

Basin OS1 ($Q_5=23.9$ cfs, $Q_{100}=40.1$ cfs) is 23.82 acres and is located just north of the site. Flows from this sub-basin flow directly onto basin EXA4. Runoff from this sub-basin eventually flow to the existing swale at DP 4.1 where it is conveyed into Sand Creek.

Basin OS2 ($Q_5=37.3$ cfs, $Q_{100}=62.6$ cfs) is comprised of 85.59 acres. Flows from this sub-basin flow directly onto basin A4. Runoff from this sub-basin eventually flow to the existing swale at DP 4.1 where it is conveyed into Sand Creek.

Basin OS3 ($Q_5=1.8$ cfs, $Q_{100}=3.1$ cfs) is 6.66 acres and is located just north of the site. Flows from this sub-basin flow directly onto basin A4. Runoff from this sub-basin eventually flow to the existing swale at DP 4.1 where it is conveyed into Sand Creek.

Basin OS4 ($Q_5=0.5$ cfs, $Q_{100}=0.9$ cfs) is 2.19 acres is comprised of open space just north of the site. Runoff from this basin drains south directly onto Basin B1 where it outfalls directly into Sand Creek.

Basin OS5 ($Q_5=7.5$ cfs, $Q_{100}=23.4$ cfs) is 9.27 acres and is comprised of existing single family residential. Runoff from this site drains southwest onto basin A4 where it eventually flows to the existing swale at DP 4.1. From here, it is conveyed south into Sand Creek.

Basin OS20 ($Q_5=61$ cfs, $Q_{100}=310$ cfs) is 308 acres and is comprised primarily of developed and undeveloped land with lots ranging from 2.5 to 90 acres in size. The ground cover is comprised of mainly native grasses. Runoff from this site drains southwest into basin via sheetflow and an existing drainage ditch along the west side of Volmer Road to OS21A.

Basin OS21B ($Q_5=3.1$ cfs, $Q_{100}=5.3$ cfs) is 8.71 acres and is comprised of undeveloped land covered with mainly native grasses. Runoff from this site sheet flows southeast onto basin OS21A.

Basin OS21A ($Q_5=4.2$ cfs, $Q_{100}=7.1$ cfs) is 20.26 acres and is comprised primarily of developed land with lots ranging from 2.5 to 5 acres in size. The ground cover is comprised of mainly native grasses. Runoff from this site drains southwest into basin via sheetflow and an existing drainage ditch along the west side of Volmer Road. Flows from basins OS21A combines with OS21B and OS20 where the combined flow generally sheet flows to the southeast where it eventually reaches Sand Creek. Offsite Basins OS20, OS21B and OS21A correspond to Basins SC3-8 ($Q_5=42.1$ cfs, $Q_{100}=166.2$ cfs) and SC3-9($Q_5=71.5$ cfs, $Q_{100}=254.0$ cfs) from the MDDP

Proposed Sub-basin Drainage

The following is a description of the offsite and onsite basins, offsite bypass flows and the overall future drainage characteristics for the development of Sterling Ranch Filing No. 2. Ponds W4 and W5 are sized for the ultimate development, therefore, future developments have been included. As the future sites develop, final drainage reports will be completed to confirm the assumptions made in this report. Calculations have been provided to show the proposed storm infrastructure will adequately convey flows in the ultimate condition. The following basins parameters and developed runoff were determined using the Rational Method. Surface flow is designated as design points with whole numbers (1) and storm sewer routing as design points with decimals (1.0). See Appendix B for all Rational Method calculations and storm water routing.

Sub-basin A10 ($Q_5=9.2$ cfs, $Q_{100}=17.3$ cfs) consists of approximately 2.61 acres and is the south eastern portion of Marksheffel Road. This basin is comprised primarily of the proposed roadway. Runoff from this sub-basin will be conveyed via sheet flow and curb and gutter to a 15' Type R on-grade inlet at DP 10. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A9.

Sub-basin A11 ($Q_5=9.5$ cfs, $Q_{100}=18.1$ cfs) consists of approximately 2.89 acres and is the north portion of Marksheffel Road. This basin is comprised primarily of the proposed roadway. Runoff from this sub-basin will be conveyed via sheet flow and curb and gutter to a 15' Type R on-grade inlet at DP 11. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A10.

Sub-basin A12 ($Q_5=1.9$ cfs, $Q_{100}=9.5$ cfs) consists of approximately 3.87 acres and represents the open space area between the Sterling Ranch Filing No. 2 Phases 1 & 2 developments. This basin is primarily open space. This basin also contains a 50' and 30' gas easement that contain 3 major gas lines. Runoff from this sub-basin will be conveyed via sheet flow and earthen swale to an area inlet at DP 12. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A11.

Sub-basin A13 ($Q_5=15.7$ cfs, $Q_{100}=34.6$ cfs) consists of approximately 9.65 acres and is the northern portion of the future Sterling Ranch Phase 2 development. This basin is primarily single-family residential and minor open space. Runoff from this sub-basin will be captured by a storm sewer stub at DP 13. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A12. Prior to being developed, storm runoff from this sub-basin will overland flow to temporary swales, where the flows will be captured by an interim 36" FES and piped to Pond W5.

Sub-basin A14 ($Q_5=16.0$ cfs, $Q_{100}=37.9$ cfs) consists of approximately 11.76 acres and is the proposed future school site on the northern side of Sterling Ranch Road. Runoff from this sub-basin will be routed to a 36" RCP storm sewer stub at DP 14. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A13. Prior to being developed, storm runoff from this sub-basin will overland flow to Sterling Ranch Road, where the flows will be captured by inlets and piped to Pond W5.

Sub-basin A15 ($Q_5=5.4$ cfs, $Q_{100}=11.7$ cfs) consists of approximately 2.91 acres and is the north eastern portion of Sterling Ranch Road. This basin is primarily single-family residential and proposed roadway. Runoff from this sub-basin will be conveyed via sheet flow and curb and gutter to a 15' Type R on-grade inlet at DP 15. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A14.

Sub-basin A16 ($Q_5=4.4$ cfs, $Q_{100}=9.6$ cfs) consists of approximately 2.34 acres and is the south eastern portion of Sterling Ranch Road. This basin is primarily single-family residential and proposed roadway. Runoff from this sub-basin will be conveyed via sheet flow and curb and gutter to a 15' Type R on-grade inlet at DP 16. From here, the flow is piped to Pond W5 along with the flows from Sub-basin A1-A15.

Sub-basin A17 ($Q_5=1.4$ cfs, $Q_{100}=4.7$ cfs) consists of approximately 1.76 acres and is the open space located along the western portion of the sterling Ranch Phase 2 development south of Sterling Ranch Road. This basin is primarily single-family open space with a small amount of lot runoff. Runoff from this sub-basin will be captured by a future Type C inlet at DP 17 and conveyed via sheet flow

Sand Creek Drainageway Improvements

Per the Sand Creek DBPS, Sand Creek and connected tributaries in the area of the site will require improvements. The east tributary reaches within the site boundary (DBPS SEG: 169, 186, 164, 159) will not require improvements because they will no longer be present, as development in the areas will eliminate them, and replace them with, a storm sewer system to discharge into Sand Creek. Sand Creek itself will continue to be routed through the development. Per the DBPS, selective rip rap linings, grade control check structures, and drop structure improvements are required to stabilize the channel to prevent further degradation, scour and meandering. Full spectrum detention will also be used on its benefits to the integrity of the Sand Creek Drainageway. A separate analysis with detailed alternative sections, HEC-RAS analyses, and proposed improvements is currently being conducted by Kiowa Engineering. This analysis will outline the channel improvements that will be necessary for the section of Sand Creek Drainageway that is adjacent to the site.

Per the DBPS, the recommended improvements to reach SC-9 are selective rip rap linings, grade control check structures, and drop structure improvements. The peak flows to the channel are reduced due to the Full Spectrum Detention adding to the integrity of the channel. The total net existing runoff for the site is 473.2 cfs. In the proposed condition, the Filing 2 site will release a total of 380.8 cfs, this includes the release from ponds W4 and W5 but does not include potential flows from the east. No adverse downstream impacts are anticipated, with the proposed runoff being less than the existing runoff. The portions of Sand Creek to the south of the historic confluence point are to be stabilized per the Sand Creek Stabilization at Aspen Meadows Subdivision Filing No. 1 plans by Matrix Design Group, April 2020. These plans propose improvements to Sand Creek from where Pond W5 outfalls all the way past the historic confluence. The Matrix Plans propose channel stabilization, stable slopes, drop structures, and cross vanes to ensure the quality of Sand Creek. The latest set of plans have been included within Appendix D for reference.

Drainage & Bridge Fees

The site lies within the Sand Creek Drainage Basin. An approximate estimate is presented below, exact fees to be determined at time of final plat. See full Drainage and Bridge fee worksheet in Appendix D for the fee calculation spreadsheet.

2020 DRAINAGE AND BRIDGE FEES – Sterling Ranch Filing No. 2				
Impervious Acres (ac)	Drainage Fee (Per Imp. Acre)	Bridge Fee (Per Imp. Acre)	Sterling Ranch Drainage Fee	Sterling Ranch Bridge Fee
20.351	\$19,698	\$8,057	\$400,855.70	\$163,972.79

See one more redline on table in appendix

Construction Cost Opinion

The Drainage Criteria Manual specifies a Cost Estimate of proposed drainage facility improvements be submitted with the Final Drainage Report. A construction cost opinion has been provided below. The below cost opinion is only an estimate of facility and drainage infrastructure cost and may vary.

Scenario: Base
 Current Time Step: 0.000 h
 FlexTable: Conduit Table

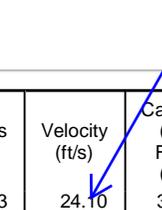
Why are these all
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Label	Flow (cfs)	Diameter (in)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
Storm_26_24in_01	20.00	24.0	80.7	-0.010	0.013	8.15	22.68	7,018.42	7,017.46
Storm_28_30in_01	0.00	30.0	35.4	-0.004	0.013	0.00	25.78	7,042.60	7,042.46
Storm_22_30in_02	0.00	30.0	79.4	-0.009	0.013	0.00	38.24	7,015.73	7,015.04
Storm_22_30in_01	0.00	30.0	113.0	-0.005	0.013	0.00	29.03	7,014.74	7,014.17
Storm_19_Lat 3_18in_02	0.00	18.0	29.3	-0.020	0.013	0.00	14.90	7,015.84	7,015.25
Storm_19_Lat 3_18in_01	0.00	18.0	6.0	-0.020	0.013	0.00	14.84	7,015.37	7,015.25
Storm_19_18in_06	0.00	18.0	339.5	-0.040	0.013	0.00	20.95	7,015.05	7,001.54
Storm_23_54in_12	0.00	54.0	412.3	-0.014	0.013	0.00	232.63	7,000.50	6,994.73
Storm_17_48in_06	0.00	48.0	22.6	-0.020	0.013	0.00	202.28	6,998.61	6,998.16
Storm_17_36in_07	0.00	36.0	9.8	-0.020	0.013	0.00	94.31	6,999.81	6,999.61
Storm_19_Lat 2_18in_01	0.00	18.0	76.7	-0.049	0.013	0.00	23.16	7,005.27	7,001.51
Storm_19_24in_05	0.00	24.0	177.0	-0.030	0.013	0.00	39.18	7,001.04	6,995.73
Storm_23_54in_11	0.00	54.0	333.6	-0.014	0.013	0.00	232.65	6,992.39	6,987.72
Storm_17_48in_05	0.00	48.0	292.3	-0.020	0.013	0.00	203.11	6,998.16	6,992.31
Storm_17_48in_04	0.00	48.0	82.9	-0.014	0.013	0.00	172.06	6,992.13	6,990.94
Storm_23_54in_10	0.00	54.0	298.5	-0.014	0.013	0.00	232.69	6,981.14	6,976.96
Storm_19_Lat 1_18in_01	0.00	18.0	36.4	-0.030	0.013	0.00	18.18	6,992.98	6,991.89
Storm_19_24in_04	0.00	24.0	144.7	-0.030	0.013	0.00	39.18	6,995.73	6,991.39
Storm_19_30in_03	0.00	30.0	165.0	-0.024	0.013	0.00	64.17	6,990.89	6,986.85
Storm_17_48in_03	0.00	48.0	150.3	-0.014	0.013	0.00	171.79	6,990.94	6,988.79
Storm_17_48in_02	0.00	48.0	102.0	-0.014	0.013	0.00	170.08	6,988.78	6,987.35
Storm_17_48in_01	0.00	48.0	15.6	-0.044	0.013	0.00	302.47	6,987.15	6,986.46
Storm_17_Lat 1_24in_01	0.00	24.0	8.8	-0.006	0.013	0.00	17.03	6,988.62	6,988.57
Storm_17_Lat 1_24in_02	0.00	24.0	53.4	-0.007	0.013	0.00	18.29	6,988.97	6,988.62
Storm_14_48in_06	0.00	48.0	59.3	-0.017	0.013	0.00	187.87	6,987.48	6,986.46
Storm_14_66in_05	0.00	66.0	354.4	-0.014	0.013	0.00	397.24	6,981.41	6,976.45
Storm_19_36in_02	0.00	36.0	144.5	-0.006	0.013	0.00	51.15	6,986.35	6,985.50
Storm_14_36in_07	0.00	36.0	76.3	-0.020	0.013	0.00	94.31	6,990.00	6,988.48
Storm_23_54in_09	0.00	54.0	402.5	-0.015	0.013	0.00	240.88	6,976.57	6,970.53
Storm_21_48in_01	0.00	48.0	57.3	-0.030	0.013	0.00	248.76	6,982.00	6,980.28
Storm_16_48in_05	0.00	48.0	26.8	-0.020	0.013	0.00	203.11	6,979.31	6,978.77
Storm_21_42in_03	0.00	42.0	101.2	-0.005	0.013	0.00	71.15	6,984.00	6,983.49
Storm_19_36in_01	0.00	36.0	302.2	-0.006	0.013	0.00	51.04	6,985.50	6,983.73
Storm_21_48in_02	0.00	48.0	25.8	-0.030	0.013	0.00	248.66	6,982.77	6,982.00
Storm_21_Lat 1_18in_01	0.00	18.0	19.4	-0.005	0.013	0.00	7.16	6,984.58	6,984.49
Storm_16_Lat 1_18in_01	0.00	18.0	13.2	-0.020	0.013	0.00	15.01	6,981.53	6,981.26
Storm_16_48in_02	0.00	48.0	348.6	-0.024	0.013	0.00	220.31	6,976.52	6,968.32
Storm_16_48in_03	0.00	48.0	50.4	-0.020	0.013	0.00	203.42	6,977.92	6,976.91
Storm_18_18in_02	0.00	18.0	82.7	-0.050	0.013	0.00	23.47	6,984.78	6,980.65
Storm_14_66in_04	0.00	66.0	512.4	-0.012	0.013	0.00	366.67	6,974.25	6,968.14
Storm_23_54in_08	0.00	54.0	567.0	-0.015	0.013	0.00	240.76	6,968.28	6,959.78
Storm_16_42in_01	0.00	42.0	158.3	-0.002	0.013	0.00	90.47	6,967.89	6,967.57
Storm_16_48in_04	0.00	48.0	42.5	-0.020	0.013	0.00	203.12	6,978.77	6,977.92
Storm_14_72in_03	0.00	72.0	74.5	-0.005	0.013	0.00	306.40	6,967.57	6,967.18
Storm_14_72in_02	0.00	72.0	127.9	-0.005	0.013	0.00	299.58	6,967.18	6,966.54
Storm_15_18in_02-W	0.00	18.0	25.5	-0.049	0.013	0.00	23.36	6,972.80	6,971.54
Storm_14_84in_01	0.00	84.0	107.3	-0.005	0.013	0.00	453.09	6,966.54	6,966.00
Storm_20_48in_01	0.00	48.0	57.9	-0.020	0.013	0.00	203.30	6,960.67	6,959.51
Storm_23_66in_02	0.00	66.0	549.0	-0.002	0.013	0.00	138.58	6,949.13	6,948.20
Storm_23_54in_05	0.00	54.0	120.0	-0.015	0.013	0.00	240.88	6,956.09	6,954.29
Storm_25_30in_01	0.00	30.0	28.2	0.005	0.013	0.00	29.93	6,955.32	6,955.17
Storm_23_66in_03	0.00	66.0	167.7	-0.002	0.013	0.00	139.63	6,949.52	6,949.23
Storm_15_42in_01-E	0.00	42.0	63.9	-0.004	0.013	0.00	65.41	6,970.00	6,969.73
Storm_18_18in_01	0.00	18.0	22.4	-0.059	0.013	0.00	25.59	6,980.35	6,980.35
Storm_17Lat2_36in_01	0.00	36.0	110.1	-0.040	0.013	0.00	133.20	7,004.00	6,999.61
Storm_19_Lat 2_18in_02	0.00	18.0	35.3	-0.015	0.013	0.00	12.86	7,006.30	7,005.77
CO-6	0.00	48.0	9.5	-0.021	0.013	0.00	208.41	6,987.67	6,987.47
Storm_28_30in_01	0.00	30.0	90.0	-0.007	0.013	0.00	34.60	7,043.24	7,042.60
Storm_23_54in_13	0.00	54.0	265.9	-0.005	0.013	0.00	138.03	7,009.07	7,007.76
Storm_23_54in_14	0.00	54.0	43.7	-0.005	0.013	0.00	136.36	7,009.51	7,009.30
Storm 23 three 42in_04	0.00	42.0	258.8	-0.008	0.013	0.00	264.00	6,953.50	6,951.52
Storm_23_54in_06	0.00	54.0	93.0	-0.015	0.013	0.00	240.46	6,957.48	6,956.09
Storm_23_84in_02	0.00	84.0	27.0	-0.003	0.013	0.00	347.91	6,946.08	6,946.00
Storm_23_84in_01	0.00	84.0	200.4	-0.003	0.013	0.00	325.38	6,946.70	6,946.18
STRM_29_01	0.00	18.0	66.2	-0.008	0.013	0.00	9.40	7,012.65	7,012.12
STRM_29_02	0.00	18.0	79.6	-0.027	0.013	0.00	17.27	7,015.24	7,013.09

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Scenario: 100-YEAR
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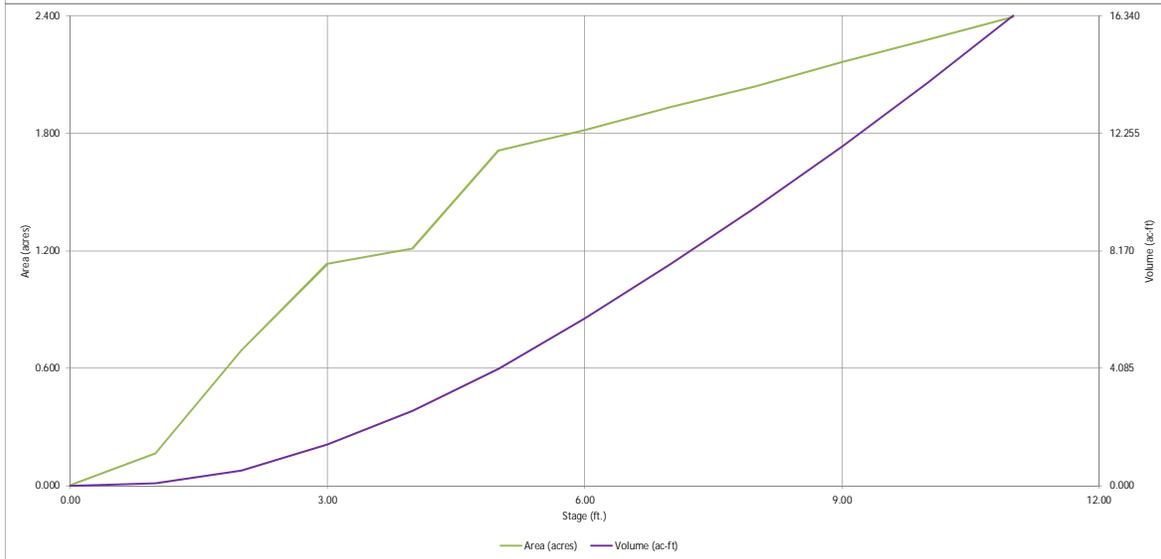
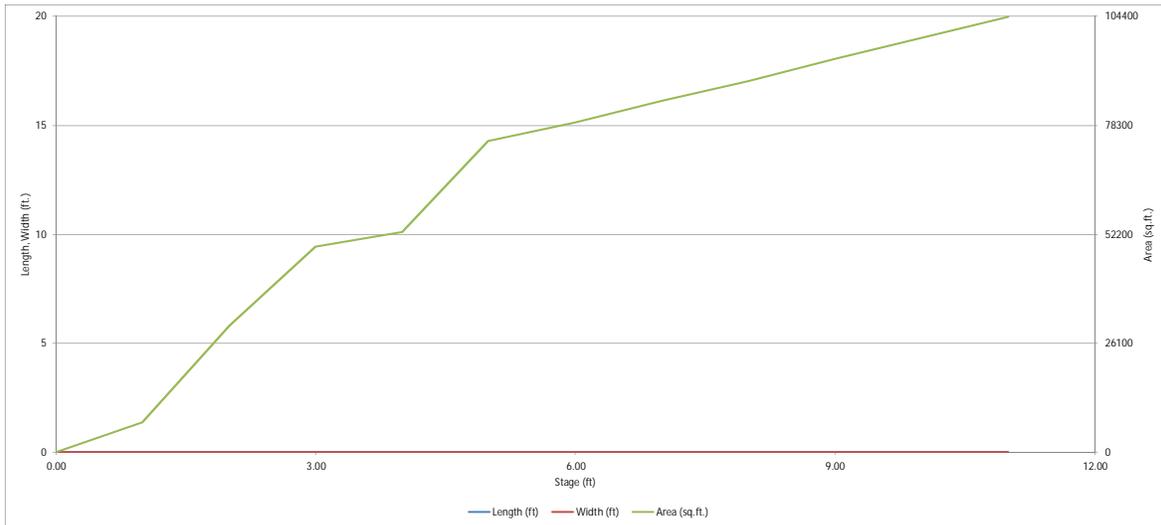


Label	Flow (cfs)	Diameter (in)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
Storm_17_48in_01	151.90	48.0	15.6	-0.044	0.013	24.10	302.47	6,990.76	6,989.38
Storm_14_66in_05	250.70	66.0	354.4	-0.014	0.013	17.68	397.24	6,985.83	6,982.04
Storm_20_48in_01	139.30	48.0	57.9	-0.020	0.013	17.42	203.30	6,964.17	6,962.31
Storm_17_48in_05	138.70	48.0	292.3	-0.020	0.013	17.39	203.11	7,001.66	6,996.18
Storm_23_54in_11	233.40	54.0	333.6	-0.014	0.013	16.67	232.65	6,996.60	6,991.45
Storm_23_54in_12	233.40	54.0	412.3	-0.014	0.013	16.67	232.63	7,004.71	6,998.44
Storm_17Lat2_36in_01	37.90	36.0	110.1	-0.040	0.013	16.24	133.20	7,006.00	7,003.91
Storm_14_48in_06	106.60	48.0	59.3	-0.017	0.013	15.42	187.87	6,990.60	6,988.91
Storm_17_48in_04	138.70	48.0	82.9	-0.014	0.013	15.23	172.06	6,995.63	6,994.99
Storm_17_48in_03	138.70	48.0	150.3	-0.014	0.013	15.21	171.79	6,994.44	6,992.83
CO-6	74.50	48.0	9.5	-0.021	0.013	15.20	208.41	6,991.39	6,991.40
Storm_17_48in_02	138.70	48.0	102.0	-0.014	0.013	15.09	170.08	6,992.28	6,991.39
Storm_19_Lat_2_18in_01	19.70	18.0	76.7	-0.049	0.013	14.72	23.16	7,006.74	7,003.66
Storm_23_54in_10	233.40	54.0	298.5	-0.014	0.013	14.68	232.69	6,986.54	6,982.33
Storm_23_54in_09	233.40	54.0	402.5	-0.015	0.013	14.68	240.88	6,981.49	6,975.82
Storm_23_54in_08	233.40	54.0	567.0	-0.015	0.013	14.68	240.76	6,974.99	6,967.00
Storm_23_54in_05	233.40	54.0	120.0	-0.015	0.013	14.68	240.88	6,962.34	6,960.65
Storm_23_54in_13	233.40	54.0	265.9	-0.005	0.013	14.68	138.03	7,015.89	7,011.98
Storm_23_54in_06	233.40	54.0	93.0	-0.015	0.013	14.68	240.46	6,965.32	6,964.01
Storm_18_18in_01	25.30	18.0	22.4	-0.059	0.013	14.32	25.59	6,984.40	6,983.10
Storm_23_54in_14	221.60	54.0	43.7	-0.005	0.013	13.93	136.36	7,019.46	7,018.90
Storm_19_24in_05	30.00	24.0	177.0	-0.030	0.013	13.74	39.18	7,002.90	6,997.04
Storm_19_24in_04	30.00	24.0	144.7	-0.030	0.013	13.74	39.18	6,997.59	6,994.14
Storm_14_36in_07	34.60	36.0	76.3	-0.020	0.013	12.31	94.31	6,991.91	6,991.40
Storm_14_72in_03	336.80	72.0	74.5	-0.005	0.013	11.91	306.40	6,977.10	6,976.63
Storm_14_72in_02	336.80	72.0	127.9	-0.005	0.013	11.91	299.58	6,976.08	6,975.27
Storm_19_18in_06	10.30	18.0	339.5	-0.040	0.013	11.81	20.95	7,016.29	7,003.66
Storm_17_48in_06	138.70	48.0	22.6	-0.020	0.013	11.04	202.28	7,002.97	7,002.76
Storm_14_84in_01	424.40	84.0	107.3	-0.005	0.013	11.03	453.09	6,974.79	6,974.32
Storm_14_66in_04	250.70	66.0	512.4	-0.012	0.013	10.55	366.67	6,981.61	6,978.75
Storm_23_66in_02	243.40	66.0	549.0	-0.002	0.013	10.24	138.58	6,957.00	6,954.11
Storm_23_66in_03	243.40	66.0	167.7	-0.002	0.013	10.24	139.63	6,958.28	6,957.40
Storm_19_Lat_1_18in_01	8.70	18.0	36.4	-0.030	0.013	10.18	18.18	6,994.36	6,994.14
Storm_16_48in_02	125.00	48.0	348.6	-0.024	0.013	9.95	220.31	6,982.33	6,979.69
Storm_23_84in_02	382.70	84.0	27.0	-0.003	0.013	9.94	347.91	6,951.54	6,951.16
Storm_23_84in_01	382.70	84.0	200.4	-0.003	0.013	9.94	325.38	6,953.31	6,952.64
Storm_19_30in_03	46.90	30.0	165.0	-0.024	0.013	9.55	64.17	6,993.43	6,991.28
Storm_15_42in_01-E	85.40	42.0	63.9	-0.004	0.013	8.88	65.41	6,975.73	6,975.27
Storm_16_48in_03	107.70	48.0	50.4	-0.020	0.013	8.57	203.42	6,983.38	6,983.10
Storm_16_48in_04	107.70	48.0	42.5	-0.020	0.013	8.57	203.12	6,984.19	6,983.95
Storm 23 three 42in_04	243.40	42.0	258.8	-0.008	0.013	8.43	264.00	6,960.38	6,958.69
Storm_21_48in_02	105.90	48.0	25.8	-0.030	0.013	8.43	248.66	6,986.94	6,986.80
Storm_19_Lat_2_18in_02	14.70	18.0	35.3	-0.015	0.013	8.32	12.86	7,008.40	7,007.71
Storm_21_48in_01	103.90	48.0	57.3	-0.030	0.013	8.27	248.76	6,986.27	6,985.97
Storm_16_48in_05	103.90	48.0	26.8	-0.020	0.013	8.27	203.11	6,984.90	6,984.76
Storm_15_18in_02-W	14.00	18.0	25.5	-0.049	0.013	7.92	23.36	6,975.72	6,975.27
Storm_18_18in_02	12.80	18.0	82.7	-0.050	0.013	7.24	23.47	6,987.22	6,985.99
Storm_19_Lat_3_18in_02	3.80	18.0	29.3	-0.020	0.013	7.05	14.90	7,016.96	7,016.97
Storm_17_36in_07	48.90	36.0	9.8	-0.020	0.013	6.92	94.31	7,003.97	7,003.91
STRM_29_01	11.80	18.0	66.2	-0.008	0.013	6.68	9.40	7,019.74	7,018.90
Storm_19_36in_02	46.90	36.0	144.5	-0.006	0.013	6.63	51.15	6,990.59	6,989.88
Storm_19_36in_01	46.90	36.0	302.2	-0.006	0.013	6.63	51.04	6,989.53	6,988.04
Storm_16_42in_01	125.00	42.0	158.3	-0.002	0.013	6.50	90.47	6,979.36	6,978.75
Storm_28_30in_01	12.20	30.0	90.0	-0.007	0.013	6.44	34.60	7,044.41	7,044.53
Storm_21_42in_03	60.60	42.0	101.2	-0.005	0.013	6.30	71.15	6,988.41	6,988.04
Storm_21_Lat_1_18in_01	10.60	18.0	19.4	-0.005	0.013	6.00	7.16	6,986.99	6,986.80
Storm_28_30in_01	26.10	30.0	35.4	-0.004	0.013	5.99	25.78	7,044.53	7,044.20
Storm_22_30in_01	29.10	30.0	113.0	-0.005	0.013	5.93	29.03	7,022.08	7,021.51
Storm_17_Lat_1_24in_01	17.20	24.0	8.8	-0.006	0.013	5.47	17.03	6,991.44	6,991.39
Storm_26_24in_01	14.50	24.0	80.7	-0.010	0.013	4.62	22.68	7,022.43	7,022.10
Storm_19_Lat_3_18in_01	6.60	18.0	6.0	-0.020	0.013	3.73	14.84	7,016.99	7,016.97
Storm_22_30in_02	13.70	30.0	79.4	-0.009	0.013	2.79	38.24	7,022.22	7,022.13
Storm_16_Lat_1_18in_01	4.50	18.0	13.2	-0.020	0.013	2.55	15.01	6,984.79	6,984.76
STRM_29_02	4.10	18.0	79.6	-0.027	0.013	2.32	17.27	7,020.00	7,019.88
Storm_17_Lat_1_24in_02	7.00	24.0	53.4	-0.007	0.013	2.23	18.29	6,991.61	6,991.56
Storm_25_30in_01	10.00	30.0	28.2	0.005	0.013	2.04	29.93	6,960.67	6,960.65

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DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.03 (May 2020)



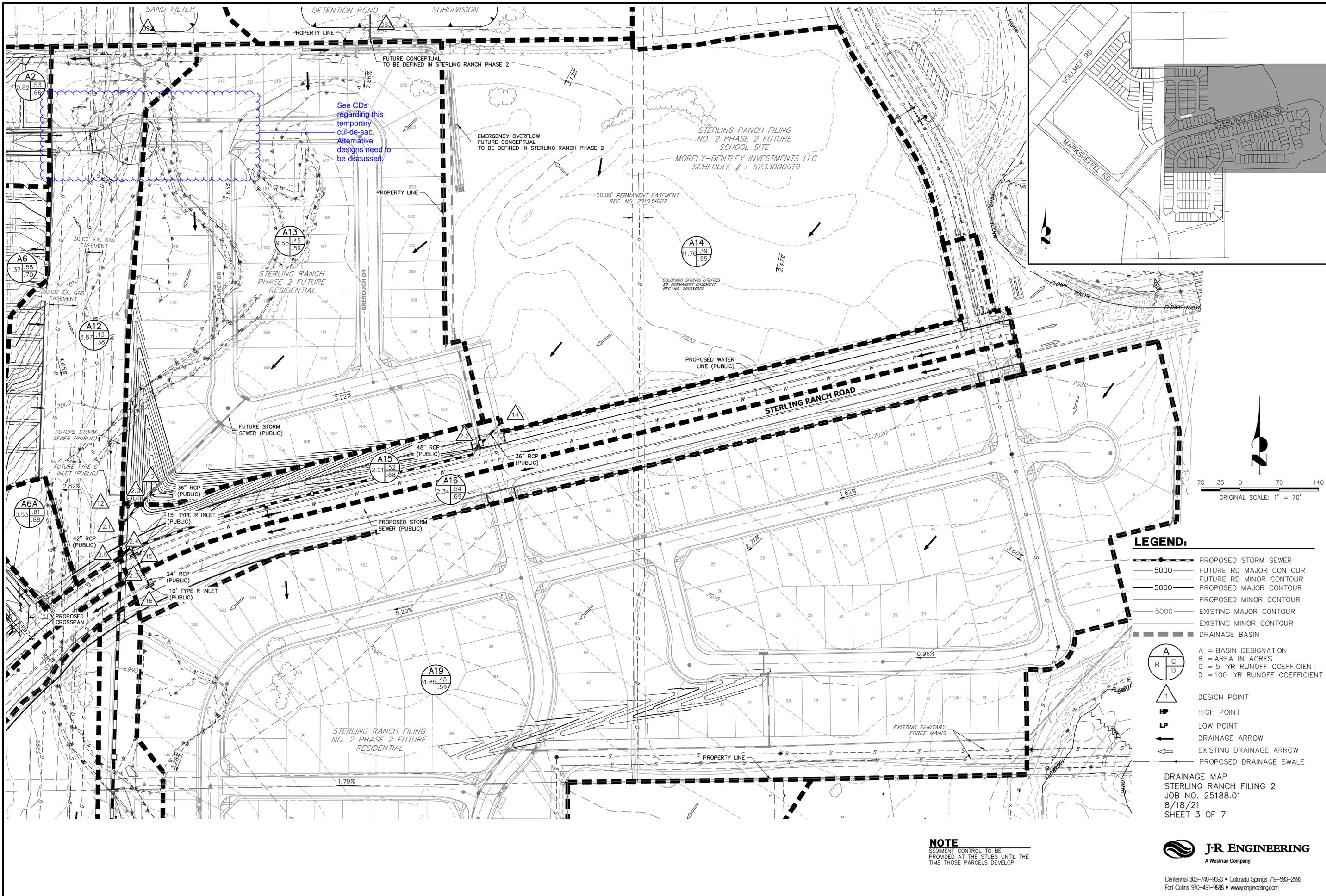
Provide the next
UD-Detention sheets

STERLING RANCH FILING NO. 2 - TRACTS AND RIGHT-OF-WAY - DRAINAGE & BRIDGE FEES (2020)

TRACT/ROW	SIZE/ACRE	USE	MAINTENANCE	OWNERSHIP	% Impervious	2020		2020	
						DRAINAGE FEE	FEE	BRIDGE FEE	FEE
A	0.3912	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	29.0%	\$ 19,698	\$ 2,234.70	\$ 8,057	\$ 914.05
B	0.5848	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	29.0%	\$ 19,698	\$ 3,340.62	\$ 8,057	\$ 1,366.40
C	0.8453	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	24.0%	\$ 19,698	\$ 3,996.17	\$ 8,057	\$ 1,634.54
D	2.1953	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	13.0%	\$ 19,698	\$ 5,621.59	\$ 8,057	\$ 2,299.38
E	19.6514	ZERO LOT LINE FUTURE SINGLE FAMILY RESIDENTIAL LOTS	SR LAND, LLC	SR LAND, LLC	2.0%	\$ 19,698	\$ 7,741.87	\$ 8,057	\$ 3,166.63
F	1.4967	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	4.0%	\$ 19,698	\$ 1,179.28	\$ 8,057	\$ 482.36
G	0.3866	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	2.0%	\$ 19,698	\$ 152.30	\$ 8,057	\$ 62.30
H	0.0625	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	2.0%	\$ 19,698	\$ 24.62	\$ 8,057	\$ 10.07
I	0.4998	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY/MAIL KIOSK	SRMD #1	SRMD #1	15.0%	\$ 19,698	\$ 1,476.76	\$ 8,057	\$ 604.03
J	0.3787	LANDSCAPE/PUBLIC IMPROVEMENTS/PUBLIC UTILITY	SRMD #1	SRMD #1	30.0%	\$ 19,698	\$ 2,237.89	\$ 8,057	\$ 915.36
K	3.5139	FUTURE MARKSHEFFEL RIGHT-OF-WAY	SRMD #1	SR LAND, LLC	95.0%	\$ 19,698	\$ 65,755.96	\$ 8,057	\$ 26,895.92
49 LOTS	11.8566	SINGLE FAMILY RESIDENTIAL LOTS	SRMD #1	SRMD #1	70.0%	\$ 19,698	\$ 163,485.91	\$ 8,057	\$ 66,870.04
ROW	4.8041	ROAD RIGHTS OF WAY (STERLING RANCH ROAD)	EPC	EPC	95.0%	\$ 19,698	\$ 89,899.60	\$ 8,057	\$ 36,771.30
ROW	2.8717	ROAD RIGHTS OF WAY (VOLLMER ROAD, ULTIMATE)	EPC	EPC	95.0%	\$ 19,698	\$ 53,738.41	\$ 8,057	\$ 21,980.42
49.5386 TOTAL AREA						TOTAL FEES	\$ 400,885.70		\$ 163,972.79

*SRMD#1 = STERLING RANCH METROPOLITAN DISTRICT NO. 1

Verify; Staff's interpolation is ~49%



See CDs regarding this temporary cul-de-sac. Alternative designs need to be discussed.

EMERGENCY OVERFLOW FUTURE CONCEPTUAL TO BE DEFINED IN STERLING RANCH PHASE 2

STERLING RANCH FILING NO. 2 PHASE 2 FUTURE SCHOOL SITE
 MORELY-BENTLEY INVESTMENTS LLC
 SCHEDULE #: 5233000010

20.00' PERMANENT EASEMENT REC. NO. 201034022

COLORADO SPRINGS UTILITIES 20' PERMANENT EASEMENT REC. NO. 201034022

PROPOSED WATER LINE (PUBLIC)

STERLING RANCH ROAD

STERLING RANCH PHASE 2 FUTURE RESIDENTIAL

STERLING RANCH FILING NO. 2 PHASE 2 FUTURE RESIDENTIAL

- LEGEND:**
- PROPOSED STORM SEWER
 - 5000 FUTURE RD MAJOR CONTOUR
 - 5000 FUTURE RD MINOR CONTOUR
 - 5000 PROPOSED MAJOR CONTOUR
 - 5000 PROPOSED MINOR CONTOUR
 - 5000 EXISTING MAJOR CONTOUR
 - 5000 EXISTING MINOR CONTOUR
 - DRAINAGE BASIN
 - A = BASIN DESIGNATION
B = AREA IN ACRES
C = 5-YR RUNOFF COEFFICIENT
D = 100-YR RUNOFF COEFFICIENT
 - DESIGN POINT
 - HIGH POINT
 - LOW POINT
 - DRAINAGE ARROW
 - EXISTING DRAINAGE ARROW
 - PROPOSED DRAINAGE SWALE

DRAINAGE MAP
 STERLING RANCH FILING 2
 JOB NO. 25188.01
 8/18/21
 SHEET 3 OF 7

NOTE
 SEDIMENT CONTROL TO BE PROVIDED AT THE STUBS UNTIL THE TIME THOSE PARCELS DEVELOP

J-R ENGINEERING
 A Westrian Company

Centennial 303-740-9393 • Colorado Springs 719-593-2593
 Fort Collins 970-491-9888 • www.jrengineering.com

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