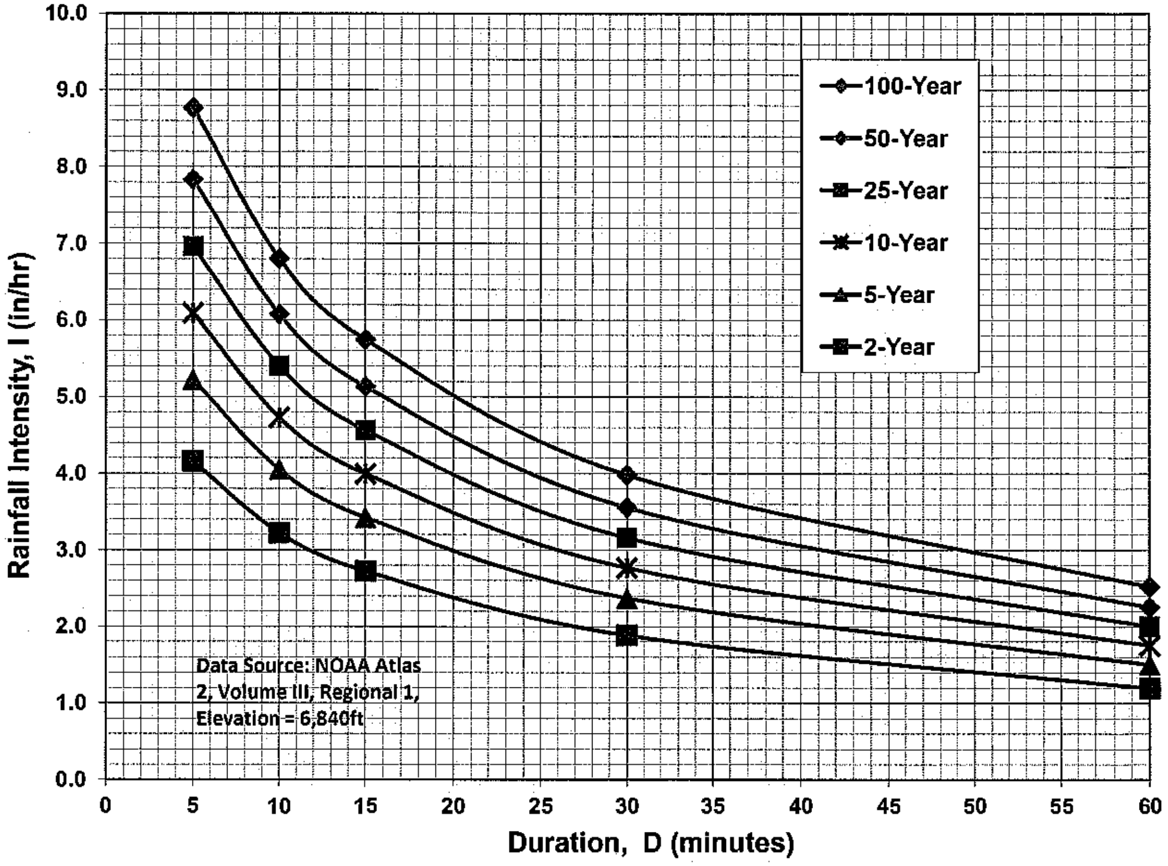
One of the basic assumptions underlying the Rational Method is that runoff is a function of the average rainfall rate during the time required for water to flow from the hydraulically most remote part of the drainage area under consideration to the design point. However, in practice, the time of concentration can be an empirical value that results in reasonable and acceptable peak flow calculations.

For urban areas, the time of concentration (t_c) consists of an initial time or overland flow time (t_i) plus the travel time (t_t) in the storm sewer, paved gutter, roadside drainage ditch, or drainage channel. For non-urban areas, the time of concentration consists of an overland flow time (t_i) plus the time of travel in a concentrated form, such as a swale or drainageway. The travel portion (t_t) of the time of concentration can be estimated from the hydraulic properties of the storm sewer, gutter, swale, ditch, or drainageway. Initial time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. The time of concentration is represented by Equation 6-7 for both urban and non-urban areas.

Table 6-10. NRCS Curve Numbers for Frontal Storms & Thunderstorms for Developed Conditions (ARCII)

Fully Developed Urban Areas (vegetation established)[1]	Treatment	Hydrologic Condition	% I	Pre-Development CN			
				HSG A	HSG B	HSG C	HSG D
Open space (lawns, parks, golf courses, cemeteries, etc.):							
Poor condition (grass cover < 50%)	-----	-----	---	68	79	86	89
Fair condition (grass cover 50% to 75%)	-----	-----	---	49	69	79	84
Good condition (grass cover > 75%)	-----	-----	---	39	61	74	80
Impervious areas:							
Paved parking lots, roofs, driveways, etc. (excluding right-of-way	-----	-----	---	98	98	98	98
Streets and roads:							
Paved; curbs and storm sewers (excluding right-of-way)	-----	-----	---	98	98	98	98
Paved; open ditches (including right-of-way)	-----	-----	---	83	89	92	93
Gravel (including right-of-way)	-----	-----	---	76	85	89	91
Dirt (including right-of-way)	-----	-----	---	72	82	87	89
Western desert urban areas:							
Natural desert landscaping (pervious areas only)	-----	-----	---	63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)	-----	-----	---	96	96	96	96
Urban districts:							
Commercial and business	-----	-----	85	89	92	94	95
Industrial	-----	-----	72	81	88	91	93
Residential districts by average lot size:							
1/8 acre or less (town houses)	-----	-----	65	77	85	90	92
1/4 acre	-----	-----	38	61	75	83	87
1/3 acre	-----	-----	30	57	72	81	86
1/2 acre	-----	-----	25	54	70	80	85
1 acre	-----	-----	20	51	68	79	84
2 acres	-----	-----	12	46	65	77	82
Developing Urban Areas[1]	**Treatment[2]**	**Hydrologic Condition[3]**	**% I**	**HSG A**	**HSG B**	**HSG C**	**HSG D**
Newly graded areas (pervious areas only, no vegetation)	-----	-----	---	77	86	91	94
Cultivated Agricultural Lands[1]	**Treatment**	**Hydrologic Condition**	**% I**	**HSG A**	**HSG B**	**HSG C**	**HSG D**
Fallow	Bare soil	-----	---	77	86	91	94
	Crop residue cover (CR)	Poor	---	76	85	90	93
		Good	---	74	83	88	90
Row crops	Straight row (SR)	Poor	---	72	81	88	91
		Good	---	67	78	85	89
	SR + CR	Poor	---	71	80	87	90
		Good	---	64	75	82	85
	Contoured (C)	Poor	---	70	79	84	88
		Good	---	65	75	82	86
	C + CR	Poor	---	69	78	83	87
		Good	---	64	74	81	85
	Contoured & terraced (C&T)	Poor	---	66	74	80	82
		Good	---	62	71	78	81
	C&T+ CR	Poor	---	65	73	79	81
		Good	---	61	70	77	80
Small grain	SR	Poor	---	65	76	84	88
		Good	---	63	75	83	87
	SR + CR	Poor	---	64	75	83	86
		Good	---	60	72	80	84
	C	Poor	---	63	74	82	85
		Good	---	61	73	81	84
	C + CR Poor	Poor	---	62	73	81	84
		Good	---	60	72	80	83
	C&T	Poor	---	61	72	79	82
		Good	---	59	70	78	81
	C&T+ CR	Poor	---	60	71	78	81
		Good	---	58	69	77	80

Figure 6-5. Colorado Springs Rainfall Intensity Duration Frequency



IDF Equations

$I_{100} = -2.52 \ln(D) + 12.735$

$I_{50} = -2.25 \ln(D) + 11.375$

$I_{25} = -2.00 \ln(D) + 10.111$

$I_{10} = -1.75 \ln(D) + 8.847$

$I_5 = -1.50 \ln(D) + 7.583$

$I_2 = -1.19 \ln(D) + 6.035$

Note: Values calculated by equations may not precisely duplicate values read from figure.

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DATE: *06/18/26*
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FINAL DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF COEFFICIENT SUMMARY

		C VALUE DCM TABLE 6-6						WEIGHTED CA			DCM TABLE 6-6
BASIN	TOTAL AREA (AC)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	**CA(2)**	**CA(5)**	**CA(100)**	**WEIGHTED % IMPERVIOUS**
EX-5	17.20	**UNDEV.**	2.0%	17.20	**0.03**	**0.09**	**0.36**	**0.52**	**1.55**	**6.19**	2.0%
EX-7	8.90	**UNDEV.**	2.0%	8.90	**0.03**	**0.09**	**0.36**	**0.27**	**0.80**	**3.20**	2.0%
EX-9	38.90	**UNDEV.**	2.0%	38.90	**0.03**	**0.09**	**0.36**	**1.17**	**3.50**	**14.00**	2.0%
EX10A	1.70	**UNDEV.**	2.0%	1.70	**0.03**	**0.09**	**0.36**	**0.05**	**0.15**	**0.61**	2.0%

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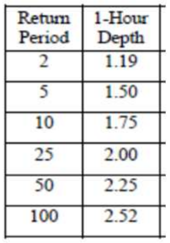

Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1-C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

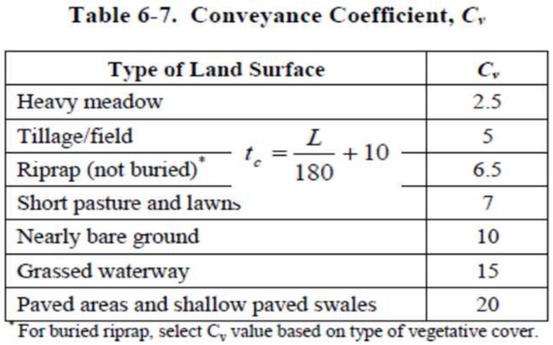

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
EX-5	0.52	1.55	6.19	0.12	300	10	20.6	375	6.5%	2.5	2.5	23.0	2.30	2.88	4.83	1	**4**	**30**
EX-7	0.27	0.80	3.20	0.12	300	7	23.2	675	2.6%	1.6	7.0	30.1	1.98	2.47	4.15	1	**2**	**13**
EX-9	1.17	3.50	14.00	0.12	300	9	21.3	2070	2.6%	1.6	21.4	42.7	1.57	1.95	3.27	2	**7**	**46**
EX10A	0.05	0.15	0.61	0.12	300	6	24.4					24.4	2.23	2.79	4.69	0.1	**0.4**	**3**

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FINAL DRAINAGE REPORT ~ PRE-DEVELOPMENT SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Outfall
EX1	EX-5	1.55	6.19	23.0	2.88	4.83	4	30	Sheet Flow towards Sand Creek
EX2	EX-7	0.80	3.20	30.1	2.47	4.15	2	13	Sheet Flow south towards Briargate Pkwy
EX3	EX-9	3.50	14.00	42.7	1.95	3.27	7	46	Sheet Flow south towards Briargate Pkwy
EX4	EX10A	0.15	0.61	24.4	2.79	4.69	0.4	3	Sheet Flow south towards Pond FSD-16

These two areas should add up to 0.13 ac, the total basin area. Please revise.

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FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

		C VALUE DCM TABLE 6-6						C VALUE DCM TABLE 6-6						WEIGHTED "C" VALUE			WEIGHTED CA			DCM TABLE 6-6
BASIN	TOTAL AREA (AC)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	CA(2)	CA(5)	CA(100)	WEIGHTED % IMPERVIOUS
OS-1	1.30	RES 1/3 AC.	35.0%	1.30	0.18	0.25	0.47			0.00	0.02	0.08	0.35	0.18	0.25	0.47	0.23	0.33	0.61	35.0%
OS-2	0.14	RES 1/3 AC.	35.0%	0.14	0.18	0.25	0.47			0.00	0.02	0.08	0.35	0.18	0.25	0.47	0.03	0.04	0.07	35.0%
OS-3	0.13	STREET	100.0%	0.08	0.89	0.90	0.96	OPEN SPACE	7.0%	0.60	0.05	0.12	0.39	0.74	1.07	2.35	0.10	0.14	0.31	90.0%
OS-4	4.90	RES 1/5 AC.	46.0%	3.10	0.28	0.34	0.52	OPEN SPACE	7.0%	1.80	0.05	0.12	0.39	0.20	0.26	0.47	0.96	1.27	2.31	31.7%
OS-5	3.40	RES 1/6 AC.	52.5%	3.05	0.32	0.38	0.55	OPEN SPACE	7.0%	0.35	0.05	0.12	0.39	0.29	0.35	0.53	0.99	1.19	1.80	47.8%
A	1.80	RES 1/5 AC.	46.0%	1.80	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.50	0.61	0.94	46.0%
B	3.10	RES 1/5 AC.	46.0%	3.10	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.87	1.05	1.61	46.0%
C	2.70	RES 1/5 AC.	46.0%	2.70	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.76	0.92	1.40	46.0%
D	2.20	RES 1/5 AC.	46.0%	2.20	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.62	0.75	1.14	46.0%
E	3.10	RES 1/5 AC.	46.0%	3.10	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.87	1.05	1.61	46.0%
F	1.00	RES 1/6 AC.	52.5%	1.00	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.32	0.38	0.55	52.5%
G	9.50	RES 1/5 AC.	46.0%	5.80	0.28	0.34	0.52	OPEN SPACE	7.0%	3.70	0.05	0.12	0.39	0.19	0.25	0.47	1.81	2.42	4.46	30.8%
H	0.24	STREET	100.0%	0.08	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.14	0.32	0.38	0.55	0.46	0.50	0.62	0.11	0.12	0.15	61.9%
I	2.80	RES 1/6 AC.	52.5%	2.80	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.90	1.05	1.53	52.5%
J	1.60	RES 1/6 AC.	52.5%	1.60	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.51	0.60	0.87	52.5%
K	0.11	STREET	100.0%	0.05	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.06	0.32	0.38	0.55	0.58	0.61	0.73	0.06	0.07	0.08	74.1%
L	1.70	RES 1/6 AC.	52.5%	1.70	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.54	0.64	0.93	52.5%
M	1.80	RES 1/5 AC.	46.0%	1.80	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.50	0.61	0.94	46.0%
N	4.20	RES 1/6 AC.	52.5%	4.20	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.34	1.58	2.29	52.5%
O	2.90	RES 1/6 AC.	52.5%	2.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.93	1.09	1.58	52.5%
P	0.33	STREET	100.0%	0.11	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.22	0.32	0.38	0.55	0.51	0.55	0.68	0.17	0.18	0.23	68.3%
Q	0.65	STREET	100.0%	0.20	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.45	0.32	0.38	0.55	0.50	0.54	0.67	0.32	0.35	0.44	67.1%
R	3.50	RES 1/6 AC.	52.5%	3.50	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.12	1.31	1.91	52.5%
S	0.44	STREET	100.0%	0.14	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.30	0.32	0.38	0.55	0.50	0.54	0.68	0.22	0.24	0.30	67.6%
T	3.30	RES 1/5 AC.	46.0%	3.30	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.92	1.12	1.72	46.0%
U	2.50	RES 1/5 AC.	46.0%	2.35	0.28	0.34	0.52	OPEN SPACE	7.0%	0.15	0.05	0.12	0.39	0.27	0.33	0.51	0.67	0.82	1.28	43.7%
V	0.93	RES 1/6 AC.	52.5%	0.30	0.32	0.38	0.55	OPEN SPACE	7.0%	0.63	0.05	0.12	0.39	0.14	0.20	0.44	0.13	0.19	0.41	21.7%
W	0.94	RES 1/5 AC.	46.0%	0.84	0.28	0.34	0.52	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.26	0.32	0.51	0.24	0.30	0.48	41.9%
F6-EE	1.30	STREET	100.0%	0.60	0.89	0.90	0.96	OPEN SPACE	7.0%	0.70	0.05	0.12	0.39	0.44	0.48	0.65	0.57	0.62	0.85	49.9%
F6-GG	2.50	RES 1/6 AC.	52.5%	1.90	0.32	0.38	0.55	STREET	100.0%	0.60	0.89	0.90	0.96	0.46	0.50	0.64	1.14	1.25	1.61	63.9%
F6-HH	2.00	RES 1/6 AC.	52.5%	1.00	0.32	0.38	0.55	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.75	1.21	1.28	1.51	76.3%
F6-V	2.70	RES 1/5 AC.	46.0%	1.93	0.28	0.34	0.52	POCKET PARK	7.0%	0.77	0.05	0.12	0.39	0.21	0.28	0.48	0.58	0.75	1.30	34.9%
F6-W	0.79	RES 1/6 AC.	52.5%	0.79	0.32	0.38	0.55			0.00	0.05	0.12	0.39	0.32	0.38	0.55	0.25	0.30	0.43	52.5%
F6-X	2.00	RES 1/6 AC.	52.5%	2.00	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.64	0.75	1.09	52.5%
F6-Y	3.20	RES 1/5 AC.	46.0%	3.20	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.90	1.09	1.66	46.0%
SR-1	1.20	STREET	100.0%	0.75	0.89	0.90	0.96	OPEN SPACE	7.0%	0.45	0.05	0.12	0.39	0.58	0.61	0.75	0.69	0.73	0.90	65.1%
SR-2	0.65	STREET	100.0%	0.48	0.89	0.90	0.96	OPEN SPACE	7.0%	0.17	0.05	0.12	0.39	0.67	0.70	0.81	0.44	0.45	0.53	75.7%
Z	0.30	RES 1/5 AC.	46.0%	0.15	0.28	0.34	0.52	OPEN SPACE	7.0%	0.15	0.05	0.12	0.39	0.17	0.23	0.46	0.05	0.07	0.14	26.5%
AA	2.60	RES 1/5 AC.	46.0%	2.35	0.28	0.34	0.52	OPEN SPACE	7.0%	0.25	0.05	0.12	0.39	0.26	0.32	0.51	0.67	0.83	1.32	42.3%
BB	6.20	RES 1/5 AC.	46.0%	0.00	0.28	0.34	0.52	OPEN SPACE	7.0%	6.20	0.05	0.12	0.39	0.05	0.12	0.39	0.31	0.74	2.42	7.0%
SC	9.90	RES 1/5 AC.	46.0%	2.80	0.28	0.34	0.52	OPEN SPACE	7.0%	7.10	0.05	0.12	0.39	0.12	0.18	0.43	1.14	1.80	4.23	18.0%

These two areas should add up to 0.24 ac, the total basin area. Please revise.

JOB NAME: *STERLING RANCH EAST FILING NO. 4 - FINAL PLAT*
JOB NUMBER: *1183.41*
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FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

		C VALUE DCM TABLE 6-6						**C VALUE DCM TABLE 6-6**						**WEIGHTED "C" VALUE**			**WEIGHTED CA**			**DCM TABLE 6-6**
BASIN	TOTAL AREA (AC)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	**CA(2)**	**CA(5)**	**CA(100)**	**WEIGHTED % IMPERVIOUS**
F2-A	2.90	RES 1/6 AC.	52.5%	2.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.93**	**1.09**	**1.58**	52.5%
F2-B	5.00	RES 1/6 AC.	52.5%	5.00	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.60**	**1.88**	**2.73**	52.5%
F8-1	3.70	RES 1/6 AC.	52.5%	3.50	0.32	0.38	0.55	OPEN SPACE	7.0%	0.20	0.05	0.12	0.39	0.31	0.36	0.54	**1.13**	**1.34**	**1.99**	50.0%
F8-2	1.00	RES 1/5 AC.	46.0%	0.88	0.28	0.34	0.52	OPEN SPACE	7.0%	0.12	0.05	0.12	0.39	0.25	0.31	0.50	**0.25**	**0.31**	**0.50**	41.3%
F8-3	3.50	RES 1/8 AC.	65.0%	2.50	0.41	0.45	0.59	OPEN SPACE	7.0%	1.00	0.05	0.12	0.39	0.31	0.36	0.53	**1.08**	**1.25**	**1.87**	48.4%
F8-4	4.40	RES 1/8 AC.	65.0%	4.00	0.41	0.45	0.59	OPEN SPACE	7.0%	0.40	0.05	0.12	0.39	0.38	0.42	0.57	**1.66**	**1.85**	**2.52**	59.7%
F8-5	3.40	RES 1/8 AC.	65.0%	3.10	0.41	0.45	0.59	OPEN SPACE	7.0%	0.30	0.05	0.12	0.39	0.38	0.42	0.57	**1.29**	**1.43**	**1.95**	59.9%
F8-6A	1.80	RES 1/8 AC.	65.0%	1.55	0.41	0.45	0.59	OPEN SPACE	7.0%	0.25	0.05	0.12	0.39	0.36	0.40	0.56	**0.65**	**0.73**	**1.01**	56.9%
F8-6B	0.86	RES 1/8 AC.	65.0%	0.86	0.41	0.45	0.59	OPEN SPACE	7.0%	0.00	0.05	0.12	0.39	0.41	0.45	0.59	**0.35**	**0.39**	**0.51**	65.0%
F8-7A	1.90	RES 1/8 AC.	65.0%	1.80	0.41	0.45	0.59	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.39	0.43	0.58	**0.74**	**0.82**	**1.10**	61.9%
F8-7B	2.70	RES 1/8 AC.	65.0%	2.60	0.41	0.45	0.59	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.40	0.44	0.58	**1.07**	**1.18**	**1.57**	62.9%
P1-F1	60.60	RES 1/6 AC.	52.5%	60.60	0.32	0.38	0.55							0.32	0.38	0.55	**19.39**	**22.73**	**33.03**	52.5%
P-INT	34.10	UNDEVLOPED	2.0%	34.10	0.03	0.09	0.36							0.03	0.09	0.36	**1.02**	**3.07**	**12.28**	2.0%
SRE FILING 6 E'LY OUTFALL BASINS	**33.40**	**51.1%**																		
SRE FILING 8 SW'LY OUTFALL BASINS	**33.31**	**55.8%**																		
TRIBUTARY AREA TO NW'LY OUTFALL	**136.3**	**48.9%**																		
TOTAL AREA TRIBUTARY TO POND FSD-16	**211.8**	**49.0%**																		

JOB NAME: *STERLING RANCH EAST FILING NO. 4 - FINAL PLAT*
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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1-C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
OS-1	0.23	0.33	0.61	0.12	90	2.7	11.7					11.7	3.11	3.90	6.54	0.7	**1.3**	**4.0**
OS-2	0.03	0.04	0.07	0.12	90	4.5	9.9					9.9	3.31	4.15	6.97	0.1	**0.1**	**0.5**
OS-3	0.10	0.14	0.31	0.12	10	0.2	4.5	130	4.0%	4.0	0.5	5.0	4.12	5.17	8.68	0.4	**0.7**	**2.7**
OS-4	0.96	1.27	2.31	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	3	**4**	**13**
OS-5	0.99	1.19	1.80	0.12	100	2	14.1	350	2.0%	2.8	2.1	16.1	2.73	3.41	5.73	3	**4**	**10**
A	0.50	0.61	0.94	0.12	100	2	14.1	350	2.0%	2.8	2.1	16.1	2.73	3.41	5.73	1	**2**	**5**
B	0.87	1.05	1.61	0.12	100	2	14.1	330	2.5%	3.2	1.7	15.8	2.75	3.44	5.78	2	**4**	**9**
C	0.76	0.92	1.40	0.12	100	2	14.1	670	2.5%	3.2	3.5	17.6	2.62	3.28	5.51	2	**3**	**8**
D	0.62	0.75	1.14	0.12	100	2	14.1	370	2.5%	3.2	2.0	16.0	2.73	3.42	5.74	2	**3**	**7**
E	0.87	1.05	1.61	0.12	100	2	14.1	450	2.5%	3.2	2.4	16.4	2.70	3.38	5.68	2	**4**	**9**
F	0.32	0.38	0.55	0.12	50	1	10.0	530	2.0%	2.8	3.1	13.1	2.98	3.73	6.26	1	**1**	**3**
G	1.81	2.42	4.46	0.12	100	2	14.1	700	2.0%	2.8	4.1	18.2	2.58	3.23	5.42	5	**8**	**24**
H	0.11	0.12	0.15	0.12	20	0.6	5.5	80	1.5%	2.4	0.5	6.1	3.89	4.88	8.20	0.4	**0.6**	**1.2**
I	0.90	1.05	1.53	0.12	100	2	14.1	430	3.0%	3.5	2.1	16.1	2.72	3.41	5.73	2	**4**	**9**
J	0.51	0.60	0.87	0.12	50	1	10.0	675	2.0%	2.8	4.0	13.9	2.90	3.63	6.10	1	**2**	**5**

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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1-C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

*For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
K	0.06	0.07	0.08	0.12	20	0.6	5.5	50	1.5%	2.4	0.3	5.8	3.93	4.93	8.28	0.3	**0.3**	**0.7**
L	0.54	0.64	0.93	0.12	50	1	10.0	800	1.5%	2.4	5.4	15.4	2.78	3.48	5.84	2	**2**	**5**
M	0.50	0.61	0.94	0.12	50	1	10.0	800	1.5%	2.4	5.4	15.4	2.78	3.48	5.84	1	**2**	**5**
N	1.34	1.58	2.29	0.12	100	2	14.1	570	2.0%	2.8	3.4	17.4	2.63	3.30	5.53	4	**5**	**13**
O	0.93	1.09	1.58	0.12	100	2	14.1	570	2.0%	2.8	3.4	17.4	2.63	3.30	5.53	2	**4**	**9**
P	0.17	0.18	0.23	0.12	20	0.6	5.5	50	1.5%	2.4	0.3	5.8	3.93	4.93	8.28	0.7	**0.9**	**1.9**
Q	0.32	0.35	0.44	0.12	50	1	10.0	200	1.5%	2.4	1.4	11.3	3.15	3.94	6.62	1.0	**1.4**	**2.9**
R	1.12	1.31	1.91	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	3	**4**	**10**
S	0.22	0.24	0.30	0.12	50	1	10.0	100	1.5%	2.4	0.7	10.6	3.22	4.04	6.78	0.7	**1.0**	**2.0**
T	0.92	1.12	1.72	0.12	100	2	14.1	530	2.0%	2.8	3.1	17.2	2.65	3.32	5.57	2	**4**	**10**
U	0.67	0.82	1.28	0.12	100	2	14.1	530	2.0%	2.8	3.1	17.2	2.65	3.32	5.57	2	**3**	**7**
V	0.13	0.19	0.41	0.12	100	2	14.1	60	1.5%	2.4	0.4	14.5	2.85	3.57	6.00	0.4	**0.7**	**2.5**
W	0.24	0.30	0.48	0.12	100	3	12.3	70	1.5%	2.4	0.5	12.8	3.00	3.76	6.31	0.7	**1.1**	**3.0**

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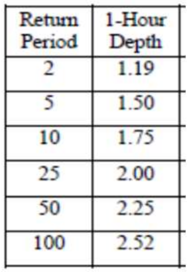


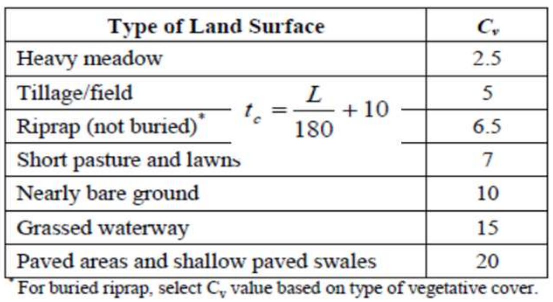
Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v



Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

*For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
F6-EE	0.57	0.62	0.85	0.12	90	2	12.9	300	1.5%	2.4	2.0	14.9	2.82	3.53	5.92	2	**2**	**5**
F6-GG	1.14	1.25	1.61	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	**5**	**10**
F6-HH	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	**5**	**9**
F6-V	0.58	0.75	1.30	0.12	100	2	14.1	370	2.0%	2.8	2.2	16.3	2.72	3.40	5.71	2	**3**	**7**
F6-W	0.25	0.30	0.43	0.12	50	1	10.0	370	2.0%	2.8	2.2	12.1	3.06	3.84	6.45	0.8	**1.1**	**2.8**
F6-X	0.64	0.75	1.09	0.12	100	2	14.1	350	1.5%	2.4	2.4	16.5	2.70	3.38	5.68	2	**3**	**6**
F6-Y	0.90	1.09	1.66	0.12	100	2	14.1	600	4.0%	4.0	2.5	16.6	2.69	3.37	5.66	2	**4**	**9**
SR-1	0.69	0.73	0.90	0.12	50	5	5.9	550	3.5%	3.7	2.4	8.3	3.52	4.41	7.40	2	**3**	**7**
SR-2	0.44	0.45	0.53	0.12	15	0.4	5.0	550	3.5%	1.9	4.9	9.9	3.31	4.15	6.97	1	**2**	**4**
Z	0.05	0.07	0.14	0.12	90	3	11.3					11.3	3.15	3.95	6.63	0.2	**0.3**	**0.9**
AA	0.67	0.83	1.32	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	**4**	**10**
BB	0.31	0.74	2.42	0.12	70	2	10.5					10.5	3.24	4.06	6.82	1	**3**	**16**
SC	1.14	1.80	4.23	0.12	100	3	12.3	200	10.0%	2.2	1.5	13.8	2.91	3.64	6.12	3	**7**	**26**

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DATE:	*06/18/26*
CALC'D BY:	*MAW*

Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

$$t_c = \frac{L}{180} + 10$$

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

*For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length *(ft)*	Height *(ft)*	Tc *(min)*	STREET / CHANNEL FLOW Length *(ft)*	Slope *(%)*	Velocity *(fps)*	Tc *(min)*	Tc TOTAL *(min)*	INTENSITY I(2) *(in/hr)*	I(5) *(in/hr)*	I(100) *(in/hr)*	TOTAL FLOWS Q(2) *(cfs)*	Q(5) *(cfs)*	Q(100) *(cfs)*
F2-A	0.93	1.09	1.58	0.12	50	1	10.0	300	2.0%	2.8	1.8	11.7	3.11	3.89	6.53	3	**4**	**10**
F2-B	1.60	1.88	2.73	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	4	**6**	**16**
F8-1	1.13	1.34	1.99	0.12	90	2	12.9	560	1.5%	2.4	3.8	16.7	2.68	3.36	5.64	3	**4**	**11**
F8-2	0.25	0.31	0.50	0.12	100	3	12.3	60	1.5%	2.4	0.4	12.7	3.01	3.77	6.33	0.8	**1.2**	**3**
F8-3	1.08	1.25	1.87	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	3	**4**	**10**
F8-4	1.66	1.85	2.52	0.12	100	2	14.1	650	2.5%	3.2	3.4	17.5	2.63	3.29	5.52	4	**6**	**14**
F8-5	1.29	1.43	1.95	0.12	100	2	14.1	600	2.5%	3.2	3.2	17.2	2.65	3.31	5.56	3	**5**	**11**
F8-6A	0.65	0.73	1.01	0.12	100	2	14.1	325	1.5%	2.4	2.2	16.3	2.71	3.40	5.70	2	**2**	**6**
F8-6B	0.35	0.39	0.51	0.12	50	1	10.0	325	1.5%	2.4	2.2	12.2	3.06	3.84	6.44	1.1	**1.5**	**3**
F8-7A	0.74	0.82	1.10	0.12	100	2	14.1	425	1.5%	2.4	2.9	17.0	2.67	3.34	5.60	2	**3**	**6**
F8-7B	1.07	1.18	1.57	0.12	100	2	14.1	560	3.5%	3.7	2.5	16.6	2.69	3.37	5.66	3	**4**	**9**
P1-F1	19.39	22.73	33.03	0.12	100	2	14.1	2000	1.5%	2.4	13.6	27.7	2.08	2.60	4.37	40	**59**	**144**
P-INT	1.02	3.07	12.28	0.12	300	8	22.2	2000	2.5%	1.6	21.1	43.3	1.55	1.93	3.24	2	**6**	**40**

JOB NAME: ***STERLING RANCH EAST FILING NO. 4 - FINAL PLAT***
JOB NUMBER: ***1183.41***
DATE: ***06/18/26***
CALCULATED BY: ***MAW***

*ALL STORM FACILITIES WITHIN PUBLIC ROW TO BE OWNED/MAINTAINED BY EL PASO COUNTY

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (ULTIMATE)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Facility/ Inlet Size*
1	OS-1, A, B	1.99	3.16	16.4	3.38	5.68	7	18	Prop. 10' Type R Sump Inlet
2	OS-2, C	0.95	1.47	17.6	3.28	5.51	3	8	Prop. 5' Type R Sump Inlet
3	D	0.75	1.14	16.0	3.42	5.74	3	7	Prop. 10' Type R Sump Inlet
4	OS-3, E	1.19	1.92	16.4	3.38	5.68	4	11	Prop. 10' Type R At-grade Inlet
5	F	0.38	0.55	13.1	3.73	6.26	1	3	Prop. 6' crosspan
6	DP-5, G	2.79	5.00	18.2	3.23	5.42	9	27	Prop. 15' Type R Sump Inlet
7	H	0.12	0.15	6.1	4.88	8.20	0.6	1.2	Prop. 5' Type R Sump Inlet
8	I	1.05	1.53	16.1	3.41	5.73	4	9	Prop. 6' crosspan
9	DP-8, J	1.65	2.40	16.2	3.40	5.71	6	14	Prop. 10' Type R Sump Inlet
10	K	0.07	0.08	5.8	4.93	8.28	0.3	0.7	Prop. 5' Type R Sump Inlet
11	L	0.64	0.93	15.4	3.48	5.84	2	5	Prop. 5' Type R Sump Inlet
12	M, DP-4 Flow-by	0.62	1.57	19.4	3.13	5.26	2	8	Prop. 5' Type R Sump Inlet

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (ULTIMATE)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
13	N	1.58	2.29	17.4	3.30	5.53	5	13	Prop. 10' Type R Sump Inlet
14	O	1.09	1.58	17.4	3.30	5.53	4	9	Prop. 5' Type R Sump Inlet
15	P	0.18	0.23	5.8	4.93	8.28	0.9	1.9	Prop. 5' Type R Sump Inlet
16	Q	0.35	0.44	11.3	3.94	6.62	1.4	2.9	Prop. 5' Type R Sump Inlet
17	R	1.31	1.91	18.5	3.21	5.38	4	10	Prop. 5' Type R At-grade Inlet
18	S	0.24	0.30	10.6	4.04	6.78	1.0	2.0	Prop. 5' Type R Sump Inlet
19	T	1.12	1.72	17.2	3.32	5.57	4	10	Prop. 5' Type R Sump Inlet
20	U	0.82	1.28	17.2	3.32	5.57	3	7	Prop. 5' Type R Sump Inlet
21	OS-4, V	1.46	2.72	15.8	3.44	5.77	5	16	Future Type R inlets at Sump Condition
22	F6-EE	0.62	0.85	14.9	3.53	5.92	2	5	Prop. 5' Type R Sump Inlet
23	OS-5, W	1.48	2.27	16.1	3.41	5.73	5	13	Prop. 10' Type R Sump Inlet
24	F6-V	0.75	1.30	16.3	3.40	5.71	3	7	Prop. 6' crosspan
25	DP-24, F6-W, F6-X	1.79	2.82	16.5	3.38	5.68	6	16	Prop. 10' Type R Sump Inlet

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (ULTIMATE)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
26	F6-Y	1.09	1.66	16.6	3.37	5.66	4	9	Prop. 5' Type R Sump Inlet
27	F6-HH	1.28	1.51	14.2	3.60	6.04	5	9	Prop. 15' Type R At-Grade Inlet
28	F6-GG	1.25	1.61	12.7	3.78	6.34	5	10	Prop. 15' Type R At-Grade Inlet
29	**POND FSD-16 INFLOW (NORTHWEST FOREBAY)**	**51.32**	**76.44**	**29.8**	**2.49**	**4.18**	**128**	**320**	**Prop. Impact Structure/Forebay**
30	F8-1	1.34	1.99	16.7	3.36	5.64	4	11	Future Type R inlets at Sump Condition
31	F8-2	0.31	0.50	12.7	3.77	6.33	1.2	3.2	Future Type R inlet at Sump Condition
32	**POND FSD-16 INFLOW (SOUTHWEST FOREBAY)**	**13.51**	**18.87**	**23.2**	**2.87**	**4.81**	**39**	**91**	**Prop. Concrete Forebay**
33	**POND FSD-16 INFLOW (EAST FOREBAY) REF: SRE6 FDR DP-20 (SF2610)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**Prop. Concrete Forebay**
	POND FSD-16 TOTAL INFLOW (ULTIMATE) (Incl. Basins AA and BB)	**78.68**	**116.74**	**30.3**	**2.47**	**4.14**	**194**	**483**	**Prop. Pond FSD-16**
	POND FSD-16 TOTAL INFLOW (INTERIM) (Incl. Basins AA and BB)	**56.23**	**91.23**	**30.3**	**2.47**	**4.14**	**139**	**378**	**Prop. Pond FSD-16**

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REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.
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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
1	DP-1	1.99	3.16	16.4	3.38	5.68	7	18	PROP. 24" RCP
2	DP-2	0.95	1.47	17.6	3.28	5.51	3	8	PROP. 18" RCP
3	PR-1, PR-2	2.94	4.63	18.2	3.23	5.42	10	25	PROP. 30" RCP
4	DP-3	0.75	1.14	16.0	3.42	5.74	3	7	PROP. 18" RCP
5	PR-3, PR-4	3.69	5.77	18.3	3.22	5.41	12	31	PROP. 30" RCP
6	DP-4 Capture	1.18	1.29	16.4	3.38	5.68	4	7	PROP. 18" RCP
7	PR-5, PR-6	4.87	7.06	18.9	3.17	5.33	15	38	PROP. 30" RCP
8	DP-6	2.79	5.00	18.2	3.23	5.42	9	27	PROP. 30" RCP
9	DP-7	0.12	0.15	6.1	4.88	8.20	0.6	1.2	PROP. 18" RCP
10	PR-7, PR-8, PR-9	7.78	12.21	19.7	3.11	5.22	24	64	PROP. 36" RCP
11	DP-8, DP-9	2.70	3.92	16.2	3.40	5.71	9	22	PROP. 24" RCP
12	DP-10	0.07	0.08	5.8	4.93	8.28	0.3	0.7	PROP. 18" RCP
13	**PR-10, PR-11, PR-12**	**10.55**	**16.21**	**19.8**	**3.10**	**5.21**	**33**	**84**	**EX. 42" RCP STUB**

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
14	DP-11	0.64	0.93	15.4	3.48	5.84	2	5	PROP. 18" RCP
15	DP-12	0.62	1.57	19.4	3.13	5.26	2	8	PROP. 24" RCP
16	PR-14, PR-15	1.26	2.50	19.9	3.09	5.19	4	13	PROP. 30" RCP
17	DP-13	1.58	2.29	17.4	3.30	5.53	5	13	PROP. 24" RCP
18	DP-14	1.09	1.58	17.4	3.30	5.53	4	9	PROP. 18" RCP
19	PR-17, PR-18	2.66	3.87	17.5	3.29	5.52	9	21	PROP. 30" RCP
20	PR-16, PR-19	3.92	6.36	20.0	3.09	5.18	12	33	PROP. 36" RCP
21	DP-15	0.18	0.23	5.8	4.93	8.28	0.9	1.9	PROP. 18" RCP
22	DP-16	0.35	0.44	11.3	3.94	6.62	1.4	2.9	PROP. 18" RCP
23	PR-20, PR-21, PR-22	4.45	7.03	20.4	3.06	5.13	14	36	PROP. 36" RCP
24	DP-17	1.31	1.91	18.5	3.21	5.38	4	10	PROP. 24" RCP

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
25	DP-18	0.24	0.30	10.6	4.04	6.78	1.0	2.0	PROP. 18" RCP
26	PR-23, PR-24, PR-25	6.01	9.23	20.7	3.03	5.09	18	47	PROP. 36" RCP
27	DP-19	1.12	1.72	17.2	3.32	5.57	4	10	PROP. 24" RCP
28	DP-20, PR-27	1.94	3.00	17.2	3.32	5.57	6	17	PROP. 24" RCP
29	**PR-26, PR-27, PR-28**	**9.07**	**13.95**	**21.0**	**3.01**	**5.06**	**27**	**71**	**EX. 42" RCP STUB**
30	1/2 P1-F1	11.36	16.51	27.7	2.60	4.37	30	72	EX. 42" RCP STUB
31	1/2 P1-F1, DP-21	12.82	19.24	27.7	2.60	4.37	33	84	EX. 42" RCP STUB
32	PR-30, PR-31	24.18	35.75	27.8	2.60	4.36	63	156	PROP. 48" RCP
33	DP-22	0.62	0.85	14.9	3.53	5.92	2	5	PROP. 18" RCP
34	PR-33, DP-23	2.11	3.12	16.1	3.41	5.73	7	18	PROP. 30" RCP
35	PR-32. PR-34	26.29	38.87	28.6	2.55	4.29	67	167	PROP. 48" RCP

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
36	PR-13, PR-35	36.84	55.09	29.2	2.52	4.23	93	233	PROP. 60" RCP
37	PR-29, PR-36	45.91	69.03	29.2	2.52	4.23	116	292	PROP. 66" RCP
38	DP-27 Capture	1.28	1.38	16.5	3.38	5.68	4	8	PROP. 18" RCP
39	DP-28 Capture, PR-38	2.53	2.92	16.6	3.37	5.66	9	16	PROP. 30" RCP
40	PR-37, PR-39	48.44	71.95	29.6	2.50	4.20	121	302	PROP. 66" RCP
41	DP-25	1.79	2.82	17.0	3.33	5.59	6	16	PROP. 24" RCP
42	DP-26, PR-41	2.88	4.49	16.5	3.38	5.68	10	25	PROP. 30" RCP
43	**PR-40, PR-42 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**51.32**	**76.44**	**29.8**	**2.49**	**4.18**	**128**	**320**	**PROP. 66" RCP**

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
30	BURIED AND PLUGGED WITH NO FLOW IN INTERIM						0	0	EX. 42" RCP STUB
31	P-INT, V and W routed thru TSB	3.55	13.16	43.3	1.93	3.24	7	43	EX. 42" RCP STUB
32	PR-30, PR-31	3.55	13.16	43.4	1.93	3.24	7	43	PROP. 48" RCP
33	DP-22	0.62	0.85	14.9	3.53	5.92	2	5	PROP. 18" RCP
34	PR-33, (10%) DP-23	0.77	1.08	16.1	3.41	5.73	3	6	PROP. 24" RCP
35	PR-32. PR-34	4.33	14.24	44.2	1.90	3.19	8	45	PROP. 48" RCP
36	PR-13, PR-35	14.88	30.46	44.8	1.88	3.16	28	96	PROP. 60" RCP
37	PR-29, PR-36	23.95	44.41	44.8	1.88	3.16	45	140	PROP. 66" RCP

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
38	DP-27 Capture	1.28	1.38	16.5	3.38	5.68	4	8	PROP. 18" RCP
39	DP-28 Capture, PR-38	2.53	2.92	16.6	3.37	5.66	9	16	PROP. 24" RCP
40	PR-37, PR-39	26.47	47.32	45.2	1.87	3.13	49	148	PROP. 66" RCP
41	DP-25	1.79	2.82	17.0	3.33	5.59	6	16	PROP. 24" RCP
42	DP-26, PR-41	2.88	4.49	16.5	3.38	5.68	10	25	PROP. 30" RCP
43	**PR-40, PR-42 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**29.36**	**51.81**	**45.4**	**1.86**	**3.12**	**55**	**162**	**PROP. 66" RCP**

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POND FSD-16 TRIBUTARY BASINS (Entire Pond - Ultimate)

TRIBUTARY BASIN	BASIN AREA (AC)	WEIGHTED % IMPERVIOUS
OS-1	1.30	35.0%
OS-2	0.14	35.0%
OS-3	0.13	90.0%
OS-4	4.90	31.7%
OS-5	3.40	47.8%
A	1.80	46.0%
B	3.10	46.0%
C	2.70	46.0%
D	2.20	46.0%
E	3.10	46.0%
F	1.00	52.5%
G	9.50	30.8%
H	0.24	61.9%
I	2.80	52.5%
J	1.60	52.5%
K	0.11	74.1%
L	1.70	52.5%
M	1.80	46.0%
N	4.20	52.5%
O	2.90	52.5%
P	0.33	68.3%
Q	0.65	67.1%
R	3.50	52.5%
S	0.44	67.6%
T	3.30	46.0%
U	2.50	43.7%
V	0.93	21.7%
W	0.94	41.9%
F6-EE	1.30	49.9%
F6-GG	2.50	63.9%
F6-HH	2.00	76.3%
F6-V	2.70	34.9%
F6-W	0.79	52.5%
F6-X	2.00	52.5%
F6-Y	3.20	46.0%
AA	2.60	42.3%
BB	6.20	7.0%
P1-F1	60.60	52.5%
SRE FILING 8 SW'LY OUTFALL BASINS	33.31	55.8%
SRE FILING 6 E'LY OUTFALL BASINS	33.40	51.1%
TOTAL	**211.81**	**49.0%**

POND FSD-16 (Entire Pond) EFF. IMPERVIOUS % 49.0%

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POND FSD-16 TRIBUTARY BASINS @ NW OUTFALL(Ultimate)

TRIBUTARY BASIN	BASIN AREA (AC)	WEIGHTED % IMPERVIOUS
OS-1	1.30	35.0%
OS-2	0.14	35.0%
OS-3	0.13	90.0%
OS-4	4.90	31.7%
OS-5	3.40	47.8%
A	1.80	46.0%
B	3.10	46.0%
C	2.70	46.0%
D	2.20	46.0%
E	3.10	46.0%
F	1.00	52.5%
G	9.50	30.8%
H	0.24	61.9%
I	2.80	52.5%
J	1.60	52.5%
K	0.11	74.1%
L	1.70	52.5%
M	1.80	46.0%
N	4.20	52.5%
O	2.90	52.5%
P	0.33	68.3%
Q	0.65	67.1%
R	3.50	52.5%
S	0.44	67.6%
T	3.30	46.0%
U	2.50	43.7%
V	0.93	21.7%
W	0.94	41.9%
F6-EE	1.30	49.9%
F6-GG	2.50	63.9%
F6-HH	2.00	76.3%
F6-V	2.70	34.9%
F6-W	0.79	52.5%
F6-X	2.00	52.5%
F6-Y	3.20	46.0%
P1-F1	60.60	52.5%
TOTAL	136.30	**48.9%**

POND FSD-16 @ NW OUTFALL EFF. IMP. % **48.9%**

JOB NAME: *STERLING RANCH EAST FILING NO. 4 - FINAL PLAT*
JOB NUMBER: *1183.41*
DATE: *06/18/26*
CALCULATED BY: *MAW*

POND FSD-16 TRIBUTARY BASINS @ SW'LY OUTFALL(Ultimate)

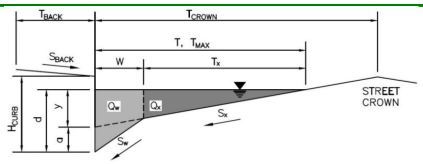
TRIBUTARY BASIN	BASIN AREA (AC)	WEIGHTED % IMPERVIOUS
F2-A	2.90	52.5%
F2-B	5.00	52.5%
F8-1	3.70	50.0%
F8-2	1.00	41.3%
F8-3	3.50	48.4%
F8-4	4.40	59.7%
F8-5	3.40	59.9%
F8-6A	1.80	56.9%
F8-6B	0.86	65.0%
F8-7A	1.90	61.9%
F8-7B	2.70	62.9%
SR-1	1.20	65.1%
SR-2	0.65	75.7%
Z	0.30	26.5%
TOTAL	33.31	**55.8%**

POND FSD-16 SW'LY OUTFALL EFF. IMP. % 55.8%

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-1**



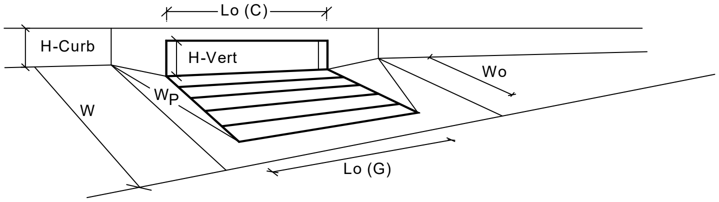
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition		Minor Storm	Major Storm	
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



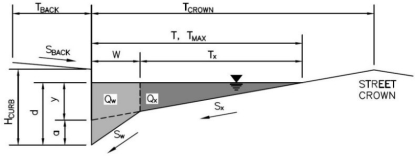
Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	7.0	18.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-2**



Gutter Geometry:

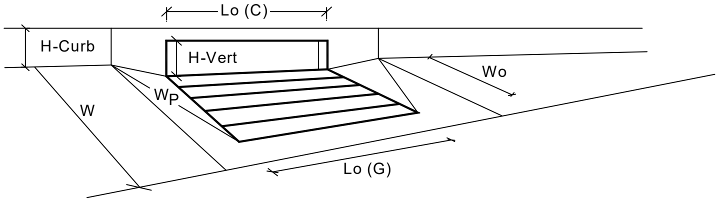
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

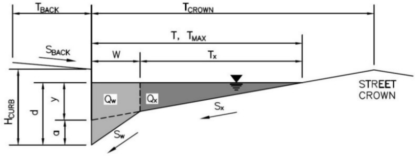
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	3.0	8.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-3**



Gutter Geometry:

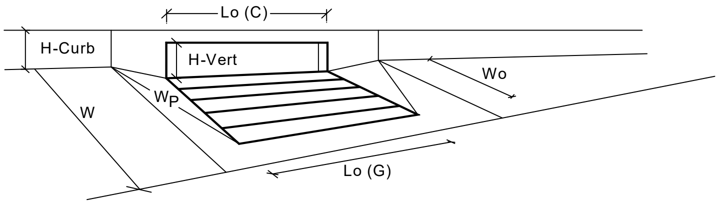
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



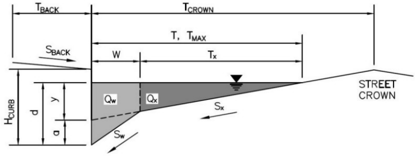
Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	3.0	7.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-4**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.025	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

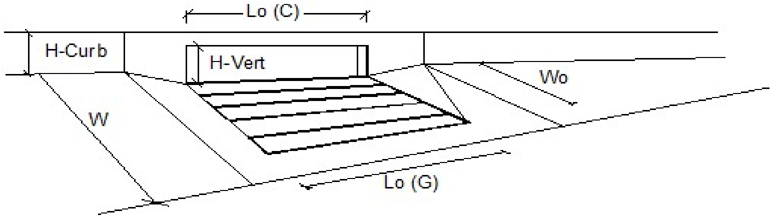
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.2**	**17.2**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 4.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 11.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



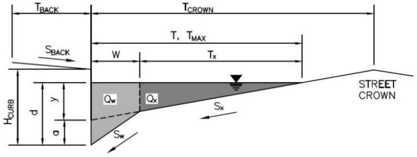
Design Information (Input)	CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q_a =**	**3.9**	**7.4**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.1**	**3.6**	**cfs**
Capture Percentage = Q_a/Q_o		**C% =**	**99**	**67**	**%**

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT
Inlet ID: DP-6



Gutter Geometry:

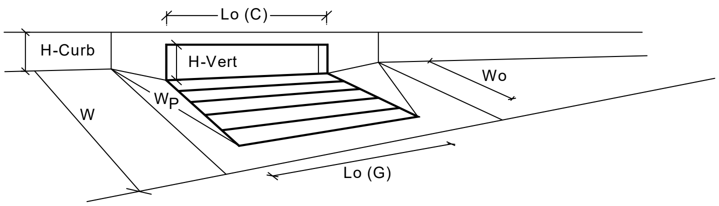
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

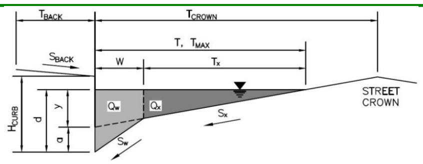


Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	15.00	15.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.79	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**9.7**	**39.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	9.0	27.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-7**



Gutter Geometry:

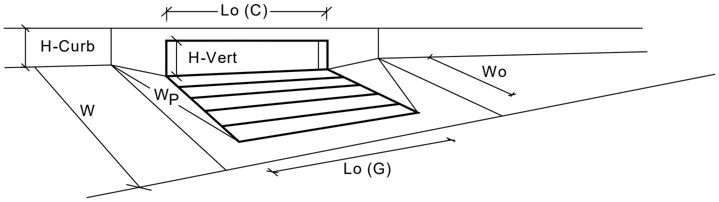
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.6	1.2	cfs

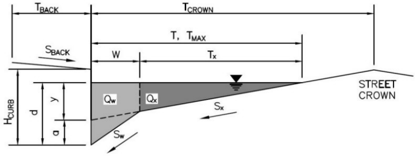
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-9**



Gutter Geometry:

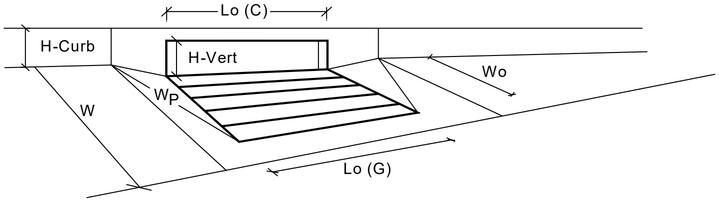
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



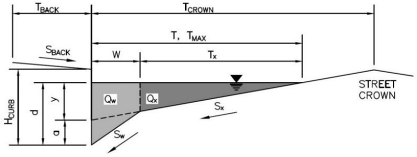
Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	12.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)		$Q_{PEAK\ REQUIRED}$ =	6.0	14.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-10**



Gutter Geometry:

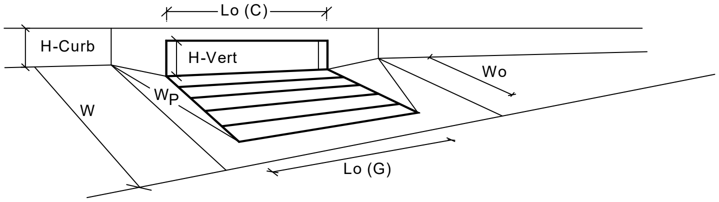
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening			
	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.3	0.7	cfs

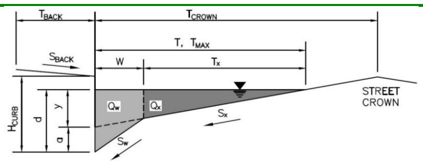
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT

Inlet ID: DP-11



Gutter Geometry:

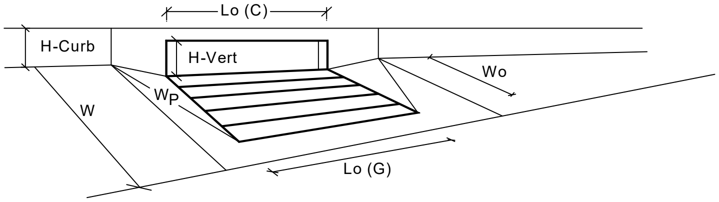
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	

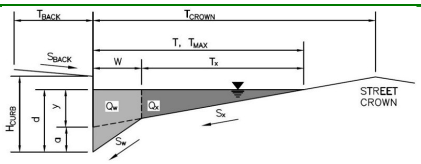
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-12**



Gutter Geometry:

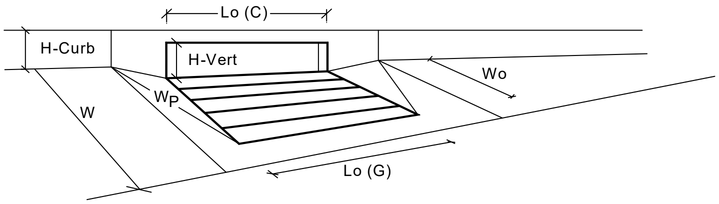
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

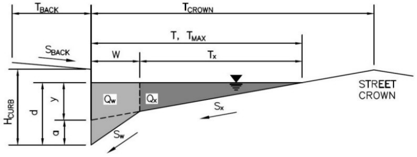


Design Information (Input)		MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼ Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	8.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-13**



Gutter Geometry:

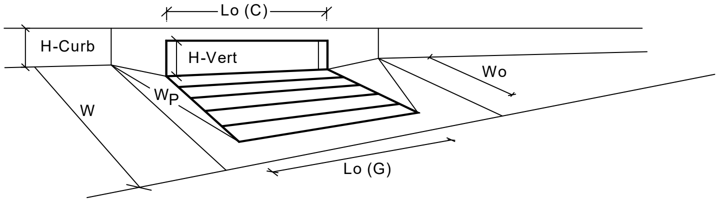
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition				
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)	CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	12.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)		$Q_{PEAK\ REQUIRED}$ =	5.0	13.0	cfs

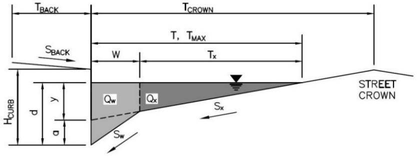
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-14**



Gutter Geometry:

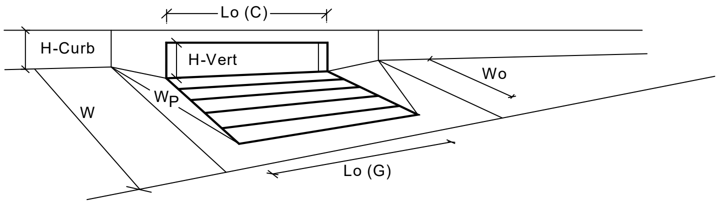
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	9.0	cfs

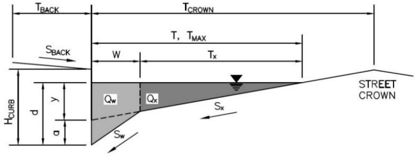
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT

Inlet ID: DP-15



Gutter Geometry:

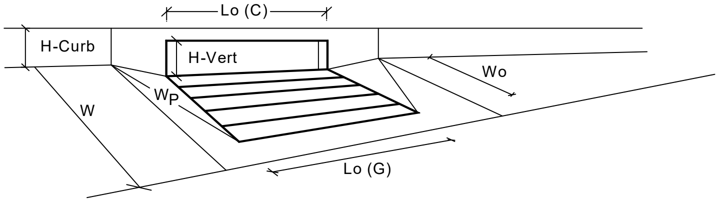
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening	
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.9	1.9	cfs

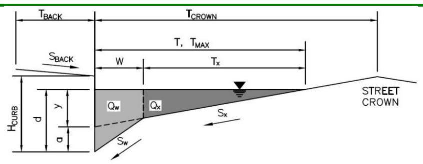
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-16**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

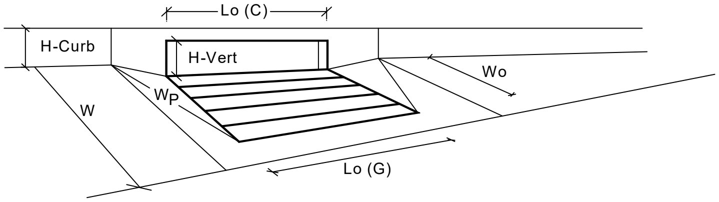
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition
MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

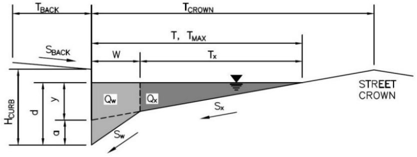


Design Information (Input) CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.4	2.9	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-17**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

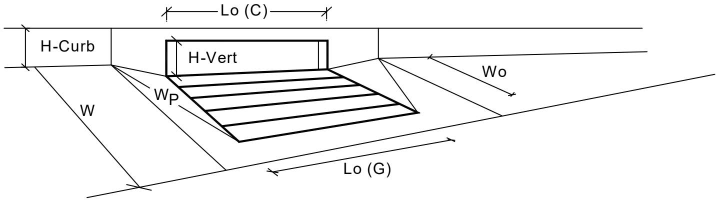
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



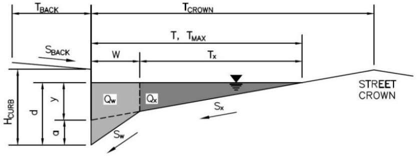
Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	10.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-18**



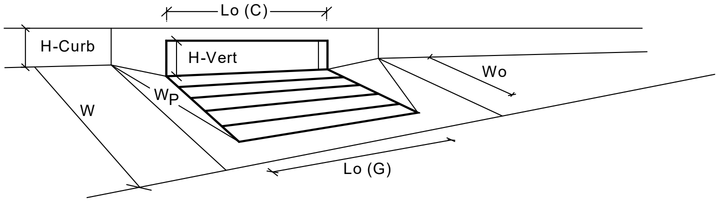
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



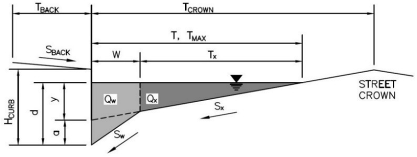
Design Information (Input) CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.0	2.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**

Inlet ID: **DP-19**

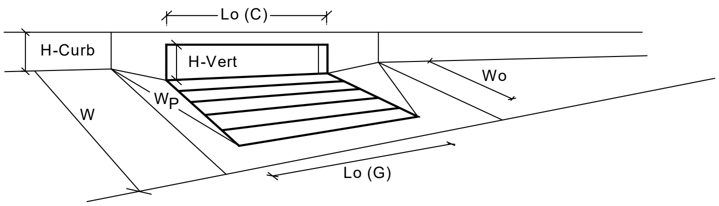


Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	
MINOR STORM Allowable Capacity is not applicable to Sump Condition		Minor Storm	Major Storm	
MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

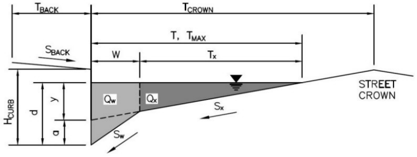


Design Information (Input) CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	10.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-20**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

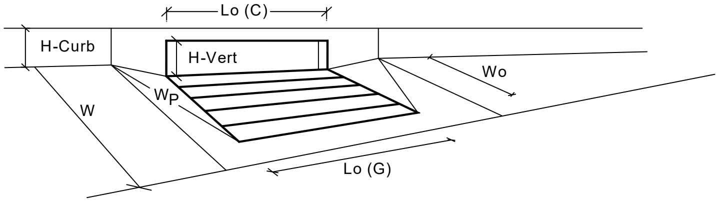
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

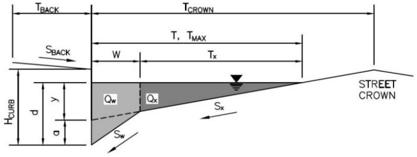


Design Information (Input) CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	3.0	7.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT
Inlet ID: DP-22



Gutter Geometry:

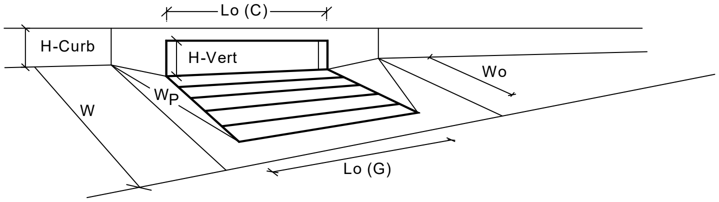
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	24.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



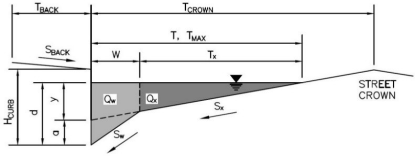
Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT

Inlet ID: DP-23



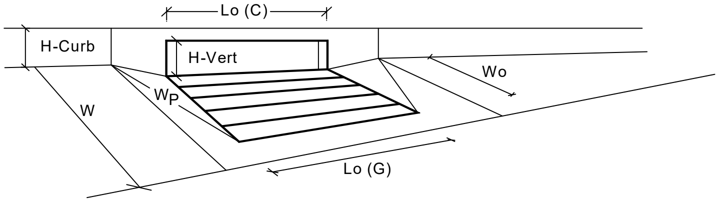
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	24.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



		MINOR	MAJOR	
Design Information (Input)	CDOT Type R Curb Opening			
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

		MINOR	MAJOR	
Low Head Performance Reduction (Calculated)				
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	5.0	13.0	cfs

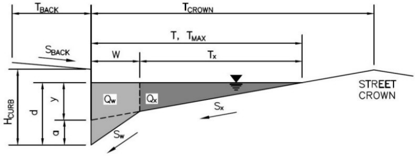
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT

Inlet ID: DP-25



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

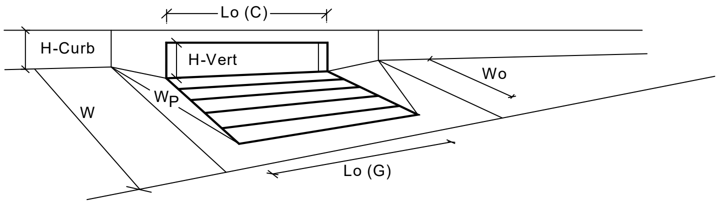
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition
MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

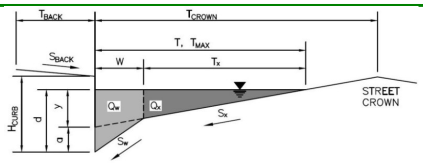
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	6.0	16.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 4 - FINAL PLAT**
Inlet ID: **DP-26**



Gutter Geometry:

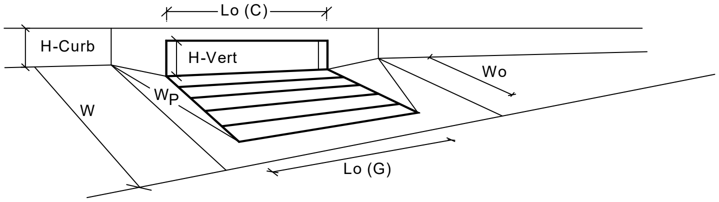
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



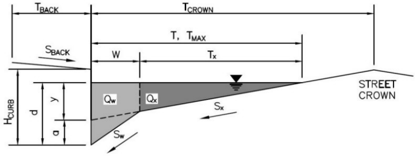
Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	11.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT

Inlet ID: DP-27



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	26.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.035	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

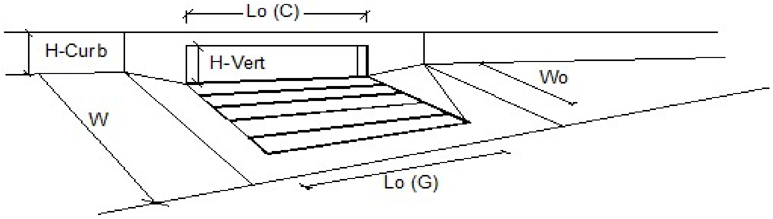
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.0**	**62.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 5.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 10.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



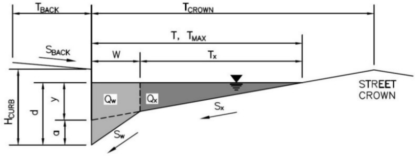
Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f (C) =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**5.0**	**9.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.8**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**100**	**92**	**%**

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT
Inlet ID: DP-28



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	26.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.035	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

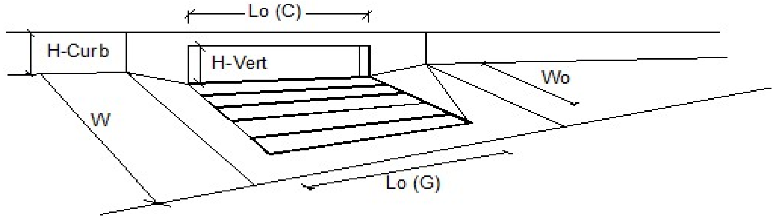
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.0**	**62.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 5.00 cfs on sheet 'Inlet Management'
Major storm max. allowable capacity GOOD - greater than the design peak flow of 9.00 cfs on sheet 'Inlet Management'

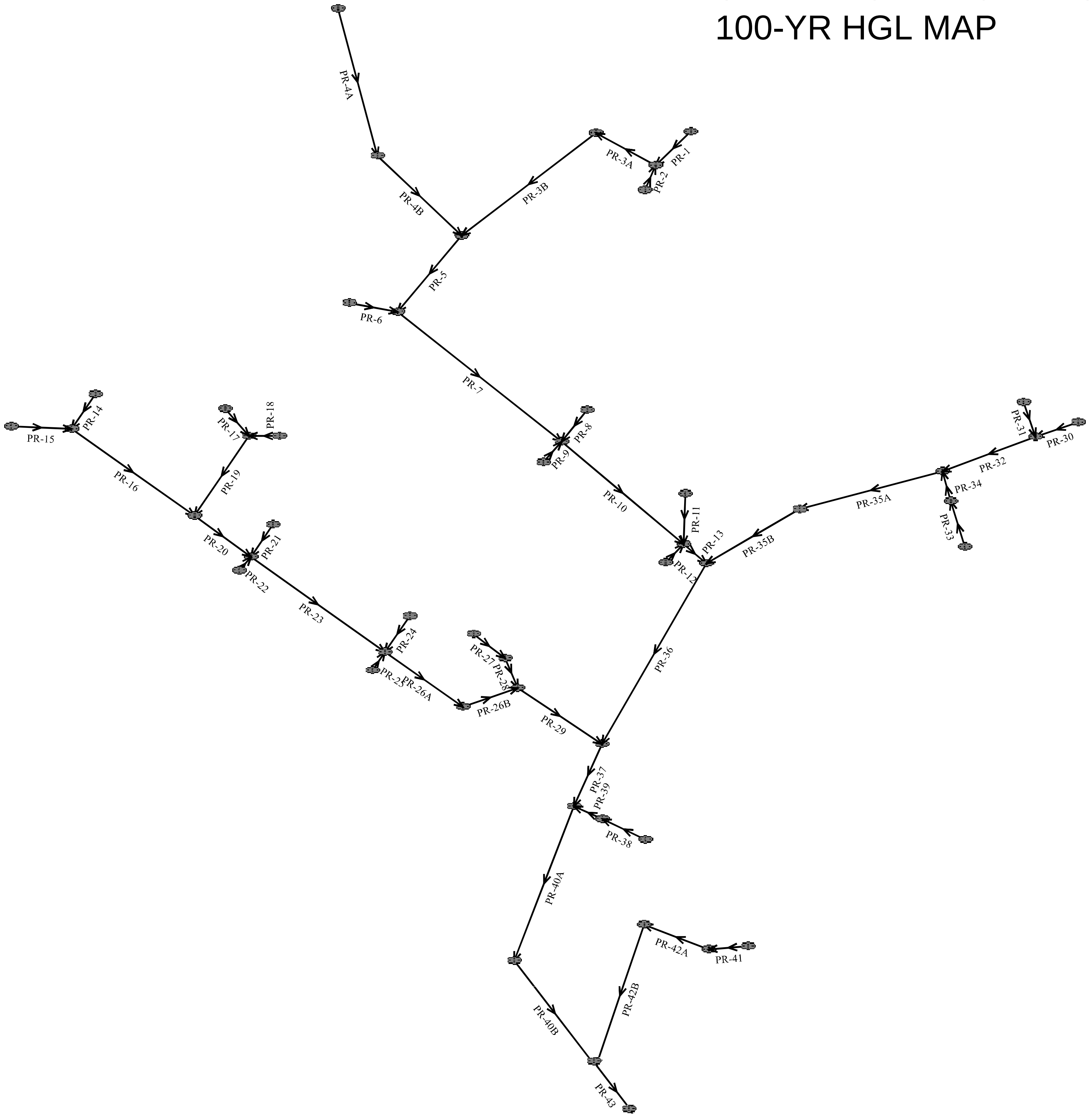
INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**5.0**	**8.6**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.4**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**100**	**95**	**%**

STERLING RANCH EAST FILING NO. 4
100-YR HGL MAP


PR-4A
PR-1
PR-3A
PR-2
PR-4B
PR-3B
PR-5
PR-6
PR-7
PR-14
PR-18
PR-15
PR-17
PR-8
PR-31
PR-30
PR-9
PR-32
PR-16
PR-19
PR-10
PR-34
PR-35A
PR-11
PR-21
PR-20
PR-13
PR-35B
PR-33
PR-12
PR-22
PR-23
PR-36
PR-24
PR-27
PR-28
PR-25
PR-26A
PR-26B
PR-29
PR-37
PR-39
PR-38
PR-40A
PR-42A
PR-41
PR-42B
PR-40B
PR-43

System Input Summary (100-YR HGL)

Rainfall Parameters

Rainfall Return Period: 100
Rainfall Calculation Method: Formula

One Hour Depth (in): 2.52
Rainfall Constant "A": 28.5
Rainfall Constant "B": 10
Rainfall Constant "C": 0.786

Rational Method Constraints

Minimum Urban Runoff Coeff.: 0.20
Maximum Rural Overland Len. (ft): 500
Maximum Urban Overland Len. (ft): 300
Used UDFCD Tc. Maximum: Yes

Sizer Constraints

Minimum Sewer Size (in): 18.00
Maximum Depth to Rise Ratio: 0.90
Maximum Flow Velocity (fps): 18.0
Minimum Flow Velocity (fps): 2.0

Backwater Calculations:

Tailwater Elevation (ft): 7101.78

Manhole Input Summary:

		Given Flow		Sub Basin Information						
Element Name	Ground Elevation (ft)	Total Known Flow (cfs)	Local Contribution (cfs)	Drainage Area (Ac.)	Runoff Coefficient	5yr Coefficient	Overland Length (ft)	Overland Slope (%)	Gutter Length (ft)	Gutter Velocity (fps)
NW OUTFALL	7102.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-43	7120.00	320.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-40B	7125.50	302.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-40A	7132.00	302.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-37	7136.50	292.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-36	7150.63	233.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-13	7150.30	84.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-10	7152.17	64.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-9	7152.42	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-7	7158.61	38.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-5	7163.12	31.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-4B	7166.85	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-4A	7169.61	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-3B	7170.97	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-3A	7169.63	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-2	7169.95	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-1	7169.95	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-6	7158.30	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PR-8	7152.42	27.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-11	7150.19	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-12	7150.13	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-35B	7158.19	167.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-35A	7159.31	167.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-34	7158.32	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-33	7158.32	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-32	7160.00	156.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-30	7162.00	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-31	7161.00	84.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-29	7139.80	71.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-28	7139.18	17.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-27	7139.18	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-26B	7140.13	47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-26A	7140.10	47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-23	7140.93	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-20	7142.22	33.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-16	7143.04	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-15	7143.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-14	7143.35	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-19	7141.15	21.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-17	7141.46	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-18	7141.46	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-21	7141.23	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-22	7141.23	2.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PR-24	7140.40	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-25	7140.40	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-39	7132.50	19.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-38	7132.50	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-42B	7127.53	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-42A	7126.04	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-41	7126.20	16.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Manhole Output Summary:

	Local Contribution					**Total Design Flow**				
Element Name	**Overland Time (min)**	**Gutter Time (min)**	**Basin Tc (min)**	**Intensity (in/hr)**	**Local Contrib (cfs)**	**Coeff. Area**	**Intensity (in/hr)**	**Manhole Tc (min)**	**Peak Flow (cfs)**	**Comment**
NW OUTFALL	0.00	0.00	0.00	0.00	0.00	27.36	11.69	0.07	320.00	
PR-43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	320.00	Surface Water Present (Downstream)
PR-40B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	302.00	
PR-40A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	302.00	
PR-37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	292.00	
PR-36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	233.00	
PR-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.00	
PR-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00	
PR-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	

PR-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.00	
PR-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.00	
PR-4B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
PR-4A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
PR-3B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	
PR-3A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	
PR-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	
PR-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	
PR-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
PR-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.00	
PR-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.00	
PR-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	
PR-35B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	167.00	
PR-35A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	167.00	
PR-34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	
PR-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	156.00	
PR-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.00	
PR-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.00	
PR-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.00	
PR-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00	
PR-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	
PR-26B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.00	
PR-26A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.00	
PR-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00	

PR-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.00	
PR-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	
PR-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	
PR-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.00	
PR-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	
PR-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.00	
PR-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	
PR-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	
PR-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	
PR-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	
PR-39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.00	
PR-38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	
PR-42B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	
PR-42A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	
PR-41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	

Sewer Input Summary:

		Elevation			**Loss Coefficients**			**Given Dimensions**		
Element Name	**Sewer Length (ft)**	**Downstream Invert (ft)**	**Slope (%)**	**Upstream Invert (ft)**	**Mannings n**	**Bend Loss**	**Lateral Loss**	**Cross Section**	**Rise (ft or in)**	**Span (ft or in)**
PR-43	53.86	7099.50	1.0	7100.04	0.013	0.03	1.00	CIRCULAR	66.00 in	66.00 in
PR-40B	138.69	7100.54	1.0	7101.93	0.013	0.05	1.00	CIRCULAR	66.00 in	66.00 in

PR-40A	260.47	7103.55	6.7	7121.00	0.013	0.38	1.00	CIRCULAR	66.00 in	66.00 in
PR-37	95.26	7122.53	2.5	7124.91	0.013	0.05	1.00	CIRCULAR	66.00 in	66.00 in
PR-36	588.27	7126.34	2.0	7138.11	0.013	1.32	1.00	CIRCULAR	60.00 in	60.00 in
PR-13	68.73	7140.09	1.7	7141.26	0.013	1.32	0.00	CIRCULAR	42.00 in	42.00 in
PR-10	460.44	7141.76	1.0	7146.36	0.013	0.05	0.00	CIRCULAR	36.00 in	36.00 in
PR-9	4.17	7147.85	3.0	7147.98	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-7	445.87	7146.85	1.2	7152.20	0.013	0.05	1.00	CIRCULAR	30.00 in	30.00 in
PR-5	174.56	7152.73	2.3	7156.74	0.013	1.32	1.00	CIRCULAR	30.00 in	30.00 in
PR-4B	158.13	7157.69	2.2	7161.17	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-4A	217.22	7161.57	1.4	7164.61	0.013	0.05	0.00	CIRCULAR	18.00 in	18.00 in
PR-3B	311.30	7157.23	1.8	7162.83	0.013	0.05	1.00	CIRCULAR	30.00 in	30.00 in
PR-3A	107.39	7163.34	1.0	7164.41	0.013	1.32	1.00	CIRCULAR	30.00 in	30.00 in
PR-2	5.24	7165.41	6.3	7165.74	0.013	0.31	0.00	CIRCULAR	18.00 in	18.00 in
PR-1	29.63	7164.90	1.0	7165.20	0.013	1.06	0.00	CIRCULAR	24.00 in	24.00 in
PR-6	35.51	7153.20	1.0	7153.56	0.013	0.20	0.00	CIRCULAR	18.00 in	18.00 in
PR-8	26.17	7146.86	1.0	7147.12	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-11	26.95	7143.26	5.0	7144.61	0.013	1.32	0.00	CIRCULAR	24.00 in	24.00 in
PR-12	3.00	7143.76	8.0	7144.00	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-35B	339.56	7139.71	1.5	7144.80	0.013	0.05	1.00	CIRCULAR	48.00 in	48.00 in
PR-35A	303.56	7145.30	1.5	7149.85	0.013	0.05	1.00	CIRCULAR	48.00 in	48.00 in
PR-34	18.33	7152.36	2.1	7152.74	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-33	53.34	7153.24	1.0	7153.77	0.013	0.05	0.00	CIRCULAR	18.00 in	18.00 in
PR-32	114.98	7150.36	1.5	7152.08	0.013	0.05	1.00	CIRCULAR	48.00 in	48.00 in
PR-30	73.90	7152.58	2.0	7154.06	0.013	0.05	1.00	CIRCULAR	42.00 in	42.00 in
PR-31	23.77	7152.58	1.0	7152.82	0.013	1.32	0.00	CIRCULAR	42.00 in	42.00 in

PR-29	182.93	7127.91	0.6	7129.01	0.013	0.05	0.00	CIRCULAR	42.00 in	42.00 in
PR-28	22.98	7131.01	8.0	7132.85	0.013	0.31	0.00	CIRCULAR	24.00 in	24.00 in
PR-27	35.34	7132.95	1.0	7133.30	0.013	0.05	0.00	CIRCULAR	24.00 in	24.00 in
PR-26B	101.49	7129.51	0.6	7130.12	0.013	0.38	1.00	CIRCULAR	36.00 in	36.00 in
PR-26A	157.21	7130.62	0.6	7131.56	0.013	0.38	1.00	CIRCULAR	36.00 in	36.00 in
PR-23	266.00	7132.06	0.6	7133.66	0.013	0.05	1.00	CIRCULAR	36.00 in	36.00 in
PR-20	102.00	7134.16	0.6	7134.77	0.013	0.05	1.00	CIRCULAR	36.00 in	36.00 in
PR-16	245.17	7135.19	0.9	7137.40	0.013	0.05	1.00	CIRCULAR	30.00 in	30.00 in
PR-15	35.17	7137.90	1.0	7138.25	0.013	0.11	0.00	CIRCULAR	24.00 in	24.00 in
PR-14	27.76	7138.40	2.0	7138.96	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-19	134.33	7135.27	0.5	7135.94	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-17	26.93	7136.44	1.0	7136.71	0.013	0.63	0.00	CIRCULAR	24.00 in	24.00 in
PR-18	6.93	7136.94	1.0	7137.01	0.013	0.46	0.00	CIRCULAR	18.00 in	18.00 in
PR-21	26.17	7135.65	2.2	7136.23	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-22	4.17	7136.16	1.7	7136.23	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-24	26.17	7133.56	3.2	7134.40	0.013	1.32	0.00	CIRCULAR	24.00 in	24.00 in
PR-25	4.17	7134.06	8.1	7134.40	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-39	17.18	7126.50	8.0	7127.87	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-38	53.33	7127.97	1.0	7128.50	0.013	0.05	0.00	CIRCULAR	18.00 in	18.00 in
PR-42B	190.99	7103.48	6.8	7116.47	0.013	0.38	0.00	CIRCULAR	30.00 in	30.00 in
PR-42A	120.00	7116.97	2.5	7119.97	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-41	47.56	7120.47	1.0	7120.95	0.013	0.05	0.00	CIRCULAR	24.00 in	24.00 in

Sewer Flow Summary:

	Full Flow Capacity		**Critical Flow**		**Normal Flow**							
Element Name	**Flow (cfs)**	**Velocity (fps)**	**Depth (in)**	**Velocity (fps)**	**Depth (in)**	**Velocity (fps)**	**Froude Number**	**Flow Condition**	**Flow (cfs)**	**Surcharged Length (ft)**	**Comment**	
PR-43	336.71	14.17	58.56	14.36	51.37	16.13	1.36	Supercritical	320.00	0.00		
PR-40B	336.71	14.17	57.33	13.78	48.81	16.03	1.43	Supercritical	302.00	0.00		
PR-40A	871.56	36.68	57.33	13.78	26.81	33.34	4.54	Supercritical	302.00	0.00	Velocity is Too High	*
PR-37	532.39	22.41	56.58	13.47	34.87	22.93	2.65	Supercritical	292.00	0.00	Velocity is Too High	*
PR-36	369.31	18.81	51.69	12.95	34.57	19.89	2.28	Supercritical Jump	233.00	258.32	Velocity is Too High	*
PR-13	131.53	13.67	34.28	9.99	24.39	14.50	1.97	Pressurized	84.00	68.73		
PR-10	66.88	9.46	30.83	9.93	28.20	10.77	1.22	Pressurized	64.00	460.44		
PR-9	18.24	10.32	4.91	3.07	3.13	5.84	2.42	Pressurized	1.20	4.17		
PR-7	45.05	9.18	25.00	8.69	21.12	10.29	1.43	Pressurized	38.00	444.67		
PR-5	62.37	12.71	22.76	7.76	14.95	12.69	2.26	Supercritical Jump	31.00	52.00		
PR-4B	15.62	8.84	12.29	5.45	8.44	8.60	2.05	Supercritical Jump	7.00	26.06		
PR-4A	12.46	7.05	12.29	5.45	9.65	7.26	1.59	Supercritical	7.00	0.00		
PR-3B	55.18	11.24	20.44	7.02	14.16	10.96	2.02	Supercritical	25.00	0.00		
PR-3A	41.13	8.38	20.44	7.02	16.89	8.78	1.45	Supercritical	25.00	0.00		
PR-2	26.44	14.96	13.15	5.78	6.79	13.11	3.57	Supercritical	8.00	0.00		
PR-1	22.68	7.22	18.34	6.99	16.14	8.01	1.29	Supercritical Jump	18.00	1.34		
PR-6	10.53	5.96	12.29	5.45	10.72	6.38	1.30	Pressurized	7.00	35.51		

* PIPE VELOCITY EXCEEDS 18 FT/SEC.   CLASS IV RCP PIPE PROPOSED

Please provide deviation for velocity

PR-8	41.13	8.38	21.26	7.26	17.73	8.94	1.42	Pressurized	27.00	26.17	
PR-11	50.72	16.15	20.10	7.83	11.05	15.57	3.26	Pressurized	22.00	26.95	
PR-12	29.79	16.86	3.73	2.65	1.90	7.01	3.75	Pressurized	0.70	3.00	
PR-35B	176.40	14.04	44.52	13.74	37.23	15.97	1.59	Supercritical	167.00	0.00	
PR-35A	176.40	14.04	44.52	13.74	37.23	15.97	1.59	Supercritical	167.00	0.00	
PR-34	59.60	12.14	17.24	6.17	11.31	10.63	2.24	Pressurized	18.00	18.33	
PR-33	10.53	5.96	10.32	4.77	8.73	5.88	1.38	Pressurized	5.00	53.34	
PR-32	176.40	14.04	43.68	12.99	35.09	15.85	1.68	Supercritical	156.00	0.00	
PR-30	142.67	14.83	31.89	9.18	21.12	14.86	2.23	Pressurized	72.00	73.90	
PR-31	100.88	10.49	34.28	9.99	29.28	11.73	1.39	Pressurized	84.00	23.77	
PR-29	78.14	8.12	31.68	9.12	31.40	9.20	1.02	Pressurized	71.00	182.93	
PR-28	64.16	20.42	17.83	6.79	8.43	17.25	4.23	Supercritical Jump	17.00	16.39	
PR-27	22.68	7.22	13.58	5.46	11.15	6.99	1.46	Supercritical	10.00	0.00	
PR-26B	51.80	7.33	26.79	8.33	26.88	8.30	0.99	Pressurized	47.00	101.49	
PR-26A	51.80	7.33	26.79	8.33	26.88	8.30	0.99	Pressurized	47.00	157.21	
PR-23	51.80	7.33	23.41	7.40	22.09	7.92	1.12	Pressurized	36.00	266.00	
PR-20	51.80	7.33	22.37	7.15	20.87	7.77	1.14	Supercritical Jump	33.00	45.53	
PR-16	39.02	7.95	14.54	5.51	11.93	7.15	1.46	Supercritical Jump	13.00	25.27	
PR-15	22.68	7.22	12.08	5.05	9.84	6.59	1.48	Supercritical	8.00	0.00	
PR-14	14.90	8.43	10.32	4.77	7.18	7.60	2.00	Supercritical	5.00	0.00	
PR-19	29.08	5.92	18.68	6.53	18.89	6.45	0.98	Subcritical Surcharged	21.00	38.53	
PR-17	22.68	7.22	15.56	6.03	13.02	7.47	1.41	Supercritical	13.00	0.00	

PR-18	10.53	5.96	13.93	6.13	12.80	6.70	1.19	Supercritical	9.00	0.00	
PR-21	15.62	8.84	6.23	3.50	4.24	5.98	2.11	Supercritical Jump	1.90	19.79	
PR-22	13.73	7.77	7.76	3.98	5.62	6.16	1.87	Supercritical	2.90	0.00	
PR-24	40.58	12.92	13.58	5.46	8.12	10.69	2.68	Pressurized	10.00	26.17	
PR-25	29.98	16.96	6.40	3.55	3.15	9.63	3.98	Pressurized	2.00	4.17	
PR-39	116.33	23.70	17.73	6.29	8.20	17.47	4.41	Supercritical	19.00	0.00	
PR-38	10.53	5.96	13.15	5.78	11.73	6.56	1.25	Supercritical Jump	8.00	45.65	
PR-42B	107.25	21.85	20.44	7.02	9.85	17.81	4.06	Supercritical	25.00	0.00	
PR-42A	65.03	13.25	20.44	7.02	12.91	12.38	2.42	Supercritical	25.00	0.00	
PR-41	22.68	7.22	17.30	6.60	14.87	7.82	1.34	Supercritical	16.00	0.00	

- A Froude number of 0 indicates that pressured flow occurs (adverse slope or undersized pipe).
- If the sewer is not pressurized, full flow represents the maximum gravity flow in the sewer.
- If the sewer is pressurized, full flow represents the pressurized flow conditions.

Sizing Summary:

			Existing		**Calculated**		**Used**			
Element Name	**Peak Flow (cfs)**	**Cross Section**	**Rise**	**Span**	**Rise**	**Span**	**Rise**	**Span**	**Area (ft^2)**	**Comment**
PR-43	320.00	CIRCULAR	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	23.76	
PR-40B	302.00	CIRCULAR	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	23.76	
PR-40A	302.00	CIRCULAR	66.00 in	66.00 in	48.00 in	48.00 in	66.00 in	66.00 in	23.76	
PR-37	292.00	CIRCULAR	66.00 in	66.00 in	54.00 in	54.00 in	66.00 in	66.00 in	23.76	

PR-36	233.00	CIRCULAR	60.00 in	60.00 in	54.00 in	54.00 in	60.00 in	60.00 in	19.63	
PR-13	84.00	CIRCULAR	42.00 in	42.00 in	36.00 in	36.00 in	42.00 in	42.00 in	9.62	
PR-10	64.00	CIRCULAR	36.00 in	36.00 in	36.00 in	36.00 in	36.00 in	36.00 in	7.07	
PR-9	1.20	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-7	38.00	CIRCULAR	30.00 in	30.00 in	30.00 in	30.00 in	30.00 in	30.00 in	4.91	
PR-5	31.00	CIRCULAR	30.00 in	30.00 in	24.00 in	24.00 in	30.00 in	30.00 in	4.91	
PR-4B	7.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-4A	7.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-3B	25.00	CIRCULAR	30.00 in	30.00 in	24.00 in	24.00 in	30.00 in	30.00 in	4.91	
PR-3A	25.00	CIRCULAR	30.00 in	30.00 in	27.00 in	27.00 in	30.00 in	30.00 in	4.91	
PR-2	8.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-1	18.00	CIRCULAR	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	3.14	
PR-6	7.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-8	27.00	CIRCULAR	30.00 in	30.00 in	27.00 in	27.00 in	30.00 in	30.00 in	4.91	
PR-11	22.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-12	0.70	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-35B	167.00	CIRCULAR	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	12.57	
PR-35A	167.00	CIRCULAR	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	12.57	
PR-34	18.00	CIRCULAR	30.00 in	30.00 in	21.00 in	21.00 in	30.00 in	30.00 in	4.91	
PR-33	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-32	156.00	CIRCULAR	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	12.57	
PR-30	72.00	CIRCULAR	42.00 in	42.00 in	33.00 in	33.00 in	42.00 in	42.00 in	9.62	
PR-31	84.00	CIRCULAR	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	9.62	
PR-29	71.00	CIRCULAR	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	9.62	
PR-28	17.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	

PR-27	10.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-26B	47.00	CIRCULAR	36.00 in	36.00 in	36.00 in	36.00 in	36.00 in	36.00 in	7.07	
PR-26A	47.00	CIRCULAR	36.00 in	36.00 in	36.00 in	36.00 in	36.00 in	36.00 in	7.07	
PR-23	36.00	CIRCULAR	36.00 in	36.00 in	33.00 in	33.00 in	36.00 in	36.00 in	7.07	
PR-20	33.00	CIRCULAR	36.00 in	36.00 in	33.00 in	33.00 in	36.00 in	36.00 in	7.07	
PR-16	13.00	CIRCULAR	30.00 in	30.00 in	21.00 in	21.00 in	30.00 in	30.00 in	4.91	
PR-15	8.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-14	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-19	21.00	CIRCULAR	30.00 in	30.00 in	27.00 in	27.00 in	30.00 in	30.00 in	4.91	
PR-17	13.00	CIRCULAR	24.00 in	24.00 in	21.00 in	21.00 in	24.00 in	24.00 in	3.14	
PR-18	9.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-21	1.90	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-22	2.90	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-24	10.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-25	2.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-39	19.00	CIRCULAR	30.00 in	30.00 in	18.00 in	18.00 in	30.00 in	30.00 in	4.91	
PR-38	8.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-42B	25.00	CIRCULAR	30.00 in	30.00 in	18.00 in	18.00 in	30.00 in	30.00 in	4.91	
PR-42A	25.00	CIRCULAR	30.00 in	30.00 in	21.00 in	21.00 in	30.00 in	30.00 in	4.91	
PR-41	16.00	CIRCULAR	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	3.14	

- Calculated diameter was determined by sewer hydraulic capacity rounded up to the nearest commercially available size.
- Sewer sizes should not decrease downstream.
- All hydraulics where calculated using the 'Used' parameters.

Grade Line Summary:

Tailwater Elevation (ft): 7101.78

	Invert Elev.		**Downstream Manhole Losses**		**HGL**		**EGL**		
Element Name	**Downstream (ft)**	**Upstream (ft)**	**Bend Loss (ft)**	**Lateral Loss (ft)**	**Downstream (ft)**	**Upstream (ft)**	**Downstream (ft)**	**Friction Loss (ft)**	**Upstream (ft)**
PR-43	7099.50	7100.04	0.00	0.00	7103.78	7104.92	7107.82	0.30	7108.12
PR-40B	7100.54	7101.93	0.13	0.31	7105.35	7106.71	7108.60	1.05	7109.66
PR-40A	7103.55	7121.00	0.95	0.00	7107.66	7125.78	7123.05	5.68	7128.73
PR-37	7122.53	7124.91	0.12	0.16	7126.06	7131.25	7133.60	0.00	7133.60
PR-36	7126.34	7138.11	2.89	0.16	7134.45	7142.42	7136.64	8.38	7145.02
PR-13	7140.09	7141.26	1.56	0.00	7145.40	7145.88	7146.58	0.48	7147.06
PR-10	7141.76	7146.36	0.06	0.00	7145.94	7150.16	7147.21	4.22	7151.43
PR-9	7147.85	7147.98	0.01	0.00	7151.43	7151.43	7151.44	0.00	7151.44
PR-7	7146.85	7152.20	0.05	0.34	7150.89	7154.68	7151.82	3.80	7155.62
PR-5	7152.73	7156.74	0.82	0.31	7156.13	7158.64	7156.74	2.83	7159.57
PR-4B	7157.69	7161.17	0.32	0.00	7159.65	7162.19	7159.89	2.76	7162.65
PR-4A	7161.57	7164.61	0.01	0.00	7162.37	7165.63	7163.19	2.90	7166.09
PR-3B	7157.23	7162.83	0.02	0.22	7158.87	7164.53	7160.27	5.02	7165.30
PR-3A	7163.34	7164.41	0.53	0.00	7165.07	7166.11	7165.94	0.94	7166.88
PR-2	7165.41	7165.74	0.10	0.00	7166.21	7168.33	7168.64	0.00	7168.64
PR-1	7164.90	7165.20	0.54	0.00	7166.91	7166.91	7167.42	0.11	7167.52
PR-6	7153.20	7153.56	0.05	0.00	7155.42	7155.58	7155.66	0.16	7155.82

PR-8	7146.86	7147.12	0.62	0.00	7151.58	7151.69	7152.05	0.11	7152.16
PR-11	7143.26	7144.61	1.01	0.00	7147.30	7147.56	7148.07	0.25	7148.32
PR-12	7143.76	7144.00	0.00	0.00	7147.06	7147.06	7147.06	0.00	7147.06
PR-35B	7139.71	7144.80	0.14	0.00	7142.81	7148.51	7146.77	4.67	7151.44
PR-35A	7145.30	7149.85	0.14	0.00	7148.65	7153.56	7152.36	4.13	7156.49
PR-34	7152.36	7152.74	0.28	0.00	7156.56	7156.59	7156.76	0.04	7156.80
PR-33	7153.24	7153.77	0.01	0.00	7156.68	7156.80	7156.81	0.12	7156.93
PR-32	7150.36	7152.08	0.12	0.35	7154.03	7155.72	7157.18	1.16	7158.34
PR-30	7152.58	7154.06	0.04	1.52	7159.04	7159.42	7159.91	0.38	7160.28
PR-31	7152.58	7152.82	1.56	0.00	7158.72	7158.89	7159.90	0.16	7160.07
PR-29	7127.91	7129.01	0.04	0.00	7132.79	7133.70	7133.64	0.91	7134.54
PR-28	7131.01	7132.85	0.14	0.00	7134.23	7134.34	7134.69	0.37	7135.05
PR-27	7132.95	7133.30	0.01	0.00	7134.90	7134.90	7135.06	0.05	7135.11
PR-26B	7129.51	7130.12	0.26	0.16	7134.28	7134.78	7134.96	0.50	7135.47
PR-26A	7130.62	7131.56	0.26	0.00	7135.04	7135.82	7135.73	0.78	7136.50
PR-23	7132.06	7133.66	0.02	0.28	7136.40	7137.17	7136.81	0.77	7137.58
PR-20	7134.16	7134.77	0.02	0.06	7137.32	7137.37	7137.66	0.11	7137.77
PR-16	7135.19	7137.40	0.01	0.23	7137.90	7138.61	7138.00	1.08	7139.08
PR-15	7137.90	7138.25	0.01	0.00	7138.72	7139.26	7139.39	0.26	7139.65
PR-14	7138.40	7138.96	0.16	0.00	7139.00	7139.82	7139.90	0.27	7140.17
PR-19	7135.27	7135.94	0.38	0.00	7137.86	7138.16	7138.14	0.34	7138.48
PR-17	7136.44	7136.71	0.17	0.00	7138.38	7138.38	7138.65	0.06	7138.71
PR-18	7136.94	7137.01	0.19	0.00	7138.34	7138.34	7138.70	0.10	7138.80
PR-21	7135.65	7136.23	0.02	0.00	7137.58	7137.59	7137.60	0.01	7137.61
PR-22	7136.16	7136.23	0.06	0.00	7137.59	7137.59	7137.63	0.00	7137.64

PR-24	7133.56	7134.40	0.21	0.00	7136.55	7136.60	7136.71	0.05	7136.76
PR-25	7134.06	7134.40	0.03	0.00	7136.51	7136.51	7136.53	0.00	7136.53
PR-39	7126.50	7127.87	0.31	0.00	7127.39	7129.35	7129.65	0.31	7129.96
PR-38	7127.97	7128.50	0.02	0.00	7129.66	7129.91	7129.98	0.26	7130.24
PR-42B	7103.48	7116.47	0.15	0.00	7105.07	7118.17	7109.23	9.71	7118.94
PR-42A	7116.97	7119.97	0.53	0.00	7118.71	7121.67	7120.43	2.01	7122.44
PR-41	7120.47	7120.95	0.02	0.00	7121.71	7122.39	7122.66	0.40	7123.07

- Bend and Lateral losses only apply when there is an outgoing sewer. The system outfall, sewer #0, is not considered a sewer.
- Bend loss = Bend K * V_fi ^ 2/(2*g)
- Lateral loss = V_fo ^ 2/(2*g)- Junction Loss K * V_fi ^ 2/(2*g).
- Friction loss is always Upstream EGL - Downstream EGL.

STORMWATER QUALITY CALCULATIONS

Calculations will be reviewed when a scale is provided on the next sheet so areas/interface widths can be confirmed.

Please use MHFD's most current SCM design spreadsheet SCM Design v4.07

Design Procedure Form: Runoff Reduction

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: **Marc A. Whorton, P.E.**
Company: **Classic Consulting**
Date: **June 17, 2026**
Project: **Sterling Ranch East Filing No. 4 - Final Plat**
Location: **Tracts A, B and F adjacent to and within Sand Creek**

SITE INFORMATION (User Input in Blue Cells)

WQCV Rainfall Depth 0.60 inches

Depth of Average Runoff Producing Storm, d_6 = 0.43 inches (for Watersheds Outside of the Denver Region, Figure 3-1 in USDCM Vol. 3)

Area Type	UIA:RPA	UIA:RPA	UIA:RPA									
Area ID	SC-1	SC-3	SC-4									
Downstream Design Point ID	SC	SC	SC									
Downstream BMP Type	None	None	None									
DCIA (ft^2)	--	--	--									
UIA (ft^2)	27,496	33,591	24,576									
RPA (ft^2)	14,566	26,815	22,116									
SPA (ft^2)	--	--	--									
HSG A (%)	0%	0%	0%									
HSG B (%)	100%	100%	100%									
HSG C/D (%)	0%	0%	0%									
Average Slope of RPA (ft/ft)	0.250	0.250	0.250									
UIA:RPA Interface Width (ft)	330.00	460.00	415.00									

CALCULATED RUNOFF RESULTS

Area ID	SC-1	SC-3	SC-4									
UIA:RPA Area (ft^2)	42,062	60,406	46,692									
L / W Ratio	0.39	0.29	0.27									
UIA / Area	0.6537	0.5561	0.5263									
Runoff (in)	0.00	0.00	0.00									
Runoff (ft^3)	0	0	0									
Runoff Reduction (ft^3)	1146	1400	1024									

CALCULATED WQCV RESULTS

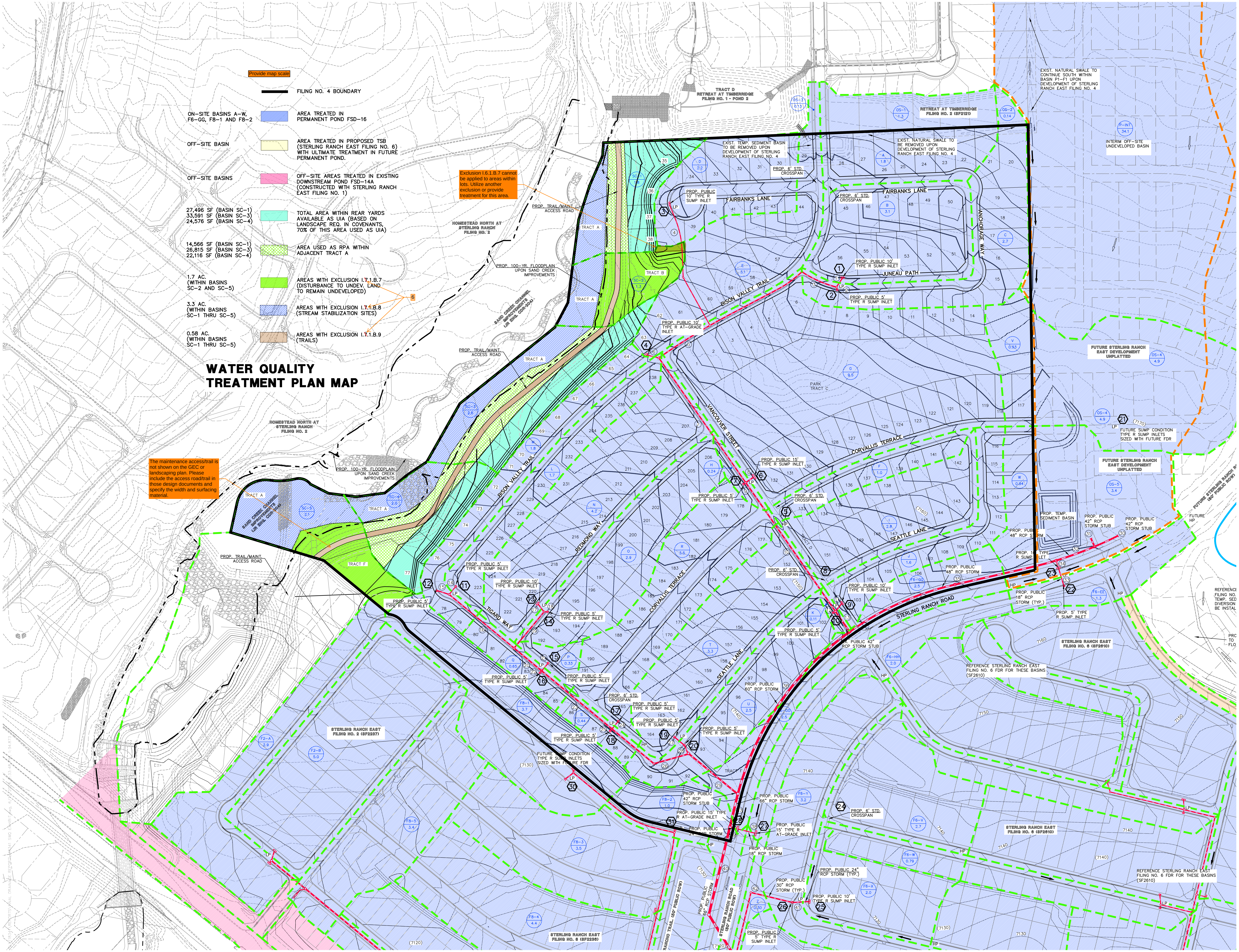
Area ID	SC-1	SC-3	SC-4									
WQCV (ft^3)	1146	1400	1024									
WQCV Reduction (ft^3)	1146	1400	1024									
WQCV Reduction (%)	100%	100%	100%									
Untreated WQCV (ft^3)	0	0	0									

CALCULATED DESIGN POINT RESULTS (sums results from all columns with the same Downstream Design Point ID)

Downstream Design Point ID	SC											
DCIA (ft^2)	0											
UIA (ft^2)	85,663											
RPA (ft^2)	63,497											
SPA (ft^2)	0											
Total Area (ft^2)	149,160											
Total Impervious Area (ft^2)	85,663											
WQCV (ft^3)	3,569											
WQCV Reduction (ft^3)	3,569											
WQCV Reduction (%)	100%											
Untreated WQCV (ft^3)	0											

CALCULATED SITE RESULTS (sums results from all columns in worksheet)

Total Area (ft^2)	149,160
Total Impervious Area (ft^2)	85,663
WQCV (ft^3)	3,569
WQCV Reduction (ft^3)	3,569
WQCV Reduction (%)	100%
Untreated WQCV (ft^3)	0



TRACT D
RETREAT AT TIMBERRIDGE
FILING NO. 1 - POND 2
RETREAT AT TIMBERRIDGE
FILING NO. 2 (SF2121)
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1-F1 UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
INTERIM OFF-SITE UNDEVELOPED BASIN
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
PROP. 6' STD. CROSSPAN
PROP. PUBLIC 10' TYPE R SUMP INLET
PROP. PUBLIC 5' TYPE R SUMP INLET
PROP. PUBLIC 10' TYPE R AT-GRADE INLET
FAIRBANKS LANE
ANCHORAGE WAY
JUNEAU PATH
BISON VALLEY TRAIL
VANCOUVER STREET
CORVALLIS TERRACE
SEATTLE LANE
REDMOND WAY
TIGARD WAY
STERLING RANCH ROAD
PARK TRACT C
TRACT A
TRACT B
TRACT F
PROP. TRAIL/MAINT. ACCESS ROAD
HOMESTEAD NORTH AT STERLING RANCH FILING NO. 2
PROP. 100-YR. FLOODPLAIN UPON SAND CREEK IMPROVEMENTS
SAND CREEK CHANNEL IMPROVEMENTS (JR ENG. CDR-204)
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
PROP. TEMP. SEDIMENT BASIN
PROP. PUBLIC 42" RCP STORM STUB
PROP. PUBLIC 48" RCP STORM
PROP. 10' TYPE R SUMP INLET
PROP. PUBLIC 18" RCP STORM (TYP.)
PROP. 5' TYPE R SUMP INLET
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
FUTURE HP
STERLING RANCH EAST FILING NO. 6 (SF2610)
REFERENCE STERLING RANCH EAST FILING NO. 6 FDR FOR THESE BASINS (SF2610)
PROP. PUBLIC 60" RCP STORM
PROP. PUBLIC 66" RCP STORM
PROP. PUBLIC 15' TYPE R AT-GRADE INLET
PROP. PUBLIC 24" RCP STORM
PROP. PUBLIC 18" RCP STORM
PROP. PUBLIC 24" RCP STORM (TYP.)
PROP. PUBLIC 30" RCP STORM (TYP.)
STERLING RANCH EAST FILING NO. 2 (SF2237)
STERLING RANCH EAST FILING NO. 8 (SF2236)
RANCHO TRAIL (60' PUBLIC ROW)
STERLING RANCH ROAD (80' PUBLIC ROW)
OS-1 1.3
OS-2 0.14
OS-3 0.13
OS-4 4.9
OS-5 3.4
P-INT 34.1
A 1.8
B 3.1
C 2.7
D 2.2
E 3.1
G 9.5
V 0.93
W 0.94
SC-1 1.8
SC-2 1.3
SC-3 2.6
SC-4 2.0
SC-5 2.1
F8-1 3.7
F8-2 1.0
F8-3 3.5
F8-4 4.4
F8-5 3.4
F2-A 2.9
F2-B 5.0
F6-GG 2.5
F6-EE 1.3
F6-HH 2.0
F6-Y 3.2
F6-V 2.7
F6-W 0.79
F6-X 2.0
Z 0.30
LP
HP

Provide map scale

WATER QUALITY TREATMENT PLAN MAP

	▬	FILING NO. 4 BOUNDARY
ON-SITE BASINS A-W, F6-GG, F8-1 AND F8-2	▨	AREA TREATED IN PERMANENT POND FSD-16
OFF-SITE BASIN	▭	AREA TREATED IN PROPOSED TSB (STERLING RANCH EAST FILING NO. 6) WITH ULTIMATE TREATMENT IN FUTURE PERMANENT POND.
OFF-SITE BASINS	▨	OFF-SITE AREAS TREATED IN EXISTING DOWNSTREAM POND FSD-14A (CONSTRUCTED WITH STERLING RANCH EAST FILING NO. 1)
27,496 SF (BASIN SC-1) 33,591 SF (BASIN SC-3) 24,576 SF (BASIN SC-4)	▨	TOTAL AREA WITHIN REAR YARDS AVAILABLE AS UIA (BASED ON LANDSCAPE REQ. IN COVENANTS, 70% OF THIS AREA USED AS UIA)
14,566 SF (BASIN SC-1) 26,815 SF (BASIN SC-3) 22,116 SF (BASIN SC-4)	▨	AREA USED AS RPA WITHIN ADJACENT TRACT A
1.7 AC. (WITHIN BASINS SC-2 AND SC-5)	🟩	AREAS WITH EXCLUSION I.~~7~~.1.B.7 (DISTURBANCE TO UNDEV. LAND TO REMAIN UNDEVELOPED)
3.3 AC. (WITHIN BASINS SC-1 THRU SC-5)	▨	AREAS WITH EXCLUSION I.~~7~~.1.B.8 (STREAM STABILIZATION SITES)
0.58 AC. (WITHIN BASINS SC-1 THRU SC-5)	▨	AREAS WITH EXCLUSION I.~~7~~.1.B.9 (TRAILS)

6

Exclusion I.6.1.B.7 cannot be applied to areas within lots. Utilize another exclusion or provide treatment for this area.

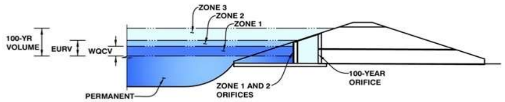
The maintenance access/trail is not shown on the GEC or landscaping plan. Please include the access road/trail in those design documents and specify the width and surfacing material.

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT

Basin ID: POND FSD-16 (ULTIMATE)



Example Zone Configuration (Retention Pond)

Calculations will be reviewed with filing 6 (SF2610) unless changes to the pond are proposed with this project.

Watershed Information

Selected BMP Type = **EDB**
Watershed Area = 211.80 acres
Watershed Length = 4,000 ft
Watershed Length to Centroid = 2,000 ft
Watershed Slope = 0.040 ft/ft
Watershed Imperviousness = 49.00% percent
Percentage Hydrologic Soil Group A = 75.0% percent
Percentage Hydrologic Soil Group B = 25.0% percent
Percentage Hydrologic Soil Groups C/D = 0.0% percent
Target WQCV Drain Time = 40.0 hours
Location for 1-hr Rainfall Depths = User Input

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	3.593	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	11.693	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	9.244	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	12.225	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	15.112	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	20.044	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	23.975	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	29.288	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3 in.) =	37.696	acre-feet	3.00	inches
Approximate 2-yr Detention Volume =	7.819	acre-feet		
Approximate 5-yr Detention Volume =	10.415	acre-feet		
Approximate 10-yr Detention Volume =	13.029	acre-feet		
Approximate 25-yr Detention Volume =	15.470	acre-feet		
Approximate 50-yr Detention Volume =	16.987	acre-feet		
Approximate 100-yr Detention Volume =	19.142	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) = 3.593 acre-feet
Zone 2 Volume (EURV - Zone 1) = 8.101 acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) = 7.449 acre-feet
Total Detention Basin Volume = 19.142 acre-feet
Initial Surcharge Volume (ISV) = user ft^3
Initial Surcharge Depth (ISD) = user ft
Total Available Detention Depth (H_{total}) = user ft
Depth of Trickle Channel (H_{TC}) = user ft
Slope of Trickle Channel (S_{TC}) = user ft/ft
Slopes of Main Basin Sides (S_{main}) = user H:V
Basin Length-to-Width Ratio ($R_{L/W}$) = user

Initial Surcharge Area (A_{ISV}) = user ft^2
Surcharge Volume Length (L_{ISV}) = user ft
Surcharge Volume Width (W_{ISV}) = user ft
Depth of Basin Floor (H_{FLOOR}) = user ft
Length of Basin Floor (L_{FLOOR}) = user ft
Width of Basin Floor (W_{FLOOR}) = user ft
Area of Basin Floor (A_{FLOOR}) = user ft^2
Volume of Basin Floor (V_{FLOOR}) = user ft^3
Depth of Main Basin (H_{MAIN}) = user ft
Length of Main Basin (L_{MAIN}) = user ft
Width of Main Basin (W_{MAIN}) = user ft
Area of Main Basin (A_{MAIN}) = user ft^2
Volume of Main Basin (V_{MAIN}) = user ft^3
Calculated Total Basin Volume (V_{total}) = **user** acre-feet

Depth Increment =

Stage - Storage Description	Stage (ft)	Stage (ft)	(ft)	(ft)	(ft^2)	Area (ft^2)	(acre)	(ft^3)	(ac-ft)
Top of Micropool	--	0.00	--	--	--	1,027	0.024		
7092	--	0.50	--	--	--	1,027	0.024	514	0.012
7094	--	2.50	--	--	--	18,862	0.433	20,402	0.468
7096	--	4.50	--	--	--	62,431	1.433	101,695	2.335
7098	--	6.50	--	--	--	144,050	3.307	308,176	7.075
7100	--	8.50	--	--	--	168,845	3.876	621,071	14.258
7102	--	10.50	--	--	--	187,607	4.307	977,523	22.441
7104	--	12.50	--	--	--	206,914	4.750	1,372,044	31.498
7106	--	14.50	--	--	--	226,802	5.207	1,805,760	41.455
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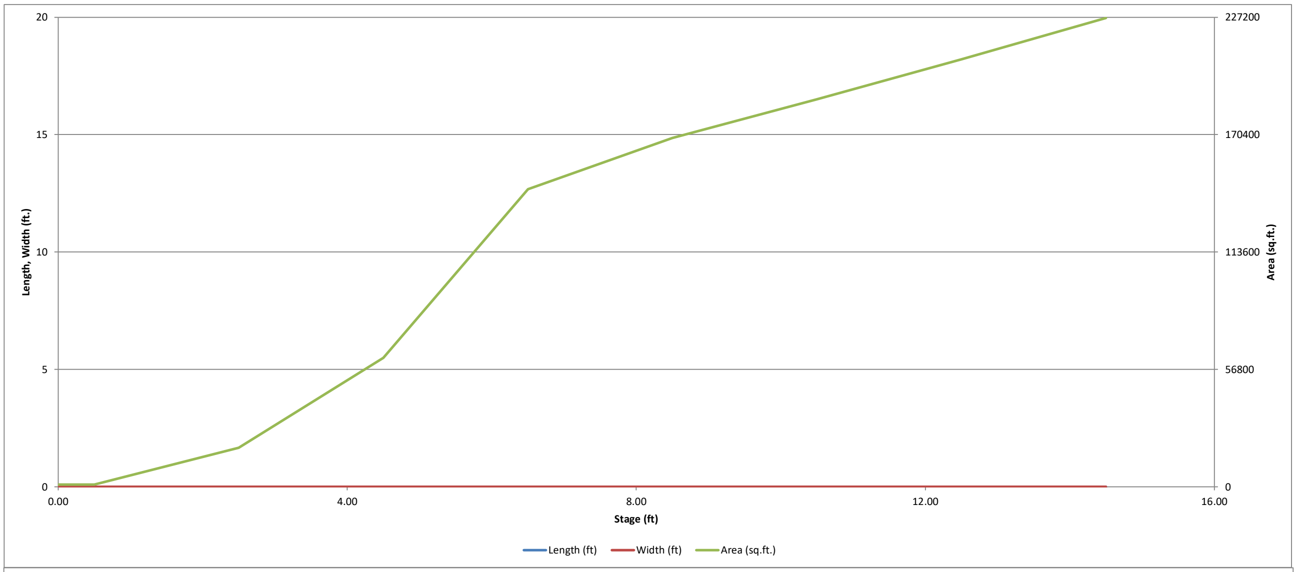
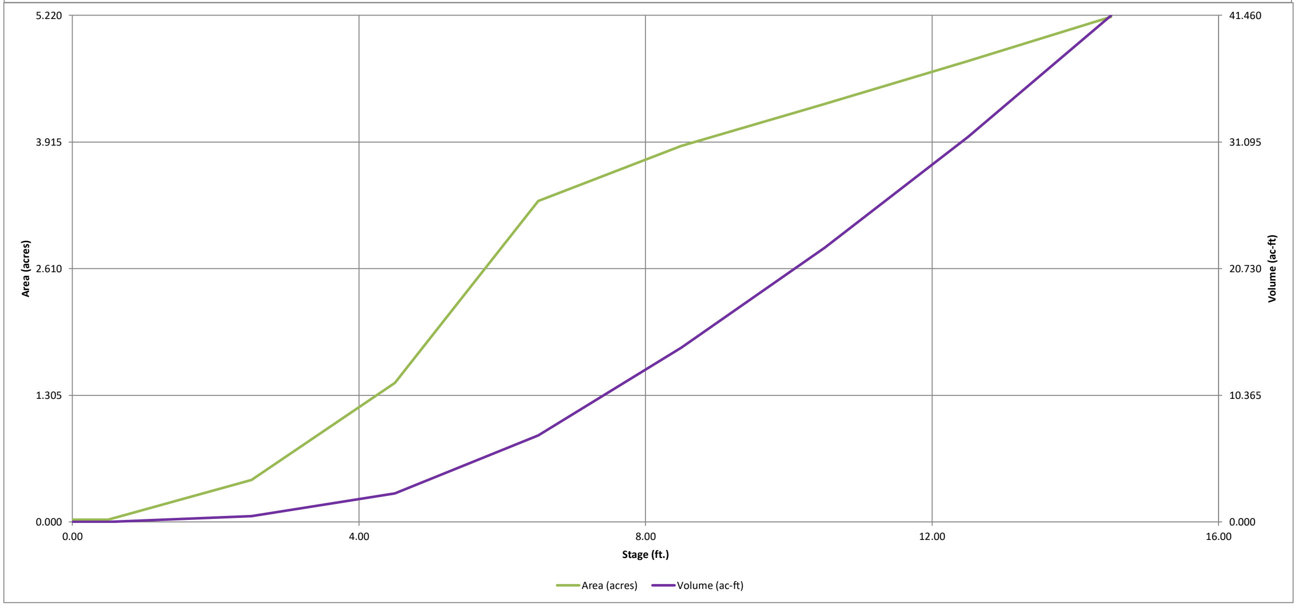
DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

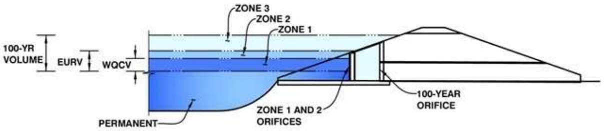




DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: STERLING RANCH EAST FILING NO. 4 - FINAL PLAT
Basin ID: POND FSD-16 (ULTIMATE)



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	5.22	3.593	Orifice Plate
Zone 2 (EURV)	7.83	8.101	Orifice Plate
Zone 3 (100-year)	9.72	7.449	Weir&Pipe (Restrict)
Total (all zones)		19.142	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Calculated Parameters for Plate

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft^2
Depth at top of Zone using Orifice Plate =	8.50	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	20.40	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.70	3.40	5.10	6.80			
Orifice Area (sq. inches)	7.00	9.00	16.00	16.00	16.00			

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A	feet
Vertical Orifice Diameter =	N/A	N/A	inches				

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	8.50	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	8.50	N/A	feet
Overflow Weir Front Edge Length =	20.00	N/A	feet	Overflow Weir Slope Length =	4.00	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	7.65	N/A	
Horiz. Length of Weir Sides =	4.00	N/A	feet	Overflow Grate Open Area w/o Debris =	55.68	N/A	ft^2
Overflow Grate Type =	Type C Grate	N/A		Overflow Grate Open Area w/ Debris =	27.84	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.50	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	7.28	N/A	ft^2
Outlet Pipe Diameter =	48.00	N/A	inches	Outlet Orifice Centroid =	1.28	N/A	feet
Restrictor Plate Height Above Pipe Invert =	27.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.70	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Calculated Parameters for Spillway

Spillway Invert Stage=	12.50	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	1.00	feet
Spillway Crest Length =	170.00	feet	Stage at Top of Freeboard =	14.50	feet
Spillway End Slopes =	6.00	H:V	Basin Area at Top of Freeboard =	5.21	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	41.45	acre-ft

---

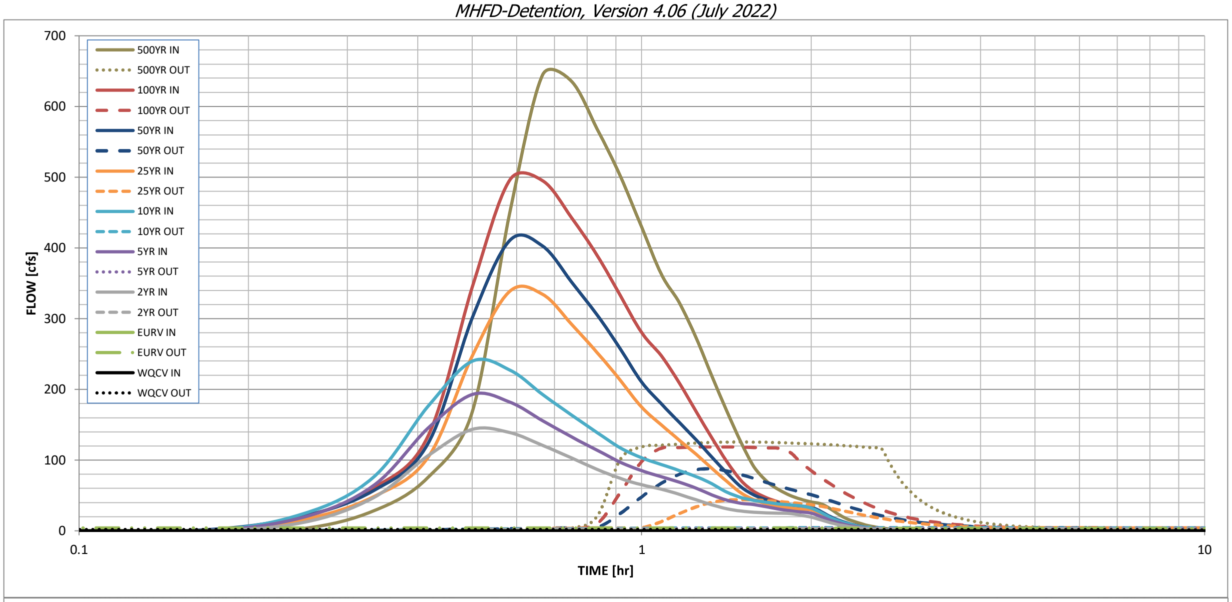
Routed Hydrograph Results

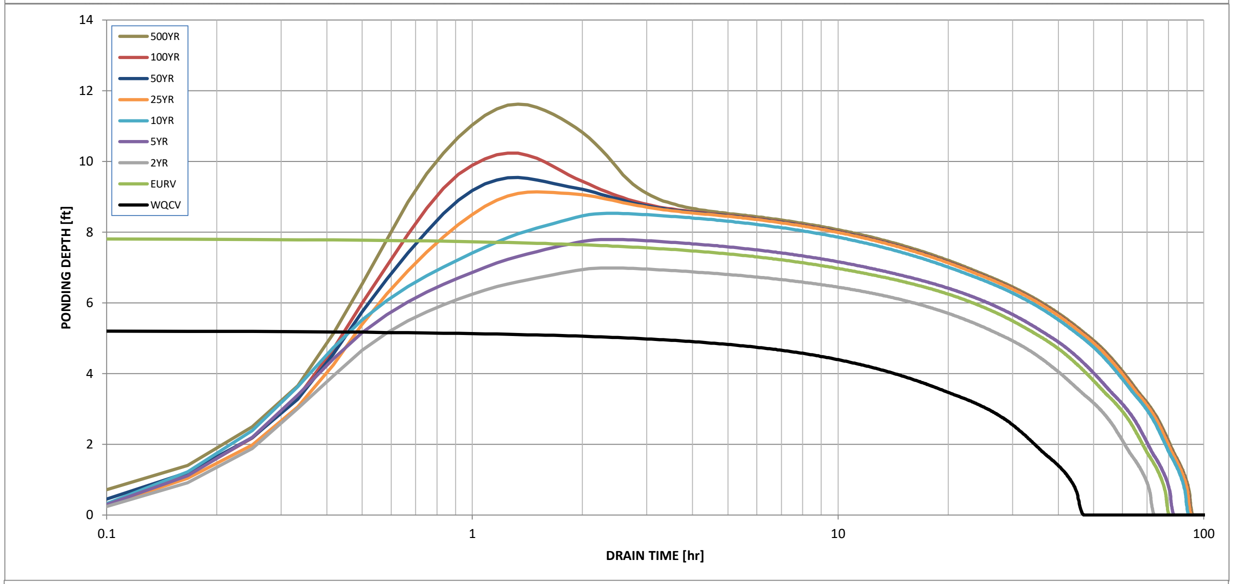
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

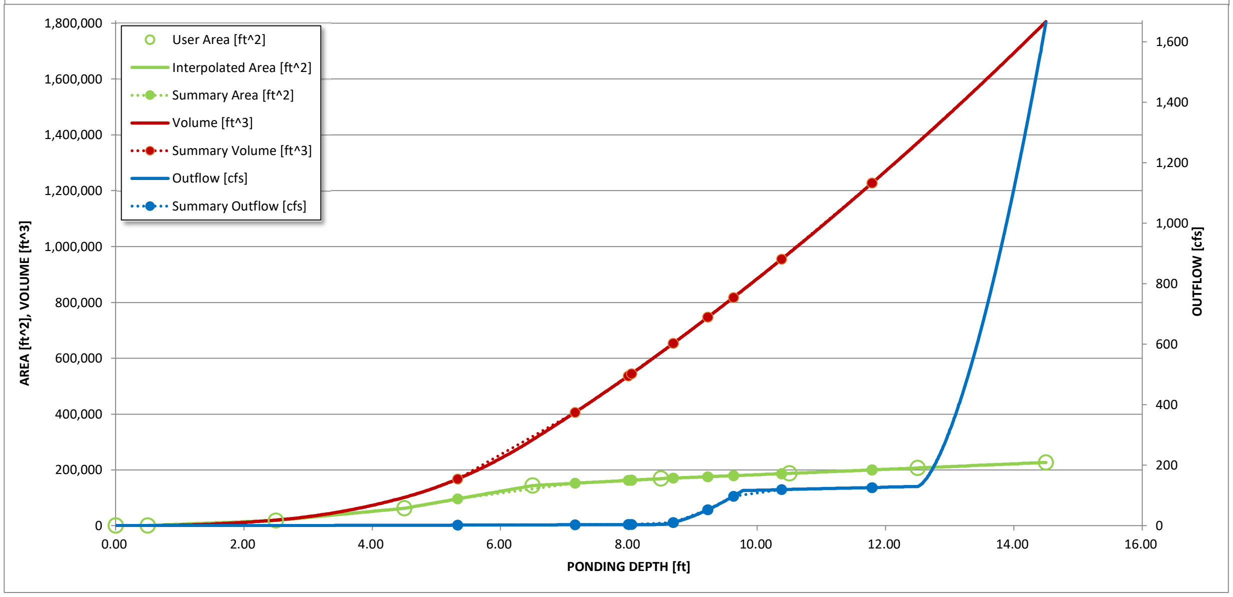
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.00
CUHP Runoff Volume (acre-ft) =	3.593	11.693	9.244	12.225	15.112	20.044	23.975	29.288	37.696
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	9.244	12.225	15.112	20.044	23.975	29.288	37.696
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	2.5	4.3	22.1	90.7	133.4	193.5	288.6
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.02	0.10	0.43	0.63	0.91	1.36
Peak Inflow Q (cfs) =	N/A	N/A	143.4	192.8	239.9	339.0	410.7	496.5	644.6
Peak Outflow Q (cfs) =	2.0	3.9	3.3	3.9	4.9	44.1	87.6	118.6	125.6
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.9	0.2	0.5	0.7	0.6	0.4
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.0	0.7	1.5	2.0	2.2
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	40	66	61	68	75	74	72	69	66
Time to Drain 99% of Inflow Volume (hours) =	**44**	74	67	76	83	82	81	80	79
Maximum Ponding Depth (ft) =	5.22	7.83	6.99	7.80	8.53	9.14	9.55	10.24	11.62
Area at Maximum Ponding Depth (acres) =	2.11	3.69	3.44	3.67	3.88	4.01	4.10	4.25	4.56
Maximum Volume Stored (acre-ft) =	3.609	11.725	8.695	11.578	14.374	16.743	18.405	21.286	27.404

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.13	3.38
	0:15:00	0.00	0.00	11.61	19.09	23.76	16.01	20.64	19.66	27.82
	0:20:00	0.00	0.00	46.72	63.58	75.60	48.16	56.69	60.10	74.96
	0:25:00	0.00	0.00	105.82	144.68	175.35	103.22	122.59	133.03	168.00
	0:30:00	0.00	0.00	143.45	192.79	239.92	247.24	300.89	344.19	450.97
	0:35:00	0.00	0.00	138.72	181.97	227.29	338.99	410.69	496.49	644.60
	0:40:00	0.00	0.00	120.92	155.67	192.55	334.50	402.67	495.17	635.95
	0:45:00	0.00	0.00	103.12	132.84	163.94	292.18	352.02	443.11	568.48
	0:50:00	0.00	0.00	86.89	113.92	138.98	252.17	305.21	389.61	501.30
	0:55:00	0.00	0.00	73.97	96.97	117.22	212.67	257.11	332.37	429.13
	1:00:00	0.00	0.00	65.08	84.89	103.17	174.75	210.14	280.00	362.75
	1:05:00	0.00	0.00	58.92	76.41	93.75	149.91	179.79	247.39	322.46
	1:10:00	0.00	0.00	51.59	68.87	85.22	128.21	153.20	209.15	272.59
	1:15:00	0.00	0.00	43.71	60.17	76.68	107.93	128.47	168.33	218.73
	1:20:00	0.00	0.00	36.75	50.88	66.31	88.09	104.14	131.32	169.62
	1:25:00	0.00	0.00	31.20	43.21	54.75	70.01	81.89	98.36	125.84
	1:30:00	0.00	0.00	27.83	39.02	47.23	53.77	62.22	71.41	90.61
	1:35:00	0.00	0.00	26.20	36.94	43.10	43.90	50.56	55.57	70.12
	1:40:00	0.00	0.00	25.36	33.91	40.24	38.20	43.72	46.66	58.33
	1:45:00	0.00	0.00	24.85	30.74	38.16	34.76	39.52	40.63	50.20
	1:50:00	0.00	0.00	24.48	28.45	36.74	32.35	36.61	36.64	44.75
	1:55:00	0.00	0.00	22.26	26.77	35.11	30.82	34.80	33.86	40.91
	2:00:00	0.00	0.00	19.43	24.97	32.31	29.73	33.51	31.89	38.22
	2:05:00	0.00	0.00	15.47	20.12	25.73	24.30	27.33	25.68	30.62
	2:10:00	0.00	0.00	11.39	14.65	18.60	17.60	19.75	18.56	22.06
	2:15:00	0.00	0.00	8.35	10.68	13.46	12.77	14.30	13.49	15.98
	2:20:00	0.00	0.00	6.06	7.73	9.73	9.28	10.39	9.86	11.68
	2:25:00	0.00	0.00	4.35	5.43	6.92	6.59	7.36	7.02	8.30
	2:30:00	0.00	0.00	3.04	3.72	4.84	4.60	5.13	4.89	5.76
	2:35:00	0.00	0.00	2.07	2.57	3.36	3.26	3.63	3.46	4.08
	2:40:00	0.00	0.00	1.32	1.71	2.19	2.18	2.42	2.30	2.70
	2:45:00	0.00	0.00	0.75	1.03	1.27	1.31	1.45	1.37	1.60
	2:50:00	0.00	0.00	0.35	0.53	0.60	0.66	0.72	0.68	0.78
	2:55:00	0.00	0.00	0.13	0.19	0.19	0.23	0.24	0.22	0.25
	3:00:00	0.00	0.00	0.02	0.02	0.01	0.01	0.00	0.00	0.00
	3:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft ^{2}]	Area [acres]	Volume [ft ^{3}]	Volume [ac-ft]	Total Outflow [cfs]
WQCV	5.33	96,303	2.211	167,570	3.847	2.11
2-yr.	7.16	152,232	3.495	405,949	9.319	3.46
5-yr.	7.99	162,522	3.731	536,572	12.318	4.06
EURV	8.04	163,142	3.745	544,714	12.505	4.09
10-yr.	8.69	170,627	3.917	653,321	14.998	10.87
25-yr.	9.23	175,693	4.033	746,828	17.145	52.98
50-yr.	9.63	179,446	4.120	817,855	18.775	97.83
100-yr.	10.38	186,481	4.281	955,078	21.926	119.37
500-yr.	11.79	200,060	4.593	1,227,568	28.181	126.42

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

REFERENCE MATERIALS

INNOVATIVE DESIGN. CLASSIC RESULTS.

STERLING RANCH MDDP AMENDMENT NO. 2 & PRELIMINARY DRAINAGE REPORT
FOR
STERLING RANCH EAST
PRELIMINARY PLAN NO. 1

Prepared for:
CLASSIC SRJ LAND, LLC
2138 FLYING HORSE CLUB DRIVE
COLORADO SPRINGS CO 80921
(719) 592-9333

Prepared by:
CLASSIC CONSULTING
619 N. CASCADE AVE SUITE 200
COLORADO SPRINGS CO 80903
(719) 785-0790

Job No. 1183.22

PCD Project No.
SKP-22-004 / SP-22-004

CLASSIC CONSULTING

STERLING RANCH MDDP AMENDMENT NO. 2 & PRELIM. DRAINAGE REPORT FOR STERLING RANCH EAST PRELIMINARY PLAN NO. 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 applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

MARC ALAN WHORTON
37155

11/11/2022

Marc A. Whorton Colorado P.E. #37155 Date

OWNER'S/DEVELOPER'S STATEMENT:

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

Business Name: CLASSIC SRJ LAND, LLC

By: LOREN J. MORELAND

Title: VICE PRESIDENT

Address: 2138 Flying Horse Club Drive
Colorado Springs, CO 80921

EL PASO COUNTY:

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

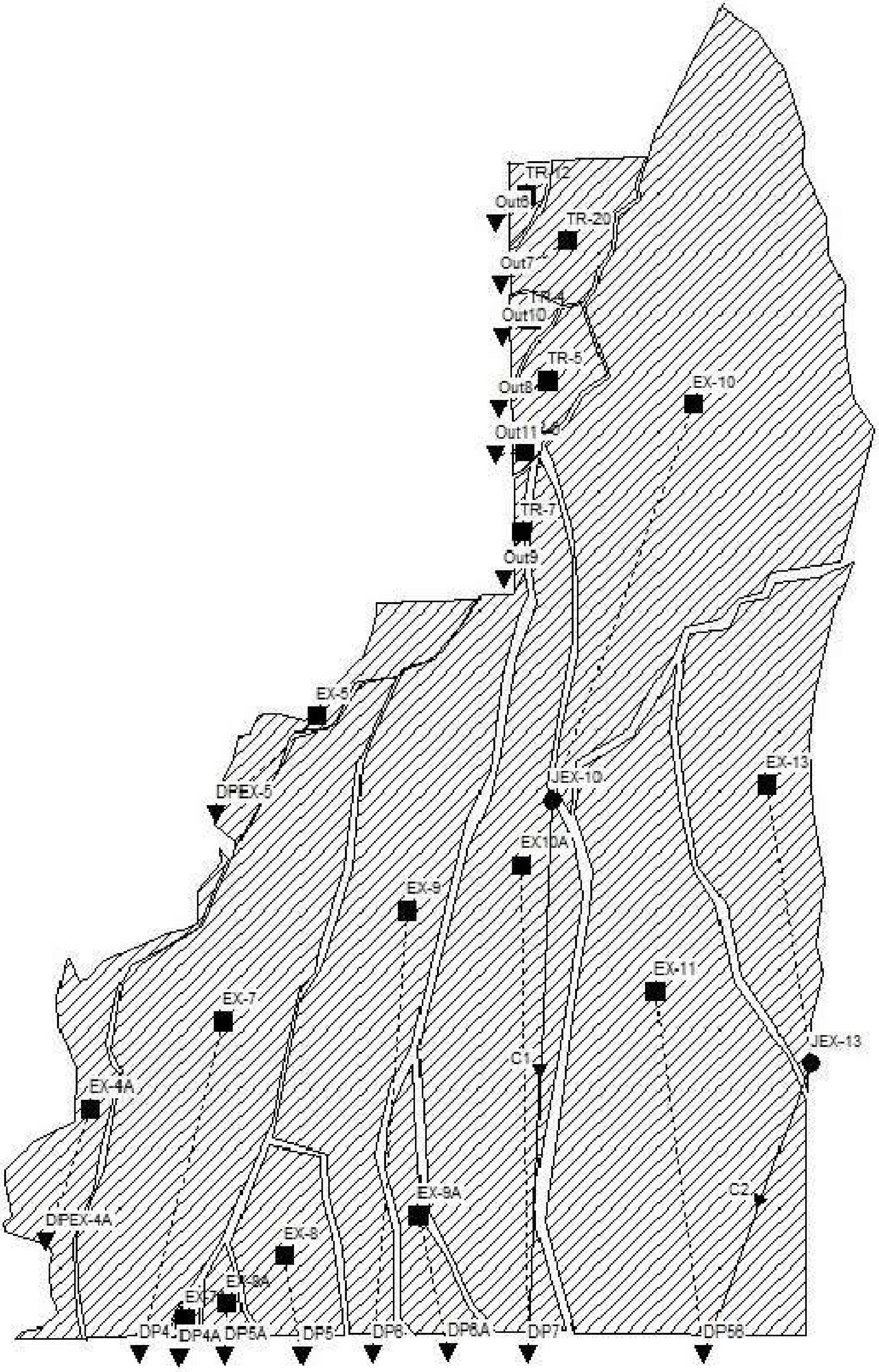
APPROVED
Engineering Department
01/19/2023 5:04:07 PM
dsdnijkamp
EPC Department of Public Works

For County Engineer, / ECM Administrator

Conditions:

Note: This report is acceptable until the version under review with SP-22-004 is approved, which will supersede this version.

EXISTING CONDITIONS SWMM MODEL MAP


TR-12
Out6
TR-20
Out7
TR-4
Out10
TR-5
Out8
EX-10
Out11
TR-7
Out9
EX-5
DPEX-5
JEX-10
EX-13
EX10A
EX-9
EX-11
EX-7
JEX-13
C1
EX-4A
C2
EX-9A
DPEX-4A
EX-8
EX-8A
EX-7A
DP4
DP4A
DP5A
DP5
DP6
DP6A
DP7
DP58

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Surface Routing

Design Point (South Bndy.)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
4	**46**	**105**
4A	**1**	**5**
5	**5**	**23**
5A	**2**	**9**
6	**59**	**122**
6A	**7**	**19**
7	**110**	**249**
56	**60**	**160**

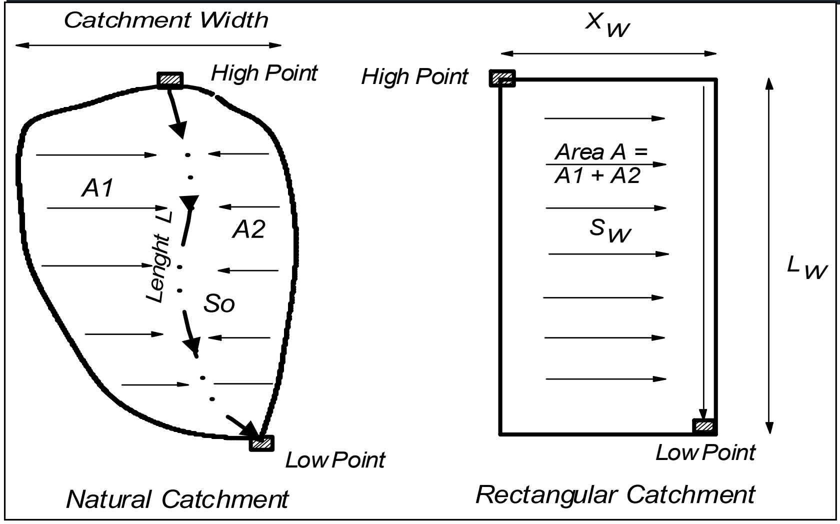
STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	*SWMM Width (Lw) (ft.)	*SWMM Slope (Sw) (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	3365	3.41%	**105**	**222**
EX10A	153.5	5%	1857	4.05%	**46**	**103**
EX-11 +	214.3	4%	3255	3.01%	**54**	**129**
EX-13 +	94.8	6%	1877	3.97%	**36**	**85**
EX-4A	44.2	8%	3355	1.09%	**19**	**50**
EX-5	26.2	8%	1959	1.65%	**12**	**32**
EX-7	152.8	5%	2234	3.13%	**46**	**105**
EX-7A	2.4	2%	416	2.70%	**1**	**5**
EX-8	32.2	2%	1679	1.47%	**5**	**23**
EX-8A	6.6	2%	698	1.80%	**2**	**9**
EX-9	139.3	8%	1837	3.19%	**59**	**122**
EX-9A	21.8	5%	786	3.01%	**7**	**19**
TR-12 +	4.7	5%	544	4.13%	**2**	**9**
TR-20 +	23.2	7%	1388	3.21%	**10**	**32**
TR-4 +	4.4	5%	645	2.76%	**2**	**9**
TR-5 +	13.7	5%	990	2.70%	**5**	**17**
TR-6 +	1.5	5%	519	1.55%	**1**	**4**
TR-7 +	2.6	5%	233	5.84%	**1**	**5**

* Reference SWMM Catchment Shape Parameter Finder for calculations

CATCHMENT SHAPE PARAMETER FINDER

Convert Natural Catchment to a Rectangular Shape



Subcatchment Center	Z=0.5
Side Collector	Z=1
Skewed Location	0.5<Z<1

Dimensionless Variables

$$Y = \frac{L}{L_w}; \qquad X = \frac{A}{L^2}$$

$$Y = (1.5 - Z)(2.286X - 0.286X^2)$$

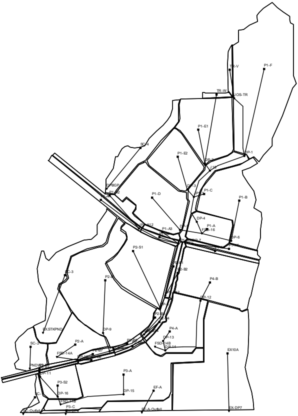
$$\frac{Lw}{L} = (1.5 - Z)[2.286(\frac{A}{L^2}) - 0.286(\frac{A}{L^2})^2]$$

$$S_o/_{S_w} = A/_{(LL_w)} + L_w/_L$$

$$X_w = A/_{L_w}$$

Subarea ID	Area acre	A1 acre	A2 acre	L ft	High Pt Elev. ft	Low Pt Elev. ft	Z=Am/A	$X=A/L^2$	Y=Lw/L	Lw ft	Xw ft	So %	So/Sw	Sw %
EX-7	152.80	82.00	70.80	6,430	7160.0	6997.0	0.54	0.16	0.35	2,234	2,980	2.53	0.81	3.13
EX-9	139.30	65.00	74.30	7,190	7190.0	7026.0	0.53	0.12	0.26	1,837	3,302	2.28	0.71	3.19
EX10A	153.50	75.00	78.50	8,030	7,236	7,015	0.51	0.10	0.23	1,857	3,600	2.75	0.68	4.05
EX10	265.90	120.00	145.90	7,280	7,380	7,148	0.55	0.22	0.46	3,365	3,442	3.19	0.94	3.41
EX-11	214.30	100.00	114.30	6,140	7,192	7,008	0.53	0.25	0.53	3,255	2,867	3.00	1.00	3.01
EX-13	94.80	47.00	47.80	4,900	7,232	7,070	0.50	0.17	0.38	1,877	2,200	3.31	0.83	3.97
TR-4	4.40	2.20	2.20	640	7,270	7,244	0.50	0.47	1.01	645	297	4.06	1.47	2.76
TR-5	13.70	7.50	6.20	1,250	7,273	7,230	0.55	0.38	0.79	990	603	3.44	1.27	2.70
TR-6	1.50	0.75	0.75	250	7,238	7,228	0.50	1.05	2.08	519	126	4.00	2.58	1.55
TR-7	2.60	1.30	1.30	1,100	7,234	7,192	0.50	0.09	0.21	233	487	3.82	0.65	5.84
TR-12	4.70	2.50	2.20	800	7,300	7,262	0.53	0.32	0.68	544	377	4.75	1.15	4.13
TR-20	23.20	12.00	11.20	1,550	7,314	7,246	0.52	0.42	0.90	1,388	728	4.39	1.37	3.21
EX-4A	44.20	22.10	22.10	750	7,044	7,001	0.50	3.42	4.47	3,355	574	5.73	5.24	1.09
EX-5	26.20	13.10	13.10	1,200	7,186	7,144	0.50	0.79	1.63	1,959	583	3.50	2.12	1.65
EX-7A	2.40	1.20	1.20	550	7,039	7,021	0.50	0.35	0.76	416	251	3.27	1.21	2.70
EX-8A	6.60	3.30	3.30	900	7,045	7,025	0.50	0.35	0.78	698	412	2.22	1.23	1.80
EX-8A	32.20	17.00	15.20	1,750	7,062	7,025	0.53	0.46	0.96	1,679	835	2.11	1.44	1.47
EX-9A	21.80	11.80	10.00	2,600	7,082	7,022	0.54	0.14	0.30	786	1,208	2.31	0.77	3.01

DEVELOPED CONDITIONS SWMM MODEL MAP


TR-V
P1-F
TR-W
JOS-TR
P1-E1
SC-4
P1-E2
DP-1
J18
DPBGP
P1-D
P1-C
P1-B
DP-4
P1-A
FSD-16
P1-A3
DP-6
P2-S1
P2-B2
SC-3
P4-B
DP-12
P4-A
EX.STKPND
DP-9
DP-13
FSD-14B
SC-2
P2-A
FSD-14A
P2-B7
EX10A
DP-11
P3-A
P3-S2
EF-A
DP-16
DP-15
FSD-11B
P3-C
SC-Outfall
EF-A-Outfall
EX-DP7

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWWM Imperv. (%)	*SWMM Width (Lw) (ft.)	*SWMM Slope (Sw) (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EF-A	8.2	15%	1064	1.57%	**7**	**20**
EX10A +	60.4	5%	2452	1.79%	**18**	**50**
EX-9 +	6.0	5%	578	1.70%	**2**	**8**
EX-9A +	12.7	5%	1080	1.94%	**4**	**16**
P1-A	12.7	8%	1276	1.29%	**6**	**19**
P1-A1	5.0	45%	258	1.66%	**11**	**21**
P1-A2	6.4	45%	258	0.77%	**12**	**23**
P1-A3	1.8	50%	196	1.17%	**5**	**9**
P1-A4	2.0	50%	208	1.12%	**5**	**10**
P1-A5	5.7	45%	417	1.38%	**13**	**25**
P1-A6	2.8	50%	205	1.75%	**7**	**14**
P1-B (Dev.)	35.5	38%	873	1.36%	**55**	**108**
P1-B (Un-dev.)	35.5	5%	873	1.36%	**10**	**23**
P1-C	8.9	50%	581	3.69%	**23**	**46**
P1-D	31.4	38%	1033	1.27%	**53**	**102**
P1-E1	30.4	35%	1148	1.56%	**50**	**97**
P1-E2	21.8	40%	1048	1.23%	**41**	**80**
P1-F (Dev.)	76.7	30%	2322	2.18%	**111**	**215**
P1-F (Un-dev.)	76.7	5%	2322	2.18%	**22**	**59**
P2-A	24.4	10%	2164	2.11%	**15**	**43**
P2-B	57.8	38%	1215	1.64%	**88**	**173**
P2-B1	2.5	50%	201	3.37%	**7**	**13**
P2-B10	1.7	50%	187	3.43%	**5**	**10**
P2-B2	1.9	50%	148	3.54%	**5**	**10**
P2-B3	2.8	45%	245	2.15%	**7**	**13**
P2-B4	1.6	50%	138	2.49%	**4**	**8**
P2-B5	1.9	45%	230	1.86%	**5**	**9**
P2-B6	1.1	50%	141	2.28%	**3**	**6**
P2-B7	2.5	45%	272	1.78%	**6**	**12**
P2-B8	1.2	50%	141	2.34%	**3**	**7**
P2-B9	2.0	50%	226	3.27%	**5**	**11**
P2-S1	35.6	40%	1756	1.44%	**68**	**133**
P3-A	52.6	40%	1290	1.37%	**85**	**166**
P3-C	1.7	11%	446	1.31%	**1**	**5**
P3-S2	11.9	40%	1103	1.27%	**25**	**50**
P4-A	25.8	35%	920	1.21%	**41**	**80**
P4-B	37.3	35%	1773	1.34%	**63**	**123**
SC-1 +	3.6	8%	306	2.20%	**2**	**6**
SC-2 +	10.8	8%	1211	2.44%	**6**	**20**
SC-3 +	27.2	8%	616	2.68%	**12**	**26**
SC-4 +	16.4	8%	1918	1.48%	**8**	**27**
TR-V	2.1	19%	162	4.13%	**2**	**6**
TR-W	1.4	38%	90	1.30%	**3**	**5**

*** Reference SWMM Catchment Shape Parameter Finder for calculations**

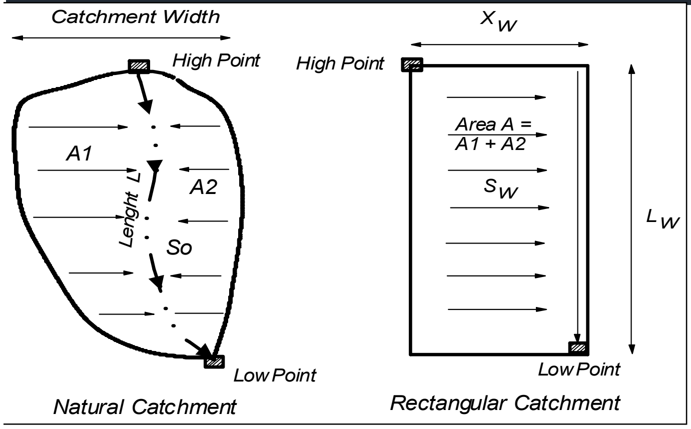
+ Basin not changed from pre-development conditions

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Developed Surface Routing

Design Point (On-Site)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
DP-1	112	219
DP-2	53	103
DP-3	41	80
DP-4	218	379
DP-5	53	102
DP-6	55	108
DP-7	20	39
DP-8	68	133
DP-9	88	173
DP-10	223	441
DP-11	10	21
DP-12	63	123
DP-13	41	80
DP-14	97	189
DP-15	85	166
DP-16	34	69
Pond FSD-11B	115	227
Pond FSD-14A	234	486
Pond FSD-14B	97	189
Pond FSD-16 (Ultimate)	323	499
Pond FSD-16 (Interim)	197	410
Design Point (South Bndy.)	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**
4	0.5	3.5
4A	0.5	3.5
5	4	10
5A	2	7
6	2.0	48.9
6A	4	16
7	18	50

Convert Natural Catchment to a Rectangular Shape



Subcatchment Center	Z=0.5
Side Collector	Z=1
Skewed Location	0.5<Z<1

Dimensionless Variables

$$Y = \frac{L}{L_w}; \qquad X = \frac{A}{L^2}$$

$$Y = (1.5 - Z)(2.286X - 0.286X^2)$$

$$\frac{Lw}{L} = (1.5 - Z)[2.286(\frac{A}{L^2}) - 0.286(\frac{A}{L^2})^2]$$

$$S_o/S_w = A/(LL_w) + L_w/L$$

$$X_w = A/L_w$$

Subarea ID	Area acre	A1 acre	A2 acre	L ft	High Pt Elev. ft	Low Pt Elev. ft	Z=Am/A	$X=A/L^2$	Y=Lw/L	Lw ft	Xw ft	So %	So/Sw	Sw %
EF-A	8.20	4.10	4.10	260	7050.0	7028.0	0.50	5.28	4.09	1,064	336	8.46	5.38	1.57
P3-C	1.70	0.50	1.20	260	7027.0	7019.0	0.71	1.10	1.72	446	166	3.08	2.35	1.31
P1-A	12.70	7.00	5.70	850	7,124	7,102	0.55	0.77	1.50	1,276	433	2.59	2.01	1.29
P1-B	35.50	10.00	25.50	3,100	7,160	7,124	0.72	0.16	0.28	873	1,770	1.16	0.85	1.36
P1-C	8.90	4.50	4.40	1,700	7,158	7,122	0.51	0.13	0.30	510	761	2.12	0.75	2.83
P1-D	31.40	14.00	17.40	2,800	7,136	7,106	0.55	0.17	0.37	1,033	1,324	1.07	0.84	1.27
P1-E1	30.40	16.00	14.40	2,500	7,188	7,152	0.53	0.21	0.46	1,148	1,154	1.44	0.92	1.56
P1-E2	21.80	11.00	10.80	2,000	7,158	7,134	0.50	0.24	0.52	1,048	906	1.20	0.98	1.23
P1-F	76.70	35.00	41.70	3,000	7,240	7,158	0.54	0.37	0.77	2,322	1,439	2.73	1.25	2.18
TR-W	1.40	0.70	0.70	90	7,192	7,182	0.50	7.53	1.00	90	678	11.11	8.53	1.30
TR-V	2.10	1.50	0.60	1,000	7,220	7,190	0.71	0.09	0.16	162	563	3.00	0.73	4.13
P1-A1	5.00	3.10	1.90	2,400	7,134	7,112	0.62	0.04	0.08	182	1,199	0.92	0.58	1.59
P1-A2	6.40	3.20	3.20	2,400	7,134	7,110	0.50	0.05	0.11	264	1,056	1.00	0.55	1.82
P1-A3	1.80	0.70	1.10	800	7,110	7,103	0.61	0.12	0.25	196	400	0.88	0.74	1.17
P1-A4	2.00	1.30	0.70	800	7,112	7,105	0.65	0.14	0.26	208	419	0.88	0.78	1.12
P1-A5	5.70	3.00	2.70	1,300	7,114	7,100	0.53	0.15	0.32	417	595	1.08	0.78	1.38
P1-A6	2.80	1.30	1.50	1,300	7,114	7,100	0.54	0.07	0.16	205	595	1.08	0.62	1.75
P2-A	24.40	13.20	11.20	900	7,056	7,000	0.54	1.31	2.40	2,164	491	6.22	2.95	2.11
P2-B	57.80	18.50	39.30	3,800	7,106	7,052	0.68	0.17	0.32	1,215	2,072	1.42	0.87	1.64
P2-S1	35.60	18.00	17.60	1,900	7,110	7,072	0.51	0.43	0.92	1,756	883	2.00	1.39	1.44
P2-B1	2.50	1.50	1.00	1,100	7,102	7,077	0.60	0.09	0.18	201	541	2.27	0.67	3.37
P2-B2	1.90	1.20	0.70	1,100	7,102	7,077	0.63	0.07	0.13	148	559	2.27	0.64	3.54
P2-B3	2.80	1.70	1.10	1,000	7,077	7,061	0.61	0.12	0.25	245	498	1.60	0.74	2.15
P2-B4	1.60	1.00	0.60	1,000	7,077	7,061	0.63	0.07	0.14	138	504	1.60	0.64	2.49
P2-B5	1.90	1.20	0.70	700	7,061	7,050	0.63	0.17	0.33	230	360	1.57	0.84	1.86
P2-B6	1.10	0.65	0.45	700	7,061	7,050	0.59	0.10	0.20	141	341	1.57	0.69	2.28
P2-B7	2.50	1.60	0.90	770	7,050	7,038	0.64	0.18	0.35	272	401	1.56	0.87	1.78
P2-B8	1.20	0.70	0.50	770	7,050	7,038	0.58	0.09	0.18	141	372	1.56	0.67	2.34
P2-B9	2.00	1.00	1.00	870	7,038	7,018	0.50	0.12	0.26	226	386	2.30	0.70	3.27
P2-B10	1.70	0.90	0.80	870	7,038	7,018	0.53	0.10	0.21	187	397	2.30	0.67	3.43
P3-A	1.70	0.90	0.80	870	7,038	7,018	0.53	0.10	0.21	187	397	2.30	0.67	3.43
P3-S2	11.90	6.00	5.90	1,000	7,036	7,016	0.50	0.52	1.10	1,103	470	2.00	1.57	1.27
P4-A	25.80	20.00	5.80	1,950	7,078	7,052	0.78	0.30	0.47	920	1,222	1.33	1.10	1.21
P4-B	37.30	25.00	12.30	1,600	7,116	7,080	0.67	0.63	1.11	1,773	916	2.25	1.68	1.34
SC-1	3.60	1.80	1.80	150	7,014	6,996	0.50	6.97	2.04	306	512	12.00	5.46	2.20
SC-2	10.80	5.00	5.80	770	7040.0	7001.0	0.54	0.79	1.57	1,211	388	5.06	2.08	2.44
SC-3	27.20	14.00	13.20	4,300	7100.0	7032.0	0.51	0.06	0.14	616	1,925	1.58	0.59	2.68
SC-4	16.40	8.20	8.20	420	7,136	7,102	0.50	4.05	4.57	1,918	372	8.10	5.45	1.48
EX-9	6.00	3.00	3.00	1,000	7,050	7,030	0.50	0.26	0.58	578	452	2.00	1.03	1.94
EX-9A	12.70	6.30	6.40	1,100	7,049	7,022	0.50	0.46	0.98	1,080	512	2.45	1.45	1.70

PROPOSED PONDS
EFFECTIVE IMPERVIOUS AREA CALCULATIONS

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area

(Full Build Out)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	15%
P1-B	35.5	7,500	55%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	12,500	35%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	**220.9**		**46%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area

(Prelim. Plan 1 & Foursquare PUD Only)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	15%
P1-B	35.5	Un dev.	2%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	Un dev.	2%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	**220.9**		**26%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-14A Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A1	5.0	N/A	70%
P1-A2	6.4	N/A	70%
P1-A3	1.8	N/A	70%
P1-A4	2.0	N/A	70%
P1-A5	5.7	N/A	70%
P1-A6	2.8	N/A	70%
P2-S1	35.6	School	50%
P2-A	24.4	Park	7%
P2-B	57.8	7,000	57%
P2-B1	2.5	N/A	50%
P2-B2	1.9	N/A	70%
P2-B3	2.8	N/A	50%
P2-B4	1.6	N/A	70%
P2-B5	1.9	N/A	50%
P2-B6	1.1	N/A	70%
P2-B7	2.5	N/A	25%
P2-B8	1.2	N/A	70%
TOTAL	**157.0**		**49%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-14B Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P4-A	25.8	6,500	60%
P4-B	37.3	6,500	60%
TOTAL	**63.1**		**60%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-11B Tributary Area

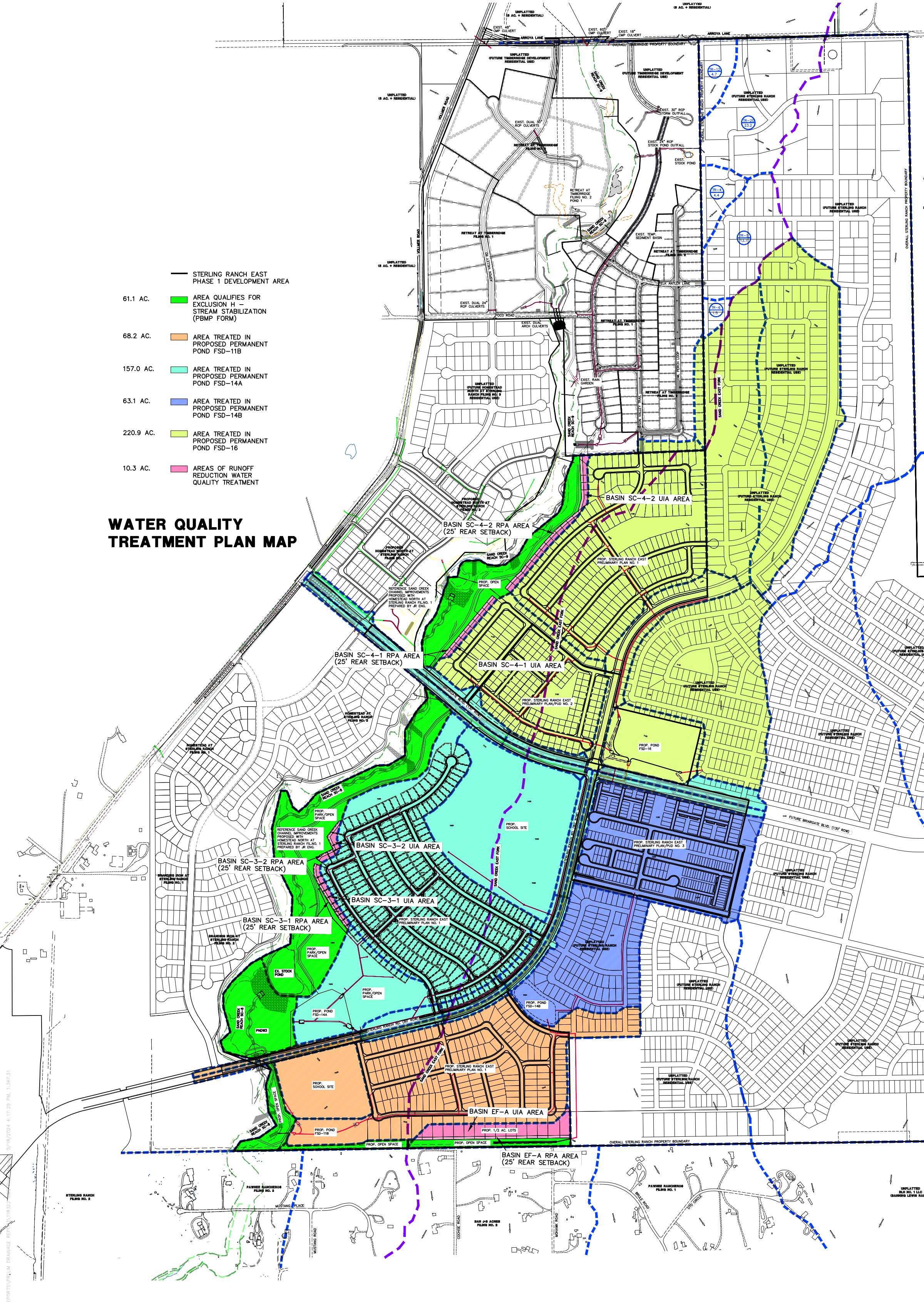
Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P2-B9	2.0	N/A	70%
P2-B10	1.7	N/A	70%
P3-S2	11.9	School	65%
P3-A	52.6	7,000	57%
TOTAL	**68.2**		**59%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Flow Comparison along South Boundary

	This Report (SWMM 5.1) Pre-Dev. Conditions		This Report (SWMM 5.1) Developed Conditions		2018 SR MDDP (HEC-HMS) Pre-Dev. Conditions	
Design Point (South Bndy.)	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**
4	46	105	0.5	3.5	21.5	107.4
4A	1	5	0.5	3.5		
5	5	23	4	10	1.7	20.5
5A	2	9	2	7		
6	59	122	2.0	48.9	23.9	125.2
6A	7	19	4	11		
7	110	249	18	50	57.1	277.9
56	60	160	60	160	42.5	202.9

WATER QUALITY TREATMENT PLAN MAP



	—	STERLING RANCH EAST PHASE 1 DEVELOPMENT AREA
61.1 AC.	🟩	AREA QUALIFIES FOR EXCLUSION H – STREAM STABILIZATION (PBMP FORM)
68.2 AC.	🟧	AREA TREATED IN PROPOSED PERMANENT POND FSD-11B
157.0 AC.	🟦	AREA TREATED IN PROPOSED PERMANENT POND FSD-14A
63.1 AC.	🟦	AREA TREATED IN PROPOSED PERMANENT POND FSD-14B
220.9 AC.	🟨	AREA TREATED IN PROPOSED PERMANENT POND FSD-16
10.3 AC.	🟪	AREAS OF RUNOFF REDUCTION WATER QUALITY TREATMENT

UNPLATTED (5 AC. + RESIDENTIAL)
EXIST. 48" CMP CULVERT
ARROYA LANE
EXIST. 60" CMP CULVERT
EXIST. 18" CMP CULVERT
OVERALL TIMBERRIDGE PROPERTY BOUNDARY
UNPLATTED (FUTURE TIMBERRIDGE DEVELOPMENT RESIDENTIAL USE)
VOLLMER ROAD
EXIST. DUAL 30" RCP CULVERTS
EXIST. 30" RCP STORM OUTFALL
EXIST. 24" RCP STOCK POND OUTFALL
EXIST. STOCK POND
RETREAT AT TIMBERRIDGE FILING NO. 2 POND 1
RETREAT AT TIMBERRIDGE FILING NO. 1
RETREAT AT TIMBERRIDGE FILING NO. 2
EXIST. TEMP. SEDIMENT BASIN
ELK ANTLER LANE
EXIST. DUAL 24" RCP CULVERTS
POCO ROAD
EXIST. DUAL ARCH CULVERTS
EXIST. RAIN GARDEN
SAND CREEK REACH SC-9
OVERALL STERLING RANCH PROPERTY BOUNDARY
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
UNPLATTED (FUTURE HOMESTEAD NORTH AT STERLING RANCH FILING NO. 3 RESIDENTIAL USE)
SAND CREEK EAST FORK
BASIN SC-4-2 UIA AREA
BASIN SC-4-2 RPA AREA (25' REAR SETBACK)
PROPOSED HOMESTEAD NORTH AT STERLING RANCH FILING NO. 1
PROP. STERLING RANCH EAST PRELIMINARY PLAN NO. 1
PROP. OPEN SPACE
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FILING NO. 1 PREPARED BY JR ENG.
BASIN SC-4-1 RPA AREA (25' REAR SETBACK)
BASIN SC-4-1 UIA AREA
PROP. STERLING RANCH EAST PRELIMINARY PLAN/PUD NO. 2
HOMESTEAD AT STERLING RANCH FILING NO. 2
HOMESTEAD AT STERLING RANCH FILING NO. 1
PROP. POND FSD-16
FUTURE BRIARGATE BLVD. (130' ROW)
SAND CREEK REACH SC-8
PROP. PARK/OPEN SPACE
PROP. SCHOOL SITE
PROP. STERLING RANCH EAST PRELIMINARY PLAN/PUD NO. 3
BASIN SC-3-2 UIA AREA
BASIN SC-3-2 RPA AREA (25' REAR SETBACK)
BRANDING IRON AT STERLING RANCH FILING NO. 1
BRANDING IRON AT STERLING RANCH FILING NO. 2
BASIN SC-3-1 UIA AREA
BASIN SC-3-1 RPA AREA (25' REAR SETBACK)
EX. STOCK POND
PROP. POND FSD-14A
PROP. POND FSD-14B
STERLING RANCH RD. (80' ROW)
PROP. STERLING RANCH EAST PRELIMINARY PLAN NO. 1
BASIN EF-A UIA AREA
PROP. 1/2 AC. LOTS
PROP. POND FSD-11B
PROP. OPEN SPACE
BASIN EF-A RPA AREA (25' REAR SETBACK)
STERLING RANCH FILING NO. 2
PAWNEE RANCHEROS FILING NO. 2
MUSTANG PLACE
MUSTANG ROAD
COCHISE ROAD
BAR J-S ACRES FILING NO. 2
MOHAWK ROAD
PAWNEE RANCHEROS FILING NO. 1
BRIDLE ROAD
OTO CIRCLE
UNPLATTED SLM NO. 1 LLC (BANNING LEWIS RANCH)

Design Procedure Form: Runoff Reduction

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: **Marc A. Whorton, P.E.**
Company: **Classic Consulting**
Date: **May 31, 2022**
Project: **Sterling Ranch East Preliminary Plan No. 1**
Location: **BASINS NOT TRIBUTARY TO PERMANENT SWQ FACILITY**

SITE INFORMATION (User Input in Blue Cells)

WQCV Rainfall Depth = 0.53 inches
Depth of Average Runoff Producing Storm, d_6 = 0.42 inches (for Watersheds Outside of the Denver Region, Figure 3-1 in USDCM Vol. 3)

Area Type	UIA:RPA	UIA:RPA	UIA:RPA	UIA:RPA	UIA:RPA							
Area ID	EF-A	SC-3-1	SC-3-2	SC-4-1	SC-4-2							
Downstream Design Point ID	SC	SC	SC	SC	SC							
Downstream BMP Type	None	None	None	None	None							
DCIA (ft^2)	--	--	--	--	--							
UIA (ft^2)	40,000	26,790	19,924	30,053	48,697							
RPA (ft^2)	37,188	17,918	12,924	21,985	28,692							
SPA (ft^2)	--	--	--	--	--							
HSG A (%)	0%	0%	0%	0%	0%							
HSG B (%)	100%	100%	100%	100%	100%							
HSG C/D (%)	0%	0%	0%	0%	0%							
Average Slope of RPA (ft/ft)	0.020	0.040	0.030	0.040	0.040							
UIA:RPA Interface Width (ft)	800.00	700.00	400.00	800.00	1000.00							

CALCULATED RUNOFF RESULTS

Area ID	EF-A	SC-3-1	SC-3-2	SC-4-1	SC-4-2							
UIA:RPA Area (ft^2)	77,188	44,708	32,848	52,038	77,389							
L / W Ratio	0.12	0.09	0.21	0.08	0.08							
UIA / Area	0.5182	0.5992	0.6066	0.5775	0.6292							
Runoff (in)	0.00	0.00	0.00	0.00	0.00							
Runoff (ft^3)	0	0	0	0	0							
Runoff Reduction (ft^3)	1433	960	714	1077	1745							

CALCULATED WQCV RESULTS

Area ID	EF-A	SC-3-1	SC-3-2	SC-4-1	SC-4-2							
WQCV (ft^3)	1628	1090	811	1223	1982							
WQCV Reduction (ft^3)	1628	1090	811	1223	1982							
WQCV Reduction (%)	100%	100%	100%	100%	100%							
Untreated WQCV (ft^3)	0	0	0	0	0							

CALCULATED DESIGN POINT RESULTS (sums results from all columns with the same Downstream Design Point ID)

Downstream Design Point ID	SC											
DCIA (ft^2)	0											
UIA (ft^2)	165,464											
RPA (ft^2)	118,707											
SPA (ft^2)	0											
Total Area (ft^2)	284,171											
Total Impervious Area (ft^2)	165,464											
WQCV (ft^3)	6,734											
WQCV Reduction (ft^3)	6,734											
WQCV Reduction (%)	100%											
Untreated WQCV (ft^3)	0											

CALCULATED SITE RESULTS (sums results from all columns in worksheet)

Total Area (ft^2)	284,171
Total Impervious Area (ft^2)	165,464
WQCV (ft^3)	6,734
WQCV Reduction (ft^3)	6,734
WQCV Reduction (%)	100%
Untreated WQCV (ft^3)	0

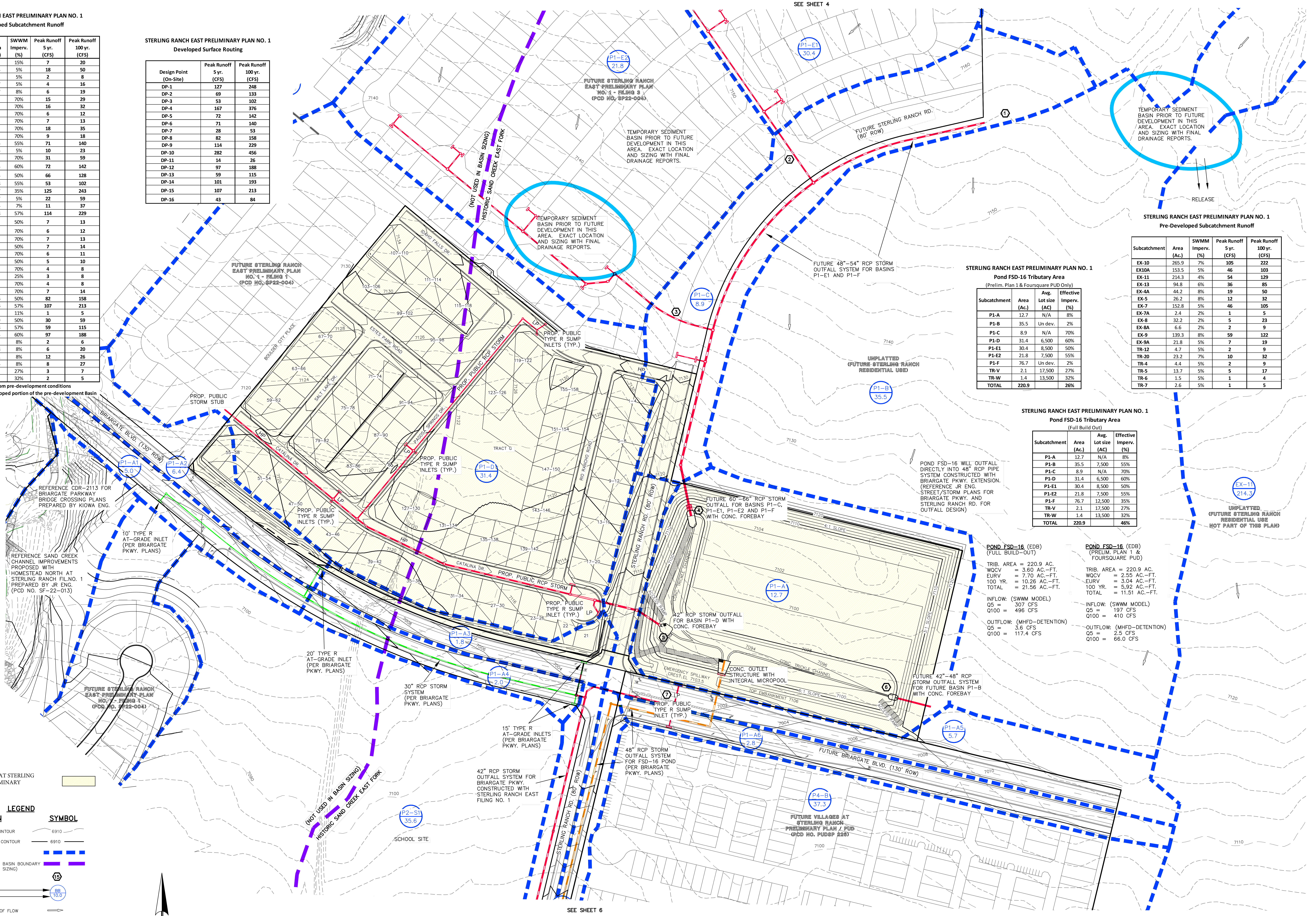
STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWWM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EF-A	8.2	15%	7	20
EX10A ++	60.4	5%	18	50
EX-9 ++	6.0	5%	2	8
EX-9A ++	12.7	5%	4	16
P1-A	12.7	8%	6	19
P1-A1	5.0	70%	15	29
P1-A2	6.4	70%	16	32
P1-A3	1.8	70%	6	12
P1-A4	2.0	70%	7	13
P1-A5	5.7	70%	18	35
P1-A6	2.8	70%	9	18
P1-B (Dev.)	35.5	55%	71	140
P1-B (Un-dev.)	35.5	5%	10	23
P1-C	8.9	70%	31	59
P1-D	31.4	60%	72	142
P1-E1	30.4	50%	66	128
P1-E2	21.8	55%	53	102
P1-F (Dev.)	76.7	35%	125	243
P1-F (Un-dev.)	76.7	5%	22	59
P2-A	24.4	7%	11	37
P2-B	57.8	57%	114	229
P2-B1	2.5	50%	7	13
P2-B10	1.7	70%	6	12
P2-B2	1.9	70%	7	13
P2-B3	2.8	50%	7	14
P2-B4	1.6	70%	6	11
P2-B5	1.9	50%	5	10
P2-B6	1.1	70%	4	8
P2-B7	2.5	25%	3	8
P2-B8	1.2	70%	4	8
P2-B9	2.0	70%	7	14
P2-S1	35.6	50%	82	158
P3-A	52.6	57%	107	213
P3-C	1.7	11%	1	5
P3-S2	11.9	50%	30	59
P4-A	25.8	57%	59	115
P4-B	37.3	60%	97	188
SC-1 +	3.6	8%	2	6
SC-2 +	10.8	8%	6	20
SC-3 +	27.2	8%	12	26
SC-4 +	16.4	8%	8	27
TR-V	2.1	27%	3	7
TR-W	1.4	32%	2	5

+ Basin not changed from pre-development conditions
++ Remaining undeveloped portion of the pre-development Basin

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Surface Routing

Design Point (On-Site)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
DP-1	127	248
DP-2	69	133
DP-3	53	102
DP-4	167	376
DP-5	72	142
DP-6	71	140
DP-7	28	53
DP-8	82	158
DP-9	114	229
DP-10	282	456
DP-11	14	26
DP-12	97	188
DP-13	59	115
DP-14	101	193
DP-15	107	213
DP-16	43	84


SEE SHEET 4
P1-E2 21.8
FUTURE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 - FILING 3 (PCD NO. SP22-004)
P1-E1 30.4
FUTURE STERLING RANCH RD. (80' ROW)
TEMPORARY SEDIMENT BASIN PRIOR TO FUTURE DEVELOPMENT IN THIS AREA. EXACT LOCATION AND SIZING WITH FINAL DRAINAGE REPORTS.
RELEASE
(NOT USED IN BASIN SIZING) HISTORIC SAND CREEK EAST FORK
FUTURE 48"-54" RCP STORM OUTFALL SYSTEM FOR BASINS P1-E1 AND P1-F
FUTURE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 - FILING 1 (PCD NO. SP22-004)
P1-C 8.9
PROP. PUBLIC TYPE R SUMP INLETS (TYP.)
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
P1-B 35.5
PROP. PUBLIC STORM STUB
PROP. PUBLIC RCP STORM
P1-D 31.4
TRACT C
POND FSD-16 WILL OUTFALL DIRECTLY INTO 48" RCP PIPE SYSTEM CONSTRUCTED WITH BRIARGATE PKWY. EXTENSION. (REFERENCE JR ENG. STREET/STORM PLANS FOR BRIARGATE PKWY. AND STERLING RANCH RD. FOR OUTFALL DESIGN)
EX-11 214.3
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE NOT PART OF THIS PLAN)
BRIARGATE BLVD. (130' ROW)
P1-A1 5.0
P1-A2 6.4
REFERENCE CDR-2113 FOR BRIARGATE PARKWAY BRIDGE CROSSING PLANS PREPARED BY KIOWA ENG.
10' TYPE R AT-GRADE INLET (PER BRIARGATE PKWY. PLANS)
PROP. PUBLIC TYPE R SUMP INLETS (TYP.)
FUTURE 60"-66" RCP STORM OUTFALL FOR BASINS P1-C, P1-E1, P1-E2 AND P1-F WITH CONC. FOREBAY
STERLING RANCH RD. (80' ROW)
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF-22-013)
P1-A 12.7
PROP. PUBLIC TYPE R INLET (TYP.)
42" RCP STORM OUTFALL FOR BASIN P1-D WITH CONC. FOREBAY
CATALINA DR.
P1-A3 1.8
20' TYPE R AT-GRADE INLET (PER BRIARGATE PKWY. PLANS)
EMERGENCY SPILLWAY CREST EL 7103.5
CONC. OUTLET STRUCTURE WITH INTEGRAL MICROPOOL
CONC. TRICKLE CHANNEL
TOP EMBANKMENT 7106
4:1 SLOPE
FUTURE 42"-48" RCP STORM OUTFALL SYSTEM FOR FUTURE BASIN P1-B WITH CONC. FOREBAY
P1-A4 2.0
30" RCP STORM SYSTEM (PER BRIARGATE PKWY. PLANS)
PROP. PUBLIC TYPE R SUMP INLET (TYP.)
P1-A5 5.7
P1-A6 2.8
FUTURE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 - FILING 1 (PCD NO. SP22-004)
15' TYPE R AT-GRADE INLETS (PER BRIARGATE PKWY. PLANS)
48" RCP STORM OUTFALL SYSTEM FOR FSD-16 POND (PER BRIARGATE PKWY. PLANS)
FUTURE BRIARGATE BLVD. (130' ROW)
42" RCP STORM OUTFALL SYSTEM FOR BRIARGATE PKWY. CONSTRUCTED WITH STERLING RANCH EAST FILING NO. 1
P4-B 37.3
FUTURE VILLAGES AT STERLING RANCH PRELIMINARY PLAN / PUD (PCD NO. PUDSP 226)
P2-S1 35.6
SCHOOL SITE
(NOT USED IN BASIN SIZING) HISTORIC SAND CREEK EAST FORK
SEE SHEET 6
1 2 3 4 5 6 7

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	105	222
EX10A	153.5	5%	46	103
EX-11	214.3	4%	54	129
EX-13	94.8	6%	36	85
EX-4A	44.2	8%	19	50
EX-5	26.2	8%	12	32
EX-7	152.8	5%	46	105
EX-7A	2.4	2%	1	5
EX-8	32.2	2%	5	23
EX-8A	6.6	2%	2	9
EX-9	139.3	8%	59	122
EX-9A	21.8	5%	7	19
TR-12	4.7	5%	2	9
TR-20	23.2	7%	10	32
TR-4	4.4	5%	2	9
TR-5	13.7	5%	5	17
TR-6	1.5	5%	1	4
TR-7	2.6	5%	1	5

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area
(Prelim. Plan 1 & Foursquare PUD Only)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	Un dev.	2%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	Un dev.	2%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	**220.9**		**26%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area
(Full Build Out)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	7,500	55%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	12,500	35%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	**220.9**		**46%**

POND FSD-16 (EDB)
(FULL BUILD-OUT)

TRIB. AREA = 220.9 AC.
WQCV = 3.60 AC.-FT.
EURV = 7.70 AC.-FT.
100 YR. = 10.26 AC.-FT.
TOTAL = 21.56 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 307 CFS
Q100 = 496 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 3.6 CFS
Q100 = 117.4 CFS

POND FSD-16 (EDB)
(PRELIM. PLAN 1 & FOURSQUARE PUD)

TRIB. AREA = 220.9 AC.
WQCV = 2.55 AC.-FT.
EURV = 3.04 AC.-FT.
100 YR. = 5,92 AC.-FT.
TOTAL = 11.51 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 197 CFS
Q100 = 410 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 2.5 CFS
Q100 = 66.0 CFS

FOURSQUARE AT STERLING RANCH PRELIMINARY PLAN AREA ▨

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟦
HISTORIC EAST FORK BASIN BOUNDARY (NOT USED IN BASIN SIZING)	🟪
DESIGN POINT	15
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
PROPOSED DIRECTION OF FLOW	←
PROPOSED STORM SEWER	🟥
PROPOSED STORM SEWER PER JR ENG. PLANS	🟩
PROPOSED POND OUTFALL PER JR ENG. PLANS	🟧

N

100 50 0 100 200

SCALE: 1" = 100'

CLASSIC
CONSULTING
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619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)

FOURSQUARE AT STERLING RANCH
PRELIMINARY PLAN / PUD
PRELIMINARY DRAINAGE REPORT
DEVELOPED DRAINAGE MAP

DESIGNED BY	MAW	SCALE	DATE 9-30-22
DRAWN BY	MAW	(H) 1"= 100'	SHEET 7 OF 7
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.20

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Subcatchment Runoff

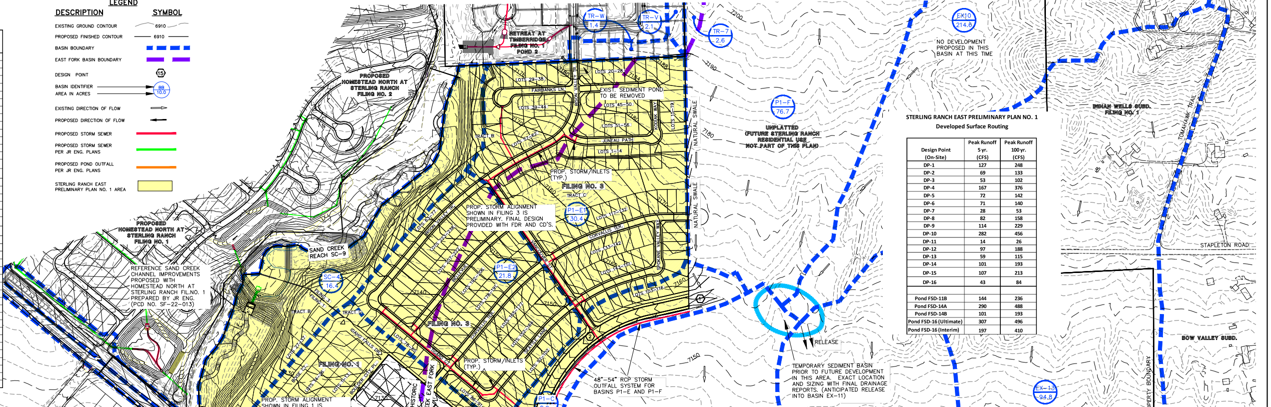
Subcatchment	Area (Ac.)	SWWM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EF-A	8.2	15%	7	20
EX10A ++	60.4	5%	18	50
EX-9 ++	6.0	5%	2	8
EX-9A ++	12.7	5%	4	16
P1-A	12.7	8%	6	19
P1-A1	5.0	70%	15	29
P1-A2	6.4	70%	16	32
P1-A3	1.8	70%	6	12
P1-A4	2.0	70%	7	13
P1-A5	5.7	70%	18	35
P1-A6	2.8	70%	9	18
P1-B (Dev.)	35.5	55%	71	140
P1-B (Un-dev.)	35.5	5%	10	23
P1-C	8.9	70%	31	59
P1-D	31.4	60%	72	142
P1-E1	30.4	50%	66	128
P1-E2	21.8	55%	53	102
P1-F (Dev.)	76.7	35%	125	243
P1-F (Un-dev.)	76.7	5%	22	59
P2-A	24.4	7%	11	37
P2-B	57.8	57%	114	229
P2-B1	2.5	50%	7	13
P2-B10	1.7	70%	6	12
P2-B2	1.9	70%	7	13
P2-B3	2.8	50%	7	14
P2-B4	1.6	70%	6	11
P2-B5	1.9	50%	5	10
P2-B6	1.1	70%	4	8
P2-B7	2.5	25%	3	8
P2-B8	1.2	70%	4	8
P2-B9	2.0	70%	7	14
P2-S1	35.6	50%	82	158
P3-A	52.6	57%	107	213
P3-C	1.7	11%	1	5
P3-S2	11.9	50%	30	59
P4-A	25.8	57%	59	115
P4-B	37.3	60%	97	188
SC-1 +	3.6	8%	2	6
SC-2 +	10.8	8%	6	20
SC-3 +	27.2	8%	12	26
SC-4 +	16.4	8%	8	27
TR-V	2.1	27%	3	7
TR-W	1.4	32%	2	5

+ Basin not changed from pre-development conditions

++ Remaining undeveloped portion of the pre-development Basin

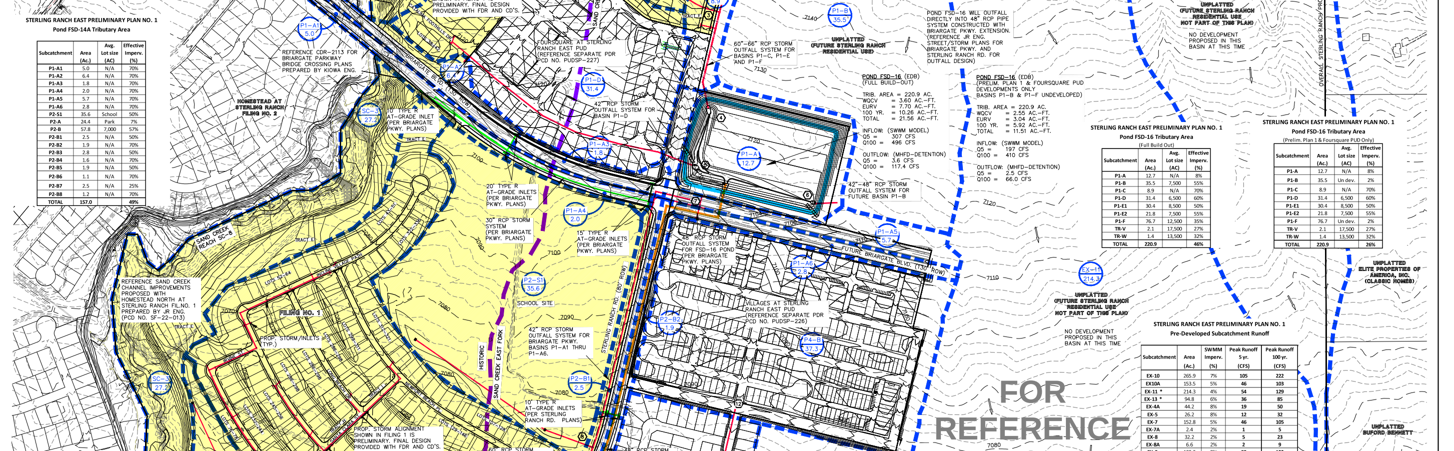
LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	— 6910 —
BASIN BOUNDARY	▬ ▬ ▬
EAST FORK BASIN BOUNDARY	▬ ▬
DESIGN POINT	15
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
PROPOSED DIRECTION OF FLOW	←
PROPOSED STORM SEWER	▬
PROPOSED STORM SEWER PER JR ENG. PLANS	▬
PROPOSED POND OUTFALL PER JR ENG. PLANS	▬
STERLING RANCH EAST PRELIMINARY PLAN NO. 1 AREA	▭


SEE SHEET 4
RETREAT AT TIMBERRIDGE FILING NO. 1 POND 2
TR-W 1.4
TR-V 2.1
TR-7 2.6
PROPOSED HOMESTEAD NORTH AT STERLING RANCH FILING NO. 2
LOTS 29-38
LOTS 20-28
FAIRBANKS LN.
BISON VALLEY TR.
EXIST. SEDIMENT POND TO BE REMOVED
LOTS 39-44
LOTS 45-50
LOTS 51-56
KODIAK WAY
LOTS 15-19
TRACT B
LOTS 57-62
JUNEAU PATH
LOTS 1-14
PROP. STORM/INLETS (TYP.)
FILING NO. 3
TRACT C
NATURAL SWALE
NATURAL SWALE
PROP. STORM ALIGNMENT SHOWN IN FILING 3 IS PRELIMINARY. FINAL DESIGN PROVIDED WITH FDR AND CD'S.
P1-E1 30.4
LOTS 117-132
CORVALLIS TER.
LOTS 133-142
LOTS 143-151
SPOKANE VALLEY WAY
LOTS 103-116
VANCOUVER ST.
PROPOSED HOMESTEAD NORTH AT STERLING RANCH FILING NO. 1
SAND CREEK REACH SC-9
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF-22-013)
SC-4 16.4
FILING 3
FILING 1
TRACT B
TRACT G
LOTS 63-77
LOTS 223-238
LOTS 207-222
BELLEVUE
LOTS 192-206
LOTS 178-191
P1-E2 21.8
FILING NO. 3
LOTS 165-177
LOTS 152-164
SEATTLE LANE
LOTS 92-102
IDAHO FALLS DR.
LOTS 78-85
TIGARD CT.
LOTS 27-37
FILING NO. 1
BOISE CT.
LOTS 14-26
LOTS 1-13
BOULDER CITY PL.
HISTORIC
EAST FORK
LOTS 86-91
PROP. STORM ALIGNMENT SHOWN IN FILING 1 IS
PROP. STORM/INLETS (TYP.)
48"-54" RCP STORM OUTFALL SYSTEM FOR BASINS P1-E AND P1-F
P1-C
1
2
RELEASE
TEMPORARY SEDIMENT BASIN PRIOR TO FUTURE DEVELOPMENT IN THIS AREA. EXACT LOCATION AND SIZING WITH FINAL DRAINAGE REPORTS. (ANTICIPATED RELEASE INTO BASIN EX-11)
P1-F 76.7
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE NOT PART OF THIS PLAN)
EX10 214.6
NO DEVELOPMENT PROPOSED IN THIS BASIN AT THIS TIME
INDIAN WELLS SUBD. FILING NO. 1
TOMAHAWK TRAIL
STAPLETON ROAD
BOW VALLEY SUBD.
PROPERTY BOUNDARY
EX-13 94.8
7200
7190
7188
7184
7180
7176
7170
7160
7150
7140
7130

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Surface Routing

Design Point (On-Site)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
DP-1	127	248
DP-2	69	133
DP-3	53	102
DP-4	167	376
DP-5	72	142
DP-6	71	140
DP-7	28	53
DP-8	82	158
DP-9	114	229
DP-10	282	456
DP-11	14	26
DP-12	97	188
DP-13	59	115
DP-14	101	193
DP-15	107	213
DP-16	43	84
Pond FSD-11B	144	236
Pond FSD-14A	290	488
Pond FSD-14B	101	193
Pond FSD-16 (Ultimate)	307	496
Pond FSD-16 (Interim)	197	410


PRELIMINARY. FINAL DESIGN PROVIDED WITH FDR AND CD'S.
P1-A1 5.0
REFERENCE CDR-2113 FOR BRIARGATE PARKWAY BRIDGE CROSSING PLANS PREPARED BY KIOWA ENG.
CATALINA FOOTHILLS DR
LOTS 38-42
BRIARGATE BLVD. (130' ROW)
P1-A2 6.4
HOMESTEAD AT STERLING RANCH FILING NO. 2
SC-3 27.2
10' TYPE R AT-GRADE INLET (PER BRIARGATE PKWY. PLANS)
TRACT E
SAND CREEK
FOURSQUARE AT STERLING RANCH EAST PUD (REFERENCE SEPARATE PDR PCD NO. PUDSP-227)
P1-D 31.4
42" RCP STORM OUTFALL SYSTEM FOR BASIN P1-D
P1-A3 1.8
60"-66" RCP STORM OUTFALL SYSTEM FOR BASINS P1-C, P1-E AND P1-F
P1-B 35.5
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
P1-A 12.7
42"-48" RCP STORM OUTFALL SYSTEM FOR FUTURE BASIN P1-B
20' TYPE R AT-GRADE INLETS (PER BRIARGATE PKWY. PLANS)
30" RCP STORM SYSTEM (PER BRIARGATE PKWY. PLANS)
P1-A4 2.0
15' TYPE R AT-GRADE INLETS (PER BRIARGATE PKWY. PLANS)
48" RCP STORM OUTFALL SYSTEM FOR FSD-16 POND (PER BRIARGATE PKWY. PLANS)
P1-A5 5.7
FUTURE BRIARGATE BLVD. (130' ROW)
P1-A6 2.8
SAND CREEK REACH SC-8
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF-22-013)
INCLINE VILLAGE PATH
LOTS 43-51
LOTS 322-336
LOTS 52-64
FILING NO. 1
PROP. STORM/INLETS (TYP.)
IRVINE ST.
LOTS 312-321
LOTS 299-311
LOTS 286-298
LONG BEACH DR.
NEWPORT BEACH PL.
LOTS 245-256
LOTS 232-244
LOTS 76-78
TRACT H
SANTA CLARA ST.
TRACT I
LOTS 107-128
LOTS 129-146
PROP. STORM ALIGNMENT SHOWN IN FILING 1 IS PRELIMINARY. FINAL DESIGN PROVIDED WITH FDR AND CD'S.
60" RCP STORM
SC-3 27.2
P2-S1 35.6
SCHOOL SITE
HISTORIC SAND CREEK EAST FORK
42" RCP STORM OUTFALL SYSTEM FOR BRIARGATE PKWY. BASINS P1-A1 THRU P1-A6.
STERLING RANCH RD. (80' ROW)
P2-B1 2.5
10' TYPE R AT-GRADE INLETS (PER STERLING RANCH RD. PLANS)
P2-B2 1.9
VILLAGES AT STERLING RANCH EAST PUD (REFERENCE SEPARATE PDR PCD NO. PUDSP-226)
P4-B 37.3
48" RCP STORM
EX-11 214.3
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE NOT PART OF THIS PLAN)
NO DEVELOPMENT PROPOSED IN THIS BASIN AT THIS TIME
OVERALL STERLING RANCH PRO
UNPLATTED ELITE PROPERTIES OF AMERICA, INC. (CLASSIC HOMES)
UNPLATTED BUFORD BENNETT
7140
7130
7120
7110
7100
7090
7080
7070
3
4
5
6
7
8
12

POND FSD-16 WILL OUTFALL DIRECTLY INTO 48" RCP PIPE SYSTEM CONSTRUCTED WITH BRIARGATE PKWY. EXTENSION. (REFERENCE JR ENG. STREET/STORM PLANS FOR BRIARGATE PKWY. AND STERLING RANCH RD. FOR OUTFALL DESIGN)

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-14A Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A1	5.0	N/A	70%
P1-A2	6.4	N/A	70%
P1-A3	1.8	N/A	70%
P1-A4	2.0	N/A	70%
P1-A5	5.7	N/A	70%
P1-A6	2.8	N/A	70%
P2-S1	35.6	School	50%
P2-A	24.4	Park	7%
P2-B	57.8	7,000	57%
P2-B1	2.5	N/A	50%
P2-B2	1.9	N/A	70%
P2-B3	2.8	N/A	50%
P2-B4	1.6	N/A	70%
P2-B5	1.9	N/A	50%
P2-B6	1.1	N/A	70%
P2-B7	2.5	N/A	25%
P2-B8	1.2	N/A	70%
TOTAL	157.0		49%

POND FSD-16 (EDB)
(FULL BUILD-OUT)

TRIB. AREA = 220.9 AC.
WQCV = 3.60 AC.-FT.
EURV = 7.70 AC.-FT.
100 YR. = 10.26 AC.-FT.
TOTAL = 21.56 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 307 CFS
Q100 = 496 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 3.6 CFS
Q100 = 117.4 CFS

POND FSD-16 (EDB)
(PRELIM. PLAN 1 & FOURSQUARE PUD DEVELOPMENTS ONLY
BASINS P1-B & P1-F UNDEVELOPED)

TRIB. AREA = 220.9 AC.
WQCV = 2.55 AC.-FT.
EURV = 3.04 AC.-FT.
100 YR. = 5.92 AC.-FT.
TOTAL = 11.51 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 197 CFS
Q100 = 410 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 2.5 CFS
Q100 = 66.0 CFS

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area
(Full Build Out)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	7,500	55%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	12,500	35%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	220.9		46%

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area
(Prelim. Plan 1 & Foursquare PUD Only)

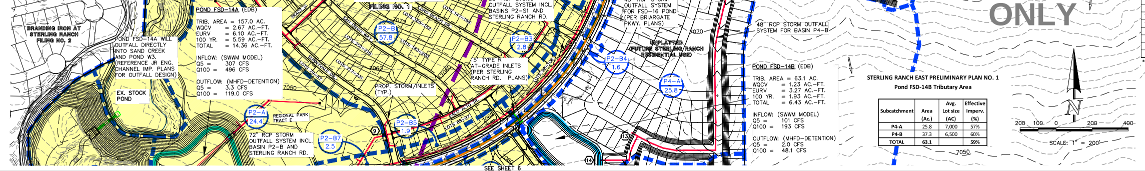
Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	Un dev.	2%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	Un dev.	2%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	220.9		26%

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	105	222
EX10A	153.5	5%	46	103
EX-11 *	214.3	4%	54	129
EX-13 *	94.8	6%	36	85
EX-4A	44.2	8%	19	50
EX-5	26.2	8%	12	32
EX-7	152.8	5%	46	105
EX-7A	2.4	2%	1	5
EX-8	32.2	2%	5	23
EX-8A	6.6	2%	2	9

FOR REFERENCE

N:\118322\REPORTS\PRELIM DRAINAGE REPORT\118322PDR DM rev.dwg, 3/3/20


BRANDING IRON AT STERLING RANCH FILING NO. 2
EX. STOCK POND
FILING NO. 1
TRACT G
SAN DIEGO WAY
LOTS 201-216
SUNNYVALE DR.
LOTS 79-87
LOTS 217-231
LONG BEACH DR.
LOTS 165-182
LOTS 147-164
LOTS 183-200
LOTS 98-106
PALO ALTO TR.
LOTS 88-97
P2-A 24.4
P2-B 57.8
P2-B3 2.8
P2-B4 1.6
P2-B5 1.9
P2-B7 2.5
P4-A 25.8
REGIONAL PARK TRACT E
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
7050
7060
7070
9
13
14
SEE SHEET 6
ONLY
200 100 0 200 400
N
SCALE: 1" = 200'

POND FSD-14A WILL OUTFALL DIRECTLY INTO SAND CREEK AND POND W3. (REFERENCE JR ENG. CHANNEL IMP. PLANS FOR OUTFALL DESIGN)

POND FSD-14A (EDB)

TRIB. AREA = 157.0 AC.
WQCV = 2.67 AC.-FT.
EURV = 6.10 AC.-FT.
100 YR. = 5.59 AC.-FT.
TOTAL = 14.36 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 307 CFS
Q100 = 496 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 3.3 CFS
Q100 = 119.0 CFS

72" RCP STORM OUTFALL SYSTEM INCL. BASIN P2-B AND STERLING RANCH RD.

PROP. STORM/INLETS (TYP.)

OUTFALL SYSTEM INCL. BASINS P2-S1 AND STERLING RANCH RD.

15' TYPE R AT-GRADE INLETS (PER STERLING RANCH RD. PLANS)

OUTFALL SYSTEM FOR FSD-16 POND (PER BRIARGATE PKWY. PLANS)

48" RCP STORM OUTFALL SYSTEM FOR BASIN P4-B

POND FSD-14B (EDB)

TRIB. AREA = 63.1 AC.
WQCV = 1.23 AC.-FT.
EURV = 3.27 AC.-FT.
100 YR. = 1.93 AC.-FT.
TOTAL = 6.43 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 101 CFS
Q100 = 193 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 2.0 CFS
Q100 = 48.1 CFS

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Pond FSD-14B Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P4-A	25.8	7,000	57%
P4-B	37.3	6,500	60%
TOTAL	**63.1**		**59%**

EX-9	139.3	8%	**59**	**122**
EX-9A	21.8	5%	**7**	**19**
TR-12 *	4.7	5%	**2**	**9**
TR-20 *	23.2	7%	**10**	**32**
TR-4 *	4.4	5%	**2**	**9**
TR-5 *	13.7	5%	**5**	**17**
TR-6 *	1.5	5%	**1**	**4**
TR-7 *	2.6	5%	**1**	**5**

*** Basins with no change upon developed condition**

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(719)785-0799 (Fax)

STERLING RANCH EAST
PRELIMINARY PLAN NO. 1
PRELIMINARY DRAINAGE REPORT
DEVELOPED DRAINAGE MAP

DESIGNED BY	MAW	SCALE		DATE	4-1-22
DRAWN BY	MAW	(H) 1"= 200'		SHEET 5 OF 6	
CHECKED BY		(V) 1"= N/A		JOB NO.	1183.22

CLASSIC CONSULTING ENGINEERS & SURVEYORS

FINAL DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 2
&
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1

August 2024

Prepared for:
CLASSIC SRJ LAND, LLC
2138 Flying Horse Club Dr.
COLORADO SPRINGS CO 80921
(719) 592-9333

Prepared by:
CLASSIC CONSULTING ENGINEERS & SURVEYORS
619 N. CASCADE AVENUE, SUITE 200
COLORADO SPRINGS CO 80903
(719) 785-0790

Job no. 2183.23
PCD File # SF2236 & SF2237

CLASSIC CONSULTING

FINAL DRAINAGE REPORT FOR STERLING RANCH EAST FILING NO. 2 & FOURSQUARE AT STERLING RANCH EAST FILING NO. 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 El Paso County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

DAVID LEE GIBSON
46477

David L Gibson, Colorado P.E. #46477	08-23-2024 Date

DEVELOPER'S STATEMENT:

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

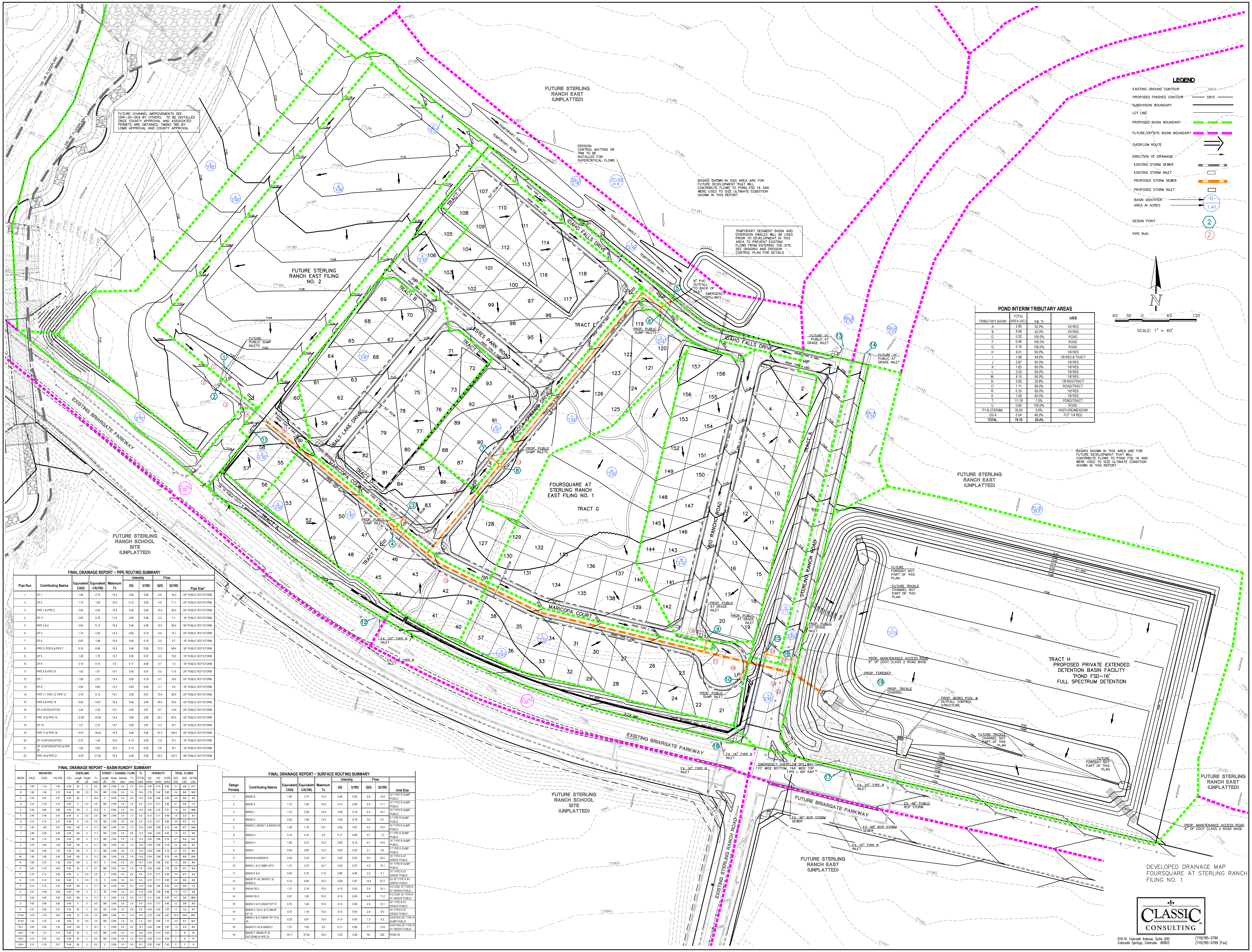
Business Name:	Classic SRJ Land, LLC
By:	
Title:	VICE PRESIDENT
Address:	2138 Flying Horse Club Dr.
	Colorado Springs, CO 80921

EL PASO COUNTY ONLY:

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

For County Engineer / ECM Administrator	Date

Conditions:


FUTURE STERLING RANCH EAST (UNPLATTED)
FUTURE STERLING RANCH EAST FILING NO. 2
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1
TRACT G
FUTURE STERLING RANCH SCHOOL SITE (UNPLATTED)
EXISTING BRIARGATE PARKWAY
FUTURE BRIARGATE PARKWAY
EXISTING STERLING RANCH ROAD
STERLING RANCH ROAD
IDAHO FALLS DRIVE
ESTES PARK ROAD
SALT LAKE DRIVE
PAGOSA SPRINGS DRIVE
MARICOPA COURT
RIO RANCHO ROAD
TRACT A
TRACT B
TRACT C
TRACT D
TRACT E
TRACT F
TEMPORARY SWALE-1
TEMPORARY BERM
EROSION CONTROL MATTING OR TRM TO BE INSTALLED FOR SUPERCRITICAL FLOWS
FUTURE CHANNEL IMPROVEMENTS SEE CDR-20-004 BY OTHERS. TO BE INSTALLED ONCE COUNTY APPROVAL AND ASSOCIATED PERMITS ARE OBTAINED. TIMING TBD BY LOMR APPROVAL AND COUNTY APPROVAL
100 YR FLOODPLAIN
FUTURE PUBLIC SUMP INLETS
PROP. PUBLIC SUMP INLETS
PROP. PUBLIC AT GRADE INLET
FUTURE 15' PUBLIC AT GRADE INLET
8" PVC OUTFALL TO BACK OF INLET
EMERGENCY SPILLWAY
EX. 20" TYPE R INLET
EX. 16" TYPE R INLET
EX. 36" RCP STORM SEWER
EX. 48" PUBLIC RCP STORM
EX. 48" RCP STORM SEWER
EX. 15" TYPE R INLET
EMERGENCY OVERFLOW SPILLWAY 170' WIDE BOTTOM, 194' WIDE TOP TYPE L RIP RAP
TRACT H PROPOSED PRIVATE EXTENDED DETENTION BASIN FACILITY "POND FSD-16" FULL SPECTRUM DETENTION
PROP. MAINTENANCE ACCESS ROAD 6" OF CDOT CLASS 2 ROAD BASE
PROP. FOREBAY
PROP. TRICKLE CHANNEL
PROP. MICRO POOL & OUTFALL CONTROL STRUCTURE
FUTURE FOREBAY NOT PART OF THIS PLAN
FUTURE TRICKLE CHANNEL NOT PART OF THIS PLAN
FUTURE FOREBAY NOT PART OF THIS PLAN
SCALE: 1" = 60'
60 30 0 60 120
N

BASINS SHOWN IN THIS AREA ARE FOR FUTURE DEVELOPMENT THAT WILL CONTRIBUTE FLOWS TO POND FSD 16 AND WERE USED TO SIZE ULTIMATE CONDITION SHOWN IN THIS REPORT

TEMPORARY SEDIMENT BASIN AND DIVERISION SWALES WILL BE USED PRIOR TO DEVELOPMENT IN THIS AREA TO PREVENT EXISTING FLOWS FROM ENTERING THE SITE. SEE GRADING AND EROSION CONTROL PLAN FOR DETAILS

BASINS SHOWN IN THIS AREA ARE FOR FUTURE DEVELOPMENT THAT WILL CONTRIBUTE FLOWS TO POND FSD 16 AND WERE USED TO SIZE ULTIMATE CONDITION SHOWN IN THIS REPORT

LEGEND

EXISTING GROUND CONTOUR	5910
PROPOSED FINISHED CONTOUR	— 5910 —
SUBDIVISION BOUNDARY	━━━
LOT LINE	───
PROPOSED BASIN BOUNDARY	🟩 🟩 🟩
FUTURE/OFFSITE BASIN BOUNDARY	▨ ▨ ▨
OVERFLOW ROUTE	⇒
DIRECTION OF DRAINAGE	→
EXISTING STORM SEWER	▬
EXISTING STORM INLET	▭
PROPOSED STORM SEWER	▬
PROPOSED STORM INLET	▭
BASIN IDENTIFIER AREA IN ACRES	D 1.41
DESIGN POINT	2
PIPE RUN	②

POND INTERIM TRIBUTARY AREAS

TRIBUTARY BASIN	TOTAL AREA (AC)	Imp. %	USE
A	2.90	52.0%	1/6 RES
B	4.99	52.0%	1/6 RES
D	0.20	100.0%	ROAD
F	0.49	100.0%	ROAD
G	0.16	100.0%	ROAD
H	4.01	65.0%	1/8 RES
I	1.68	44.6%	1/8 RES & TRACT
J	3.87	65.0%	1/8 RES
K	1.83	65.0%	1/8 RES
L	2.20	65.0%	1/8 RES
M	4.10	65.0%	1/8 RES
N	3.00	30.8%	1/8 RES/TRACT
O	1.11	69.0%	ROAD/TRACT
R	0.33	65.0%	1/8 RES
S	1.00	65.0%	1/8 RES
T	11.19	7.0%	POND/TRACT
U	0.60	100.0%	ROAD
P1-B (ITERIM)	35.50	0.0%	PASTURE/MEADOW
OS-4	0.54	40.0%	FUT 1/4 RES
TOTAL	**79.70**	**25.4%**	

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Pipe Size*
1	DP 1	1.90	2.74	15.4	3.48	5.85	6.6	16.0	24" PUBLIC RCP STORM
2	DP 2	1.10	1.60	10.0	4.13	6.93	4.5	11.1	24" PUBLIC RCP STORM
3	PIPE 1 & PIPE 2	3.00	4.34	15.4	3.48	5.85	10.4	25.4	24" PUBLIC RCP STORM
4	DP 11	0.60	0.78	11.9	3.86	6.48	2.3	5.1	18" PUBLIC RCP STORM
5	PIPE 3 & 4	3.60	5.12	15.4	3.48	5.85	12.5	30.0	30" PUBLIC RCP STORM
6	DP 3	1.74	2.28	13.4	3.69	6.19	6.4	14.1	24" PUBLIC RCP STORM
7	DP 4	0.82	1.08	13.4	3.69	6.19	3.0	6.7	18" PUBLIC RCP STORM
8	PIPE 5, PIPE 6 & PIPE 7	6.16	8.49	15.4	3.48	5.85	21.5	49.6	36" PUBLIC RCP STORM
9	DP 5	1.28	1.75	14.7	3.56	5.97	4.5	10.5	18" PUBLIC RCP STORM
10	DP 6	0.14	0.15	5.0	5.17	8.68	0.7	1.3	18" PUBLIC RCP STORM
11	PIPE 9 & PIPE 10	1.42	1.91	14.7	3.56	5.97	5.0	11.4	24" PUBLIC RCP STORM
12	DP 7	1.80	2.37	13.4	3.69	6.19	6.7	14.6	24" PUBLIC RCP STORM
13	DP 8	0.54	0.85	12.2	3.83	6.42	2.1	5.5	18" PUBLIC RCP STORM
14	PIPE 11, PIPE 12, PIPE 13	3.76	5.12	14.7	3.56	5.97	13.4	30.6	24" PUBLIC RCP STORM
15	PIPE 8 & PIPE 14	9.92	13.61	15.4	3.48	5.85	34.6	79.6	42" PUBLIC RCP STORM
16	DP 9 INTERCEPTED	2.44	2.33	14.7	3.56	5.97	8.7	13.9	24" PUBLIC RCP STORM
17	PIPE 15 & PIPE 16	12.36	15.94	15.4	3.48	5.85	43.1	93.2	42" PUBLIC RCP STORM
18	DP 10	1.21	2.70	14.7	3.56	5.97	4.3	16.1	24" PUBLIC RCP STORM
19	PIPE 17 & PIPE 18	13.57	18.64	15.4	3.48	5.85	47.3	109.0	42" PUBLIC RCP STORM
20	DP 15 INTERCEPTED	0.70	1.46	10.0	4.13	6.93	2.9	10.1	18" PUBLIC RCP STORM
21	DP 16 INTERCEPTED & PIPE 20	1.40	2.62	10.0	4.13	6.93	5.8	18.1	18" PUBLIC RCP STORM
22	PIPE 19 & PIPE 21	14.97	21.26	15.4	3.48	5.85	52.2	124.3	48" PUBLIC RCP STORM

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A	0.93	1.10	1.60	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	3.1	**4.5**	**11.1**
B	1.60	1.90	2.74	0.08	100	2.5	13.6	300	2.0%	2.8	1.8	15.4	2.78	3.48	5.85	4.4	**6.6**	**16.0**
C	0.18	0.21	0.37	0.08	50	1	10.4	0	0.0%	0.0	0.0	10.4	3.25	4.08	6.84	0.6	**0.9**	**2.5**
D	0.18	0.18	0.19	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	0.7	**0.9**	**1.7**
E	0.52	0.99	2.98	0.08	100	3	12.8	0	0.0%	0.0	0.0	12.8	3.00	3.76	6.31	1.6	**3.7**	**18.8**
F	0.44	0.44	0.47	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	1.8	**2.3**	**4.1**
G	0.14	0.14	0.15	0.08	5	0.2	2.6	100	2.0%	2.8	0.6	5.0	4.12	5.17	8.68	0.6	**0.7**	**1.3**
H	1.64	1.80	2.37	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.8	**6.7**	**14.6**
I	0.46	0.54	0.85	0.08	100	4	11.7	100	2.0%	2.8	0.6	12.2	3.05	3.83	6.42	1.4	**2.1**	**5.5**
J	1.59	1.74	2.28	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.7	**6.4**	**14.1**
K	0.75	0.82	1.08	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.2	**3.0**	**6.7**
L	0.90	0.99	1.30	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.7	**3.7**	**8.0**
M	1.68	1.85	2.42	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.9	**6.8**	**15.0**
N	0.54	0.70	1.35	0.08	100	2	14.7	0	0.0%	0.0	0.0	14.7	2.84	3.56	5.97	1.5	**2.5**	**8.0**
O	0.67	0.70	0.84	0.08	50	5	6.1	300	2.0%	2.8	1.8	7.9	3.58	4.49	7.54	2.4	**3.1**	**6.3**
P	0.10	0.13	0.28	0.08	5	0.2	2.6	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.7**	**2.4**
Q	0.10	0.12	0.24	0.08	5	0.5	1.9	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.6**	**2.0**
R	0.14	0.15	0.19	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	0.4	**0.6**	**1.3**
S	0.41	0.45	0.59	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	1.3	**1.7**	**3.8**
T	0.22	0.90	3.92	0.08	100	4	11.7	0	2.0%	0.0	0.0	11.7	3.11	3.90	6.55	0.7	**3.5**	**25.6**
U	0.53	0.54	0.58	0.08	0	0	0.0	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	2.2	**2.8**	**5.0**
V	0.31	0.32	0.37	0.08	50	2	8.2	100	2.0%	2.8	0.6	8.8	3.44	4.32	7.25	1.1	**1.4**	**2.7**
P1-A2	3.74	3.78	4.03	0.08	10	0.5	3.4	2350	0.9%	1.9	11.8	15.2	2.79	3.50	5.87	10.4	**13.2**	**23.7**
P1-A3	1.22	1.23	1.32	0.08	10	0.5	3.4	780	0.9%	1.9	3.9	7.3	3.67	4.60	7.72	4.5	**5.7**	**10.1**
OS-1	0.50	0.65	1.09	0.08	100	2	14.7	0	0.0%	0.0	0.0	14.7	2.84	3.56	5.97	1.4	**2.3**	**6.5**
OS-2	1.00	1.31	2.18	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	3	**5**	**15**
OS-3	0.74	0.97	1.62	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	2	**4**	**11**
OS-4	0.12	0.16	0.27	0.08	50	2	8.2	0	0.0%	0.0	0.0	8.2	3.53	4.42	7.42	0	**1**	**2**

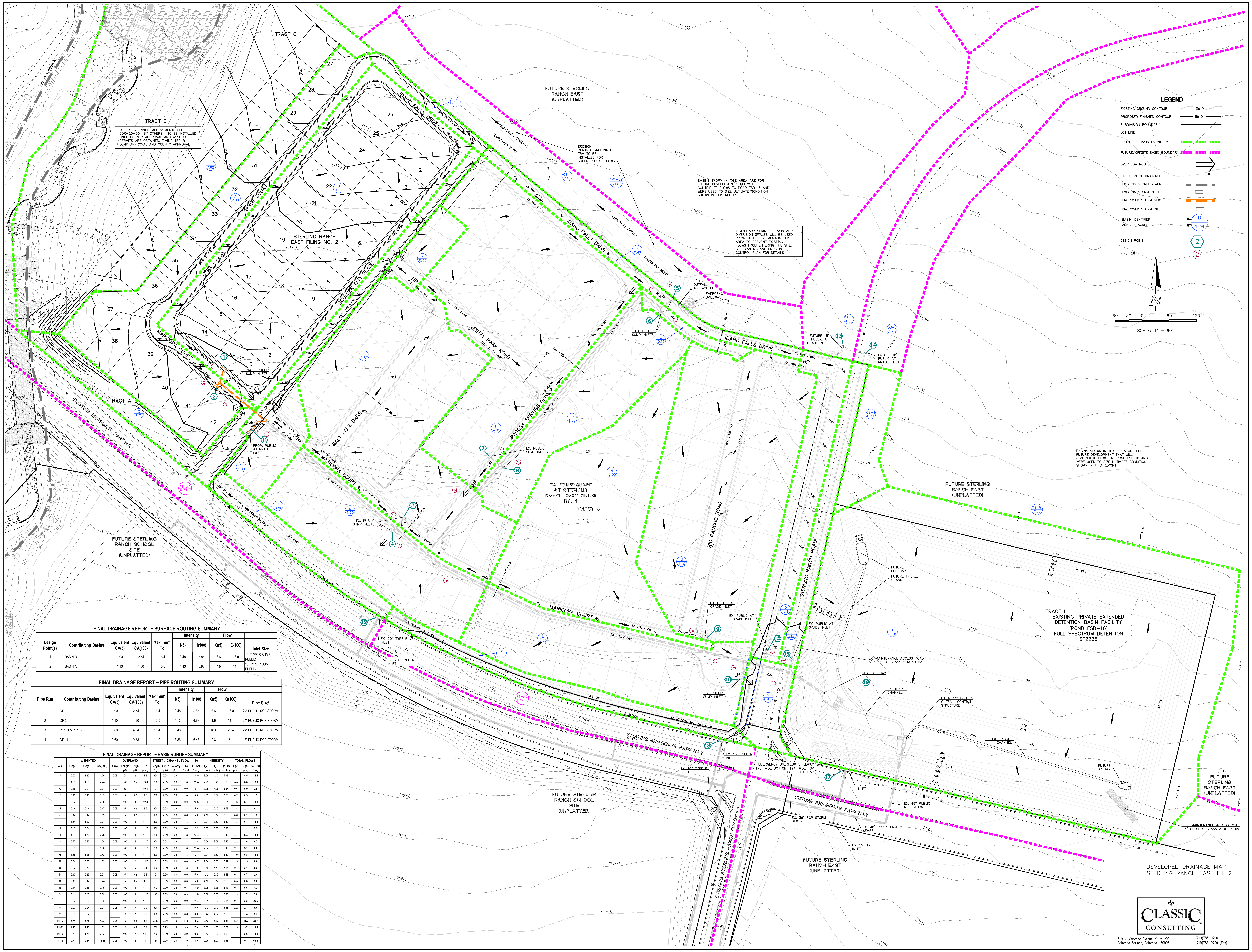
FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Inlet Size
1	BASIN B	1.90	2.74	15.4	3.48	5.85	6.6	16.0	10' TYPE R SUMP PUBLIC
2	BASIN A	1.10	1.60	10.0	4.13	6.93	4.5	11.1	10' TYPE R SUMP PUBLIC
3	BASIN J	1.74	2.28	13.4	3.69	6.19	6.4	14.1	10' TYPE R SUMP PUBLIC
4	BASIN K	0.82	1.08	13.4	3.69	6.19	3.0	6.7	5' TYPE R SUMP PUBLIC
5	BASIN D, BASIN F & BASIN OS-1	1.28	1.75	14.7	3.56	5.97	4.5	10.5	10' TYPE R SUMP PUBLIC
6	BASIN G	0.14	0.15	5.0	5.17	8.68	0.7	1.3	5' TYPE R SUMP PUBLIC
7	BASIN H	1.80	2.37	13.4	3.69	6.19	6.7	14.6	10' TYPE R SUMP PUBLIC
8	BASIN I	0.54	0.85	12.2	3.83	6.42	2.1	5.5	5' TYPE R SUMP PUBLIC
9	BASIN M & BASIN N	2.54	3.76	14.7	3.56	5.97	9.0	22.5	15' TYPE R AT GRADE PUBLIC
10	BASIN L & FLOWBY DP 9	1.21	2.70	14.7	3.56	5.97	4.3	16.1	15' TYPE R SUMP PUBLIC
11	BASIN R & S	0.60	0.78	11.9	3.86	6.48	2.3	5.1	15' TYPE R AT GRADE PUBLIC
12	BASIN P1-A2, BASIN C & BASIN Q	4.12	4.64	15.2	3.50	5.87	14.4	27.2	EX 20' TYPE R AT GRADE PUBLIC
13	BASIN OS-2	1.31	2.18	10.0	4.13	6.93	5.4	15.1	FUTURE 15' TYPE R AT GRADE PUBLIC
14	BASIN OS-3	0.97	1.62	10.0	4.13	6.93	4.0	11.2	FUTURE 15' TYPE R AT GRADE PUBLIC
15	BASIN O & FLOW-BY DP 13	0.70	1.46	10.0	4.13	6.93	2.9	10.1	15' TYPE R AT GRADE PUBLIC
16	BASIN U, OS-4, & FLOW-BY DP 14	0.70	1.16	10.0	4.13	6.93	2.9	8.0	15' TYPE R AT GRADE PUBLIC
17	BASIN V & FLOW-BY DP 15 & 16	0.32	0.61	10.0	4.13	6.93	1.3	4.2	EXISTING 20' TYPE R SUMP PUBLIC
18	BASIN P1-A3 & BASIN P	1.37	1.60	5.0	5.17	8.68	7.1	13.9	EXISTING 20' TYPE R AT GRADE PUBLIC
19	BASIN T, BASIN P1-B (INTERIM) & PIPE 22	18.71	37.60	18.6	3.20	5.38	60	202	POND IN

DEVELOPED DRAINAGE MAP
FOURSQUARE AT STERLING RANCH
FILING NO. 1

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)


TRACT C
TRACT B
FUTURE CHANNEL IMPROVEMENTS SEE CDR-20-004 BY OTHERS. TO BE INSTALLED ONCE COUNTY APPROVAL AND ASSOCIATED PERMITS ARE OBTAINED. TIMING TBD BY LOMR APPROVAL AND COUNTY APPROVAL
TRACT A
STERLING RANCH EAST FILING NO. 2
IDAHO FALLS DRIVE
BOISE COURT
BOULDER CITY PLACE
MARICOPA COURT
ESTES PARK ROAD
SALT LAKE DRIVE
PAGOSA SPRINGS DRIVE
RIO RANCHO ROAD
STERLING RANCH ROAD
EXISTING BRIARGATE PARKWAY
FUTURE BRIARGATE PARKWAY
EXISTING STERLING RANCH ROAD
FUTURE STERLING RANCH EAST (UNPLATTED)
FUTURE STERLING RANCH SCHOOL SITE (UNPLATTED)
EX. FOURSQUARE AT STERLING RANCH EAST FILING NO. 1
TRACT G
TRACT I
EXISTING PRIVATE EXTENDED DETENTION BASIN FACILITY "POND FSD-16" FULL SPECTRUM DETENTION SF2236
EROSION CONTROL MATTING OR TRM TO BE INSTALLED FOR SUPERCRITICAL FLOWS
TEMPORARY SWALE-1
TEMPORARY BERM
BASINS SHOWN IN THIS AREA ARE FOR FUTURE DEVELOPMENT THAT WILL CONTRIBUTE FLOWS TO POND FSD 16 AND WERE USED TO SIZE ULTIMATE CONDITION SHOWN IN THIS REPORT
TEMPORARY SEDIMENT BASIN AND DIVERISION SWALES WILL BE USED PRIOR TO DEVELOPMENT IN THIS AREA TO PREVENT EXISTING FLOWS FROM ENTERING THE SITE. SEE GRADING AND EROSION CONTROL PLAN FOR DETAILS
8" PVC OUTFALL TO DAYLIGHT
EMERGENCY SPILLWAY
PROP. PUBLIC SUMP INLETS
PROP. PUBLIC AT GRADE INLET
EX. PUBLIC SUMP INLETS
EX. PUBLIC AT GRADE INLET
FUTURE 15' PUBLIC AT GRADE INLET
EX. 20' TYPE R INLET
EX. 16' TYPE R INLET
EX. 15' TYPE R INLET
EX. 36" RCP STORM SEWER
EX. 48" RCP STORM SEWER
EX. 48" PUBLIC RCP STORM
EX. MAINTENANCE ACCESS ROAD 6" OF CDOT CLASS 2 ROAD BASE
EX. FOREBAY
EX. TRICKLE CHANNEL
EX. MICRO POOL & OUTFALL CONTROL STRUCTURE
FUTURE FOREBAY
FUTURE TRICKLE CHANNEL
EMERGENCY OVERFLOW SPILLWAY 170' WIDE BOTTOM, 194' WIDE TOP TYPE L RIP RAP
100 YR FLOODPLAIN
50' ROW
HP
LP
E 7.82
A 2.90
B 4.99
D 0.20
F 0.49
R 0.33
C 0.72
J 3.87
I 1.00
G 0.50
H 4.07
K 1.83
L 1.68
N 3.00
M 4.10
O 1.15
P 0.63
Q 0.55
S 0.16
T 11.19
U 0.60
V 0.45
P1-E2 21.8
P1-B 35.5
P1-A2
P1-A3
LEGEND
EXISTING GROUND CONTOUR 5910
PROPOSED FINISHED CONTOUR 5910
SUBDIVISION BOUNDARY
LOT LINE
PROPOSED BASIN BOUNDARY
FUTURE/OFFSITE BASIN BOUNDARY
OVERFLOW ROUTE
DIRECTION OF DRAINAGE
EXISTING STORM SEWER
EXISTING STORM INLET
PROPOSED STORM SEWER
PROPOSED STORM INLET
BASIN IDENTIFIER D
AREA IN ACRES 1.41
DESIGN POINT 2
PIPE RUN 2
N
60 30 0 60 120
SCALE: 1" = 60'

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Inlet Size
1	BASIN B	1.90	2.74	15.4	3.48	5.85	6.6	16.0	10' TYPE R SUMP PUBLIC
2	BASIN A	1.10	1.60	10.0	4.13	6.93	4.5	11.1	10' TYPE R SUMP PUBLIC

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

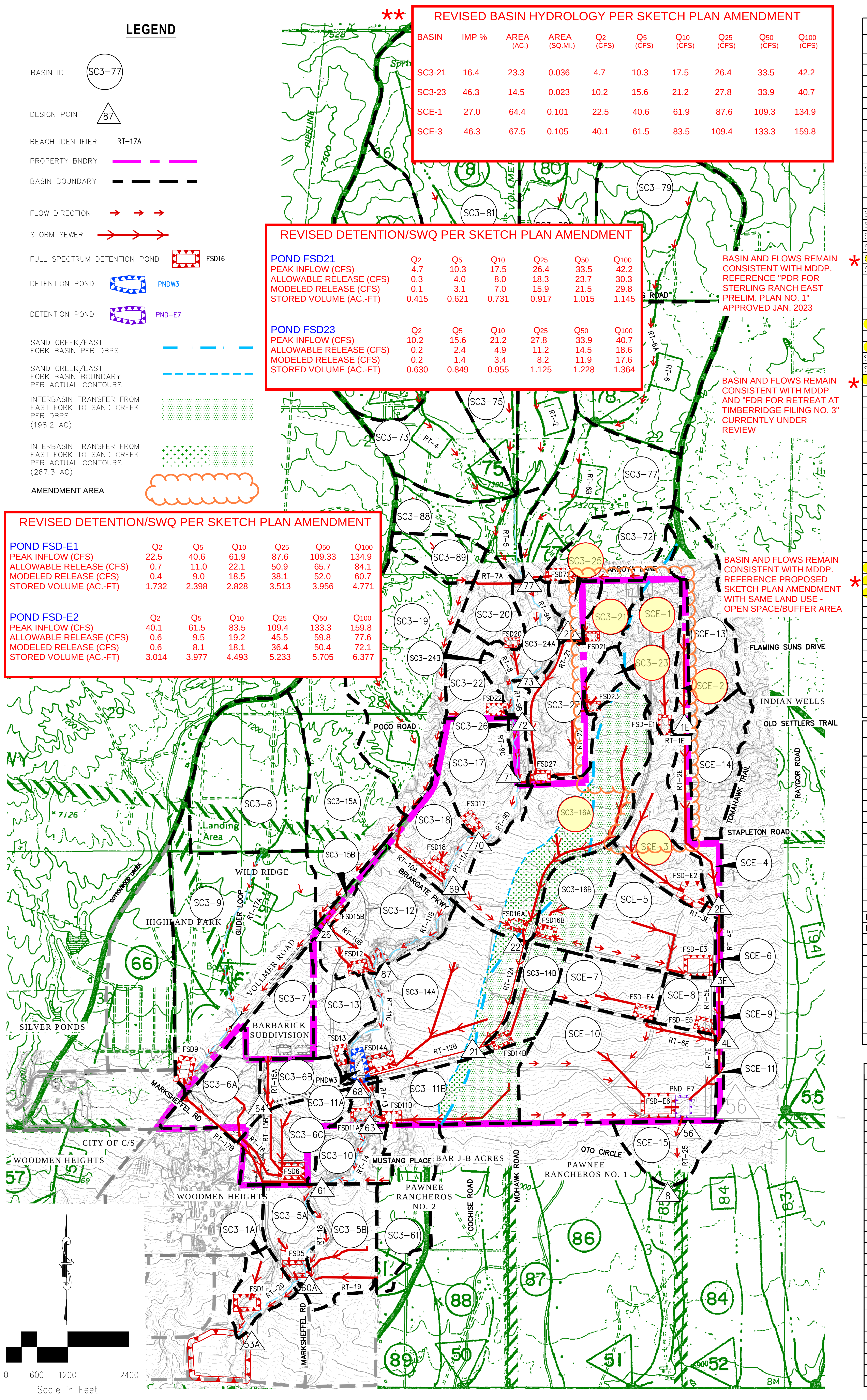
Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Pipe Size*
1	DP 1	1.90	2.74	15.4	3.48	5.85	6.6	16.0	24" PUBLIC RCP STORM
2	DP 2	1.10	1.60	10.0	4.13	6.93	4.5	11.1	24" PUBLIC RCP STORM
3	PIPE 1 & PIPE 2	3.00	4.34	15.4	3.48	5.85	10.4	25.4	24" PUBLIC RCP STORM
4	DP 11	0.60	0.78	11.9	3.86	6.48	2.3	5.1	18" PUBLIC RCP STORM

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A	0.93	1.10	1.60	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	3.1	**4.5**	**11.1**
B	1.60	1.90	2.74	0.08	100	2.5	13.6	300	2.0%	2.8	1.8	15.4	2.78	3.48	5.85	4.4	**6.6**	**16.0**
C	0.18	0.21	0.37	0.08	50	1	10.4	0	0.0%	0.0	0.0	10.4	3.25	4.08	6.84	0.6	**0.9**	**2.5**
D	0.18	0.18	0.19	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	0.7	**0.9**	**1.7**
E	0.52	0.99	2.98	0.08	100	3	12.8	0	0.0%	0.0	0.0	12.8	3.00	3.76	6.31	1.6	**3.7**	**18.8**
F	0.44	0.44	0.47	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	1.8	**2.3**	**4.1**
G	0.14	0.14	0.15	0.08	5	0.2	2.6	100	2.0%	2.8	0.6	5.0	4.12	5.17	8.68	0.6	**0.7**	**1.3**
H	1.64	1.80	2.37	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.8	**6.7**	**14.6**
I	0.46	0.54	0.85	0.08	100	4	11.7	100	2.0%	2.8	0.6	12.2	3.05	3.83	6.42	1.4	**2.1**	**5.5**
J	1.59	1.74	2.28	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.7	**6.4**	**14.1**
K	0.75	0.82	1.08	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.2	**3.0**	**6.7**
L	0.90	0.99	1.30	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.7	**3.7**	**8.0**
M	1.68	1.85	2.42	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.9	**6.8**	**15.0**
N	0.54	0.70	1.35	0.08	100	2	14.7	0	0.0%	0.0	0.0	14.7	2.84	3.56	5.97	1.5	**2.5**	**8.0**
O	0.67	0.70	0.84	0.08	50	5	6.1	300	2.0%	2.8	1.8	7.9	3.58	4.49	7.54	2.4	**3.1**	**6.3**
P	0.10	0.13	0.28	0.08	5	0.2	2.6	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.7**	**2.4**
Q	0.10	0.12	0.24	0.08	5	0.5	1.9	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.6**	**2.0**
R	0.14	0.15	0.19	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	0.4	**0.6**	**1.3**
S	0.41	0.45	0.59	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	1.3	**1.7**	**3.8**
T	0.22	0.90	3.92	0.08	100	4	11.7	0	2.0%	0.0	0.0	11.7	3.11	3.90	6.55	0.7	**3.5**	**25.6**
U	0.53	0.54	0.58	0.08	0	0	0.0	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	2.2	**2.8**	**5.0**
V	0.31	0.32	0.37	0.08	50	2	8.2	100	2.0%	2.8	0.6	8.8	3.44	4.32	7.25	1.1	**1.4**	**2.7**
P1-A2	3.74	3.78	4.03	0.08	10	0.5	3.4	2350	0.9%	1.9	11.8	15.2	2.79	3.50	5.87	10.4	**13.2**	**23.7**
P1-A3	1.22	1.23	1.32	0.08	10	0.5	3.4	780	0.9%	1.9	3.9	7.3	3.67	4.60	7.72	4.5	**5.7**	**10.1**
P1-E2	0.44	1.74	7.63	0.08	100	2	14.7	780	2.0%	2.8	3.9	18.6	2.56	3.20	5.38	1.1	**5.6**	**41.0**
P1-B	0.71	2.84	12.43	0.08	100	2	14.7	780	2.0%	2.8	3.9	18.6	2.56	3.20	5.38	1.8	**9.1**	**66.8**

DEVELOPED DRAINAGE MAP
STERLING RANCH EAST FIL 2

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)



LEGEND

BASIN ID	SC3-77
DESIGN POINT	87
REACH IDENTIFIER	RT-17A
PROPERTY BNDRY	▬ ▬ ▬
BASIN BOUNDARY	▬ ▬ ▬
FLOW DIRECTION	→ → →
STORM SEWER	→ → →
FULL SPECTRUM DETENTION POND	FSD16
DETENTION POND	PNDW3
DETENTION POND	PND-E7
SAND CREEK/EAST FORK BASIN PER DBPS	▬ ▬ ▬
SAND CREEK/EAST FORK BASIN BOUNDARY PER ACTUAL CONTOURS	▬ ▬ ▬
INTERBASIN TRANSFER FROM EAST FORK TO SAND CREEK PER DBPS (198.2 AC)	▨
INTERBASIN TRANSFER FROM EAST FORK TO SAND CREEK PER ACTUAL CONTOURS (267.3 AC)	▨
AMENDMENT AREA	☁

**

REVISED BASIN HYDROLOGY PER SKETCH PLAN AMENDMENT

BASIN	IMP %	AREA (AC.)	AREA (SQ.MI.)	Q_2 (CFS)	Q_5 (CFS)	Q_{10} (CFS)	Q_{25} (CFS)	Q_{50} (CFS)	Q_{100} (CFS)
SC3-21	16.4	23.3	0.036	4.7	10.3	17.5	26.4	33.5	42.2
SC3-23	46.3	14.5	0.023	10.2	15.6	21.2	27.8	33.9	40.7
SCE-1	27.0	64.4	0.101	22.5	40.6	61.9	87.6	109.3	134.9
SCE-3	46.3	67.5	0.105	40.1	61.5	83.5	109.4	133.3	159.8

REVISED DETENTION/SWQ PER SKETCH PLAN AMENDMENT

POND FSD21	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	4.7	10.3	17.5	26.4	33.5	42.2
ALLOWABLE RELEASE (CFS)	0.3	4.0	8.0	18.3	23.7	30.3
MODELED RELEASE (CFS)	0.1	3.1	7.0	15.9	21.5	29.8
STORED VOLUME (AC.-FT)	0.415	0.621	0.731	0.917	1.015	1.145

POND FSD23	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	10.2	15.6	21.2	27.8	33.9	40.7
ALLOWABLE RELEASE (CFS)	0.2	2.4	4.9	11.2	14.5	18.6
MODELED RELEASE (CFS)	0.2	1.4	3.4	8.2	11.9	17.6
STORED VOLUME (AC.-FT)	0.630	0.849	0.955	1.125	1.228	1.364

* BASIN AND FLOWS REMAIN CONSISTENT WITH MDDP. REFERENCE "PDR FOR STERLING RANCH EAST PRELIM. PLAN NO. 1" APPROVED JAN. 2023

* BASIN AND FLOWS REMAIN CONSISTENT WITH MDDP AND "FDR FOR RETREAT AT TIMBERRIDGE FILING NO. 3" CURRENTLY UNDER REVIEW

REVISED DETENTION/SWQ PER SKETCH PLAN AMENDMENT

POND FSD-E1	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	22.5	40.6	61.9	87.6	109.33	134.9
ALLOWABLE RELEASE (CFS)	0.7	11.0	22.1	50.9	65.7	84.1
MODELED RELEASE (CFS)	0.4	9.0	18.5	38.1	52.0	60.7
STORED VOLUME (AC.-FT)	1.732	2.398	2.828	3.513	3.956	4.771

POND FSD-E2	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	40.1	61.5	83.5	109.4	133.3	159.8
ALLOWABLE RELEASE (CFS)	0.6	9.5	19.2	45.5	59.8	77.6
MODELED RELEASE (CFS)	0.6	8.1	18.1	36.4	50.4	72.1
STORED VOLUME (AC.-FT)	3.014	3.977	4.493	5.233	5.705	6.377

* BASIN AND FLOWS REMAIN CONSISTENT WITH MDDP. REFERENCE PROPOSED SKETCH PLAN AMENDMENT WITH SAME LAND USE - OPEN SPACE/BUFFER AREA

BASIN SUMMARY

BASIN	CN	AREA (ACRES)	AREA (SQ MI)	Q_2 (CFS)	Q_5 (CFS)	Q_{10} (CFS)	Q_{25} (CFS)	Q_{50} (CFS)	Q_{100} (CFS)
SC3-1A	73	27.8	0.044	16.3	23.3	33.0	45.8	57.1	68.9
SC3-5A	84	39.1	0.061	40.6	53.7	71.0	92.4	110.6	129.1
SC3-5B	81	63.0	0.098	53.8	73.0	98.5	130.8	158.6	187.0
SC3-6A	88	49.3	0.077	61.4	79.3	102.2	130.1	153.6	177.1
SC3-6B	85	30.9	0.048	32.9	43.4	57.0	73.9	88.2	102.7
SC3-6C	82	58.0	0.091	53.9	72.5	97.1	128.0	154.5	181.5
SC3-7	88	45.7	0.071	54.0	69.9	90.3	115.2	136.2	157.2
SC3-8	62	143.4	0.224	25.4	42.1	66.7	100.7	132.3	166.2
SC3-9	66	217.4	0.340	45.8	71.5	108.6	158.9	204.9	254.0
SC3-10	63	36.0	0.056	7.6	12.3	19.4	29.1	38.0	47.7
SC3-11A	70	10.7	0.017	5.3	7.8	11.3	15.9	20.0	24.3
SC3-11B	80	76.6	0.120	59.4	81.3	110.8	148.1	180.5	213.7
SC3-12	81	88.2	0.138	77.8	105.6	142.5	189.1	229.1	270.0
SC3-13	85	41.0	0.064	43.9	57.8	76.0	98.5	117.6	136.9
SC3-14A	79	164.9	0.258	127.6	175.4	239.8	321.9	393.2	466.3
SC3-14B	77	34.7	0.054	24.6	34.3	47.4	64.2	79.0	94.1
SC3-15A	62	139.7	0.218	21.3	35.5	56.3	85.3	112.1	141.0
SC3-15B	87	7.9	0.012	10.8	14.0	18.2	23.3	27.6	31.9
SC3-16A	74	168.1	0.263	84.4	120.4	170.0	234.8	292.2	351.8
SC3-16B	78	50.7	0.079	39.0	53.7	73.6	99.0	121.1	143.8
SC3-17	73	70.6	0.110	41.8	59.6	85.2	119.0	149.1	180.6
SC3-18	81	53.8	0.084	49.3	67.1	91.0	121.2	147.3	174.0
SC3-19	62	184.0	0.287	28.8	47.7	75.7	114.4	150.2	188.8
SC3-20	65	34.2	0.053	9.9	15.5	23.8	35.1	45.5	56.6
SC3-21	66	23.3	0.036	7.0	10.8	16.3	23.7	30.4	37.5
SC3-22	65	33.9	0.053	9.4	14.8	22.5	32.9	42.5	52.6
SC3-23	67	14.5	0.023	5.5	8.3	12.4	18.0	23.0	28.4
SC3-24A	65	35.7	0.056	13.0	20.4	31.1	45.7	59.0	73.2
SC3-24B	65	12.2	0.019	3.4	5.3	8.1	11.8	15.2	18.9
SC3-25	66	19.0	0.030	5.8	8.9	13.4	19.5	25.1	31.0
SC3-26	63	10.0	0.016	2.5	4.0	6.2	9.2	12.1	15.1
SC3-27	71	70.0	0.109	35.1	51.2	73.8	103.7	130.3	158.3
SC3-61	63	65.5	0.102	13.7	22.0	34.4	51.6	67.6	84.8
SC3-72	64	56.2	0.088	12.8	20.2	31.4	46.7	60.9	76.0
SC3-73	63	90.0	0.141	16.4	26.4	41.3	62.1	81.3	102.0
SC3-74	63	119.7	0.187	22.3	36.5	57.3	85.9	112.3	140.7
SC3-75	63	79.3	0.124	13.1	21.5	33.7	50.5	66.1	82.8
SC3-76	63	86.4	0.135	14.2	23.1	36.4	54.6	71.4	89.6
SC3-77	62	106.9	0.167	16.6	27.6	43.8	66.2	87.0	109.4
SC3-78	63	155.6	0.243	28.1	45.3	70.6	106.2	139.1	174.5
SC3-79	63	189.0	0.295	34.9	57.0	89.5	134.3	175.6	220.1
SC3-80	63	147.7	0.231	27.3	44.3	69.6	104.5	136.8	171.4
SC3-81	62	262.9	0.411	42.6	70.2	111.0	167.4	219.6	275.7
SC3-82	62	117.8	0.184	20.0	33.2	52.8	80.0	105.1	132.3
SC3-88	62	60.2	0.094	10.5	17.4	27.6	41.8	54.9	69.0
SC3-89	62	27.5	0.043	6.1	10	15.7	23.6	30.8	38.6
SCE-1	65	64.4	0.101	23.3	35.9	53.8	79.1	102.4	127.4
SCE-2	64	15.0	0.023	4.4	7.0	10.8	15.9	20.7	25.7
SCE-3	70	67.5	0.105	30.6	45.2	65.9	93.3	118.0	143.9
SCE-4	70	29.5	0.046	13.3	19.6	28.6	40.6	257.8	62.6
SCE-5	87	85.5	0.134	100.4	130.6	169.6	217.4	257.8	298.4
SCE-6	64	3.8	0.006	1.6	2.5	3.7	5.4	7.0	8.6
SCE-7	89	44.9	0.070	58.9	75.5	96.6	122.2	143.7	165.2
SCE-8	92	25.5	0.040	38.6	48.4	60.7	75.4	87.7	99.9
SCE-9	64	4.0	0.006	1.5	2.4	3.6	5.3	6.8	8.5
SCE-10	83	174.3	0.272	7.6	189.4	19.4	29.1	398.9	467.5
SCE-11	64	5.8	0.009	2.3	3.6	5.5	8.0	10.3	12.8
SCE-13	63	78.6	0.123	19.6	31.3	48.7	73.1	95.7	120.0
SCE-14	63	52.5	0.082	13.2	21.2	33.3	49.9	65.2	81.7
SCE-15	51	39.7	0.062	2.2	5.1	10.1	17.7	25.1	33.4

* SC3-16A, SC3-25, SCE-1 – SCE-3

** SC3-21, SC3-23 — REVISED BASIN FLOWS PER SKETCH PLAN AMENDMENT SEE TABLE ABOVE

** SCE-1, SCE-3 — REVISED BASIN FLOWS PER SKETCH PLAN AMENDMENT SEE TABLE ABOVE

DESIGN POINT SUMMARY

DESIGN POINT	AREA (SQ MI)	Q_2 (CFS)	Q_5 (CFS)	Q_{10} (CFS)	Q_{25} (CFS)	Q_{50} (CFS)	Q_{100} (CFS)	LOCATION
DP-74	0.371	39.3	65.3	104.8	158.9	209.1	262.8	
DP-75	1.413	141.2	235.1	376.6	566.6	750.9	950.5	
DP-77	2.343	209.9	351.9	580.6	886.6	1168.4	1467.7	ARROYA LANE X-ING
DP-78	0.538	59.7	98.4	154.0	232.6	306.2	385.3	
DP-73	2.471	207.5	354.3	588.5	897.1	1187.2	1506.7	
DP-72	2.543	206.2	352.5	586.7	897.2	1195.3	1518.6	POCO ROAD X-ING
DP-71	2.757	205.9	349.3	610.5	932.4	1226.9	1612.2	STERLING RANCH NORTHERN BNDRY
DP-70	2.867	205.3	349.8	614.0	940.1	1260.6	1636.7	
DP-69	3.238	212.7	366.6	653.7	1010.6	1364.1	1775.7	BRIARGATE PARKWAY X-ING
DP-87	3.594	216.9	374.6	681.9	1072.1	1471.5	1905.9	
DP-68	4.312	214.6	374.5	714.9	1187.6	1674.9	2204.1	UPSTREAM OF POND W3
DP-64	0.119	85.9	112.1	145.9	187.5	222.6	258.0	
DP-63	4.449	154.4	201.0	375.7	815.9	1112.1	1385.1	STERLING RANCH SOUTHERN BNDRY
DP-61	5.356	156.6	223.9	428.0	928.2	1287.3	1620.1	COLORADO SPRINGS/EL PASO BNDRY
DP-60A	5.617	161.6	224.8	439.1	950.4	1320.5	1661.8	MARKSHEFFEL X-ING
DP-53A	5.661	161.6	225.7	441.8	951.1	1326.0	1668.9	SAND CREEK AND POND 3
DP-1E	0.247	23.9	38.3	70.1	132.8	173.0	220.9	
DP-2E	0.486	48.9	76.8	123.0	228.7	319.7	419.4	
DP-3E	0.626	48.5	75.7	122.2	271.1	387.1	500.1	
DP-4E	0.745	48.1	76.2	122.4	286.9	407.3	534.8	
DP-56	1.017	23.1	35.3	71.5	108.3	152.1	196.4	NEAR SE PROP CORNER
DP-8	1.079	24.1	37.2	73.5	111.3	155.4	200.7	BELOW SE PROP CORNER
DP-21	0.396	0.6	8.8	17.8	57.1	116.8	174.9	
DP-22	0.342	0.6	8.8	17.6	56.8	105.1	156.4	
DP-25	0.066	5.9	9.1	16.3	35.1	46.4	58.2	
DP-26	0.012	0.1	1.1	3.2	7.3	9.5	12.0	

DESIGN POINT SUMMARY (VOLUME)

DESIGN POINT	AREA (SQ MI)	V_2 (AC-FT)	V_5 (AC-FT)	V_{10} (AC-FT)	V_{25} (AC-FT)	V_{50} (AC-FT)	V_{100} (AC-FT)	LOCATION
DP-74	0.371	5.9	9.0	13.6	19.8	25.5	31.6	
DP-75	1.413	22.7	34.5	51.7	75.4	97.1	120.5	
DP-77	2.343	37.7	57.4	85.9	125.1	161.1	199.9	ARROYA LANE X-ING
DP-78	0.538	8.9	13.5	20.1	29.3	37.7	46.7	
DP-73	2.471	40.0	60.8	91.0	132.5	170.7	211.7	
DP-72	2.543	41.3	62.9	94.0	136.8	176.2	218.5	POCO ROAD X-ING
DP-71	2.757	46.3	70.0	104.3	151.3	194.5	240.8	STERLING RANCH NORTHERN BNDRY
DP-70	2.867	49.5	74.5	110.6	160.1	205.4	254.0	
DP-69	3.238	57.5	86.1	127.4	183.8	235.3	290.6	BRIARGATE PARKWAY X-ING
DP-87	3.594	66.5	98.9	145.6	209.1	267.1	329.1	
DP-68	4.312	81.8	123.7	183.9	264.9	338.0	415.8	UPSTREAM OF POND W3
DP-64	0.119	7.0	9.1	11.8	15.2	18.1	21.1	
DP-63	4.449	85.6	129.5	192.3	276.7	352.8	433.5	STERLING RANCH SOUTHERN BNDRY
DP-61	5.356	103.7	157.8	235.1	338.4	431.3	529.8	COLORADO SPRINGS/EL PASO BNDRY
DP-60A	5.617	111.0	168.6	250.4	359.5	457.7	561.5	MARKSHEFFEL X-ING
DP-53A	5.661	112.0	170.0	252.6	362.6	461.7	566.5	SAND CREEK AND POND 3
DP-1E	0.247	3.1	5.2	8.4	12.7	16.6	20.9	
DP-2E	0.480	6.1	10.4	16.9	25.7	33.7	42.2	
DP-3E	0.620	7.0	13.7	23.4	36.1	47.4	59.3	
DP-4E	0.736	7.6	15.6	27.2	43.0	57.2	72.0	
DP-56	1.017	7.7	16.1	28.6	51.3	71.7	92.9	NEAR SE PROP CORNER
DP-8	1.079	8.0	16.7	26.6	53.0	74.0	95.9	BELOW SE PROP CORNER
DP-21	0.396	6.3	11.3	18.3	27.5	35.6	44.0	
DP-22	0.736	6.3	10.7	16.7	24.6	31.5	38.7	
DP-25	1.017	1.3	1.9	2.8	4.1	5.2	6.4	
DP-26	1.079	0.7	0.9	1.2	1.5	1.8	2.1	

WATER QUALITY & DETENTION POND SUMMARY

FSD1						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	16.3	23.3	33.0	45.8	57.1	68.9
ALLOWABLE RELEASE (CFS)	0.1	1.7	3.3	10.9	17.5	25.5
MODELED RELEASE (CFS)	0.1	1.6	3.2	10.9	17.4	25.4
STORED VOLUME (AC-FT)	2.4	2.6	3.0	3.6	1.9	2.2

FSD5						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	40.6	53.7	71.0	92.4	110.6	129.1
ALLOWABLE RELEASE (CFS)	0.1	1.4	2.6	11.3	19.8	30.2
MODELED RELEASE (CFS)	0.1	1.4	2.6	11.2	19.7	30.1
STORED VOLUME (AC-FT)	3.0	3.2	3.8	4.1	4.7	5.2

FSD6						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	196.5	258.5	339.1	438.7	523.3	608.6
ALLOWABLE RELEASE (CFS)	0.5	7.6	14.6	58.4	99.6	149.7
MODELED RELEASE (CFS)	0.5	7.5	14.5	58.2	99.6	149.6
STORED VOLUME (AC-FT)	15.5	16.4	18.7	20.8	23.3	26.0

FSD9						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	64.6	105.6	169.5	252.3	327.1	410.1
ALLOWABLE RELEASE (CFS)	1.7	24.9	49.8	141.1	207.2	290.0
MODELED RELEASE (CFS)	1.7	24.9	49.8	141.1	207.0	289.9
STORED VOLUME (AC-FT)	8.7	8.7	9.6	10.8	12.3	13.8

FSD11A						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	5.3	7.8	11.3	15.9	20.0	24.3
ALLOWABLE RELEASE (CFS)	0.1	1.6	3.2	7.5	9.7	12.4
MODELED RELEASE (CFS)	0.2	0.9	3.0	7.5	9.7	12.3
STORED VOLUME (AC-FT)	0.3	0.3	0.4	0.4	0.5	0.6

FSD11B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	59.4	81.3	110.8	148.1	180.5	213.7
ALLOWABLE RELEASE (CFS)	0.3	4.5	8.7	29.6	47.7	69.6
MODELED RELEASE (CFS)	0.3	4.5	8.6	29.5	47.7	69.5
STORED VOLUME (AC-FT)	4.8	4.9	5.5	6.4	7.3	8.2

FSD12						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	77.8	105.6	142.5	189.1	229.1	270.0
ALLOWABLE RELEASE (CFS)	0.9	13.2	26.7	62.0	80.2	103.2
MODELED RELEASE (CFS)	0.9	9.0	26.7	61.9	80.1	103.1
STORED VOLUME (AC-FT)	5.2	5.5	5.8	6.7	7.8	8.9

FSD13						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	43.9	57.8	76.0	98.5	117.6	136.9
ALLOWABLE RELEASE (CFS)	0.4	6.1	12.3	28.6	37.0	47.6
MODELED RELEASE (CFS)	0.4	4.2	12.3	28.6	36.9	47.2
STORED VOLUME (AC-FT)	3.1	3.1	3.3	3.8	4.4	5.0

FSD14A						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	127.6	175.4	239.8	321.9	393.2	466.3
ALLOWABLE RELEASE (CFS)	0.5	7.5	14.4	56.2	95.2	142.4
MODELED RELEASE (CFS)	0.5	7.5	14.4	56.2	95.1	142.2
STORED VOLUME (AC-FT)	9.9	10.6	11.9	13.5	15.3	17.3

FSD14B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	24.6	34.3	47.4	64.2	79.0	94.1
ALLOWABLE RELEASE (CFS)	0.0	0.3	0.5	5.7	11.8	19.3
MODELED RELEASE (CFS)	0.0	0.3	0.5	4.5	11.8	19.3
STORED VOLUME (AC-FT)	1.9	2.5	3.3	3.5	3.5	3.8

FSD15B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	10.8	14.0	18.2	23.3	27.6	31.9
ALLOWABLE RELEASE (CFS)	0.1	1.6	3.2	7.3	9.5	12.0
MODELED RELEASE (CFS)	0.1	1.1	3.2	7.3	9.5	12.0
STORED VOLUME (AC-FT)	0.6	0.6	0.7	0.8	0.9	1.0

FSD16A						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	84.4	120.4	170.0	234.8	292.2	351.8
ALLOWABLE RELEASE (CFS)	0.6	8.8	17.3	56.2	88.4	128.3
MODELED RELEASE (CFS)	0.6	8.8	17.3	56.2	88.3	128.3
STORED VOLUME (AC-FT)	7.6	7.7	8.9	10.4	12.1	13.8

SAND CREEK FLOW COMPARISON CHART

DESIGN POINT	AREA (SQ MI)	Q_{100} (CFS)	DESCRIPTION
DP-77	2.343	1468	PROPOSED CONDITION
	2.91	2262	SAND CREEK DBPS
		2600	FEMA
DP-71	2.757	1612	PROPOSED CONDITION
		2260	SAND CREEK DBPS
DP-63	4.449	1385	PROPOSED CONDITION
	4.33	2630	SAND CREEK DBPS
		2600	FEMA
DP-60A	5.661	1662	PROPOSED CONDITION
	5.38	3295	SAND CREEK DBPS

EFSC DBPS DESIGN POINT SUMMARY (PEAK FLOW)

DBPS DESIGN POINT	AREA (SQ MI)	Q_{10} (CFS) (EXIST)	Q_{100} (CFS) (EXIST)	AREA (SQ MI)	Q_{10} (CFS) (PROP)	Q_{100} (CFS) (PROP)
DP-50	0.32	47.0	195.7	0.32	146.7	370.3
DP-51 (BASIN 86)	0.33	17.7	74.1	0.33	110.0	233.5
DP-52	1.67	80.5	456.5	1.67	1207.9	2123.0
DP-56	0.79	63.6	265.0	0.79	513.0	908.2

Values reported from SCDBPS, (DP 50, 51, 52 Not analyzed as a part of this study)
DBPS Reach 85(Basin91)=Q10=28.8cfs Q100=115.2cfs / Q10=345.7cfs Q100=588.9cfs
(EXISTING) (PROPOSED)

WATER QUALITY & DETENTION POND SUMMARY

FSD16B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	39.0	53.7	73.6	99.0	121.1	143.8
ALLOWABLE RELEASE (CFS)	0.0	0.4	0.7	8.3	17.2	28.2
MODELED RELEASE (CFS)	0.0	0.4	0.7	7.9	17.2	28.1
STORED VOLUME (AC-FT)	3.0	3.9	5.1	5.1	5.3	5.8

FSD17						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	41.8	59.6	85.2	119.0	149.1	180.6
ALLOWABLE RELEASE (CFS)	0.7	11.1	22.5	52.0	67.2	86.3
MODELED RELEASE (CFS)	0.7	8.4	22.4	52.0	67.2	86.1
STORED VOLUME (AC-FT)	2.6	2.6	2.8	3.4	4.0	4.7

FSD18						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	49.3	67.1	91.0	121.2	147.3	174.0
ALLOWABLE RELEASE (CFS)	0.6	9.2	18.4	42.2	54.6	69.9
MODELED RELEASE (CFS)	0.6	6.3	18.4	42.2	54.6	69.6
STORED VOLUME (AC-FT)	3.2	3.2	3.4	4.0	4.7	5.3

FSD20						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	9.9	15.5	23.8	35.1	45.5	56.6
ALLOWABLE RELEASE (CFS)	0.4	5.5	11.1	25.7	33.2	42.5
MODELED RELEASE (CFS)	0.4	2.8	10.9	25.7	33.0	42.4
STORED VOLUME (AC-FT)	0.7	0.8	0.8	0.9	1.0	1.2

FSD21 REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT

FSD21						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	7.0	10.8	16.3	23.7	30.4	37.5
ALLOWABLE RELEASE (CFS)	0.3	4.0	8.0	18.3	23.7	30.3
MODELED RELEASE (CFS)	0.3	3.3	8.0	18.3	23.7	30.1
STORED VOLUME (AC-FT)	0.5	0.5	0.5	0.6	0.7	0.8

FSD22						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	9.4	14.8	22.5	32.9	42.5	52.6
ALLOWABLE RELEASE (CFS)	0.4	5.8	11.5	26.5	34.3	43.9
MODELED RELEASE (CFS)	0.4	5.8	11.4	26.5	34.3	43.8
STORED VOLUME (AC-FT)	0.6	0.6	0.7	0.8	0.9	1.0

FSD23 REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT

FSD23						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	5.5	8.3	12.4	18.0	23.0	28.4
ALLOWABLE RELEASE (CFS)	0.2	2.4	4.9	11.2	14.5	18.6
MODELED RELEASE (CFS)	0.2	2.0	4.9	11.2	14.5	18.6
STORED VOLUME (AC-FT)	0.3	0.3	0.4	0.4	0.5	0.6

FSD27						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	38.8	57.6	84.1	119.7	159.2	206.3
ALLOWABLE RELEASE (CFS)	1.4	21.1	42.4	97.8	126.4	161.9
MODELED RELEASE (CFS)	1.4	18.4	42.3	97.7	126.2	161.9
STORED VOLUME (AC-FT)	2.7	2.8	2.9	3.2	3.7	4.2

FSD72						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	12.8	20.2	31.4	46.7	60.9	76.0
ALLOWABLE RELEASE (CFS)	0.6	9.6	19.3	44.4	57.4	73.4
MODELED RELEASE (CFS)	0.6	9.3	19.2	44.4	57.4	73.4
STORED VOLUME (AC-FT)	1.0	1.0	1.1	1.1	1.2	1.3

PNDW3						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	214.6	374.5	714.9	1187.6	1674.9	2204.1
MODELED RELEASE (CFS)	154.3	200.3	366.8	799.9	1085.6	1350.6
STORED VOLUME (AC-FT)	2.8	9.5	26.3	41.2	57.2	78.2

FSD-E1 REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT

FSD-E1						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	23.3	35.9	53.8	79.1	102.4	127.4
ALLOWABLE RELEASE (CFS)	0.7	11.0	22.1	50.9	65.7	84.1
MODELED RELEASE (CFS)	0.7	5.4	19.9	48.9	62.8	84.0
STORED VOLUME (AC-FT)	1.3	1.3	1.5	1.8	2.1	2.5

FSD-E2 REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT

FSD-E2						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	30.6	45.2	65.9	93.3	118.0	143.9
ALLOWABLE RELEASE (CFS)	0.6	9.5	19.2	45.5	59.8	77.6
MODELED RELEASE (CFS)	0.6	3.2	18.5	41.3	58.5	74.7
STORED VOLUME (AC-FT)	2.1	2.3	2.4	2.8	3.3	3.8

FSD-E3						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	100.4	130.6	169.6	217.4	257.8	298.4
ALLOWABLE RELEASE (CFS)	0.9	13.2	26.5	61.6	79.8	102.6
MODELED RELEASE (CFS)	1.0	6.8	25.7	56.0	79.8	101.3
STORED VOLUME (AC-FT)	7.0	7.2	7.7	8.9	10.1	11.4

FSD-E4						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	58.9	75.5	96.6	122.2	143.7	165.2
ALLOWABLE RELEASE (CFS)	0.3	4.4	8.8	23.0	32.2	43.7
MODELED RELEASE (CFS)	0.9	2.8	8.7	21.9	32.2	43.6
STORED VOLUME (AC-FT)	4.2	4.3	4.7	5.4	6.2	6.9

FSD-E5						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	38.6	48.4	60.7	75.4	87.7	99.9
ALLOWABLE RELEASE (CFS)	0.0	0.2	0.4	4.2	8.7	14.3
MODELED RELEASE (CFS)	0.0	0.2	0.5	2.2	5.1	10.0
STORED VOLUME (AC-FT)	3.0	3.7	4.4	4.8	5.0	5.3

FSD-E6						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	141.6	189.4	252.5	331.4	398.9	467.5
ALLOWABLE RELEASE (CFS)	0.2	1.9	3.2	37.4	77.3	125.6
MODELED RELEASE (CFS)	0.2	0.9	3.2	18.3	64.1	123.3
STORED VOLUME (AC-FT)	13.0	17.0	21.9	22.2	22.6	23.7

PND-E7						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	46.5	75.4	121.2	285.2	402.4	548.0
MODELED RELEASE (CFS)	23.1	35.3	71.5	108.3	152.1	196.4
STORED VOLUME (AC-FT)	1.0	1.8	4.6	10.5	17.9	28.0

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REVISIONS BY
CLASSIC CONSULTING
AUGUST 2023

2018 STERLING RANCH MDDP

DEVELOPED HYDROLOGIC CONDITIONS MAP

PROJECT NO. 09-002	FILE: \dwg\Eng Exhibits\2018-MDDP-PROPCOND.dwg		
DESIGNED BY: JD	SCALE	DATE: 10-21-2018	
DRAWN BY: JD	HORIZ: 1"=2400'		DM2
CHECKED BY: VAS	VERT: 1"=2400'		

File: O:\09002A\Sterling Ranch District\dwg\Eng Exhibits\2018 MDDP-enterimCond\SWMap.dwg Plotstamp: 10/24/2018 3:21 PM

INNOVATIVE DESIGN. CLASSIC RESULTS.

PRELIMINARY DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN
AND
FINAL DRAINAGE REPORT
FOR EARLY GRADING

Prepared for:
CLASSIC SRJ LAND, LLC
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COLORADO SPRINGS CO 80921
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Prepared by:
CLASSIC CONSULTING
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Job No. 1183.60

PCD Project No. SP244

CLASSIC CONSULTING

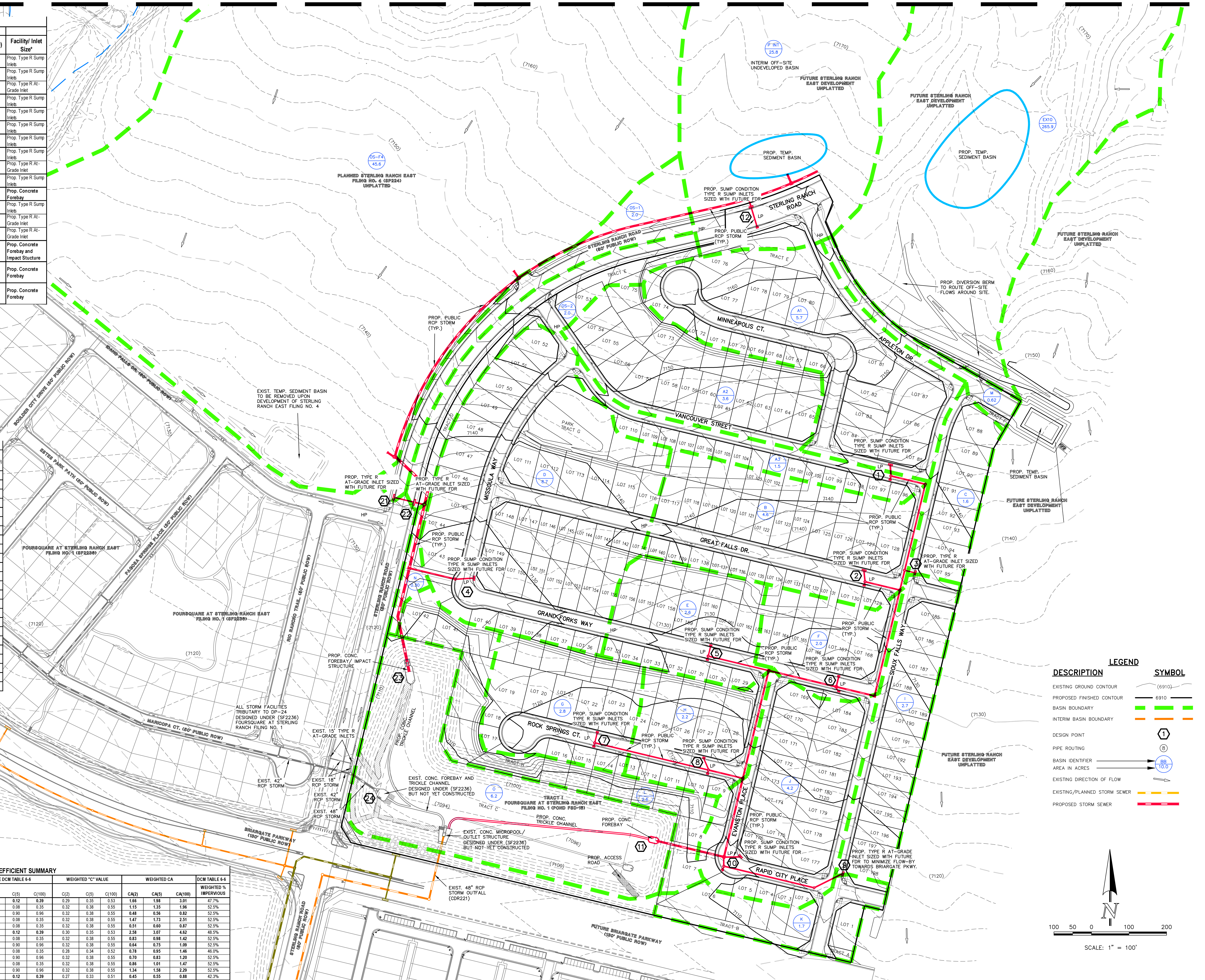
MATCH LINE SEE SHEET 4

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Facility/ Inlet Size*
1	A1, A2, A3	3.90	5.79	20.2	3.07	5.16	12	30	Prop. Type R Sump Inlets
2	B	1.73	2.51	18.5	3.21	5.38	6	13	Prop. Type R Sump Inlets
3	C	0.60	0.87	16.3	3.39	5.70	2	5	Prop. Type R At-Grade Inlet
4	D	3.07	4.62	16.7	3.36	5.63	10	26	Prop. Type R Sump Inlets
5	E	0.98	1.42	15.7	3.45	5.79	3	8	Prop. Type R Sump Inlets
6	F	0.75	1.09	15.5	3.47	5.83	3	6	Prop. Type R Sump Inlets
7	G	0.95	1.46	15.6	3.46	5.81	3	8	Prop. Type R Sump Inlets
8	H	0.83	1.20	15.3	3.49	5.87	3	7	Prop. Type R Sump Inlets
9	I, 100-yr Flow-by from DP-3	1.01	1.65	17.0	3.33	5.59	3	9	Prop. Type R At-Grade Inlet
10	J	1.58	2.29	17.3	3.30	5.55	5	13	Prop. Type R Sump Inlets
11	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.31**	**18.27**	**23.2**	**2.87**	**4.81**	**35**	**88**	**Prop. Concrete Forebay**
12	P-INT	2.76	9.55	22.9	2.89	4.85	8	46	Prop. Type R Sump Inlets
21	OS-1	1.07	1.35	12.7	3.78	6.34	4	9	Prop. Type R At-Grade Inlet
22	OS-2	1.28	1.51	14.2	3.60	6.04	5	9	Prop. Type R At-Grade Inlet
23	**POND FSD-16 INFLOW (NWESTERLY FOREBAY)**	**8.18**	**17.03**	**23.9**	**2.83**	**4.74**	**23**	**81**	**Prop. Concrete Forebay and Impact Stucture**
24	**POND FSD-16 INFLOW (SWESTERLY FOREBAY) Taken from Foursquare FDR**	**14.97**	**21.26**	**15.4**	**3.48**	**5.84**	**52**	**124**	**Prop. Concrete Forebay**
	POND FSD-16 TOTALINFLOW	**37.03**	**60.29**	**24.9**	**2.76**	**4.64**	**102**	**280**	**Prop. Concrete Forebay**

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A1	1.66	1.98	3.01	0.12	100	2	14.1	775	2.5%	3.2	4.1	18.2	2.58	3.23	5.43	4	**6**	**16**
A2	1.15	1.35	1.96	0.12	100	2	14.1	900	1.5%	2.4	6.1	20.2	2.46	3.07	5.16	3	**4**	**10**
A3	0.48	0.56	0.82	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	1	**2**	**5**
B	1.47	1.73	2.51	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	4	**6**	**13**
C	0.51	0.60	0.87	0.12	100	2	14.1	380	2.0%	2.8	2.2	16.3	2.71	3.39	5.70	1	**2**	**5**
D	2.58	3.07	4.62	0.12	100	2	14.1	640	4.0%	4.0	2.7	16.7	2.68	3.36	5.63	7	**10**	**26**
E	0.83	0.98	1.42	0.12	100	2	14.1	240	1.5%	2.4	1.6	15.7	2.76	3.45	5.79	2	**3**	**8**
F	0.64	0.75	1.09	0.12	100	2	14.1	210	1.5%	2.4	1.4	15.5	2.77	3.47	5.83	2	**3**	**6**
G	0.78	0.95	1.46	0.12	100	2	14.1	230	1.5%	2.4	1.6	15.6	2.76	3.46	5.81	2	**3**	**8**
H	0.70	0.83	1.20	0.12	100	2	14.1	175	1.5%	2.4	1.2	15.3	2.79	3.49	5.87	2	**3**	**7**
I	0.86	1.01	1.47	0.12	100	2	14.1	665	3.5%	3.7	3.0	17.0	2.66	3.33	5.59	2	**3**	**8**
J	1.34	1.58	2.29	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	4	**5**	**13**
K	0.45	0.55	0.88	0.12	80	3	10.2					10.2	3.27	4.09	6.87	1	**2**	**6**
L	0.67	0.83	1.32	0.12	90	3	11.3					11.3	3.15	3.95	6.63	2	**3**	**9**
M	0.48	0.49	0.54	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	**2**	**4**
N	0.04	0.06	0.13	0.12	70	2	10.5					10.5	3.24	4.06	6.82	0.1	**0.2**	**0.9**
O	0.31	0.74	2.42	0.12	100	2	14.1	300	1.0%	2.0	2.5	16.6	2.69	3.37	5.66	0.8	**3**	**14**
OS-1	0.98	1.07	1.35	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	**4**	**9**
OS-2	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	**5**	**9**
OS-3	0.98	1.19	1.80	0.12	75	2	11.1	700	1.5%	2.4	4.8	15.8	2.75	3.44	5.77	2.7	**4**	**10**
OS-F4	0.91	3.65	15.96	0.12	300	8	22.2	1500	2.5%	1.6	15.8	38.0	1.71	2.13	3.57	1.6	**8**	**57**
P INT	1.26	2.76	9.55	0.12	300	8	22.2	100	1.5%	2.4	0.7	22.9	2.31	2.89	4.85	3	**8**	**46**



PROP. TEMP. SEDIMENT BASIN
P-INT 25.8
INTERIM OFF-SITE UNDEVELOPED BASIN
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
EX10 265.9
OS-F4 45.6
PLANNED STERLING RANCH EAST FILING NO. 4 (SF224) UNPLATTED
PROP. SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
STERLING RANCH ROAD
STERLING RANCH ROAD (80' PUBLIC ROW)
PROP. PUBLIC RCP STORM (TYP.)
OS-1 2.0
OS-2 2.0
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE.
MINNEAPOLIS CT.
APPLETON DR.
A1 5.7
A2 3.6
A3 1.5
M 0.62
VANCOUVER STREET
PARK TRACT G
MISSOULA WAY
GREAT FALLS DR.
GRAND FORKS WAY
ROCK SPRINGS CT.
SIOUX FALLS WAY
EVANSTON PLACE
RAPID CITY PLACE
B 4.6
C 1.6
D 8.7
E 2.6
F 2.0
G 2.8
H 2.2
I 2.7
J 4.2
K 1.7
N 0.30
O 6.2
STERLING RANCH EAST FILING NO. 2 (SF2237)
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (SF2236)
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. CONC. TRICKLE CHANNEL
ALL STORM FACILITIES TRIBUTARY TO DP-24 DESIGNED UNDER (SF2236) FOURSQUARE AT STERLING RANCH FILING NO. 1
EXIST. 15" TYPE R AT-GRADE INLETS
EXIST. 42" RCP STORM
EXIST. 18" RCP STORM
EXIST. CONC. FOREBAY AND TRICKLE CHANNEL DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
TRACT I FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (POND FSD-16)
EXIST. CONC. MICROPOOL/ OUTLET STRUCTURE DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
PROP. ACCESS ROAD
EXIST. 48" RCP STORM OUTFALL (CDR221)
BRIARGATE PARKWAY (130' PUBLIC ROW)
FUTURE BRIARGATE PARKWAY (130' PUBLIC ROW)
MARICOPA CT. (60' PUBLIC ROW)
VILLAGES AT STERLING RANCH EAST PUD PRELIM. PLAN (PUDSP226)
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR TO MINIMIZE FLOW-BY TOWARDS BRIARGATE PKWY.
1
2
3
4
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12
21
22
23
24

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥

100 50 0 100 200

SCALE: 1" = 100'

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

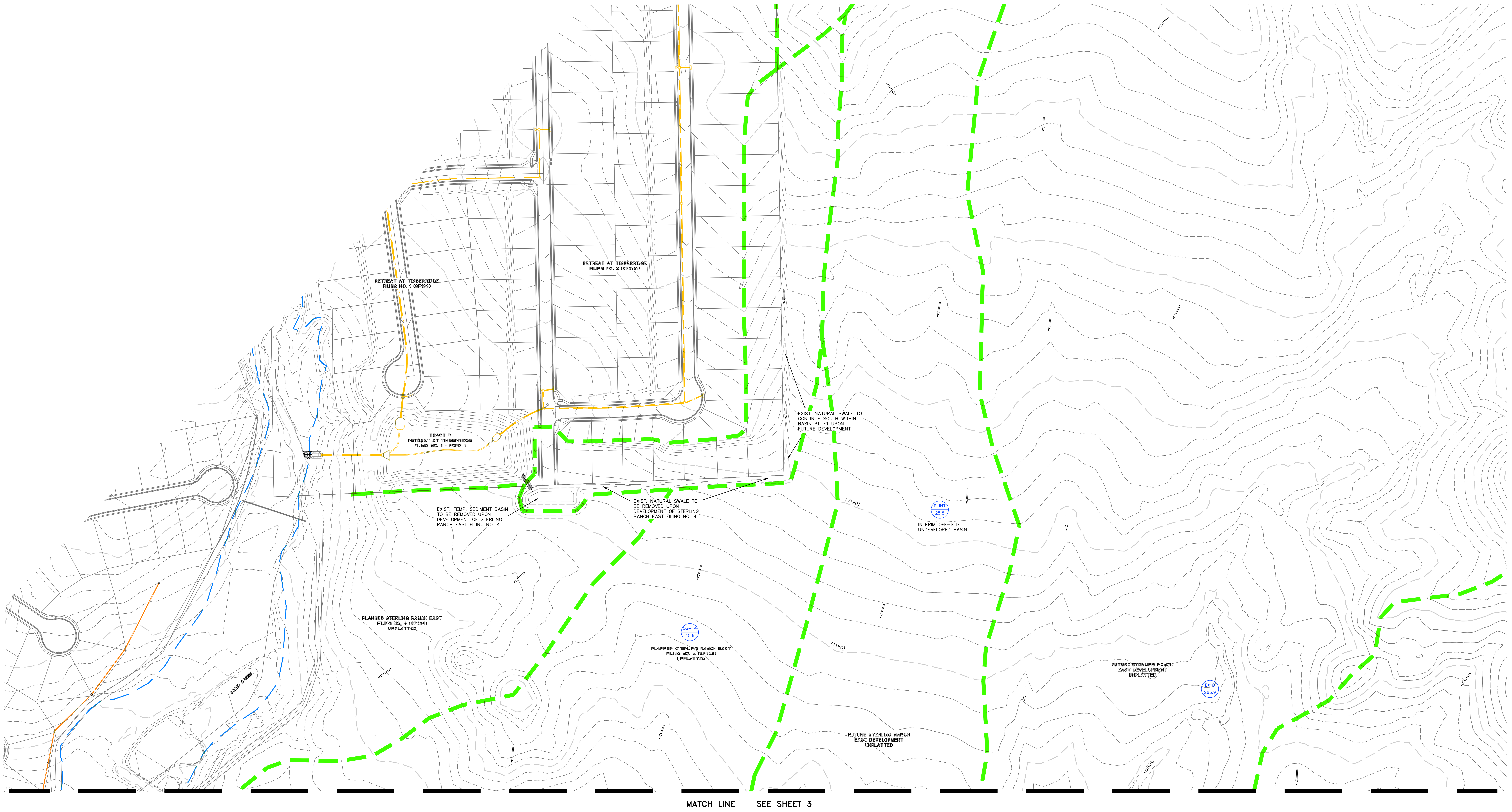
		C VALUE DCM TABLE 6-6						C VALUE DCM TABLE 6-6						WEIGHTED "C" VALUE			WEIGHTED CA			DCM TABLE 6-6
BASIN	TOTAL AREA (AC)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	CA(2)	CA(5)	CA(100)	WEIGHTED % IMPERVIOUS
A1	5.70	RES 1/6 AC.	52.5%	5.10	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	0.60	**0.05**	**0.12**	**0.39**	0.29	0.35	0.53	**1.66**	**1.98**	**3.01**	47.7%
A2	3.60	RES 1/6 AC.	52.5%	3.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.15**	**1.35**	**1.96**	52.5%
A3	1.50	RES 1/6 AC.	52.5%	1.50	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.48**	**0.56**	**0.82**	52.5%
B	4.60	RES 1/6 AC.	52.5%	4.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.47**	**1.73**	**2.51**	52.5%
C	1.60	RES 1/6 AC.	52.5%	1.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.51**	**0.60**	**0.87**	52.5%
D	8.70	RES 1/6 AC.	52.5%	7.93	**0.32**	**0.38**	**0.55**	POCKET PARK	7.0%	0.77	**0.05**	**0.12**	**0.39**	0.30	0.35	0.53	**2.58**	**3.07**	**4.62**	48.5%
E	2.60	RES 1/6 AC.	52.5%	2.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.83**	**0.98**	**1.42**	52.5%
F	2.00	RES 1/6 AC.	52.5%	2.00	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.64**	**0.75**	**1.09**	52.5%
G	2.80	RES 1/5 AC.	46.0%	2.80	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.78**	**0.95**	**1.46**	46.0%
H	2.20	RES 1/6 AC.	52.5%	2.20	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.70**	**0.83**	**1.20**	52.5%
I	2.70	RES 1/6 AC.	52.5%	2.70	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.86**	**1.01**	**1.47**	52.5%
J	4.20	RES 1/6 AC.	52.5%	4.20	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**1.34**	**1.58**	**2.29**	52.5%
K	1.70	RES 1/6 AC.	52.5%	1.37	**0.32**	**0.38**	**0.55**	OPEN SPACE		0.33	**0.05**	**0.12**	**0.39**	0.27	0.33	0.51	**0.45**	**0.55**	**0.88**	42.3%
L	2.60	RES 1/5 AC.	46.0%	2.35	**0.28**	**0.34**	**0.52**	OPEN SPACE	7.0%	0.25	**0.05**	**0.12**	**0.39**	0.26	0.32	0.51	**0.67**	**0.83**	**1.32**	42.3%
M	0.62	RES 1/5 AC.	46.0%	0.12	**0.28**	**0.34**	**0.52**	STREET	100.0%	0.50	0.89	0.90	0.96	0.77	0.79	0.87	**0.48**	**0.49**	**0.54**	89.5%
N	0.30	RES 1/5 AC.	46.0%	0.10	**0.28**	**0.34**	**0.52**	OPEN SPACE	7.0%	0.20	**0.05**	**0.12**	**0.39**	0.13	0.19	0.43	**0.04**	**0.06**	**0.13**	20.0%
O	6.20	RES 1/5 AC.	46.0%	0.00	**0.28**	**0.34**	**0.52**	POND TRACT	7.0%	6.20	**0.05**	**0.12**	**0.39**	0.05	0.12	0.39	**0.31**	**0.74**	**2.42**	7.0%
OS-1	2.00	RES 1/6 AC.	52.5%	1.40	**0.32**	**0.38**	**0.55**	STREET	100.0%	0.60	0.89	0.90	0.96	0.49	0.54	0.67	**0.98**	**1.07**	**1.35**	66.8%
OS-2	2.00	RES 1/6 AC.	52.5%	1.00	**0.32**	**0.38**	**0.55**	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.76	**1.21**	**1.28**	**1.51**	76.3%
OS-3	3.50	RES 1/5 AC.	46.0%	3.50	**0.28**	**0.34**	**0.52**			0.00	0.57	0.59	0.70	0.28	0.34	0.52	**0.98**	**1.19**	**1.80**	46.0%
OS-F4	45.60	UNDEVELOPED	0.0%	45.60	**0.02**	**0.08**	**0.35**			0.00	0.57	0.59	0.70	0.02	0.08	0.35	**0.91**	**3.65**	**15.96**	0.0%
P INT	25.80	UNDEVELOPED	0.0%	24.95	**0.02**	**0.08**	**0.35**	STREET	100.0%	0.85	0.89	0.90	0.96	0.05	0.11	0.37	**1.26**	**2.76**	**9.55**	3.3%

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)

STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN
PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (INTERIM)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 3 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60


RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
RETREAT AT TIMBERRIDGE FILING NO. 1 (SF199)
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1–F1 UPON FUTURE DEVELOPMENT
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
(7190)
P INT
25.8
INTERIM OFF–SITE UNDEVELOPED BASIN
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
OS–F4
45.6
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
(7180)
SAND CREEK
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
EX10
265.9
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
MATCH LINE SEE SHEET 3

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	→
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥

N

100 50 0 100 200

SCALE: 1" = 100'

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785–0790
(719)785–0799 (Fax)

STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN

PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (INTERIM)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 4 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

N:\118360\REPORTS\PDR\118360 DM – INTERIM.dwg, 3/26/2025 3:57:01 PM, 1:1

MATCH LINE SEE SHEET 6

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Facility/ Inlet Size*
1	A1, A2, A3	3.90	5.79	20.2	3.07	5.16	12	30	Prop. Type R Sump Inlets
2	B	1.73	2.51	18.5	3.21	5.38	6	13	Prop. Type R Sump Inlets
3	C	0.60	0.87	16.3	3.39	5.70	2	5	Prop. Type R At-Grade Inlet
4	D	3.07	4.62	16.7	3.36	5.63	10	26	Prop. Type R Sump Inlets
5	E	0.98	1.42	15.7	3.45	5.79	3	8	Prop. Type R Sump Inlets
6	F	0.75	1.09	15.5	3.47	5.83	3	6	Prop. Type R Sump Inlets
7	G	0.95	1.46	15.6	3.46	5.81	3	8	Prop. Type R Sump Inlets
8	H	0.83	1.20	15.3	3.49	5.87	3	7	Prop. Type R Sump Inlets
9	I, 100-yr Flow-by from DP-3	1.01	1.65	17.0	3.33	5.59	3	9	Prop. Type R At-Grade Inlet
10	J	1.58	2.29	17.3	3.30	5.55	5	13	Prop. Type R Sump Inlets
11	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.31**	**18.27**	**23.2**	**2.87**	**4.81**	**35**	**88**	**Prop. Concrete Forebay**
12	P1-F2	3.68	5.88	18.6	3.20	5.37	12	32	Prop. Type R Sump Inlets
13	F4-1	2.93	4.25	17.6	3.28	5.51	10	23	Prop. Type R Sump Inlets
14	F4-2	0.86	1.25	15.9	3.43	5.76	3	7	Prop. Type R Sump Inlet
15	F4-3	2.73	4.77	17.9	3.25	5.46	9	26	Prop. Type R Sump Inlets
16	F4-4	0.64	0.93	14.0	3.62	6.08	2	6	Prop. Type R Sump Inlets
17	F4-5	2.59	3.76	25.1	2.75	4.61	7	17	Prop. Type R Sump Inlets
18	F4-6	4.99	7.25	19.2	3.15	5.29	16	38	Prop. Type R Sump Inlets
19	F4-7	2.93	4.25	19.5	3.13	5.25	9	22	Prop. Type R Sump Inlets
20	OS-3	1.19	1.80	15.8	3.44	5.77	4	10	Prop. 10' At-Grade Type R Inlet
21	OS-1	1.07	1.35	12.7	3.78	6.34	4	9	Prop. Type R At-Grade Inlet
22	OS-2	1.28	1.51	14.2	3.60	6.04	5	9	Prop. Type R At-Grade Inlet
23	**POND FSD-16 INFLOW (NWESTERLY FOREBAY)**	**49.47**	**72.84**	**26.1**	**2.69**	**4.51**	**133**	**329**	**Prop. Concrete Forebay and Impact Stucture**
24	**POND FSD-16 INFLOW (SWESTERLY FOREBAY) Taken from Foursquare FDR**	**14.97**	**21.26**	**15.4**	**3.48**	**5.84**	**52**	**124**	**Prop. Concrete Forebay**
	POND FSD-16 TOTALINFLOW	**78.33**	**116.11**	**27.1**	**2.63**	**4.42**	**206**	**513**	**Prop. Concrete Forebay**

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A1	1.66	1.98	3.01	0.12	100	2	14.1	775	2.5%	3.2	4.1	18.2	2.58	3.23	5.43	4	**6**	**16**
A2	1.15	1.35	1.96	0.12	100	2	14.1	900	1.5%	2.4	6.1	20.2	2.46	3.07	5.16	3	**4**	**10**
A3	0.48	0.56	0.82	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	1	**2**	**5**
B	1.47	1.73	2.51	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	4	**6**	**13**
C	0.51	0.60	0.87	0.12	100	2	14.1	380	2.0%	2.8	2.2	16.3	2.71	3.39	5.70	1	**2**	**5**
D	2.58	3.07	4.62	0.12	100	2	14.1	640	4.0%	4.0	2.7	16.7	2.68	3.36	5.63	7	**10**	**26**
E	0.83	0.98	1.42	0.12	100	2	14.1	240	1.5%	2.4	1.6	15.7	2.76	3.45	5.79	2	**3**	**8**
F	0.64	0.75	1.09	0.12	100	2	14.1	210	1.5%	2.4	1.4	15.5	2.77	3.47	5.83	2	**3**	**6**
G	0.78	0.95	1.46	0.12	100	2	14.1	230	1.5%	2.4	1.6	15.6	2.76	3.46	5.81	2	**3**	**8**
H	0.70	0.83	1.20	0.12	100	2	14.1	175	1.5%	2.4	1.2	15.3	2.79	3.49	5.87	2	**3**	**7**
I	0.86	1.01	1.47	0.12	100	2	14.1	665	3.5%	3.7	3.0	17.0	2.66	3.33	5.59	2	**3**	**8**
J	1.34	1.58	2.29	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	4	**5**	**13**
K	0.45	0.55	0.88	0.12	80	3	10.2					10.2	3.27	4.09	6.87	1	**2**	**6**
L	0.67	0.83	1.32	0.12	90	3	11.3					11.3	3.15	3.95	6.63	2	**3**	**9**
M	0.48	0.49	0.54	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	**2**	**4**
N	0.04	0.06	0.13	0.12	70	2	10.5					10.5	3.24	4.06	6.82	0.1	**0.2**	**0.9**
O	0.31	0.74	2.42	0.12	100	2	14.1	300	1.0%	2.0	2.5	16.6	2.69	3.37	5.66	0.8	**3**	**14**
F4-1	2.50	2.93	4.25	0.12	100	2	14.1	670	2.5%	3.2	3.5	17.6	2.62	3.28	5.51	7	**10**	**23**
F4-2	0.74	0.86	1.25	0.12	100	2	14.1	350	2.5%	3.2	1.8	15.9	2.74	3.43	5.76	2	**3**	**7**
F4-3	2.14	2.73	4.77	0.12	100	2	14.1	730	2.5%	3.2	3.8	17.9	2.60	3.25	5.46	6	**9**	**26**
F4-4	0.54	0.64	0.93	0.12	50	1	10.0	770	2.5%	3.2	4.1	14.0	2.89	3.62	6.08	2	**2**	**6**
F4-5	2.21	2.59	3.76	0.12	100	2	14.1	2100	2.5%	3.2	11.1	25.1	2.20	2.75	4.61	5	**7**	**17**
F4-6	4.26	4.99	7.25	0.12	100	2	14.1	870	2.0%	2.8	5.1	19.2	2.52	3.15	5.29	11	**16**	**38**
F4-7	2.50	2.93	4.25	0.12	100	2	14.1	1070	2.7%	3.3	5.4	19.5	2.50	3.13	5.25	6	**9**	**22**
OS-1	0.98	1.07	1.35	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	**4**	**9**
OS-2	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	**5**	**9**
OS-3	0.98	1.19	1.80	0.12	75	2	11.1	700	1.5%	2.4	4.8	15.8	2.75	3.44	5.77	2.7	**4**	**10**
OS-F4	0.91	3.65	15.96	0.12	300	8	22.2	1500	2.5%	1.6	15.8	38.0	1.71	2.13	3.57	1.6	**8**	**57**
P1-F1	19.39	22.73	33.03	0.12	100	2	14.1	2000	1.5%	2.4	13.6	27.7	2.08	2.60	4.37	40	**59**	**144**
P1-F2	3.01	3.68	5.88	0.12	100	2	14.1	850	2.5%	3.2	4.5	18.6	2.56	3.20	5.37	8	**12**	**32**
P INT	1.26	2.76	9.55	0.12	300	8	22.2	100	1.5%	2.4	0.7	22.9	2.31	2.89	4.85	3	**8**	**46**

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	C VALUE DCM TABLE 6-6 LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C VALUE DCM TABLE 6-6 LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	WEIGHTED "C" VALUE C(2)	C(5)	C(100)	WEIGHTED CA CA(2)	CA(5)	CA(100)	DCM TABLE 6-6 WEIGHTED % IMPERVIOUS
A1	5.70	RES 1/6 AC.	52.5%	5.10	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	0.60	**0.05**	**0.12**	**0.39**	0.29	0.35	0.53	**1.66**	**1.98**	**3.01**	47.7%
A2	3.60	RES 1/6 AC.	52.5%	3.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.15**	**1.35**	**1.96**	52.5%
A3	1.50	RES 1/6 AC.	52.5%	1.50	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.48**	**0.56**	**0.82**	52.5%
B	4.60	RES 1/6 AC.	52.5%	4.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.47**	**1.73**	**2.51**	52.5%
C	1.60	RES 1/6 AC.	52.5%	1.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.51**	**0.60**	**0.87**	52.5%
D	8.70	RES 1/6 AC.	52.5%	7.93	**0.32**	**0.38**	**0.55**	POCKET PARK	7.0%	0.77	**0.05**	**0.12**	**0.39**	0.30	0.35	0.53	**2.58**	**3.07**	**4.62**	48.5%
E	2.60	RES 1/6 AC.	52.5%	2.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.83**	**0.98**	**1.42**	52.5%
F	2.00	RES 1/6 AC.	52.5%	2.00	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.64**	**0.75**	**1.09**	52.5%
G	2.80	RES 1/5 AC.	46.0%	2.80	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.78**	**0.95**	**1.46**	46.0%
H	2.20	RES 1/6 AC.	52.5%	2.20	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.70**	**0.83**	**1.20**	52.5%
I	2.70	RES 1/6 AC.	52.5%	2.70	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.86**	**1.01**	**1.47**	52.5%
J	4.20	RES 1/6 AC.	52.5%	4.20	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**1.34**	**1.58**	**2.29**	52.5%
K	1.70	RES 1/6 AC.	52.5%	1.37	**0.32**	**0.38**	**0.55**	OPEN SPACE		0.33	**0.05**	**0.12**	**0.39**	0.27	0.33	0.51	**0.45**	**0.55**	**0.88**	42.3%
L	2.60	RES 1/5 AC.	46.0%	2.35	**0.28**	**0.34**	**0.52**	OPEN SPACE	7.0%	0.25	**0.05**	**0.12**	**0.39**	0.26	0.32	0.51	**0.67**	**0.83**	**1.32**	42.3%
M	0.62	RES 1/5 AC.	46.0%	0.12	**0.28**	**0.34**	**0.52**	STREET	100.0%	0.50	0.89	0.90	0.96	0.77	0.79	0.87	**0.48**	**0.49**	**0.54**	89.5%
N	0.30	RES 1/5 AC.	46.0%	0.10	**0.28**	**0.34**	**0.52**	OPEN SPACE	7.0%	0.20	**0.05**	**0.12**	**0.39**	0.13	0.19	0.43	**0.04**	**0.06**	**0.13**	20.0%
O	6.20	RES 1/5 AC.	46.0%	0.00	**0.28**	**0.34**	**0.52**	POND TRACT	7.0%	6.20	**0.05**	**0.12**	**0.39**	0.05	0.12	0.39	**0.31**	**0.74**	**2.42**	7.0%
F4-1	7.80	RES 1/6 AC.	52.5%	7.80	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.50**	**2.93**	**4.25**	52.5%
F4-2	2.30	RES 1/6 AC.	52.5%	2.30	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.74**	**0.86**	**1.25**	52.5%
F4-3	9.80	RES 1/6 AC.	52.5%	6.10	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	3.70	**0.05**	**0.12**	**0.39**	0.22	0.28	0.49	**2.14**	**2.73**	**4.77**	35.3%
F4-4	1.70	RES 1/6 AC.	52.5%	1.70	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.54**	**0.64**	**0.93**	52.5%
F4-5	6.90	RES 1/6 AC.	52.5%	6.90	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.21**	**2.59**	**3.76**	52.5%
F4-6	13.30	RES 1/6 AC.	52.5%	13.30	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**4.26**	**4.99**	**7.25**	52.5%
F4-7	7.80	RES 1/6 AC.	52.5%	7.80	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.50**	**2.93**	**4.25**	52.5%
OS-1	2.00	RES 1/6 AC.	52.5%	1.40	**0.32**	**0.38**	**0.55**	STREET	100.0%	0.60	0.89	0.90	0.96	0.49	0.54	0.67	**0.98**	**1.07**	**1.35**	66.8%
OS-2	2.00	RES 1/6 AC.	52.5%	1.00	**0.32**	**0.38**	**0.55**	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.76	**1.21**	**1.28**	**1.51**	76.3%
OS-3	3.50	RES 1/5 AC.	46.0%	3.50	**0.28**	**0.34**	**0.52**			0.00	0.57	0.59	0.70	0.28	0.34	0.52	**0.98**	**1.19**	**1.80**	46.0%
OS-F4	45.60	UNDEVELOPED	0.0%	45.60	**0.02**	**0.08**	**0.35**			0.00	0.57	0.59	0.70	0.02	0.08	0.35	**0.91**	**3.65**	**15.96**	0.0%
P1-F1	60.60	RES 1/6 AC.	52.5%	60.60	**0.32**	**0.38**	**0.55**			0.00	0.57	0.59	0.70	0.32	0.38	0.55	**19.39**	**22.73**	**33.03**	52.5%
P1-F2	11.50	RES 1/6 AC.	52.5%	9.00	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	2.50	**0.05**	**0.12**	**0.39**	0.26	0.32	0.51	**3.01**	**3.68**	**5.88**	42.6%
P INT	25.80	UNDEVELOPED	0.0%	24.95	**0.02**	**0.08**	**0.35**	STREET	100.0%	0.85	0.89	0.90	0.96	0.05	0.11	0.37	**1.26**	**2.76**	**9.55**	3.3%

MATCH LINE SEE SHEET 6
PLANNED STERLING RANCH EAST FILING NO. 4 (SF224) UNPLATTED
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
INTERIM OFF-SITE UNDEVELOPED BASIN
P INT 25.8
P1-F2 11.5
EX10 265.9
PROP. TEMP. SEDIMENT BASIN
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
FUTURE HP
STERLING RANCH ROAD
STERLING RANCH ROAD (80' PUBLIC ROW)
PROP. SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
POSSIBLE TYPE R AT-GRADE INLETS SIZED WITH FUTURE FDR AS REQUIRED
PROP. PUBLIC RCP STORM (TYP.)
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE.
MINNEAPOLIS CT.
APPLETON DR.
VANCOUVER STREET
MISSOULA WAY
GREAT FALLS DR.
GRAND FORKS WAY
SIOUX FALLS WAY
ROCK SPRINGS CT.
EVANSTON PLACE
RAPID CITY PLACE
BOULDER CITY DRIVE (60' PUBLIC ROW)
IDAHO FALLS DR. (60' PUBLIC ROW)
ESTES PARK PATH (60' PUBLIC ROW)
PAGOSA SPRINGS PLACE (60' PUBLIC ROW)
RIO RANCHO TRAIL (60' PUBLIC ROW)
MARICOPA CT. (60' PUBLIC ROW)
BRIARGATE PARKWAY (130' PUBLIC ROW)
FUTURE BRIARGATE PARKWAY (130' PUBLIC ROW)
STERLING RANCH ROAD (80' PUBLIC ROW)
STERLING RANCH EAST FILING NO. 2 (SF2237)
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (SF2236)
VILLAGES AT STERLING RANCH EAST PUD PRELIM. PLAN (PUDSP226)
PARK TRACT G
TRACT E
TRACT F
TRACT H
TRACT C
TRACT B
TRACT A
TRACT I FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (POND FSD-16)
10' TYPE R SUMP INLET
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. CONC. TRICKLE CHANNEL
EXIST. 15' TYPE R AT-GRADE INLETS
ALL STORM FACILITIES TRIBUTARY TO DP-24 DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
EXIST. 18" RCP STORM
EXIST. 42" RCP STORM
EXIST. 48" RCP STORM
EXIST. CONC. FOREBAY AND TRICKLE CHANNEL DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
EXIST. CONC. MICROPOOL/ OUTLET STRUCTURE DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
PROP. CONC. FOREBAY
PROP. ACCESS ROAD
EXIST. 48" RCP STORM OUTFALL (CDR221)
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR TO MINIMIZE FLOW-BY TOWARDS BRIARGATE PKWY.
HP
LP
A1 5.7
A2 3.6
A3 1.5
B 4.6
C 1.6
D 8.7
E 2.6
F 2.0
G 2.8
H 2.2
I 2.7
J 4.2
K 1.7
L 2.6
M 0.62
N 0.30
O 6.2
F4-1
F4-2
F4-3 9.8
F4-4 1.7
F4-5 6.9
F4-6 13.3
F4-7 7.8
OS-2 2.0
OS-3 3.5
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
(7170)
(7160)
(7150)
(7140)
(7130)
(7120)
(7110)
(7100)
(7096)
(7094)
N
100 50 0 100 200
SCALE: 1" = 100'

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	1
PIPE ROUTING	⑧
BASIN IDENTIFIER	BB
AREA IN ACRES	10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥

SCALE: 1" = 100'

CLASSIC CONSULTING

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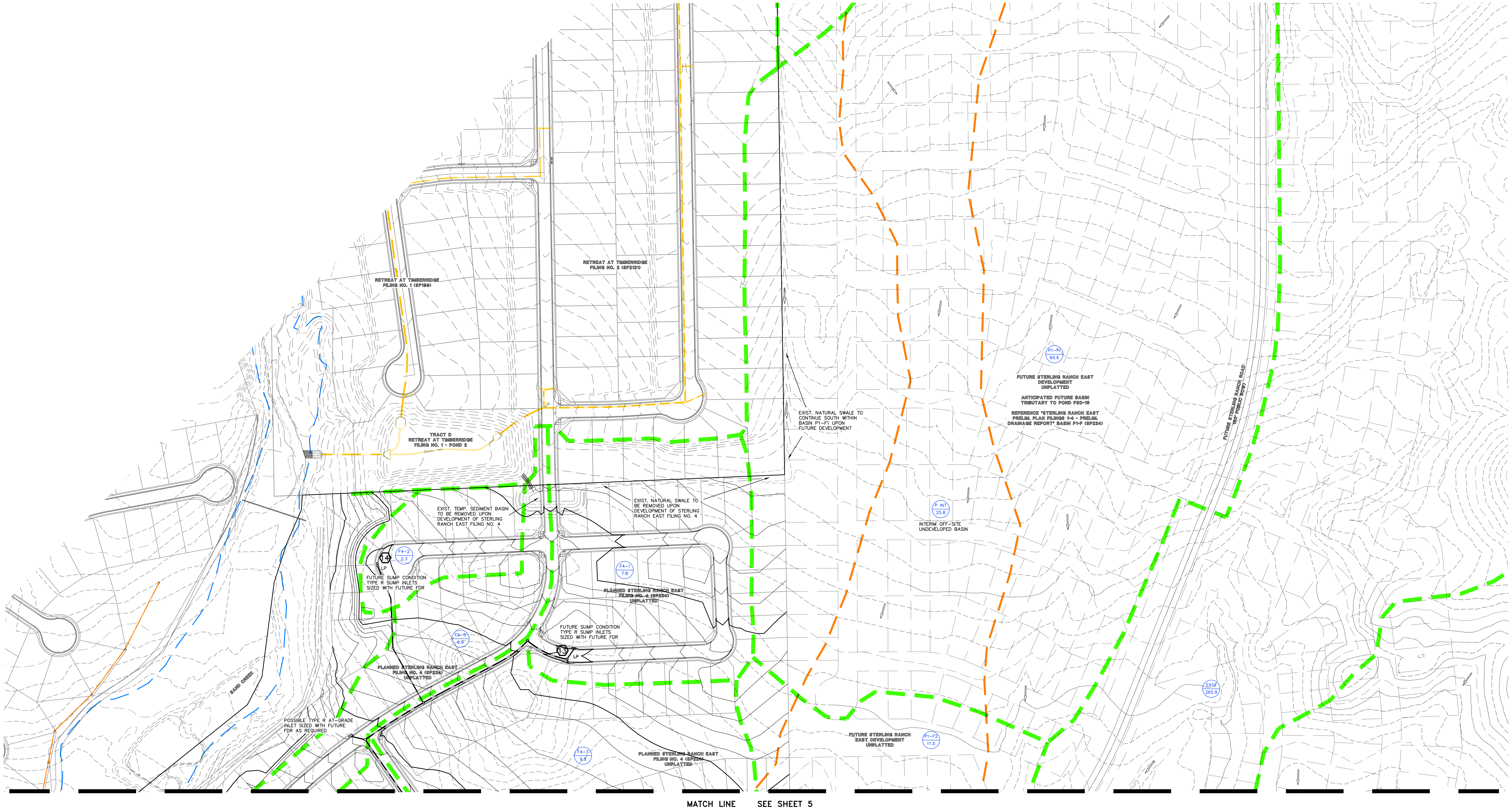
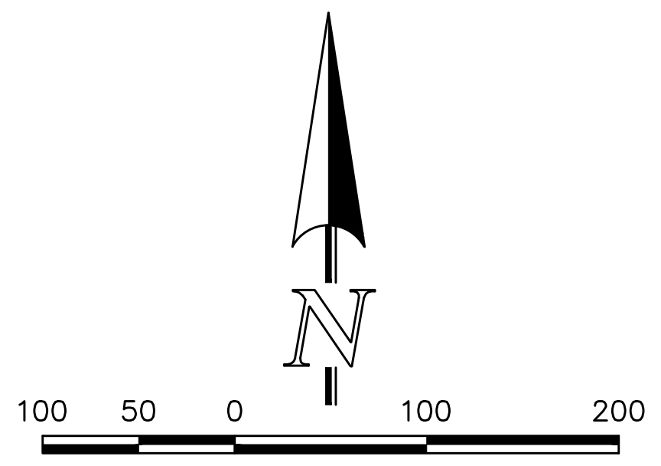
STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN
PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 5 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60


RETREAT AT TIMBERRIDGE FILING NO. 1 (SF199)
RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1-F1 UPON FUTURE DEVELOPMENT
P1-F1 60.6
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
ANTICIPATED FUTURE BASIN TRIBUTARY TO POND FSD-16
REFERENCE "STERLING RANCH EAST PRELIM. PLAN FILINGS 1-4 - PRELIM. DRAINAGE REPORT" BASIN P1-F (SP224)
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
P INT 25.8
INTERIM OFF-SITE UNDEVELOPED BASIN
14
LP
F4-2 2.3
F4-1 7.8
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
13
LP
F4-5 6.9
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
SAND CREEK
POSSIBLE TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR AS REQUIRED
F4-3 9.8
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
P1-F2 11.5
EX10 265.9
MATCH LINE SEE SHEET 5

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	⬡1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	→
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥


N
100
50
0
100
200

SCALE: 1" = 100'

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STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN

PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 6 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

CLASSIC CONSULTING

DRAINAGE MAPS

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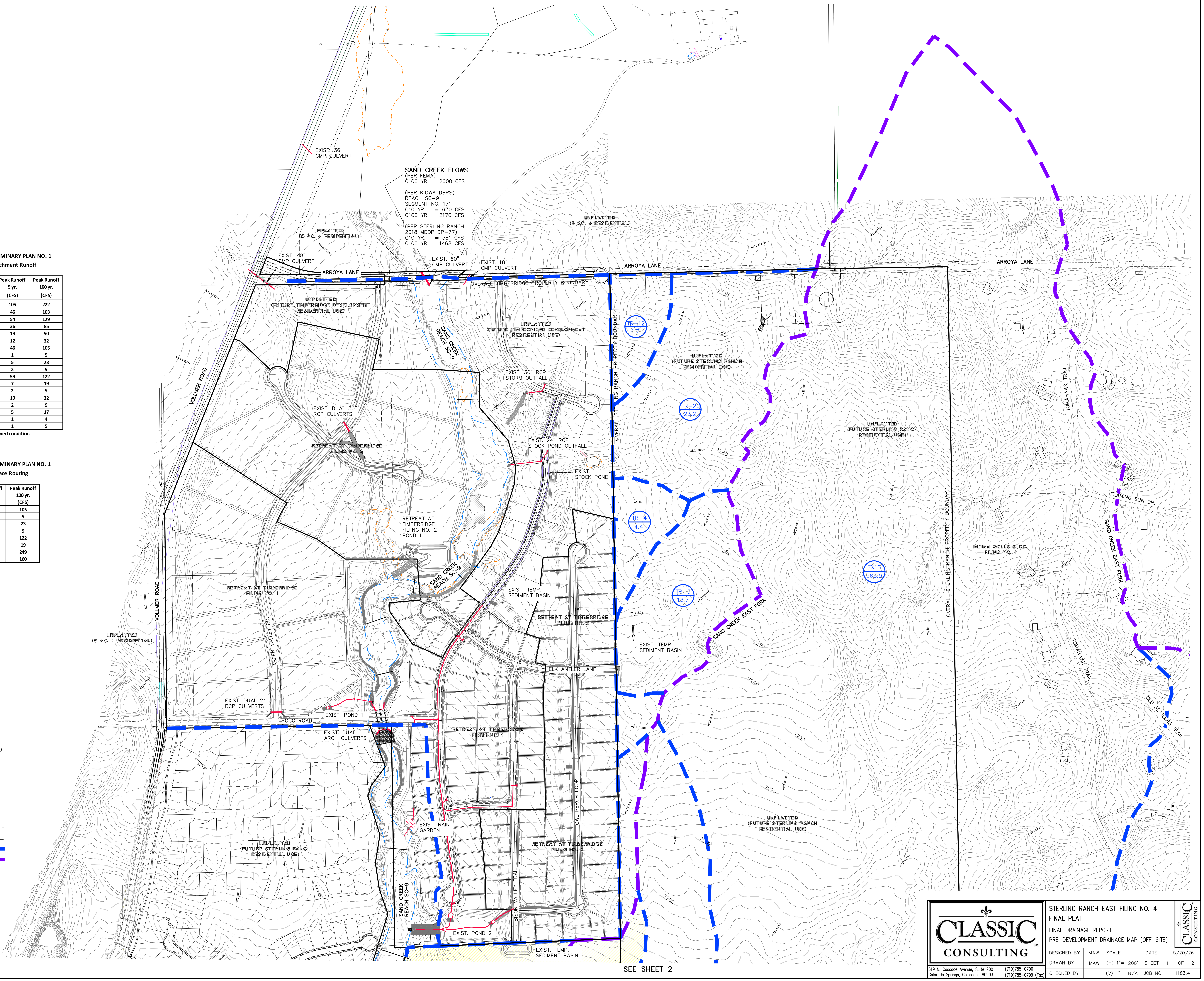
STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	**105**	**222**
EX10A	153.5	5%	**46**	**103**
EX-11 *	214.3	4%	**54**	**129**
EX-13 *	94.8	6%	**36**	**85**
EX-4A	44.2	8%	**19**	**50**
EX-5	26.2	8%	**12**	**32**
EX-7	152.8	5%	**46**	**105**
EX-7A	2.4	2%	**1**	**5**
EX-8	32.2	2%	**5**	**23**
EX-8A	6.6	2%	**2**	**9**
EX-9	139.3	8%	**59**	**122**
EX-9A	21.8	5%	**7**	**19**
TR-12 *	4.7	5%	**2**	**9**
TR-20 *	23.2	7%	**10**	**32**
TR-4 *	4.4	5%	**2**	**9**
TR-5 *	13.7	5%	**5**	**17**
TR-6 *	1.5	5%	**1**	**4**
TR-7 *	2.6	5%	**1**	**5**

*** Basins with no change upon developed condition**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Surface Routing

Design Point (South Bndy.)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
4	46	105
4A	1	5
5	5	23
5A	2	9
6	59	122
6A	7	19
7	110	249
56	60	160


EXIST. 36" CMP CULVERT
SAND CREEK FLOWS
(PER FEMA)
Q100 YR. = 2600 CFS
(PER KIOWA DBPS)
REACH SC–9
SEGMENT NO. 171
Q10 YR. = 630 CFS
Q100 YR. = 2170 CFS
(PER STERLING RANCH 2018 MDDP DP–77)
Q10 YR. = 581 CFS
Q100 YR. = 1468 CFS
UNPLATTED (5 AC. ± RESIDENTIAL)
UNPLATTED (5 AC. ± RESIDENTIAL)
EXIST. 48" CMP CULVERT
EXIST. 60" CMP CULVERT
EXIST. 18" CMP CULVERT
ARROYA LANE
ARROYA LANE
ARROYA LANE
OVERALL TIMBERRIDGE PROPERTY BOUNDARY
UNPLATTED (FUTURE TIMBERRIDGE DEVELOPMENT RESIDENTIAL USE)
UNPLATTED (FUTURE TIMBERRIDGE DEVELOPMENT RESIDENTIAL USE)
SAND CREEK REACH SC–9
TR–12 4.7
7300
7290
7280
7270
7260
7250
7240
7230
7220
7200
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
OVERALL STERLING RANCH PROPERTY BOUNDARY
EXIST. 30" RCP STORM OUTFALL
VOLLMER ROAD
EXIST. DUAL 30" RCP CULVERTS
TR–20 23.2
RETREAT AT TIMBERRIDGE FILING NO. 2
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
EXIST. 24" RCP STOCK POND OUTFALL
EXIST. STOCK POND
TOMAHAWK TRAIL
FLAMING SUN DR.
RETREAT AT TIMBERRIDGE FILING NO. 2
TR–4 4.4
OVERALL STERLING RANCH PROPERTY BOUNDARY
SAND CREEK EAST FORK
INDIAN WELLS SUBD. FILING NO. 1
EX10 265.9
SAND CREEK REACH SC–9
EXIST. TEMP. SEDIMENT BASIN
TR–5 13.7
SAND CREEK EAST FORK
RETREAT AT TIMBERRIDGE FILING NO. 1
RETREAT AT TIMBERRIDGE FILING NO. 2
VOLLMER ROAD
UNPLATTED (5 AC. ± RESIDENTIAL)
ASPEN VALLEY RD.
EXIST. TEMP. SEDIMENT BASIN
ELK ANTLER LANE
TOMAHAWK TRAIL
OLD SETTLERS TRAIL
EXIST. DUAL 24" RCP CULVERTS
POCO ROAD
EXIST. POND 1
EXIST. DUAL ARCH CULVERTS
RETREAT AT TIMBERRIDGE FILING NO. 1
OWL PERCH LOOP
EXIST. RAIN GARDEN
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
RETREAT AT TIMBERRIDGE FILING NO. 2
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
SAND CREEK REACH SC–9
BISON VALLEY TRAIL
EXIST. POND 2
EXIST. TEMP. SEDIMENT BASIN
SEE SHEET 2
N
200 100 0 200 400

SCALE: 1" = 200'

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	—— 6910 ——
SUB–BASIN BOUNDARY	▬ ▬ ▬ ▬
SAND CREEK EAST FORK BASIN LINE	▬ ▬
DESIGN POINT	△4
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
SITE TRIBUTARY BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING STORM SEWER	▬

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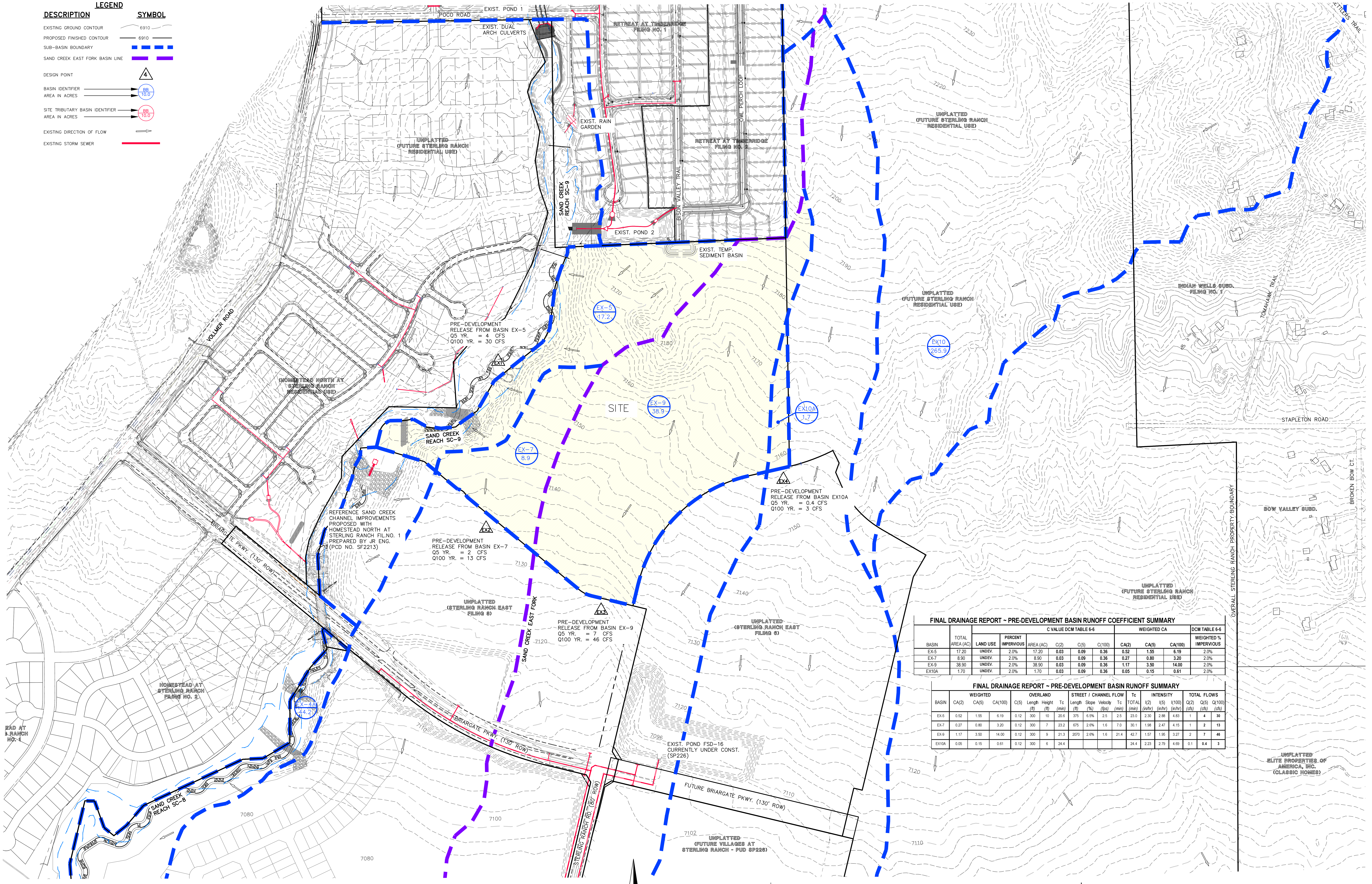
STERLING RANCH EAST FILING NO. 4
FINAL PLAT
FINAL DRAINAGE REPORT
PRE–DEVELOPMENT DRAINAGE MAP (OFF–SITE)

DESIGNED BY	MAW	SCALE	DATE 5/20/26
DRAWN BY	MAW	(H) 1"= 200'	SHEET 1 OF 2
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.41


EXIST. POND 1
POCO ROAD
EXIST. DUAL ARCH CULVERTS
RETREAT AT TIMBERRIDGE FILING NO. 1
EXIST. RAIN GARDEN
OWL PERCH LOOP
RETREAT AT TIMBERRIDGE FILING NO. 2
BISON VALLEY TRAIL
SAND CREEK REACH SC-9
EXIST. POND 2
EXIST. TEMP. SEDIMENT BASIN
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
VOLLMER ROAD
(HOMESTEAD NORTH AT STERLING RANCH RESIDENTIAL USE)
PRE-DEVELOPMENT RELEASE FROM BASIN EX-5 Q5 YR. = 4 CFS Q100 YR. = 30 CFS
EX1
EX-5 17.2
SITE
EX-9 38.9
EX10A 1.7
EX-7 8.9
EX10 265.9
SAND CREEK REACH SC-9
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF2213)
PRE-DEVELOPMENT RELEASE FROM BASIN EX-7 Q5 YR. = 2 CFS Q100 YR. = 13 CFS
EX2
PRE-DEVELOPMENT RELEASE FROM BASIN EX10A Q5 YR. = 0.4 CFS Q100 YR. = 3 CFS
EX4
EX3
PRE-DEVELOPMENT RELEASE FROM BASIN EX-9 Q5 YR. = 7 CFS Q100 YR. = 46 CFS
UNPLATTED (STERLING RANCH EAST FILING 8)
SAND CREEK EAST FORK
UNPLATTED (STERLING RANCH EAST FILING 6)
BRIARGATE PKWY. (130' ROW)
HOMESTEAD AT STERLING RANCH FILING NO. 2
EX-4A 44.2
EXIST. POND FSD-16 CURRENTLY UNDER CONST. (SP226)
FUTURE BRIARGATE PKWY. (130' ROW)
STERLING RANCH RD. (80' ROW)
SAND CREEK REACH SC-8
UNPLATTED (FUTURE VILLAGES AT STERLING RANCH - PUD SP226)
UNPLATTED ELITE PROPERTIES OF AMERICA, INC. (CLASSIC HOMES)
INDIAN WELLS SUBD. FILING NO. 1
TOMAHAWK TRAIL
STAPLETON ROAD
BOW VALLEY SUBD.
BROKEN BOW CT.
OVERALL STERLING RANCH PROPERTY BOUNDARY
ETTLERS TRAIL
EAD AT
RANCH
NO. 1
7230
7220
7200
7190
7180
7170
7160
7150
7140
7130
7120
7110
7100
7096
7102
7080
N
200 100 0 200 400
SCALE: 1" = 200'

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	— 6910 —
SUB–BASIN BOUNDARY	▬ ▬ ▬
SAND CREEK EAST FORK BASIN LINE	▬ ▬
DESIGN POINT	△4
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
SITE TRIBUTARY BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇒
EXISTING STORM SEWER	▬

FINAL DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF COEFFICIENT SUMMARY

		C VALUE DCM TABLE 6-6						WEIGHTED CA			DCM TABLE 6-6
BASIN	TOTAL AREA (AC)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	CA(2)	CA(5)	CA(100)	WEIGHTED % IMPERVIOUS
EX-5	17.20	UNDEV.	2.0%	17.20	**0.03**	**0.09**	**0.36**	**0.52**	**1.55**	**6.19**	2.0%
EX-7	8.90	UNDEV.	2.0%	8.90	**0.03**	**0.09**	**0.36**	**0.27**	**0.80**	**3.20**	2.0%
EX-9	38.90	UNDEV.	2.0%	38.90	**0.03**	**0.09**	**0.36**	**1.17**	**3.50**	**14.00**	2.0%
EX10A	1.70	UNDEV.	2.0%	1.70	**0.03**	**0.09**	**0.36**	**0.05**	**0.15**	**0.61**	2.0%

FINAL DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF SUMMARY

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length *(ft)*	Height *(ft)*	Tc *(min)*	Length *(ft)*	Slope *(%)*	Velocity *(fps)*	Tc *(min)*	TOTAL *(min)*	I(2) *(in/hr)*	I(5) *(in/hr)*	I(100) *(in/hr)*	Q(2) *(cfs)*	Q(5) *(cfs)*	Q(100) *(cfs)*
EX-5	0.52	1.55	6.19	0.12	300	10	20.6	375	6.5%	2.5	2.5	23.0	2.30	2.88	4.83	1	**4**	**30**
EX-7	0.27	0.80	3.20	0.12	300	7	23.2	675	2.6%	1.6	7.0	30.1	1.98	2.47	4.15	1	**2**	**13**
EX-9	1.17	3.50	14.00	0.12	300	9	21.3	2070	2.6%	1.6	21.4	42.7	1.57	1.95	3.27	2	**7**	**46**
EX10A	0.05	0.15	0.61	0.12	300	6	24.4					24.4	2.23	2.79	4.69	0.1	**0.4**	**3**

FINAL DRAINAGE REPORT ~ PRE-DEVELOPMENT SURFACE ROUTING SUMMARY

					Intensity		Flow		
Design Point(s)	**Contributing Basins / Design Point**	**Equivalent CA(5)**	**Equivalent CA(100)**	**Maximum Tc**	**I(5)**	**I(100)**	**Q(5)**	**Q(100)**	**Outfall**
EX1	EX-5	1.55	6.19	23.0	2.88	4.83	4	30	Sheet Flow towards Sand Creek
EX2	EX-7	0.80	3.20	30.1	2.47	4.15	2	13	Sheet Flow south towards Briargate Pkwy
EX3	EX-9	3.50	14.00	42.7	1.95	3.27	7	46	Sheet Flow south towards Briargate Pkwy
EX4	EX10A	0.15	0.61	24.4	2.79	4.69	0.4	3	Sheet Flow south towards Pond FSD-16

CLASSIC CONSULTING

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STERLING RANCH EAST FILING NO. 4
FINAL PLAT
FINAL DRAINAGE REPORT
PRE–DEVELOPMENT DRAINAGE MAP

DESIGNED BY	MAW	SCALE	DATE 5/20/26
DRAWN BY	MAW	(H) 1"= 200'	SHEET 2 OF 2
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.41

CLASSIC CONSULTING

MATCH LINE SEE SHEET 2
VANCOUVER STREET
CORVALLIS TERRACE
BISON VALLEY TRAIL
REDMOND WAY
TIGARD WAY
SEATTLE LANE
STERLING RANCH ROAD
FUTURE STERLING RANCH ROAD (60' PUBLIC ROW)
RIO RANCHO TRAIL (60' PUBLIC ROW)
STERLING RANCH ROAD (60' PUBLIC ROW)
EXIST. BRIARGATE PARKWAY (130' PUBLIC ROW)
PROP. BRIARGATE PARKWAY (130' PUBLIC ROW)
EXIST. STERLING RANCH ROAD (60' PUBLIC ROW)
HOMESTEAD NORTH AT STERLING RANCH FILING NO. 2
SAND CREEK
EXIST. 100-YR FLOODPLAIN
TRACT A
TRACT F
STERLING RANCH EAST FILING NO. 2 (SF2237)
STERLING RANCH EAST FILING NO. 8 (SF2235)
STERLING RANCH EAST FILING NO. 6 (SF2610)
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
VILLAGES AT STERLING RANCH
PROP. TEMP. SEDIMENT BASIN
REFERENCE STERLING RANCH EAST FILING NO. 6 FDR (SF2610) FOR TEMP. SEDIMENT BASIN AND DIVERSION BERM IN THIS AREA TO BE INSTALLED WITH FILING NO. 6.
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE
REFERENCE STERLING RANCH EAST FILING NO. 6 FDR FOR THESE BASINS (SF2610)
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
Provide offsite street names
PROP. PUBLIC 42" RCP STORM STUB
PROP. PUBLIC 48" RCP STORM
PROP. PUBLIC 66" RCP STORM
PROP. PUBLIC 60" RCP STORM
PROP. PUBLIC 30" RCP STORM
PROP. PUBLIC 18" RCP STORM
PROP. PUBLIC 24" RCP STORM (TYP.)
PROP. PUBLIC 15' TYPE R AT-GRADE INLET
PROP. PUBLIC 5' TYPE R SUMP INLET
PROP. PUBLIC 10' TYPE R SUMP INLET
PROP. 6' STD. CROSSPAN
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. CONC. TRICKLE CHANNEL
PROP. CONC. FOREBAY AND TRICKLE CHANNEL
PROP. CONC. MICROPOOL/ OUTLET STRUCTURE
PROP. CONC. FOREBAY
DP-17 SW'LY FOREBAY FROM STERLING RANCH EAST FILING NO. 8 FDR (SF2526)
DP-20 E'LY FOREBAY FROM STERLING RANCH EAST FILING NO. 6 FDR (SF2610)
PROP. PUBLIC 48" RCP STORM (TYP.)
PROP. 15' TYPE R AT-GRADE INLETS
EXIST. 18" RCP STORM
EXIST. 42" RCP STORM
EXIST. 48" RCP STORM
EXIST. PUBLIC 15' TYPE R AT-GRADE INLET (CDR221)
EXIST. 30" RCP STORM OUTFALL (CDR221)
EXIST. PUBLIC 20' TYPE R SUMP INLET (SF2235)
EXIST. 36" RCP STORM OUTFALL (SF2235)
EXIST. 48" RCP STORM OUTFALL (CDR221)
EXIST. PUBLIC 15' TYPE R SUMP INLET (SF2235)
EX. PUBLIC 42" RCP STORM STUB
LP
HP
F2-A 2.9
F2-B 5.0
F8-5 3.4
F8-3 3.5
F8-4 4.4
F8-6B 0.88
F8-6A 1.8
F8-7A 1.9
F8-7B 2.7
F8-1 3.7
F8-2 1.0
SR-1 1.2
SR-2 0.65
Z 0.30
BB 6.2
AA 2.6
F6-Y 3.2
F6-V 2.7
F6-W 0.79
F6-X 2.0
F6-HH 2.0
F6-EE 1.3
OS-4 4.9
OS-5 3.4
M 1.8
L 1.7
N 4.2
O 2.9
R 5.5
H 0.24
G 1.0
I 2.8
J 1.6
K 0.11
T 3.3
U 2.5
P 0.33
Q 0.65
S 0.44
W 0.94
F6-GG 2.5
(7170)
(7160)
(7150)
(7140)
(7130)
(7120)
(7110)
(7100)
7150
7140
7130
7120
7110
7100
(7094)
(7096)
100 50 0 100 200
SCALE: 1" = 100'
N

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	⬡ 1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
PROPOSED DIRECTION OF FLOW	➔
EXISTING/PLANNED STORM SEWER	▬
PROPOSED STORM SEWER	🟥

SCALE: 1" = 100'

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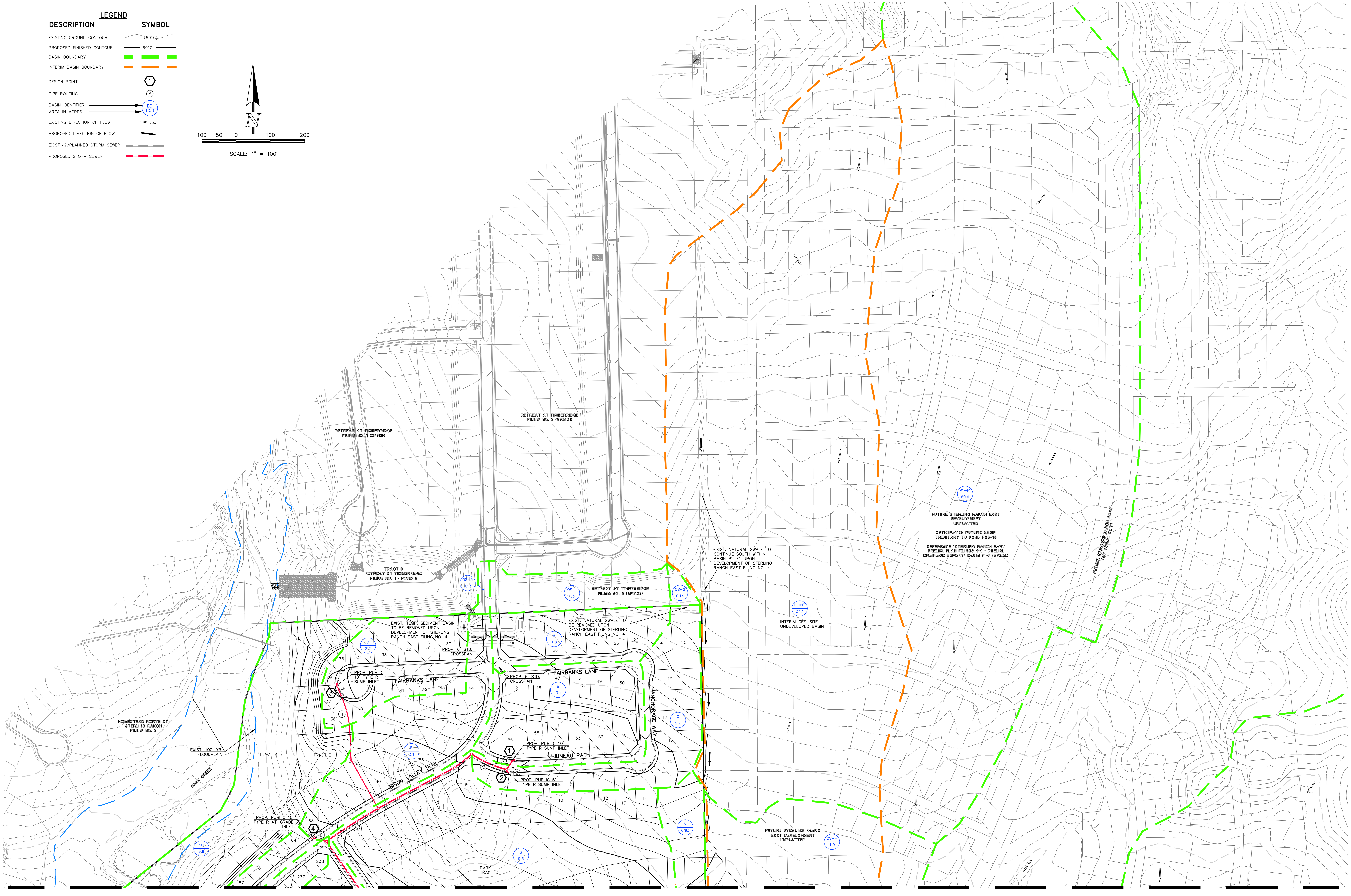
STERLING RANCH EAST FILING NO. 4
FINAL PLAT
FINAL DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY	MAW	SCALE	DATE 5/18/26
DRAWN BY	MAW	(H) 1"= 100'	SHEET 1 OF 3
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.41


LEGEND
DESCRIPTION
SYMBOL
EXISTING GROUND CONTOUR
(6910)
PROPOSED FINISHED CONTOUR
6910
BASIN BOUNDARY
INTERIM BASIN BOUNDARY
DESIGN POINT
1
PIPE ROUTING
8
BASIN IDENTIFIER
AREA IN ACRES
BB
10.0
EXISTING DIRECTION OF FLOW
PROPOSED DIRECTION OF FLOW
EXISTING/PLANNED STORM SEWER
PROPOSED STORM SEWER
N
100 50 0 100 200
SCALE: 1" = 100'
RETREAT AT TIMBERRIDGE FILING NO. 1 (SF199)
RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
OS-3 0.13
OS-1 1.3
OS-2 0.14
RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1-F1 UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
P1-F1 60.6
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
ANTICIPATED FUTURE BASIN TRIBUTARY TO POND FSD-16
REFERENCE 'STERLING RANCH EAST PRELIM. PLAN FILINGS 1-4 - PRELIM. DRAINAGE REPORT' BASIN P1-F (SP224)
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
P-INT 34.1
INTERIM OFF-SITE UNDEVELOPED BASIN
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
D 2.2
A 1.8
PROP. 6' STD. CROSSPAN
PROP. 6' STD. CROSSPAN
PROP. PUBLIC 10' TYPE R SUMP INLET
FAIRBANKS LANE
FAIRBANKS LANE
LP
3
4
B 3.1
ANCHORAGE WAY
C 2.7
HOMESTEAD NORTH AT STERLING RANCH FILING NO. 2
EXIST. 100-YR. FLOODPLAIN
SAND CREEK
TRACT A
TRACT B
E 3.1
PROP. PUBLIC 10' TYPE R SUMP INLET
JUNEAU PATH
1
LP
2
PROP. PUBLIC 5' TYPE R SUMP INLET
BISON VALLEY TRAIL
PROP. PUBLIC 10' TYPE R AT-GRADE INLET
4
SC 9.9
G 9.5
PARK TRACT C
V 0.93
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
OS-4 4.9

MATCH LINE SEE SHEET 1

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STERLING RANCH EAST FILING NO. 4
FINAL PLAT
FINAL DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY	MAW	SCALE	DATE 5/18/26
DRAWN BY	MAW	(H) 1"= 100'	SHEET 2 OF 3
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.41

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N:\118341\REPORTS\FINAL DRAINAGE REPORT\118341 FDM.dwg, 6/18/2026 2:34:58 PM, 1:1

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	C VALUE DCM TABLE 6-6						C VALUE DCM TABLE 6-6						WEIGHTED "C" VALUE			WEIGHTED CA			DCM TABLE 6-6
		LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	CA(2)	CA(5)	CA(100)	WEIGHTED % IMPERVIOUS
OS-1	1.30	RES 1/3 AC.	35.0%	1.30	0.18	0.25	0.47			0.00	0.02	0.08	0.35	0.18	0.25	0.47	0.23	0.33	0.61	35.0%
OS-2	0.14	RES 1/3 AC.	35.0%	0.14	0.18	0.25	0.47			0.00	0.02	0.08	0.35	0.18	0.25	0.47	0.03	0.04	0.07	35.0%
OS-3	0.13	STREET	100.0%	0.08	0.89	0.90	0.96	OPEN SPACE	7.0%	0.60	0.05	0.12	0.39	0.74	1.07	2.35	0.10	0.14	0.31	90.0%
OS-4	4.90	RES 1/5 AC.	46.0%	3.10	0.28	0.34	0.52	OPEN SPACE	7.0%	1.80	0.05	0.12	0.39	0.20	0.26	0.47	0.96	1.27	2.31	31.7%
OS-5	3.40	RES 1/6 AC.	52.5%	3.05	0.32	0.38	0.55	OPEN SPACE	7.0%	0.35	0.05	0.12	0.39	0.29	0.35	0.53	0.99	1.19	1.80	47.8%
A	1.80	RES 1/5 AC.	46.0%	1.80	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.50	0.61	0.94	46.0%
B	3.10	RES 1/5 AC.	46.0%	3.10	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.87	1.05	1.61	46.0%
C	2.70	RES 1/5 AC.	46.0%	2.70	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.76	0.92	1.40	46.0%
D	2.20	RES 1/5 AC.	46.0%	2.20	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.62	0.75	1.14	46.0%
E	3.10	RES 1/5 AC.	46.0%	3.10	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.87	1.05	1.61	46.0%
F	1.00	RES 1/6 AC.	52.5%	1.00	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.32	0.38	0.55	52.5%
G	9.50	RES 1/5 AC.	46.0%	5.80	0.28	0.34	0.52	OPEN SPACE	7.0%	3.70	0.05	0.12	0.39	0.19	0.25	0.47	1.81	2.42	4.46	30.8%
H	0.24	STREET	100.0%	0.08	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.14	0.32	0.38	0.55	0.46	0.50	0.62	0.11	0.12	0.15	61.9%
I	2.80	RES 1/6 AC.	52.5%	2.80	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.90	1.05	1.53	52.5%
J	1.60	RES 1/6 AC.	52.5%	1.60	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.51	0.60	0.87	52.5%
K	0.11	STREET	100.0%	0.05	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.06	0.32	0.38	0.55	0.58	0.61	0.73	0.06	0.07	0.08	74.1%
L	1.70	RES 1/6 AC.	52.5%	1.70	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.54	0.64	0.93	52.5%
M	1.80	RES 1/5 AC.	46.0%	1.80	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.50	0.61	0.94	46.0%
N	4.20	RES 1/6 AC.	52.5%	4.20	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.34	1.58	2.29	52.5%
O	2.90	RES 1/6 AC.	52.5%	2.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.93	1.09	1.58	52.5%
P	0.33	STREET	100.0%	0.11	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.22	0.32	0.38	0.55	0.51	0.55	0.68	0.17	0.18	0.23	68.3%
Q	0.65	STREET	100.0%	0.20	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.45	0.32	0.38	0.55	0.50	0.54	0.67	0.32	0.35	0.44	67.1%
R	3.50	RES 1/6 AC.	52.5%	3.50	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.12	1.31	1.91	52.5%
S	0.44	STREET	100.0%	0.14	0.89	0.90	0.96	RES 1/6 AC.	52.5%	0.30	0.32	0.38	0.55	0.50	0.54	0.68	0.22	0.24	0.30	67.6%
T	3.30	RES 1/5 AC.	46.0%	3.30	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.92	1.12	1.72	46.0%
U	2.50	RES 1/5 AC.	46.0%	2.35	0.28	0.34	0.52	OPEN SPACE	7.0%	0.15	0.05	0.12	0.39	0.27	0.33	0.51	0.67	0.82	1.28	43.7%
V	0.93	RES 1/6 AC.	52.5%	0.30	0.32	0.38	0.55	OPEN SPACE	7.0%	0.63	0.05	0.12	0.39	0.14	0.20	0.44	0.13	0.19	0.41	21.7%
W	0.94	RES 1/5 AC.	46.0%	0.84	0.28	0.34	0.52	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.26	0.32	0.51	0.24	0.30	0.48	41.9%
F6-EE	1.30	STREET	100.0%	0.60	0.89	0.90	0.96	OPEN SPACE	7.0%	0.70	0.05	0.12	0.39	0.44	0.48	0.65	0.57	0.62	0.85	49.9%
F6-GG	2.50	RES 1/6 AC.	52.5%	1.90	0.32	0.38	0.55	STREET	100.0%	0.60	0.89	0.90	0.96	0.46	0.50	0.64	1.14	1.25	1.61	63.9%
F6-HH	2.00	RES 1/6 AC.	52.5%	1.00	0.32	0.38	0.55	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.75	1.21	1.28	1.51	76.3%
F6-V	2.70	RES 1/5 AC.	46.0%	1.93	0.28	0.34	0.52	POCKET PARK	7.0%	0.77	0.05	0.12	0.39	0.21	0.28	0.48	0.58	0.75	1.30	34.9%
F6-W	0.79	RES 1/6 AC.	52.5%	0.79	0.32	0.38	0.55			0.00	0.05	0.12	0.39	0.32	0.38	0.55	0.25	0.30	0.43	52.5%
F6-X	2.00	RES 1/6 AC.	52.5%	2.00	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.64	0.75	1.09	52.5%
F6-Y	3.20	RES 1/5 AC.	46.0%	3.20	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.90	1.09	1.66	46.0%
SR-1	1.20	STREET	100.0%	0.75	0.89	0.90	0.96	OPEN SPACE	7.0%	0.45	0.05	0.12	0.39	0.58	0.61	0.75	0.69	0.73	0.90	65.1%
SR-2	0.65	STREET	100.0%	0.48	0.89	0.90	0.96	OPEN SPACE	7.0%	0.17	0.05	0.12	0.39	0.67	0.70	0.81	0.44	0.45	0.53	75.7%
Z	0.30	RES 1/5 AC.	46.0%	0.15	0.28	0.34	0.52	OPEN SPACE	7.0%	0.15	0.05	0.12	0.39	0.17	0.23	0.46	0.05	0.07	0.14	26.5%
AA	2.60	RES 1/5 AC.	46.0%	2.35	0.28	0.34	0.52	OPEN SPACE	7.0%	0.25	0.05	0.12	0.39	0.26	0.32	0.51	0.67	0.83	1.32	42.3%
BB	6.20	RES 1/5 AC.	46.0%	0.00	0.28	0.34	0.52	OPEN SPACE	7.0%	6.20	0.05	0.12	0.39	0.05	0.12	0.39	0.31	0.74	2.42	7.0%
SC	9.90	RES 1/5 AC.	46.0%	2.80	0.28	0.34	0.52	OPEN SPACE	7.0%	7.10	0.05	0.12	0.39	0.12	0.18	0.43	1.14	1.80	4.23	18.0%
F2-A	2.90	RES 1/6 AC.	52.5%	2.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.93	1.09	1.58	52.5%
F2-B	5.00	RES 1/6 AC.	52.5%	5.00	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.60	1.88	2.73	52.5%
F8-1	3.70	RES 1/6 AC.	52.5%	3.50	0.32	0.38	0.55	OPEN SPACE	7.0%	0.20	0.05	0.12	0.39	0.31	0.36	0.54	1.13	1.34	1.99	50.0%
F8-2	1.00	RES 1/5 AC.	46.0%	0.88	0.28	0.34	0.52	OPEN SPACE	7.0%	0.12	0.05	0.12	0.39	0.25	0.31	0.50	0.25	0.31	0.50	41.3%
F8-3	3.50	RES 1/8 AC.	65.0%	2.50	0.41	0.45	0.59	OPEN SPACE	7.0%	1.00	0.05	0.12	0.39	0.31	0.36	0.53	1.08	1.25	1.87	48.4%
F8-4	4.40	RES 1/8 AC.	65.0%	4.00	0.41	0.45	0.59	OPEN SPACE	7.0%	0.40	0.05	0.12	0.39	0.38	0.42	0.57	1.66	1.85	2.52	59.7%
F8-5	3.40	RES 1/8 AC.	65.0%	3.10	0.41	0.45	0.59	OPEN SPACE	7.0%	0.30	0.05	0.12	0.39	0.38	0.42	0.57	1.29	1.43	1.95	59.9%
F8-6A	1.80	RES 1/8 AC.	65.0%	1.55	0.41	0.45	0.59	OPEN SPACE	7.0%	0.25	0.05	0.12	0.39	0.36	0.40	0.56	0.65	0.73	1.01	56.9%
F8-6B	0.86	RES 1/8 AC.	65.0%	0.86	0.41	0.45	0.59	OPEN SPACE	7.0%	0.00	0.05	0.12	0.39	0.41	0.45	0.59	0.35	0.39	0.51	65.0%
F8-7A	1.90	RES 1/8 AC.	65.0%	1.80	0.41	0.45	0.59	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.39	0.43	0.58	0.74	0.82	1.10	61.9%
F8-7B	2.70	RES 1/8 AC.	65.0%	2.60	0.41	0.45	0.59	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.40	0.44	0.58	1.07	1.18	1.57	62.9%
P1-F1	60.60	RES 1/6 AC.	52.5%	60.60	0.32	0.38	0.55							0.32	0.38	0.55	19.39	22.73	33.03	52.5%
P-INT	34.10	UNDEVLOPED	2.0%	34.10	0.03	0.09	0.36							0.03	0.09	0.36	1.02	3.07	12.28	2.0%
SRE FILING 6 E'LY OUTFALL BASINS	33.40	51.1%																		
SRE FILING 8 SW'LY OUTFALL BASINS	33.31	55.8%																		
TRIBUTARY AREA TO NW'LY OUTFALL	136.3	48.9%																		
TOTAL AREA TRIBUTARY TO POND FSD-16	211.8	49.0%																		

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (ULTIMATE)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Facility/ Inlet Size*
1	OS-1, A, B	1.99	3.16	16.4	3.38	5.68	7	18	Prop. 10' Type R Sump Inlet
2	OS-2, C	0.95	1.47	17.6	3.28	5.51	3	8	Prop. 5' Type R Sump Inlet
3	D	0.75	1.14	16.0	3.42	5.74	3	7	Prop. 10' Type R Sump Inlet
4	OS-3, E	1.19	1.92	16.4	3.38	5.68	4	11	Prop. 10' Type R At-grade Inlet
5	F	0.38	0.55	13.1	3.73	6.26	1	3	Prop. 6' crosspan
6	DP-5, G	2.79	5.00	18.2	3.23	5.42	9	27	Prop. 15' Type R Sump Inlet
7	H	0.12	0.15	6.1	4.88	8.20	0.6	1.2	Prop. 5' Type R Sump Inlet
8	I	1.05	1.53	16.1	3.41	5.73	4	9	Prop. 6' crosspan
9	DP-8, J	1.65	2.40	16.2	3.40	5.71	6	14	Prop. 10' Type R Sump Inlet
10	K	0.07	0.08	5.8	4.93	8.28	0.3	0.7	Prop. 5' Type R Sump Inlet
11	L	0.64	0.93	15.4	3.48	5.84	2	5	Prop. 5' Type R Sump Inlet
12	M, DP-4 Flow-by	0.62	1.57	19.4	3.13	5.26	2	8	Prop. 5' Type R Sump Inlet
13	N	1.58	2.29	17.4	3.30	5.53	5	13	Prop. 10' Type R Sump Inlet
14	O	1.09	1.58	17.4	3.30	5.53	4	9	Prop. 5' Type R Sump Inlet
15	P	0.18	0.23	5.8	4.93	8.28	0.9	1.9	Prop. 5' Type R Sump Inlet
16	Q	0.35	0.44	11.3	3.94	6.62	1.4	2.9	Prop. 5' Type R Sump Inlet
17	R	1.31	1.91	18.5	3.21	5.38	4	10	Prop. 5' Type R At-grade Inlet
18	S	0.24	0.30	10.6	4.04	6.78	1.0	2.0	Prop. 5' Type R Sump Inlet
19	T	1.12	1.72	17.2	3.32	5.57	4	10	Prop. 5' Type R Sump Inlet
20	U	0.82	1.28	17.2	3.32	5.57	3	7	Prop. 5' Type R Sump Inlet
21	OS-4, V	1.46	2.72	15.8	3.44	5.77	5	16	Future Type R inlets at Sump Condition
22	F6-EE	0.62	0.85	14.9	3.53	5.92	2	5	Prop. 5' Type R Sump Inlet
23	OS-5, W	1.48	2.27	16.1	3.41	5.73	5	13	Prop. 10' Type R Sump Inlet
24	F6-V	0.75	1.30	16.3	3.40	5.71	3	7	Prop. 6' crosspan
25	DP-24, F6-W, F6-X	1.79	2.82	16.5	3.38	5.68	6	16	Prop. 10' Type R Sump Inlet
26	F6-Y	1.09	1.66	16.6	3.37	5.66	4	9	Prop. 5' Type R Sump Inlet
27	F6-HH	1.28	1.51	14.2	3.60	6.04	5	9	Prop. 15' Type R At-Grade Inlet
28	F6-GG	1.25	1.61	12.7	3.78	6.34	5	10	Prop. 15' Type R At-Grade Inlet
29	**POND FSD-16 INFLOW (NORTHWEST FOREBAY)**	**51.32**	**76.44**	**29.8**	**2.49**	**4.18**	**128**	**320**	**Prop. Impact Structure/Forebay**
30	F8-1	1.34	1.99	16.7	3.36	5.64	4	11	Future Type R inlets at Sump Condition
31	F8-2	0.31	0.50	12.7	3.77	6.33	1.2	3.2	Future Type R inlet at Sump Condition
32	**POND FSD-16 INFLOW (SOUTHWEST FOREBAY)**	**13.51**	**18.87**	**23.2**	**2.87**	**4.81**	**39**	**91**	**Prop. Concrete Forebay**
33	**POND FSD-16 INFLOW (EAST FOREBAY) REF: SRE6 FDR DP-20 (SF2610)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**Prop. Concrete Forebay**
	POND FSD-16 TOTAL INFLOW (ULTIMATE) (Incl. Basins AA and BB)	**78.68**	**116.74**	**30.3**	**2.47**	**4.14**	**194**	**483**	**Prop. Pond FSD-16**
	POND FSD-16 TOTAL INFLOW (INTERIM) (Incl. Basins AA and BB)	**56.72**	**92.11**	**30.3**	**2.47**	**4.14**	**140**	**381**	**Prop. Pond FSD-16**

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
OS-1	0.23	0.33	0.61	0.12	90	2.7	11.7					11.7	3.11	3.90	6.54	0.7	1.3	4.0
OS-2	0.03	0.04	0.07	0.12	90	4.5	9.9					9.9	3.31	4.15	6.97	0.1	0.1	0.5
OS-3	0.10	0.14	0.31	0.12	10	0.2	4.5	130	4.0%	4.0	0.5	5.0	4.12	5.17	8.68	0.4	0.7	2.7
OS-4	0.96	1.27	2.31	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	3	4	13
OS-5	0.99	1.19	1.80	0.12	100	2	14.1	350	2.0%	2.8	2.1	16.1	2.73	3.41	5.73	3	4	10
A	0.50	0.61	0.94	0.12	100	2	14.1	350	2.0%	2.8	2.1	16.1	2.73	3.41	5.73	1	2	5
B	0.87	1.05	1.61	0.12	100	2	14.1	330	2.5%	3.2	1.7	15.8	2.75	3.44	5.78	2	4	9
C	0.76	0.92	1.40	0.12	100	2	14.1	670	2.5%	3.2	3.5	17.6	2.62	3.28	5.51	2	3	8
D	0.62	0.75	1.14	0.12	100	2	14.1	370	2.5%	3.2	2.0	16.0	2.73	3.42	5.74	2	3	7
E	0.87	1.05	1.61	0.12	100	2	14.1	450	2.5%	3.2	2.4	16.4	2.70	3.38	5.68	2	4	9
F	0.32	0.38	0.55	0.12	50	1	10.0	530	2.0%	2.8	3.1	13.1	2.98	3.73	6.26	1	1	3
G	1.81	2.42	4.46	0.12	100	2	14.1	700	2.0%	2.8	4.1	18.2	2.58	3.23	5.42	5	8	24
H	0.11	0.12	0.15	0.12	20	0.6	5.5	80	1.5%	2.4	0.5	6.1	3.89	4.88	8.20	0.4	0.6	1.2
I	0.90	1.05	1.53	0.12	100	2	14.1	430	3.0%	3.5	2.1	16.1	2.72	3.41	5.73	2	4	9
J	0.51	0.60	0.87	0.12	50	1	10.0	675	2.0%	2.8	4.0	13.9	2.90	3.63	6.10	1	2	5
K	0.06	0.07	0.08	0.12	20	0.6	5.5	50	1.5%	2.4	0.3	5.8	3.93	4.93	8.28	0.3	0.3	0.7
L	0.54	0.64	0.93	0.12	50	1	10.0	800	1.5%	2.4	5.4	15.4	2.78	3.48	5.84	2	2	5
M	0.50	0.61	0.94	0.12	50	1	10.0	800	1.5%	2.4	5.4	15.4	2.78	3.48	5.84	1	2	5
N	1.34	1.58	2.29	0.12	100	2	14.1	570	2.0%	2.8	3.4	17.4	2.63	3.30	5.53	4	5	13
O	0.93	1.09	1.58	0.12	100	2	14.1	570	2.0%	2.8	3.4	17.4	2.63	3.30	5.53	2	4	9
P	0.17	0.18	0.23	0.12	20	0.6	5.5	50	1.5%	2.4	0.3	5.8	3.93	4.93	8.28	0.7	0.9	1.9
Q	0.32	0.35	0.44	0.12	50	1	10.0	200	1.5%	2.4	1.4	11.3	3.15	3.94	6.62	1.0	1.4	2.9
R	1.12	1.31	1.91	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	3	4	10
S	0.22	0.24	0.30	0.12	50	1	10.0	100	1.5%	2.4	0.7	10.6	3.22	4.04	6.78	0.7	1.0	2.0
T	0.92	1.12	1.72	0.12	100	2	14.1	530	2.0%	2.8	3.1	17.2	2.65	3.32	5.57	2	4	10
U	0.67	0.82	1.28	0.12	100	2	14.1	530	2.0%	2.8	3.1	17.2	2.65	3.32	5.57	2	3	7
V	0.13	0.19	0.41	0.12	100	2	14.1	60	1.5%	2.4	0.4	14.5	2.85	3.57	6.00	0.4	0.7	2.5
W	0.24	0.30	0.48	0.12	100	3	12.3	70	1.5%	2.4	0.5	12.8	3.00	3.76	6.31	0.7	1.1	3.0
F6-EE	0.57	0.62	0.85	0.12	90	2	12.9	300	1.5%	2.4	2.0	14.9	2.82	3.53	5.92	2	2	5
F6-GG	1.14	1.25	1.61	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	5	10
F6-HH	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	5	9
F6-V	0.58	0.75	1.30	0.12	100	2	14.1	370	2.0%	2.8	2.2	16.3	2.72	3.40	5.71	2	3	7
F6-W	0.25	0.30	0.43	0.12	50	1	10.0	370	2.0%	2.8	2.2	12.1	3.06	3.84	6.45	0.8	1.1	2.8
F6-X	0.64	0.75	1.09	0.12	100	2	14.1	350	1.5%	2.4	2.4	16.5	2.70	3.38	5.68	2	3	6
F6-Y	0.90	1.09	1.66	0.12	100	2	14.1	600	4.0%	4.0	2.5	16.6	2.69	3.37	5.66	2	4	9
SR-1	0.69	0.73	0.90	0.12	50	5	5.9	550	3.5%	3.7	2.4	8.3	3.52	4.41	7.40	2	3	7
SR-2	0.44	0.45	0.53	0.12	15	0.4	5.0	550	3.5%	1.9	4.9	9.9	3.31	4.15	6.97	1	2	4
Z	0.05	0.07	0.14	0.12	90	3	11.3					11.3	3.15	3.95	6.63	0.2	0.3	0.9
AA	0.67	0.83	1.32	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	4	10
BB	0.31	0.74	2.42	0.12	70	2	10.5					10.5	3.24	4.06	6.82	1	3	16
SC	1.14	1.80	4.23	0.12	100	3	12.3	200	10.0%	2.2	1.5	13.8	2.91	3.64	6.12	3	7	26
F2-A	0.93	1.09	1.58	0.12	50	1	10.0	300	2.0%	2.8	1.8	11.7	3.11	3.89	6.53	3	4	10
F2-B	1.60	1.88	2.73	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	4	6	16
F8-1	1.13	1.34	1.99	0.12	90	2	12.9	560	1.5%	2.4	3.8	16.7	2.68	3.36	5.64	3	4	11
F8-2	0.25	0.31	0.50	0.12	100	3	12.3	60	1.5%	2.4	0.4	12.7	3.01	3.77	6.33	0.8	1.2	3
F8-3	1.08	1.25	1.87	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	3	4	10
F8-4	1.66	1.85	2.52	0.12	100	2	14.1	650	2.5%	3.2	3.4	17.5	2.63	3.29	5.52	4	6	14
F8-5	1.29	1.43	1.95	0.12	100	2	14.1	600	2.5%	3.2	3.2	17.2	2.65	3.31	5.56	3	5	11
F8-6A	0.65	0.73	1.01	0.12	100	2	14.1	325	1.5%	2.4	2.2	16.3	2.71	3.40	5.70	2	2	6
F8-6B	0.35	0.39	0.51	0.12	50	1	10.0	325	1.5%	2.4	2.2	12.2	3.06	3.84	6.44	1.1	1.5	3
F8-7A	0.74	0.82	1.10	0.12	100	2	14.1	425	1.5%	2.4	2.9	17.0	2.67	3.34	5.60	2	3	6
F8-7B	1.07	1.18	1.57	0.12	100	2	14.1	560	3.5%	3.7	2.5	16.6	2.69	3.37	5.66	3	4	9
P1-F1	19.39	22.73	33.03	0.12	100	2	14.1	2000	1.5%	2.4	13.6	27.7	2.08	2.60	4.37	40	59	144
P-INT	1.02	3.07	12.28	0.12	300	8	22.2	2000	2.5%	1.6	21.1	43.3	1.55	1.93	3.24	2	6	40

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
1	DP-1	1.99	3.16	16.4	3.38	5.68	7	18	PROP. 24" RCP
2	DP-2	0.95	1.47	17.6	3.28	5.51	3	8	PROP. 18" RCP
3	PR-1, PR-2	2.94	4.63	18.2	3.23	5.42	10	25	PROP. 30" RCP
4	DP-3	0.75	1.14	16.0	3.42	5.74	3	7	PROP. 18" RCP
5	PR-3, PR-4	3.69	5.77	18.3	3.22	5.41	12	31	PROP. 30" RCP
6	DP-4 Capture	1.18	1.29	16.4	3.38	5.68	4	7	PROP. 18" RCP
7	PR-5, PR-6	4.87	7.06	18.9	3.17	5.33	15	38	PROP. 30" RCP
8	DP-6	2.79	5.00	18.2	3.23	5.42	9	27	PROP. 30" RCP
9	DP-7	0.12	0.15	6.1	4.88	8.20	0.6	1.2	PROP. 18" RCP
10	PR-7, PR-8, PR-9	7.78	12.21	19.7	3.11	5.22	24	64	PROP. 36" RCP
11	DP-8, DP-9	2.70	3.92	16.2	3.40	5.71	9	22	PROP. 24" RCP
12	DP-10	0.07	0.08	5.8	4.93	8.28	0.3	0.7	PROP. 18" RCP
13	**PR-10, PR-11, PR-12**	**10.55**	**16.21**	**19.8**	**3.10**	**5.21**	**33**	**84**	**EX. 42" RCP STUB**
14	DP-11	0.64	0.93	15.4	3.48	5.84	2	5	PROP. 18" RCP
15	DP-12	0.62	1.57	19.4	3.13	5.26	2	8	PROP. 24" RCP
16	PR-14, PR-15	1.26	2.50	19.9	3.09	5.19	4	13	PROP. 30" RCP
17	DP-13	1.58	2.29	17.4	3.30	5.53	5	13	PROP. 24" RCP
18	DP-14	1.09	1.58	17.4	3.30	5.53	4	9	PROP. 18" RCP
19	PR-17, PR-18	2.66	3.87	17.5	3.29	5.52	9	21	PROP. 30" RCP
20	PR-16, PR-19	3.92	6.36	20.0	3.09	5.18	12	33	PROP. 36" RCP
21	DP-15	0.18	0.23	5.8	4.93	8.28	0.9	1.9	PROP. 18" RCP
22	DP-16	0.35	0.44	11.3	3.94	6.62	1.4	2.9	PROP. 18" RCP
23	PR-20, PR-21, PR-22	4.45	7.03	20.4	3.06	5.13	14	36	PROP. 36" RCP
24	DP-17	1.31	1.91	18.5	3.21	5.38	4	10	PROP. 24" RCP
25	DP-18	0.24	0.30	10.6	4.04	6.78	1.0	2.0	PROP. 18" RCP
26	PR-23, PR-24, PR-25	6.01	9.23	20.7	3.03	5.09	18	47	PROP. 36" RCP
27	DP-19	1.12	1.72	17.2	3.32	5.57	4	10	PROP. 24" RCP
28	DP-20, PR-27	1.94	3.00	17.2	3.32	5.57	6	17	PROP. 24" RCP
29	**PR-26, PR-27, PR-28**	**9.07**	**13.95**	**21.0**	**3.01**	**5.06**	**27**	**71**	**EX. 42" RCP STUB**
30	1/2 P1-F1	11.36	16.51	27.7	2.60	4.37	30	72	EX. 42" RCP STUB
31	1/2 P1-F1, DP-21	12.82	19.24	27.7	2.60	4.37	33	84	EX. 42" RCP STUB
32	PR-30, PR-31	24.18	35.75	27.8	2.60	4.36	63	156	PROP. 48" RCP
33	DP-22	0.62	0.85	14.9	3.53	5.92	2	5	PROP. 18" RCP
34	PR-33, DP-23	2.11	3.12	16.1	3.41	5.73	7	18	PROP. 30" RCP
35	PR-32. PR-34	26.29	38.87	28.6	2.55	4.29	67	167	PROP. 48" RCP
36	PR-13, PR-35	36.84	55.09	29.2	2.52	4.23	93	233	PROP. 60" RCP
37	PR-29, PR-36	45.91	69.03	29.2	2.52	4.23	116	292	PROP. 66" RCP
38	DP-27 Capture	1.28	1.38	16.5	3.38	5.68	4	8	PROP. 18" RCP
39	DP-28 Capture, PR-38	2.53	2.92	16.6	3.37	5.66	9	16	PROP. 30" RCP
40	PR-37, PR-39	48.44	71.95	29.6	2.50	4.20	121	302	PROP. 66" RCP
41	DP-25	1.79	2.82	17.0	3.33	5.59	6	16	PROP. 24" RCP
42	DP-26, PR-41	2.88	4.49	16.5	3.38	5.68	10	25	PROP. 30" RCP
43	**PR-40, PR-42 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**51.32**	**76.44**	**29.8**	**2.49**	**4.18**	**128**	**320**	**PROP. 66" RCP**

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
30	BURIED AND PLUGGED WITH NO FLOW IN INTERIM						0	0	EX. 42" RCP STUB
31	P-INT, V and W routed thru TSB	3.55	13.16	43.3	1.93	3.24	7	43	EX. 42" RCP STUB
32	PR-30, PR-31	3.55	13.16	43.4	1.93	3.24	7	43	PROP. 48" RCP
33	DP-22	0.62	0.85	14.9	3.53	5.92	2	5	PROP. 18" RCP
34	PR-33, (10%) DP-23	0.77	1.08	16.1	3.41	5.73	3	6	PROP. 24" RCP
35	PR-32. PR-34	4.33	14.24	44.2	1.90	3.19	8	45	PROP. 48" RCP
36	PR-13, PR-35	14.88	30.46	44.8	1.88	3.16	28	96	PROP. 60" RCP
37	PR-29, PR-36	23.95	44.41	44.8	1.88	3.16	45	140	PROP. 66" RCP
38	DP-27 Capture	1.28	1.38	16.5	3.38	5.68	4	8	PROP. 18" RCP
39	DP-28 Capture, PR-38	2.53	2.92	16.6	3.37	5.66	9	16	PROP. 24" RCP
40	PR-37, PR-39	26.47	47.32	45.2	1.87	3.13	49	148	PROP. 66" RCP
41	DP-25	1.79	2.82	17.0	3.33	5.59	6	16	PROP. 24" RCP
42	DP-26, PR-41	2.88	4.49	16.5	3.38	5.68	10	25	PROP. 30" RCP
43	**PR-40, PR-42 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**29.36**	**51.81**	**45.4**	**1.86**	**3.12**	**55**	**162**	**PROP. 66" RCP**

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STERLING RANCH EAST FILING NO. 4
FINAL PLAT
FINAL DRAINAGE REPORT
DEVELOPED CONDITIONS CALCULATIONS

DESIGNED BY	MAW	SCALE	DATE 5/18/26
DRAWN BY	MAW	(H) 1"= N/A	SHEET 3 OF 3
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.41

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