

MASTER DEVELOPMENT DRAINAGE PLAN FOR STERLING RANCH COST AND FEE ANALYSIS

FEBRUARY 2019

Prepared for:

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Cursory comments only provided on this report.

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Project #09-002
SKP-18-003
SF-17-024

**MASTER DEVELOPMENT DRAINAGE PLAN FOR
STERLING RANCH
COST AND FEE ANALYSIS**

DRAINAGE PLAN STATEMENTS

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.

Virgil A. Sanchez, Colorado P.E. # 37160
For and on Behalf of M&S Civil Consultants, Inc.

DATE: _____

DEVELOPER'S STATEMENT

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

Morley-Bentley Investments, LLC

BY: _____
James F. Morley

DATE: _____

TITLE: Manager
BUSINESS NAME: Morley-Bentley Investments, LLC
ADDRESS: 20 Boulder Crescent, 2nd Floor
 Colorado Springs, 80903

EL PASO COUNTY

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

DATE: _____

County Engineer / ECM
Administrator

CONDITIONS:

The county Engineer/ECM administrator cannot sign off on this. The proposal to have SWQ/Full Spectrum ponds reimbursed & closing a portion of the Sand Creek Basin, etc. require a Drainage Basin Planning Study update and acceptance of such by the Drainage Board and BOCC.

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APPENDIX

**Sand Creek Drainage Basin Planning Study Costs for Sterling Ranch
Sterling Ranch Estimated Construction Cost Opinion
SCDBPS Table Excerpts
Sterling Ranch Filing No. 1 - Tracts and Right-of-Way - Drainage & Bridge Fees
Fees for the foreseeable Final Plat Recordings within Sterling Ranch - January 2019**

MASTER DEVELOPMENT DRAINAGE PLAN FOR STERLING RANCH COST AND FEE ANALYSIS

PURPOSE

This document is the Cost and Fee Analysis for the Sterling Ranch Master Development Drainage Plan (MDDP). The purpose of this report is to summarize the reimbursable improvements as identified in the Sand Creek Drainage Basin Planning Study (SCDBPS) as it relates to the Sterling Ranch development. The approved master development drainage plan for Sterling Ranch (MDDP) identifies the proposed improvements and this document compares the SCDBPS improvements versus the actual improvements per the approved Sterling Ranch MDDP.

SITE GENERAL LOCATION AND DESCRIPTION

Sterling Ranch is a 1444 acre parcel located in Sections 27, 28, 32, 33 & 34, Township 12 South, and Section 4, Township 13 South, Range 65 West of the 6th P.M., in the City of Colorado Springs, El Paso County, Colorado. The project is located along Vollmer Road northeast of the intersection of Black Forest Road and Woodmen Road approximately 1.2 miles northeast to the southern boundary. The development is proposed to be zoned "PUD", Planned Unit Development. Development of Sterling Ranch is anticipated to be completed in multiple phases.

DISCUSSION

- This document is to discuss cost and fees, not hydrology or hydraulics. The purpose of this document is to analyze Sterling Ranch reimbursable improvements as a whole. Individual subdivision filings will analyze local and reimbursable improvements.
- Refer to appendix for summary of SCDBPS improvements within Sterling Ranch. These improvements have been taken from the SCDBPS and multiplied by 2.033 to compare to 2019 dollars.
- The second summary in the appendix is the estimated actual cost for construction to build and or replace the SCDBPS improvements. These costs are preliminary and need to be updated as more planning and engineering take place. They are also preliminary for Sterling Ranch development with little or no development planning, only based upon the approved sketch plan.
- The difference in costs between SCDBPS reimbursable improvements and the MDDP improvements are shown in the following appendices.

DIFFERENCES BETWEEN DRAINAGE STUDIES

Major differences between the SCDBPS and the approved MDDP are;

- Research Parkway has been relocated by the approved sketch plan for Sterling Ranch. Therefore the bridges and culverts in the SCDBPS are no longer necessary or will be relocated to Sterling Ranch Road.
- A tributary for Research Parkway west of sand creek is no longer crossing Research Parkway, instead the flows from the tributary are being redirected to sand creek north of Research Parkway.
- At the southeast corner of Sterling Ranch, Research Parkway has been relocated and now Banning Lewis Parkway will be constructed near this location.
- The SCDBPS calls out for grade control, channel bank linings, and check structures. The current EPC criteria and design for the sand creek channel will comprise of check structures, drops and channel bank linings protection.

- The SCDBPS does not consider all land and tributaries within Sterling Ranch. The SCDBPS limit of study stops short of the total length of the tributaries.
- The SCDBPS does not provide a reimbursable cost for the 100-year capacity outlet control structures for the existing ponds, nor does it allow for costs to improve and stabilize the existing embankments.
- The SCDBPS shows to improve the existing tributaries with rip rap lined channels. however, the approved MDDP shows to replace the tributaries with reinforced concrete pipe.
- The SCDBPS does not show historic flows crossing Vollmer Road from north to south in all locations as currently exists.
- The SCDBPS does not agree with current EPC standards, including but not limited to water quality. The approved MDDP requires full spectrum detention ponds in lieu of regional ponds for water quality and detention. Therefore, per current EPC criteria, full spectrum detention ponds can be considered 50% reimbursable.

Notable Facts Shown in the Appendices;

- A table has been provided to show the drainage and bridge fees paid for Sterling Ranch filing No.1. This final plat did not contain single-family lots. The imperviousness for the tracts and right-of-way are summarized on this sheet.
- A table has been provided to show the "fees for the foreseeable final plat recordings within Sterling Ranch - January 2019". This document shows the tabulation of fees or credits used to record the recent final plats and upcoming final plats. This table should be updated with each Final Drainage Report and recorded Final Plat at Sterling Ranch. The amount of these fees therefore can be compared to constructed reimbursable drainage and bridge improvements.
- Once actual reimbursable improvements are constructed and preliminarily accepted by EPC, a summary of actual construction costs shall be compiled. These costs shall be submitted to EPC for review. Following EPC review, a request to the City/EPC drainage board shall occur for approval of reimbursement. This process shall occur upon the request of EPC after a significant amount of construction occurs.

The following paragraphs are quoted from the approved MDDP for Sterling Ranch;

SAND CREEK SCDBPS (SCDBPS) REIMBURSABLE IMPROVEMENTS VERSUS STERLING RANCH MDDP

SCDBPS Segment 159, & 164 (SCDBPS Pages 47-48, 50A) - Western Tributary to Sand Creek Channel

The existing swale is a western Tributary of the Sand Creek. The confluence of the tributary and the main stem exists within the Woodmen Heights master plan area, south of Sterling Ranch. These two existing channel segments are proposed in the SCDBPS as "Improved Riprap Channel, Bottom Width 25', Depth 3', Slope 1.2%, 3' Drops @ 270' intervals, Q100=600 cfs". The two Segments are divided by "Proposed Research Parkway" (currently relocated, and known as Marksheffel Road & Research Parkway) The crossing is shown in the DPBS as; 2-6'High x 9' Wide Concrete Box Culverts. The MDDP does not propose a CBC crossing of the western tributary for Research Parkway at this location. The tributary will be crossed by Sterling Ranch Road using a ~66" RCP.

The SCDBPS does not continue the analysis northerly through the existing industrial property, which does not account for flows from the west side of Vollmer Road. This MDDP, accounts for +300 acres of property on the west side of Vollmer Road that is tributary to Segment 159 & 164. The MDDP design uses RCP to convey the existing and developed storm water to Sand Creek, in lieu of Riprap channels. Furthermore, the MDDP proposes Pond W-5, at the southeast side of Segment 159, to provide detention and water quality prior to discharge in Sand Creek. (See Detention Section of this report for more information on Pond FSD6)

**The facilities in this reach should be considered reimbursable since the proposed drainage improvements are to be constructed with RCP in lieu of an improved riprap channel. Also, the MDDP completes the tributary analysis after where the SCDBPS study terminated.*

SCDBPS Segment 163, 187, 170 & 171 (SCDBPS Pages 49-53) - Mainstem Sand Creek Channel

The SCDBPS for Sand Creek channel within Sterling Ranch proposes check structures, select riprap linings and grade control structures to improve the existing channel. The DPBS also states;

"Areas within the exiting floodplain or the low flow zone of the drainageway where riparian or wetland vegetation exists shall be preserved in its existing cross section. Areas disturbed by the construction of drops, grade control, culverts, or channel bank linings shall be revegetated with native species."

The SCDBPS proposes two crossings of major roadways within Sterling Ranch. The southerly one is at "Proposed Research Parkway" (currently relocated and known as Marksheffel Road & Research Parkway), which is now shown on the approved Sketch Plan for Sterling Ranch as "Sterling Ranch Road". The second major crossing is at "Proposed Banning-Lewis Parkway" (Which is now shown on the approved Sketch Plan for Sterling Ranch as "Briargate Parkway"). Per the SCDBPS the southerly crossing is proposed as; 4-10' wide x 8' High Concrete Box Culverts) The northerly crossing of Briargate Parkway is proposed as; 4-10' wide x 8' High concrete box culverts. Both these proposed crossings are shown in the SCDBPS as reimbursable bridges. A second crossing of "Research Parkway is shown on the SCDBPS (6'H x 8'W CBC) east of Sand Creek along the southern boundary of Sterling Ranch (6'H x 8'W CBC). This MDDP does not propose a CBC crossing for the eastern tributary for Research Parkway at this location).

The MDDP proposes to construct the Sand Creek main stem channel improvements as suggested by the SCDBPS and per current EPC criteria. The MDDP also proposes to construct the CBC box culverts under Sterling Ranch Road and Briargate Parkway. The final design of the Sand Creek channel and crossings will determine the total number and size of structures, drops, box culverts, etc...Refer to the detailed drainage discussion for preliminary size of the two crossing based upon the MDDP hydrology Calculations have been provided in the appendix.

Additional Reimbursable improvements along the Sand Creek Channel include, as shown in the SCDBPS are; Pond Outlet Structures (Segment 170 & 163). These structures and all others along Sand Creek will be re-analyzed in the final design stage.

**The proposed channel improvements are considered reimbursable in the SCDBPS, however the final design and current EPC criteria will deviate from the proposed improvements in the SCDBPS. It is generally assumed that the proposed improvement costs will exceed the SCDBPS costs.*

SCDBPS Segment 186 & 169 (SCDBPS Pages 51-52) - Western Tributary to Sand Creek Channel

The existing swale is a western Tributary of the Sand Creek. The confluence of the tributary and the main stem exists within the Sterling Ranch master plan area. These two existing channel segments are proposed in the SCDBPS as "Improved Riprap Channel, Bottom Width 20', Depth 3', Slope 1.3%, 3' Drops @ 450' intervals, Q100=500 cfs" (Segment 186) and Improved Riprap Channel, Bottom Width 20', Depth 2', Slope 1.8%, 3' Drops, Q100=325 cfs" (Segment 169). The two Segments are divided by "Proposed Banning-Lewis Parkway" (currently known as Briargate Parkway). The crossing is shown in the DPBS as a; 6'High x 10' Wide Concrete Box Culverts. The MDDP does not propose a CBC crossing of Briargate Parkway at this location. The SCDBPS also shows a 60" CMP culvert across Vollmer Road at the terminus of Segment 169.

The SCDBPS does not continue the analysis northerly across Vollmer Road. This MDDP, accounts for +300 acres of property on the west side of Vollmer Road that is tributary to Segment 186 & 169. The MDDP design uses RCP to convey the existing and developed storm water to Sand Creek, in lieu of riprap channels. The flows north of Briargate Parkway (Segment 169) will be diverted along the northerly right-of-way of Briargate Parkway to Sand Creek. The flows south of Briargate Parkway (Segment 186) will be conveyed to Sand Creek through the proposed development. The MDDP proposes to install a 60" RCP culvert under Vollmer Road along with Headwalls and Wing Walls. The construction of these improvements will occur with the widening of Vollmer Road and the construction of the adjacent development at Sterling Ranch.

(Refer to MDDP for Sterling Ranch Filing Nos. 1 & 2, and Final Drainage Report for Sterling Ranch Filing No. 1, approved January, 2018). Construction drawings for RCP to replace Segment 186 were approved as a part of Sterling Ranch Filing No. 1, approved, January, 2017.

**The facilities in this reach should be considered reimbursable since the proposed drainage improvements are to*

be constructed with RCP in lieu of an improved riprap channel. Also, the MDDP completes the tributary analysis after where the SCDBPS study terminated west of Vollmer Road.

SCDBPS Segment 92 (SCDBPS Page EF-34) - East Fork Tributary to Sand Creek Channel

The existing swale is a part of the Eastern Tributary of Sand Creek. The confluence of the tributary and the main stem exists several miles south of the Sterling Ranch master plan area. The existing channel segments are proposed in the SCDBPS as "Improved Riprap Channel, Bottom Width 15', Depth 3', select bank linings. (No other data was given) The Segment terminates at the southern boundary of Sterling Ranch at "Proposed Research Parkway", and continues southerly as Segment 84. These two Segments are divided by "Proposed Research Parkway" (currently shown on the approved Sketch Plan for Sterling Ranch as Banning-Lewis Parkway) The crossing is shown in the DPBS as a; 6'High x 10' Wide Concrete Box Culverts. The MDDP does not propose a CBC crossing of Banning-Lewis Parkway at this location.

The SCDBPS (Segment 92) does not continue the analysis more than a few thousand feet north of the south boundary of Sterling Ranch. This MDDP, accounts for +1,000 acres of property north of the SCDBPS studied area. The MDDP design uses RCP to convey the existing and developed storm water to the Eastern Tributary of Sand Creek, in lieu of Riprap channels. Furthermore, the MDDP proposes Pond FSD-E7, at the southeast corner of Sterling Ranch, to provide detention and water quality prior to discharge in Eastern Tributary Channel of Sand Creek. (See Detention Section of this report for more information on Pond FSD-E6).

**The facilities in this reach should be considered reimbursable since the proposed drainage improvements are to be constructed with RCP in lieu of an improved riprap channel. Also, the MDDP completes the tributary analysis after where the SCDBPS study terminated.*

Proposed Variations to SCDBPS for Reimbursement

The MDDP identifies regional improvements for Sterling Ranch and for existing land outside the limits of Sterling Ranch to the west, north & east. The SCDBPS limited study did not address these areas. Therefore, the MDDP requests that these regional public infrastructure components be reimbursable.

Sand Creek Regional Pond W3 north of Sterling Ranch Road (See Detention Pond Section of this report for more information regarding detention ponds). The purpose of this sub-regional on-line detention facility is to control storm water events to discharge at historic levels downstream of Sterling Ranch. Therefore, the storm water flows exiting Sterling Ranch and conveyed into the Woodmen Heights development (City of Colorado Springs) to the south are consistent. The MDDP requests that the construction of this online sub-regional pond is reimbursable.

FSD Ponds - There will be multiple Full Spectrum Detention and Water Quality Ponds (FSD Ponds) located within the Sterling Ranch development. (One off-site pond is proposed west of Vollmer Road and north of Marksheffel Road) These ponds will control both existing off-site and on-site developed storm water. The MDDP requests that the Sterling Ranch FSD Ponds be reimbursable. These ponds will also control the discharge of storm water across the Sterling Ranch development which will reduce the size and cost of public storm pipe between the ponds and discharge into Sand Creek or the Eastern Tributary of Sand Creek.

Additional Culvert crossings of Vollmer Road - Additional culverts across Vollmer Road are required to convey the storm water from the west side to the east side. The existing Vollmer Road and roadside swales are inadequate to convey the 100-year storm. The culverts and improvements to Vollmer Road will drastically improve the current storm water public infrastructure. The culverts, FSD's, and downstream storm water pipe to convey these flows to Sand Creek will be requested to be reimbursable.

Un-named easterly tributary for the Sand Creek - A second crossing of "Research Parkway is shown on the SCDBPS east of Sand Creek along the southern boundary of Sterling Ranch (6'H x 8'W CBC). The MDDP does not propose a CBC crossing for the eastern tributary for Research Parkway at this location, because Research Parkway is no longer proposed along the southern boundary of Sterling Ranch. However, the tributary for this crossing was un-studied in the SCDBPS. The MDDP for Sterling proposed storm sewer pipe and open channel to convey the developed flows into the Sand Creek Channel. The existing flows rates will be reduced but remain present for the downstream properties. See Existing Basin section of this report. The MDDP request that this Un-named tributary be considered reimbursable.

CHANNEL IMPROVEMENTS

Per the Sand Creek SCDBPS, Sand Creek and connected tributaries in the area of the site will require improvements. The east and west tributary reaches within the site boundary will not require improvements because they will no longer be present, as development in the areas will eliminate them, and replace them with full spectrum detentions ponds and storm sewer systems which will collect and control the discharge into Sand Creek. The western tributary reach within the site boundary will require some improvements in some areas but will also be eliminated by development and replaced with large diameter storm sewer and Pond FSD6 (Pond W5), to control the discharge into Sand Creek. However, Sand Creek itself will continue to be routed through the development.

In the existing condition the main branch of Sand Creek Channel measures ~9,850 linear feet. The existing channel bed is heavily vegetated, with native grasses and slopes typically ranging from 0.50% - 4.0%, with an average slope of 1.6%. The existing side slopes typically range from 1:1 to 10:1, and are composed of native grasses and exposed sand stone. The channel contains 3 existing stock ponds.

Per the SCDBPS, Reach SC-9, the recommended improvements to the channel include selective rip rap linings, grade control check structures, and drop structure improvements that are anticipated to stabilize the channel to prevent further degradation, scour and meandering. Offline Full Spectrum Detention will reduce peak flows within the channel there-by added to the integrity of the Sand Creek Channel. With stabilization and improvements to the outlet work and overflow routing paths, the existing stock ponds will be preserved as amenities for the adjacent development.

The concept design of the channel will initially be based upon the FEMA flow rate of 2,600 cfs. This is a conservative flow to allow for planning of trails and developed lots. The calculated max flow as determined with this report is ~ 2,200 cfs. This flow number will be used for the analysis of a CLOMR/LOMR for the design of the channel improvements and submittal to FEMA. Coordination with FEMA and the Army Corps of Engineers will occur prior to the submittal of the design drawings for the channel improvements. The FEMA flow rates, SCDBPS flow rates and those calculated by this analysis are provided in the appendix.

HEC-RAS input and output files that model the developed peak 100 year flows across the existing channel (LOMR X Sections) has been provided in the appendix as a cursory evaluation of some of the short comings of the existing channel that will need to be address with the future improvements. Based upon the model output velocities and shear in the 100 year developed condition range from 3.9 fps to 27.0 fps and 0.2 lbs/sf to 14.9 lbs/sf with depths between 0.7' and 8.0' in depth. The proposed channel improvements as shown in the SCDBPS will function to arrest erosion caused by the developed runoff while minimizing impacts to the existing vegetation. The data is for information purposes only and is not intended to be utilized in design.

Upstream and downstream channel improvements are proposed to be similar to what was anticipated in the SCDBPS. Check structures and rip-rap lining in some locations shall be installed to handle the increase in volume of flows from the full spectrum detention ponds. In the final design stage of development, the channels will be analyzed to verify the amount of improvements necessary. The existing culverts under Mustang Place are currently inadequate. They are recommended by the SCDBPS to be enlarged to 6'Hx8'W CBC. These culverts will be analyzed at the time of final design to determine the correct size in order to accommodate the developed flows, which will be discharged from Sterling Ranch less than historic.

REGIONAL DETENTION FACILITIES

A single regional online, onsite detention facility (Pond W3), upstream of Sterling Ranch Road (at DP68), is recommended to aid in the controlling of the total runoff leaving Sterling Ranch. Although the development of Sterling Ranch will require the implementation and construction of several FSD ponds to mitigate increase runoff, the total amount of runoff reaching the Sand Creek Channel is greater than historic, due to the inter-basin transfer of drainage from East Fork of Sand Creek Watershed to Sand Creek Watershed. The roadway embankment, proximity to the southern boundary and the need for a culvert crossing at this location make the location practical. A separate design report for this facility will be necessary to verify the volumetric sizing requirements.

Prior to this analysis an online regional facility was also recommended within Sterling Ranch (on the Sand Creek Channel) upstream of Briargate Parkway at DP 69. The planned implementation of offline full spectrum detention for the developable ground up-gradient of this location will alleviate the need for this facility. The culvert crossing at this location will be sized in a manner that allows for the free discharge of flow **through** the structure.

**For the following Ponds (W3, W4 & E7) The construction of the Regional Detention Pond should be considered reimbursable due to the regional nature of the facility controlling the developed drainage to historic levels at the City / EPC boundary. The purpose to control the flow to a known number is to be consistent with downstream facilities and previous drainage analysis.*

POND W3

It should be noted that after the initial run of the Proposed Condition Model, it was determined that the peak developed 100-year flow reaching the subject reach were higher than the 100-year existing condition flow rates and higher than the 100-year peak flows anticipated by the Wilson Study. To reduce the runoff, a detention facility has been added to the model upstream of Sterling Ranch Road within the Sterling Ranch Development. The incorporation of this facility when coupled with multiple Full Spectrum Detention facilities will allow the development upstream of the City/County boundary to release developed discharge at a rate this is at or below the current existing flow rates. It should be noted that the location of the facility was previously planned as a regional pond /park site in the Sterling Ranch 2010 MDDP (Draft) and Sketch Plan. Stage storage and stage volume worksheets are included in the attachments for this pond. It is anticipated that this facility can be designed without having to be jurisdiction in nature. Based upon preliminary modeling the pond will reduce 100 year peak runoff rates from 2204 to less than 1400 cfs. The pond will detain a maximum of 78 acre feet at a depth of around 10 feet. The pond embankment containing the 100 year event will be separate from Sterling Ranch Road. An exhibit detailing the concept design is provided in the appendix of this report. It is important to note that this pond will allow for the free discharge of the 2 year storm and is not intended to provide water quality and will meet the state statute regarding the allowable release times.

Design point 61 is located on the maps between Sand Creek Regional Detention Pond 3 and south boundary of Sterling Ranch just upstream of Mustang Road. Future development in the watershed should attempt to mimic the flow rates provided within the report with special consideration given to the flow at the City/County boundary line at Design Point 61. It should be noted that the hydrologic calculations contained in this memorandum are intended to aid in the design of the crossing structure at Marksheffel Road north of City Pond 3 (DP 60A) and as a planning resource to limit the amount of developed runoff discharged into the Sand Creek Channel. This report is not intended to be utilized for final design of stormwater storage facilities and infrastructure. It should also be noted, that this report did not include City Pond 3 in any of its models and was only used as a comparison point.

POND W4

Pond W4 is planned for the northwest corner of Marksheffel Road and Vollmer Road. The purpose of the pond is to provide some detention of stormwater flows for the land on the west side of Vollmer Road. Currently, no public stormwater improvements exist in the developments west of Vollmer Road. Therefore, Pond W4 will collect the flows on the west side, and convey to Sand Creek. These flows are discharged directly into sand creek, bypassing Pond W5. This facility does not provide water quality treatment for the existing developments. Pond W4 is sized to maximize the area located in a tract of Land dedicated by the Final Plat for Highland Park Filing No. 2 - Tract G. The detention area could potentially be enlarged in the future if more land is purchased, and available to enlarge the pond. The design of Pond W4 will accommodate the extension of Marksheffel Road / Research Parkway and will be furthered in subsequent drainage reports. The construction of Pond W4 facilitates "solves" an existing drainage problem in the existing right-of-way of Vollmer Road. Pond W4 and its downstream facilities will be requested to be a reimbursable facility.

**The construction of this pond solves existing EPC drainage deficiencies on the west side of Vollmer Road. Therefore this should be considered a reimbursable facility as approved by the City/EPC drainage board.*

POND E7

Pond E7 will be required to at the southeast corner of Sterling Ranch to detain developed flows and release at or less than Historic. The pond is necessary and should be coordinated with downstream improvements accompanying the extension of Banning Lewis Parkway and property currently under the ownership of Norwood Development.

SUMMARY

Per the analysis above and tables in the Appendix, the cost of the MDDP reimbursable improvements exceeds the improvement costs per the SCDBPS. The total 2019 cost of SCDBPS reimbursable facilities is \$5,773,945. The total estimated 2019 costs to construct the reimbursable facilities as proposed is \$12,272,563. Therefore the difference is \$6,498,618, which is more than what was projected in the SCDBPS. The Sterling Ranch Metropolitan District is requesting to increase the Sand Creek Drainage Basin drainage fee to accommodate the shortfall, or consider that the drainage construction within the Sterling Ranch Sketch Plan be a closed basin.

Furthermore; The total 2019 Drainage fees for the entire Sterling Ranch is \$12,545,856 (Based on 1440 Acres and the 2019 Fee Amount), is similarly close to the same cost of the construction of the reimbursable facilities - \$12,272,563. Therefore, by closing the drainage basin for Sterling Ranch, the fees and costs would come close to a balance at the end of the day. (Assuming cost and fees increase at the same rate over the next 20+ years). The same comparison can be made for the bridge fees and costs.

Cursory comment.

Ultimate acceptance of this requires:

The DB/BOCC approves a DBPS amendment to increase the fee significantly to pay for new criteria items (SWQ FSD) that were not considered in the 1996 DBPS cost analysis.

The Channel is completely improved to allow development on both sides. (We have not reviewed the design report)

The Channel will be improved and dedicated to the County including the portions of the channel adjacent to Sterling Ranch not owned by Sterling Ranch.

Consideration of other basin subdividers who also want to have their (SWQ & FSD & Smaller Channels) reimbursed.

Full accounting of the remaining public improvements in the basin.

etc.

etc.

APPENDIX

SAND CREEK DBPS COSTS FOR STERLING RANCH

SAND CREEK DRAINAGE BASIN PLANNING STUDY COSTS FOR STERLING RANCH

1996 - 2019 DOLLARS					
	1996	2019	DIFF	% INCREASE	x MULTIPLIER
DRAINAGE	\$4,895	\$18,940	\$14,045	387%	2.033
BRIDGE	\$323	\$5,559	\$5,236	1721%	2.033

1) CONSTRUCTION COST OPINION PER DBPS (For Information Only)
 Tributary Drainageway Conveyance Cost Estimate (pg. 73 DBPS)

DBPS SEG/DESCRIPTION	UNIT	QUANTITY	UNIT COST	GRADE CONTROLS	LENGTH	REIMBURSABLE COST	x MULTIPLIER
169 100-YR RIPRAP	LF	650	\$175	1	40	\$120,950	\$245,891.35
186 100-YR RIPRAP	LF	2250	\$200	5	200	\$486,000	\$988,038.00
159 100-YR RIPRAP	LF	2100	\$200	14	840	\$571,200	\$1,161,249.60
164 100-YR RIPRAP	LF	1350	\$200	5	200	\$306,000	\$622,098.00
SUB-TOTAL (DBPS Dollars)						\$1,484,150	\$3,017,276.95

*(2019 Dollars) - Drainage Fee Multiplier - 2.033

2) Roadway Culvert Crossing Cost Estimate (pg. 77 DBPS)

DESCRIPTION	UNIT	QUANTITY	UNIT COST	DBPS REIMBURSABLE COST	x MULTIPLIER
Vollmer Road - 60" CMP	LF	80	\$120	\$9,600	\$19,516.80
Ban'g Lewis Pkwy - 6'H x 10'W CBC	LF	120	\$390	\$46,800	\$95,144.40
SUB-TOTAL (DBPS Dollars)				\$56,400	\$114,661.20

*(2019 Dollars) - Drainage Fee Multiplier - 2.033

SAND CREEK DRAINAGE BASIN PLANNING STUDY COSTS FOR STERLING RANCH

3) Sand Creek Tributary Drainage Conveyance Cost Estimate (pg. 64 DBPS)

DBPS SEG/DESCRIPTION	UNIT	QUANTITY	UNIT COST	GRADE CONTROLS	LENGTH	DBPS REIMBURSABLE COST	x MULTIPLIER
92 Sel. Linings (1 side)	LF	5400	\$93	7	280	\$600,200	\$1,220,206.60
SUB-TOTAL (DBPS Dollars)						\$600,200	\$1,220,206.60
						<i>*(2019 Dollars) - Drainage Fee Multiplier - 2.033</i>	
SUB-TOTAL (DBPS Dollars)						\$1,220,207	\$1,220,206.60

4) Sand Creek Drainage Conveyance Cost Estimate (pg. 64 DBPS)

DBPS SEG/DESCRIPTION	UNIT	QUANTITY	UNIT COST	GRADE CONTROLS	LENGTH	DBPS REIMBURSABLE COST	x MULTIPLIER
163 Sel. Linings (1 side)	LF	2600	\$127	15	1200	\$546,200	\$1,110,424.60
187 Sel. Linings (1 side)	LF	0	\$0	2	160	\$28,800	\$58,550.40
170 Sel. Linings (1 side)	LF	0	\$0	3	240	\$43,200	\$87,825.60
SUB-TOTAL (DBPS Dollars)						\$618,200	\$1,256,800.60
						<i>*(2019 Dollars) - Drainage Fee Multiplier - 2.033</i>	
SUB-TOTAL (DBPS Dollars)						\$1,256,801	\$1,256,800.60

5) Existing Pond Outlet Structures and Embankment Repairs (pg. 50, 52, 53)

DBPS SEG/DESCRIPTION	UNIT	QUANTITY	UNIT COST	GRADE CONTROLS	PROPOSED REIMBURSABLE COST	DBPS REIMBURSABLE COST	x MULTIPLIER
SEG 170 - Pond Outlet Embankment	1	1	\$20,000	*3,*10	\$20,000	\$0.00	
	1	1	\$35,000	*3,*10	\$35,000	\$0.00	
SEG 170 - Pond Outlet Embankment	1	1	\$20,000	*3,*10	\$20,000	\$0.00	
	1	1	\$35,000	*3,*10	\$35,000	\$0.00	
SEG 163 - Pond Outlet Embankment	1	1	\$20,000	*3,*10	\$20,000	\$0.00	
	1	1	\$35,000	*3,*10	\$35,000	\$0.00	
SUB-TOTAL (DBPS Dollars)						\$165,000	\$0.00
						<i>*(2019 Dollars) - Proposed Costs - Not included in DBPS</i>	
SUB-TOTAL (DBPS Dollars)						\$165,000	\$0.00

TOTAL REIMBURSABLE DRAINAGE COST PER DBPS (2019 DOLLARS) \$5,773,945 Credits

ESTIMATED ACTUAL COSTS FOR REIMBURSABLE DRAINAGE FACILITIES (See Estimated Const. Cost Opinion) \$12,272,563 Est. Cost

***DIFFERENCE:** \$6,498,618

SAND CREEK DRAINAGE BASIN PLANNING STUDY COSTS FOR STERLING RANCH

6) *Sand Creek Bridge Crossing Cost Estimate (pg. 83 DBPS)

DBPS SEG/DESCRIPTION	UNIT	QUANTITY	UNIT COST	DBPS REIMBURSABLE COST	x MULTIPLIER
163 Research Pkwy 4-8'H x 10'W CBC	LF	80	\$1,560	\$124,800	\$253,718.40
Research Pkwy 6'H x 8'W CBC	LF	80	\$1,560	\$124,800	\$253,718.40
187 Banning Lewis Pkwy 4-8'H x 10'W CBC	LF	80	\$1,560	\$124,800	\$253,718.40
SUB-TOTAL (DBPS Dollars)				\$374,400	
				\$761,155	\$761,155.20

*(2019 Dollars) - Bridge Fee Multiplier - See previous sheet - 2.033

TOTAL REIMBURSABLE BRIDGE COST PER DBPS (2019 DOLLARS) - Per Proposed Amendment **\$761,155** Credits

ESTIMATED ACTUAL COSTS FOR REIMBURSABLE BRIDGE IMPROVEMENTS **\$2,640,000** Est. Cost

***DIFFERENCE:** **\$1,878,845**

***Cost Difference Summary**

1. The Sand Creek DBPS assumed a lower density of development for the proposed Sterling Ranch area.
2. Vollmer Road culverts are proposed as CMP in the SCDBPS, However RCP is the standard and therefore should be reimbursable.
3. No Costs for existing pond outlet structures or embankment repairs were given in the SCDBPS
4. The Sand Creek bridge estimate is only 80 LF, however the ROW is 160' in width and with the embankment considered the actual lengths will exceed 200 LF.
5. The Sand Creek roadway culvert estimate assumes CMP pipe, however RCP pipe is now the standard.
6. The Sand Creek drainageway estimate assumes grade control structures only, however drop structures will replace some of the check structures.
7. The Sand Creek drainageway assumes design for some 10-yr facilities, however 100-yr facilities will be constructed throughout the development.
8. The Sand Creek DBPS does not consider Vollmer Road as an improved arterial road, however Vollmer Road drainage improvements will be necessary.
9. The Sand Creek DBPS (page 50) 100-yr outlet control structure for the existing pond was not included in the cost estimate for the Sand Creek improvements, however for the existing embankment to remain, a structure will be necessary.
10. Item Not included in Sand Creek DBPS cost Estimate - But should
11. Banning Lewis Parkway actual costs will far exceed Sand Creek DBPS budget

STERLING RANCH ESTIMATED CONSTRUCTION COST OPINION

STERLING RANCH

Estimated Construction Cost Opinion

SAND CREEK BASIN CONSTRUCTION COST OPINION PER MDDP

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST	REIMBURSABLE COST
PIPES					
Proposed Drainage Improvements to replace DBPS Sand Creek Tributary Segments 169, 186, 92, 159, 164					
24" RCP	LF	1800	\$84	\$151,200	\$0
30" RCP	LF	140	\$94	\$13,160	\$0
36" RCP	LF	2150	\$124	\$266,600	\$0
42" RCP	LF	1070	\$134	\$143,380	\$143,380
48" RCP	LF	3360	\$178	\$598,080	\$598,080
54" RCP	LF	3100	\$182	\$564,200	\$564,200
60" RCP	LF	1390	\$216	\$298,080	\$298,080
66" RCP	LF	2200	\$283	\$578,600	\$578,600
72" RCP	LF	2500	\$283	\$707,500	\$707,500
78" RCP	LF	1400	\$315	\$441,000	\$441,000

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST	REIMBURSABLE COST
HEADWALLS AND WINGWALLS					
Proposed Drainage Improvements to replace DBPS Sand Creek Tributary Segments 169, 186, 92, 159, 164					
48" HW & WW	EA	2	\$6,500	\$13,000	\$13,000
54" HW & WW	EA	1	\$7,500	\$7,500	\$7,500
60" HW & WW	EA	1	\$8,000	\$8,000	\$8,000
66" HW & WW	EA	2	\$10,000	\$20,000	\$20,000

STERLING RANCH
Estimated Construction Cost Opinion

<u>RIPRAP PLUNGE POOLS</u>	EA	10	\$21,500		\$25,000	\$25,000
<u>DETENTION PONDS</u>						
W-5	AC-FT	38	\$21,772		\$827,336	\$827,336
W-4	AC-FT	20	\$21,772		\$435,440	\$435,440
W-3	AC-FT	35	\$21,772		\$762,020	\$762,020
Water Quality Ponds	EA	20	\$45,000	50%	\$900,000	\$450,000
DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST	REIMBURSABLE COST

EXISTING POND, OUTLET STRUCTURES AND EMBANKMENTS

SEG 170		1	2	\$15,000	\$30,000	\$30,000
Embankment		1	2	\$35,000	\$70,000	\$70,000
SEG 163		1	1	\$15,000	\$15,000	\$15,000
Embankment		1	1	\$35,000	\$35,000	\$35,000

SAND CREEK - OPEN CHANNEL (BASED UPON A 100 YR STORM EVENT DESIGN)

DBPS SEG/DESCRIPTION	UNIT	QUANTITY	UNIT COST	STRUCTURES	LENGTH	DROP
163 Sel. Linings (1 side)	LF	3310	\$550	15	1420	\$3,027,500.00
170 Sel. Linings (1 side)	LF	280	\$550	2	210	\$332,500.00
187 Sel. Linings (1 side)	LF	1080	\$550	3	300	\$838,000.00

ESTIMATED TOTAL DRAINAGE COSTS

SUBTOTAL DRAINAGE COSTS (MDDP)		\$11,108,096	\$10,227,136
	10% Engineering & Soft Costs		\$1,022,714
	10% Contingency		\$1,022,714
TOTAL DRAINAGE IMPROVEMENT COSTS (MDDP)			\$12,272,563

STERLING RANCH

Estimated Construction Cost Opinion

ESTIMATED TOTAL BRIDGE COSTS

<u>SAND CREEK BASIN BRIDGE COSTS</u>									
DESCRIPTION	UNIT	QUANTITY	UNIT COST	# OF CELLS	TOTAL COST	REIMBURSABLE COST			
BRIDGES									
Brigade PysCreek 2-9x10' CBC	LF	225	\$2,500	2	\$1,125,000	\$1,125,000			
Research Pkwy 2-9x9' CBC (Sterling Rnch Rd)	LF	215	\$2,500	2	\$1,075,000	\$1,075,000			
SUBTOTAL BRIDGE COSTS (MDDP)					\$2,200,000	\$2,200,000			
			10% Engineering & Soft Costs			\$220,000			
			10% Contingency			\$220,000			
TOTAL BRIDGE COSTS (MDDP)						\$2,640,000			

M&S Civil Consultants, Inc. cannot and does not guarantee the construction cost will not vary from these opinions of probable costs. These opinions represent our best judgment as design professionals familiar with the construction industry and this development in particular. The above is only an estimate of the facility cost and drainage basin fee amounts in 2019. Upon completion of the aforementioned improvements, M&S Civil Consultants, Inc. shall submit the actual construction costs to the City of Colorado Springs/El Paso County Drainage Board for reimbursement.

SCDBPS TABLE EXCERPTS

TABLE VII-4: SAND CREEK DRAINAGE BASIN PLANNING STUDY
ROADWAY CULVERT CROSSING COST ESTIMATE

ROADWAY		DRAINAGE		CROSSING TYPE	LENGTH	UNIT	UNIT COST	TOTAL COST	TOTAL REIMBURSABLE COST
REACH NUMBER	SEGMENT	REACH NUMBER	SEGMENT						
SAND CREEK BASINS									
SAND CREEK									
GRANADA DRIVE	SC-1	107		2-4'EL x 10"W CBC	60	LF	\$650	\$39,000	\$0
DELTA DRIVE	SC-1	"		"	80	LF	\$650	\$52,000	\$0
SONOMA DRIVE	SC-1	"		"	60	LF	\$680	\$39,000	\$0
SAN MARCOS ROAD	SC-1	"		"	80	LF	650	\$52,000	\$0
EL MORRO ROAD	SC-1	113		2-5'EL x 8"W CBC	60	LF	\$240	\$32,400	\$0
DELTA DRIVE	SC-1	"		"	90	LF	\$340	\$44,600	\$0
WAYNEKA ROAD	SC-4	135-2		50' BRIDGE	3200	SF	\$80	\$256,000	\$256,000
TUTT BLVD	SC-3	119		2-6'EL x 12"W CBC	80	LF	\$600	\$48,000	\$48,000
PETERSON ROAD	SC-6	127		2-6'EL x 12"W CBC	120	LF	\$870	\$104,400	\$104,400
JEDEDIAH SMITH RD.	SC-6	136		2-8'EL x 10"W CBC	120	LF	\$750	\$90,000	\$90,000
PETERSON ROAD	SC-6	140		6'EL x 12"W CBC	100	LF	\$270	\$27,000	\$27,000
DUBLIN BOULEVARD	SC-6	142		6'EL x 9"W CBC	100	LF	\$360	\$36,000	\$36,000
JEDEDIAH SMITH RD.	SC-6	143		6'EL x 9"W CBC	80	LF	\$390	\$31,200	\$31,200
DUBLIN BOULEVARD	SC-6	145		"	120	LF	\$390	\$46,800	\$46,800
PETERSON ROAD	SC-6	142		6'EL x 9"W CBC	200	LF	\$360	\$72,000	\$72,000
CALIFORNIA DRIVE	SC-6	152-1		4'EL x 8"W CBC	40	LF	\$270	\$10,800	\$0
"	SC-6	153		48-INCH RCP	40	LF	\$80	\$3,200	\$0
VOLLMER ROAD	SC-6	155-1		2-60-INCH RCP	60	LF	\$240	\$14,400	\$0
WOODMEN ROAD	SC-6	152-1		4'EL x 8"W CBC	300	LF	\$240	\$72,000	\$72,000
WOODMEN ROAD	SC-6	153-1		4'EL x 8"W CBC	400	LF	\$210	\$84,000	\$84,000
VOLLMER ROAD	SC-6	154		2-6'EL x 10"W CBC	80	LF	\$680	\$53,200	\$0
MUSTANG ROAD	SC-7	150-2		2-48-INCH CMP	60	LF	\$240	\$14,400	\$0
KENOSHA ROAD	SC-7	161-1		2-48-INCH CMP	60	LF	\$160	\$9,600	\$0
RESEARCH PARKWAY	SC-8	159		2-6'EL x 9"W CBC	120	LF	\$660	\$79,200	\$79,200
RESEARCH PARKWAY	SC-8	157		6'EL x 12"W CBC	120	LF	\$870	\$104,400	\$104,400
MUSTANG PLACE	SC-8	160		6'EL x 9"W CBC	40	LF	\$330	\$13,200	\$0
MUSTANG PLACE	SC-8	161-2		2-48-INCH CMP	40	LF	\$160	\$6,400	\$0
RESEARCH PARKWAY	SC-8	"		6'EL x 9"W CBC	40	LF	\$330	\$13,200	\$13,200

* * * * *

**** RESEARCH PARKWAY HAS BEEN RELOCATED. THIS CULVERT IS NOT NECESSARY.**

*** RESEARCH PARKWAY HAS BEEN RELOCATED. THIS CULVERT WILL CROSS STERLING TRANCH ROAD.**

TABLE VII-4
SAND CREEK DRAINAGE BASIN PLANNING STUDY
ROADWAY CULVERT CROSSING COST ESTIMATE

ROADWAY	REACH NUMBER	DRAINAGEWAY SEGMENT	CROSSING TYPE	LENGTH	UNIT	UNIT COST	TOTAL COST	TOTAL REIMBURSABLE COST
BANNING-LEWIS PREW	SC-8	186	6" x 10' W CBC	120	LF	\$390	\$46,800	\$46,800
ARROYO LANE	SC-9	171	6" x 12' W CBC	80	LF	\$510	\$40,800	\$0
VOLLMER ROAD	SC-8	169	60-INCH CMP	80	LF	\$120	\$9,600	\$0
"	SC-9	173	"	80	LF	\$120	\$9,600	\$0
BURGESS ROAD	SC-9	176	42-INCH CMP	80	LF	\$75	\$6,000	\$0
"	SC-9	178	2-42-INCH CMP	80	LF	\$150	\$12,000	\$0
CENTER TRIBUTARY								
TERMINAL AVENUE	CT-2	144	4.5' x 6' W CBC	60	LF	\$1,200	\$72,000	\$0
OMAHA BOULEVARD	CT-2	146-2	3-4' x 5' W CBC	80	LF	\$900	\$72,000	\$0
WEST FORK SAND CREEK								
WOOTEN ROAD	WF-1	153	2-4' x 6' W CBC	100	LF	\$480	\$48,000	\$0
EDISON AVENUE	WF-1	153	2-4' x 6' W CBC	60	LF	\$240	\$14,400	\$0
PALMER PARK BLVD.	WF-1	154-2	2-4' x 10' W CBC	80	LF	\$540	\$43,200	\$0
CHICAGO RIVER	WF-1	165-1	4' x 8' W CBC	220	LF	\$270	\$59,400	\$0
HALF MOON DRIVE	WF-1	165-2	4' x 6' W CBC	60	LF	\$240	\$14,400	\$0

TOTAL CULVERT CONSTRUCTION COSTS, SAND CREEK

\$1,902,600

\$1,111,000

Tributary

MAP SAYS;

4- 8H x 10W CBC FOR BRIDGE

- THIS SEG. 186 TRIBUTARY

- THIS TRIBUTARY IS BEING REDIRE-

- CTED TO SAND CREEK, NORTH OF RESEARCH PARKWAY

TABLE VIII-4
SAND CREEK DRAINAGE BASIN PLANNING STUDY
ROADWAY CULVERT CROSSING COST ESTIMATE

ROADWAY		REACH	DRAINAGEWAY	CROSSING	LENGTH	UNIT	UNIT	TOTAL	TOTAL
		NUMBER	SEGMENT	TYPE			COST	COST	REIMBURSABLE
									COSTS
EAST FORK SAND CREEK									
WESTERN DRIVE	EF-2	104		4'H x 7'W CBC	60	LF	\$280	\$16,800	\$0
PALMER PARK BLVD	EF-2	6		6'H x 12'W CBC	80	LF	\$380	\$30,400	\$30,400
FUTURE AKERS	EF-2	84		6'H x 10'W CBC	60	LF	\$350	\$21,000	\$21,000
CHICAGO & RI RR	EF-2	20		8'H x 12'W CBC	120	LF	\$800	\$96,000	\$96,000
BANNING LEWIS PRKWY	EF-4	17		2-5'H x 8'W CBC	450	LF	650	\$292,500	\$292,500
STAPLETON DRIVE	EF-4	17		2-5'H x 6'W CBC	180	LF	\$500	\$90,000	\$90,000
STAPLETON DRIVE	EF-4	124A		2-6'H x 8'W CBC	200	LF	\$600	\$120,000	\$120,000
STAPLETON DRIVE	EF-4	124A		6'H x 8'W CBC	175	LF	\$270	\$47,250	\$47,250
STAPLETON DRIVE	EF-4	124A		6'H x 8'W CBC	175	LF	\$270	\$47,250	\$47,250
NORTH CAREFREE	EF-4	30		8'H x 8'W CBC	150	LF	\$400	\$60,000	\$60,000
BANNING-LEWIS PRKWY	EF-4	30		8'H x 8'W CBC	195	LF	\$400	\$78,000	\$78,000
BARNES ROAD	EF-4	31		8'H x 8'W CBC	250	LF	\$400	\$100,000	\$100,000
BRIDLESFUR RD	EF-5	144		6'H x 5'W CBC	150	LF	\$250	\$37,500	\$37,500
BANNING-LEWIS PRKWY	EF-7	55		6'H x 10'W CBC	300	LF	\$350	\$105,000	\$105,000
DUBLIN ROAD	EF-7	57		5'H x 10'W CBC	150	LF	\$320	\$48,000	\$48,000
BANNING-LEWIS PRKWY	EF-7	173		8'H x 8'W CBC	350	LF	\$270	\$94,500	\$94,500
WOODMEN ROAD	EF-8	84		8'H x 15'W CBC	100	LF	\$750	\$75,000	\$75,000
RESEARCH PARKWAY	EF-7	83		8'H x 8'W CBC	180	LF	\$270	\$48,600	\$48,600
RESEARCH PARKWAY	EF-8	84		8'H x 10'W CBC	180	LF	\$350	\$63,000	\$63,000
EAST FORK SUB-TRIB									
STAPLETON DRIVE	EFST-2	42		8'H x 9'W CBC	180	LF	\$300	\$54,000	\$54,000
BRIDLESFUR RD	EFST-2	58		8'H x 8'W CBC	150	LF	\$270	\$40,500	\$40,500
DUBLIN ROAD	EFST-2	70		5'H x 8'W CBC	150	LF	\$250	\$37,500	\$37,500

* →

* RESEARCH PARKWAY HAS BEEN RELOCATED. THIS CULVERT MAY NOT BE NECESSARY. BANNING LEWIS PARKWAY WILL BE CONSTRUCTED NEAR THE SAME LOCATION.

BRIDGES

Table VII-7:
SAND CREEK DRAINAGE BASIN PLANNING STUDY
BRIDGE CROSSING COST ESTIMATE
SAND CREEK DRAINAGE BASINS

ROADWAY	REACH NUMBER	DRAINAGEWAY SEGMENT	CROSSING TYPE	JURISDICTION CITY COUNTY	SIZE	UNIT	UNIT COST	TOTAL COST COUNTY	TOTAL COST CITY
SAND CREEK									
CHELTON ROAD	SC-1	115	210' TWO-SPAN BRIDGE	X	16000	SF	\$80	\$0	\$1,244,000
STENSON HILLS BLVD.	SC-6	130	3-8'x10'W CBC	X	200	LF	\$1,110	\$0	\$222,000
JEMEDIAH SMITH RD.	SC-6	137	3-8'x10'W CBC	X	60	LF	\$1,110	\$0	\$66,600
PETERSON ROAD	SC-6	141	80' CLEAR SPAN BRIDGE	X	6400	SF	\$80	\$0	\$352,000
DUBLIN BOULEVARD	SC-7	141	80' CLEAR SPAN BRIDGE	X	6400	SF	\$80	\$0	\$352,000
MARKSHERREL ROAD	SC-8	151	3-10'x10'W CBC	X	80	LF	\$1,260	\$100,800	\$0
RESEARCH PARKWAY	SC-8	163	4-8'x10'W CBC	X	80	LF	\$1,260	\$100,800	\$0
BANNING-LEWIS PKWY	SC-8	187	4-8'x10'W CBC	X	80	LF	\$1,260	\$100,800	\$0
CENTER TRIBUTARY									
W. FRONTAGE ROAD	CT-1	142	3-6'x16'W CBC	X	60	LF	\$6,770	\$406,200	\$0
US 24 BYPASS	CT-1	142	3-6'x16'W CBC	X	150	LF	\$1,410	\$211,500	\$0
E. FRONTAGE RD, US 24	CT-1	142	3-6'x16'W CBC	X	60	LF	\$1,410	\$84,600	\$0
BIYOU STREET, US 24	CT-1	142	3-6'x16'W CBC	X	60	LF	\$1,410	\$84,600	\$0
PLATTE AVENUE, US 24	CT-2	142	3-6'x16'W CBC	X	120	LF	\$1,410	\$169,200	\$0
GALLERY ROAD	CT-4	144	3-5'x8'W CBC	X	100	LF	\$900	\$90,000	\$0
WEST FORK SAND CREEK									
GALLEY ROAD	WF-2	155	54' CLEAR SPAN BRIDGE	X	5130	SF	\$80	\$0	\$410,400
PALMER PARK BLVD.	WF-2	156	54' CLEAR SPAN BRIDGE	X	5130	SF	\$80	\$0	\$410,400
CONSTITUTION AVE.	WF-3	159	40' CLEAR SPAN BRIDGE	X	2000	SF	\$80	\$0	\$255,000
MAZELAND ROAD	WF-3	170	30' CLEAR SPAN BRIDGE	X	2000	SF	\$80	\$0	\$172,000
SO. CARREREE	WF-3	170	2-6'x10'W CBC	X	80	LF	\$1,200	\$96,000	\$0

TOTAL BRIDGE CONSTRUCTION COSTS, SAND CREEK

\$1,096,500 \$4,024,400

== BRIDGE
== BRIDGE

* RESEARCH PARKWAY HAS BEEN RELOCATED. THIS BRIDGE WILL NOW BE LOCATED ON STERLING RANCH ROAD.

** BANNING - LEWIS PARKWAY IS NOW KNOWN AS BRINGATE PARKWAY AT THIS LOCATION.

BRIDGE FEE

Table VI-4: SAND CREEK DRAINAGE BASIN PLANNING STUDY
CITY BRIDGE FEE CALCULATION

ROADWAY	CROSSING TYPE	TOTAL COST	TOTAL CITY COST	TOTAL RESPONSIBLE COST
SAND CREEK				
CHESTNUT ROAD	21' TWO SPAN BRIDGE	\$24,400	\$24,400	\$1,242,600
STEEPLE HILLS	3 - 8'18" X 14' W' CSC	\$20,200	\$20,200	\$257,840
INDIAN HARBOR RD.	3 - 8'18" X 14' W' CSC	\$20,200	\$20,200	\$256,810
PETERSON ROAD	60' CLEAR SPAN BRIDGE	\$21,000	\$21,000	\$217,740
DUNLAP HARBOR RD.	80' CLEAR SPAN BRIDGE	\$21,000	\$21,000	\$217,740
WEST FORK SAND CREEK				
GALLERY ROAD	54' CLEAR SPAN BRIDGE	\$14,400	\$14,400	\$0
FALGOUT PARK BLVD.	54' CLEAR SPAN BRIDGE	\$14,400	\$14,400	\$0
CONSTITUTION AVE.	40' CLEAR SPAN BRIDGE	\$8,500	\$8,500	\$0
MADELAND ROAD	30' CLEAR SPAN BRIDGE	\$14,000	\$14,000	\$0
SOUTH CAMPBELL CIRCLE	2 - 8'18" X 14' W' CSC	\$8,200	\$8,200	\$0
EAST FORK SAND CREEK				
STANTON PARKWAY	3 - 10'11" X 14' W' CSC	\$21,000	\$21,000	\$21,400
BANDON DRIVE PARKWAY	3 - 10'11" X 14' W' CSC	\$21,000	\$21,000	\$21,400
NORTH CAMPBELL CIRCLE	2 - 8'18" X 14' W' CSC	\$12,200	\$12,200	\$24,770
SANDS ROAD	120' TWO SPAN BRIDGE	\$72,000	\$72,000	\$24,400
BECKLE SPRING ROAD	2 - 8'18" X 14' W' CSC	\$18,170	\$18,170	\$4,077
DUNLAP ROAD	120' TWO SPAN BRIDGE	\$72,000	\$72,000	\$24,400
EAST FORK SUBSTANTARY				
BANKS ROADWAY	3 - 10'11" X 14' W' CSC	\$21,000	\$21,000	\$21,400
NORTH CAMPBELL CIRCLE	2 - 8'18" X 14' W' CSC	\$12,200	\$12,200	\$24,770
EAST SUBSTANTARY CREEK				
UNNAMED ROADWAY	3 - 10'11" X 14' W' CSC	\$21,000	\$21,000	\$21,400
WEST SUBSTANTARY CREEK				
UNNAMED ROADWAY	3 - 10'11" X 14' W' CSC	\$19,000	\$19,000	\$22,400
TOTAL ROADWAY CONSTRUCTION COSTS				
10% ENGINEERING		\$7,940	\$7,940	\$1,174,080
5% CONTINGENCY		\$7,940	\$7,940	\$1,154,000
COUNTY BRIDGE OUTSTANDING CLAIMS		\$20,480	\$20,480	\$18,970
TOTALS		\$432,940	\$446,260	\$1,617,430
TOTAL UNPLATTED ACRES IN CITY				
				111.15
CITY BRIDGE FEE (\$/ACRE)				
				\$303

(1) THESE VALUES WERE CALCULATED PER CITY ORDINANCE US 24 (1) (I). ACTUAL ROADWAY BRIDGE COSTS ARE RESPONSIBLE FOR COSTS IN EXCESS OF \$6,000 AS DETERMINED PROPORTIONALLY TO THE ROADWAY CONTRIBUTION UP TO AND NOT EXCEEDING THE ROAD INDICATED WAY WIDTH.

Table VI-4a: SAND CREEK DRAINAGE BASIN PLANNING STUDY
COUNTY BRIDGE FEE CALCULATION

ROADWAY	CROSSING TYPE	TOTAL COST	TOTAL COUNTY COST	TOTAL RESPONSIBLE COST
SAND CREEK				
MARKSBERGEL ROAD	5 - 10'11" X 14' W' CSC	\$100,000	\$0	\$100,000
ROSENBERG PARKWAY	4 - 8'18" X 14' W' CSC	\$124,000	\$0	\$124,000
BANKING GLENN PARKWAY	4 - 8'18" X 14' W' CSC	\$124,000	\$0	\$124,000
CENTER TRIBUTARY SAND CREEK				
W. FRONTAGE US 24 (1)	3 - 6'18" X 14' W' CSC	\$106,200	\$0	\$0
US 24 (POWERLINE) (1)	3 - 6'18" X 14' W' CSC	\$211,200	\$0	\$0
E. FRONTAGE US 24 (1)	3 - 6'18" X 14' W' CSC	\$84,000	\$0	\$0
3RD STREET (1)	3 - 6'18" X 14' W' CSC	\$28,400	\$0	\$0
PLATTS AVENUE (1)	3 - 6'18" X 14' W' CSC	\$108,200	\$0	\$0
GALLERY ROAD	3 - 5'18" X 14' W' CSC	\$90,000	\$54,700	\$35,300
EAST FORK SAND CREEK				
UNNAMED ROAD, PETERSON ASP	140' TWO SPAN BRIDGE	\$138,000	\$0	\$0
PETERSON ROAD	3 - 9'11" X 14' W' CSC	\$144,000	\$0	\$144,000
OMAHA BLVD EXTENDED	3 - 9'11" X 14' W' CSC	\$144,000	\$0	\$144,000
MARKSBERGEL ROAD	120' TWO SPAN BRIDGE	\$672,000	\$0	\$672,000
EAST FORK SUBSTANTARY				
GRAND DRIVE	2 - 8'18" X 14' W' CSC	\$84,000	\$0	\$84,000
TOTAL ROADWAY CONSTRUCTION COSTS				
10% ENGINEERING		\$24,940	\$45,700	\$1,427,700
5% CONTINGENCY		\$24,940	\$45,700	\$1,412,770
COUNTY BRIDGE OUTSTANDING CLAIMS		\$128,880	\$2,815	\$71,385
TOTALS		\$2,267,970	\$66,205	\$2,794,570
TOTAL UNPLATTED ACRES IN COUNTY				
				7407
COUNTY BRIDGE FEE (\$/ACRE)				
				\$303

(1) BRIDGES ON CENTER TRIBUTARY FORNED THROUGH US 24 BYPASS PHASE II PROJECT.

STERLING RANCH FILING NO. 1-TRACTS AND R.O.W - DRAINAGE & BRIDGE FEES

STERLING RANCH FILING NO. 1 - TRACTS AND RIGHT-OF-WAY - DRAINAGE & BRIDGE FEES

TRACT	SIZE/ACRE	USE	MAINTENANCE	OWNERSHIP	% Impervious	DRAINAGE FEE	FEE	BRIDGE FEE	FEE
A	0.112	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 10.67
B	0.987	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY/TIER IV TRAIL	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 94.00
C	14.816	FUTURE COMMERCIAL PAD SITES/TIER IV TRAIL	SR LAND, LLC	SR LAND, LLC	N/A				
D	14.785	OPEN SPACE/FLOODPLAIN/TIER 1 TRAIL	SRMD #1/EPC	SRMD #1/EPC	5.0%	\$ 15,720	\$	\$ 4,762	\$ 3,520.31
E	29.658	FUTURE SINGLE FAMILY LOTS	SR LAND, LLC	SR LAND, LLC	N/A				
F	3.987	OPEN SPACE/DRAINAGE POND/FLOODPLAIN/PUB. IMPROVEMENTS/PUB. UTILITY/TIER 1 TRAIL	SRMD #1	SRMD #1	50.0%	\$ 15,720	\$	\$ 4,762	\$ 9,493.05
G	19.607	FUTURE SINGLE FAMILY LOTS	SR LAND, LLC	SR LAND, LLC	N/A				
H	0.329	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	35.0%	\$ 15,720	\$	\$ 4,762	\$ 548.34
I	0.063	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 6.00
J	1.727	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 164.48
K	18.887	FUTURE SINGLE FAMILY LOTS	SR LAND, LLC	SR LAND, LLC	N/A				
L	2.734	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY/TRAIL	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 260.39
M	0.168	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY/TRAIL	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 16.00
N	0.075	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 7.14
O	0.153	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 14.57
P	0.057	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 5.43
Q	0.051	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 4.86
R	0.064	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 6.10
S	0.064	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 6.10
T	0.057	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 5.43
U	0.031	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 2.95
V	0.052	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 4.95
W	0.064	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 6.10
X	0.064	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 6.10
Y	0.051	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 4.86
Z	0.027	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 2.57
AA	0.181	LANDSCAPE/PUB. IMPROVEMENTS/PUB. UTILITY	SRMD #1	SRMD #1	2.0%	\$ 15,720	\$	\$ 4,762	\$ 17.24
BB	10.545	FUTURE SINGLE FAMILY LOTS	SR LAND, LLC	SR LAND, LLC	N/A				
CC	2.727	OPEN SPACE/DRAINAGE POND/PARK/PUB. IMPROVEMENTS/PUB. UTILITY/T	SRMD #1	SRMD #1	5.0%	\$ 15,720	\$	\$ 4,762	\$ 649.30
R.O.W.	12.256	ROAD RIGHTS OF WAY	EPC	EPC	95.0%	\$ 15,720	\$	\$ 4,762	\$ 55,444.92
	134.379	TOTAL AREA							
					TOTAL FEES		\$ 232,075.77		\$ 70,301.83

**FEEES FOR FORESEABLE FINAL PLAT RECORDINGS WITHIN STERLING RANCH
JANUARY 2019**

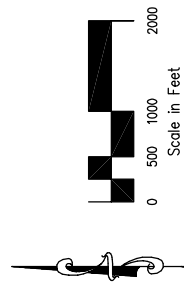
FEEES FOR THE FORESEABLE FINAL PLAT RECORDINGS WITHIN STERLING RANCH - JANUARY 2019

SUBDIVISION	# OF LOTS	FEE ACRES	FEE YEAR	IMP.	DRAINAGE FEE / IMP. AC	BRIDGE FEE / IMP. AC	DRAINAGE FEE	BRIDGE FEE	DRAINAGE FEE PAID	BRIDGE FEE PAID
Sterling Ranch Filing No. 1	0	134.379	2016	VARIED	\$15,720.00	\$4,762.00	\$232,075.77	\$70,301.83	\$232,075.77	\$70,301.83
Brading Iron at Sterling Ranch Filing No. 1	51	10.545	2017	50.00%	\$16,270.00	\$4,929.00	\$85,783.58	\$25,988.15	\$85,783.58	\$25,988.15
Homestead at Sterling Ranch Filing No. 1	72	19.574	2017	42.00%	\$16,270.00	\$4,929.00	\$133,756.97	\$40,521.70	\$133,756.97	\$40,521.70
Sterling Ranch Filing No. 2	49	49.687	2018	* 46.00%	\$17,197.00	\$5,210.00	\$393,054.98	\$119,079.86	\$0.00	\$0.00
Homestead at Sterling Ranch Filing No. 2	104	29.658	2019	* 46.00%	\$18,940.00	\$5,559.00	\$258,392.36	\$75,839.66	\$0.00	\$0.00
Branding Iron at Sterling Ranch Filing No. 2	75	18.881	2019	* 46.00%	\$18,940.00	\$5,559.00	\$164,498.82	\$48,281.36	\$0.00	\$0.00
Sterling Ranch Filing No. 3	66	20.45	2019	* 39.00%	\$18,940.00	\$5,559.00	\$151,055.97	\$44,335.80	\$0.00	\$0.00
Copper Ridge	138	19.674	2019	* 64.40%	\$18,940.00	\$5,559.00	\$239,970.86	\$70,432.84	\$0.00	\$0.00
					ACCUMULATIVE FEE TOTAL		\$ 1,658,589.31	\$ 494,781.21		
TOTAL FEES/CREDITS PAID AS OF JANUARY 2019									\$451,616.32	\$136,811.69

* To Be Determined

Total Sterling Ranch	1440	2019	* 46.00%	\$18,940.00	\$5,559.00	\$12,545,856.00	\$3,682,281.60	\$0.00	\$0.00
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MAPS



LEGEND



REACH IDENTIFIER

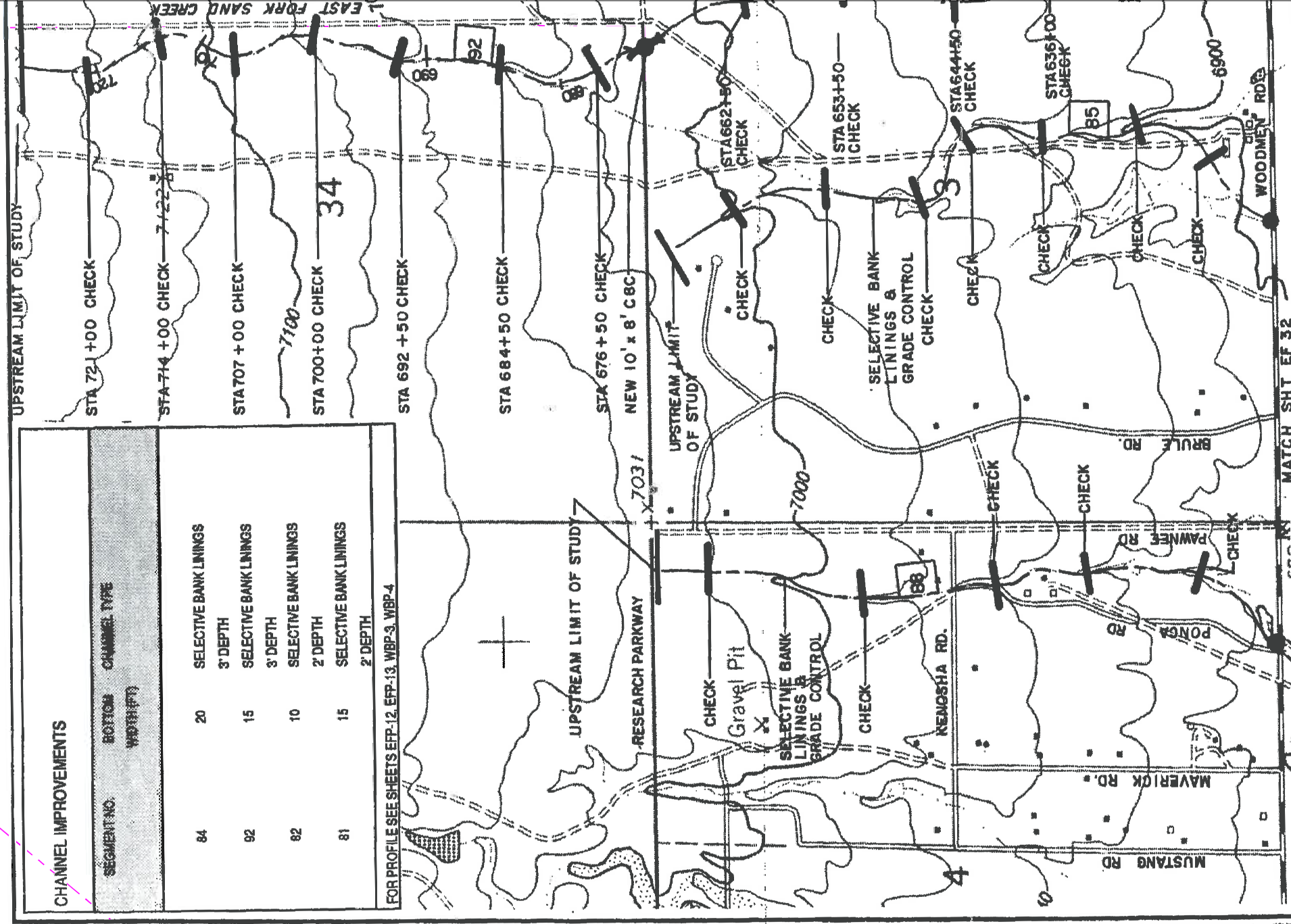


REACH IDENTIFIER

PROPERTY BNDRY

CHANNEL IMPROVEMENTS	
SEGMENT NO.	BOTTOM CHANNEL TYPE WIDTH(FT)
84	SELECTIVE BANK LININGS 3' DEPTH
92	SELECTIVE BANK LININGS 3' DEPTH
82	SELECTIVE BANK LININGS 2' DEPTH
81	SELECTIVE BANK LININGS 2' DEPTH

FOR PROFILE SEE SHEETS EFP-12, EFP-13, WBP-3, WBP-4



20 BOULDER CRESCENT, SUITE 110
 COLORADO SPRINGS, CO 80903
 PHONE: 719.555.5485



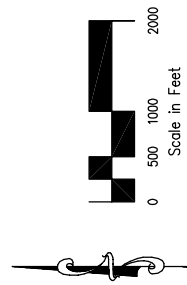
2018 STERLING RANCH MDDP

DBPS MAP OVERLAY

PROJECT NO. 08-035 | FILE: Veng\Eng\Exhibits\2018-MDDP-PROPCON01.dwg
 DESIGNED BY: JD | SCALE: DATE: 06-26-2018
 DRAWN BY: JD | HORIZ: 1"=2400'
 CHECKED BY: VAS | VERT: 1"=2400'

DBPS-1

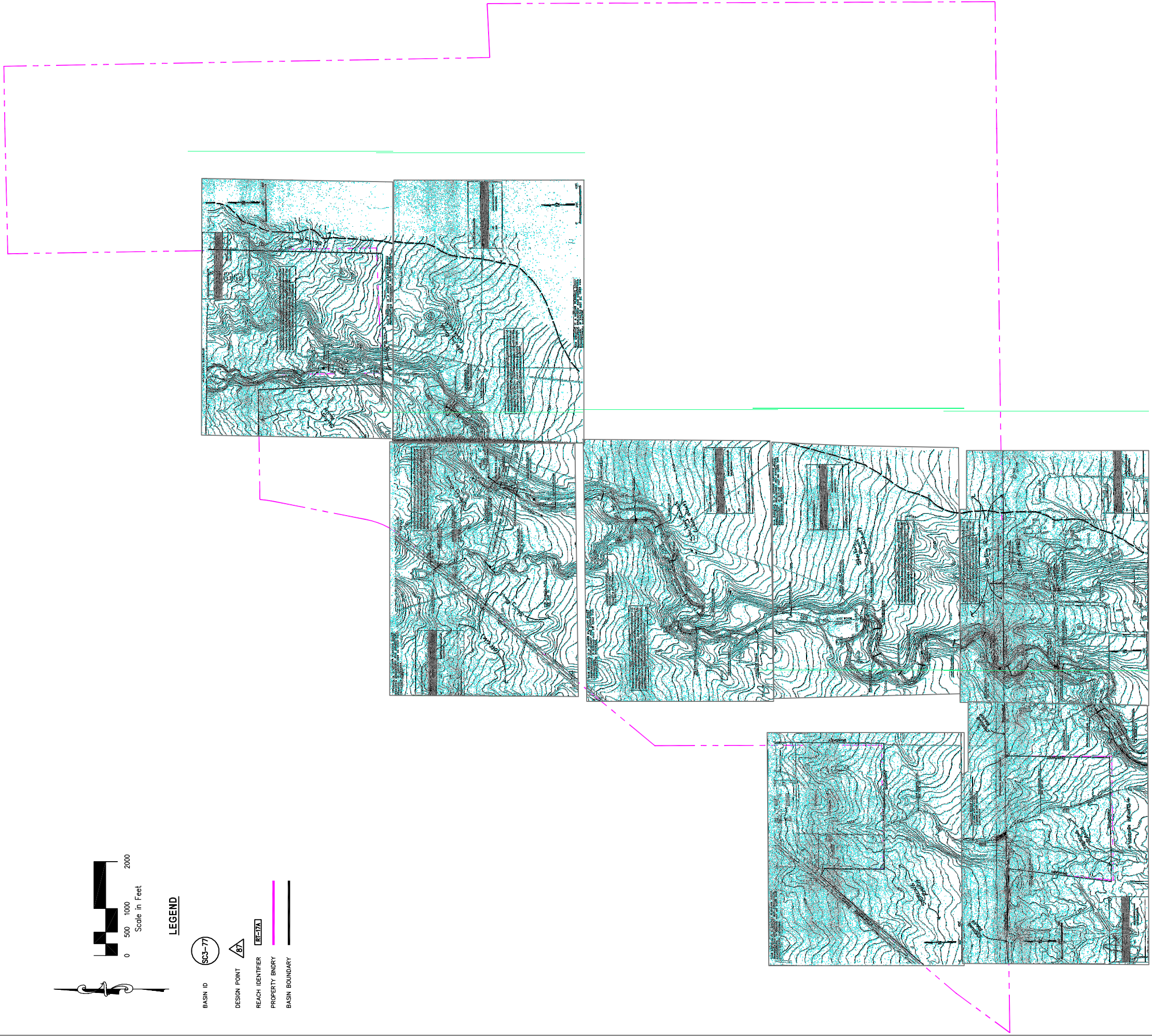
MATCH SHT EF 32



Scale in Feet

LEGEND

- BASIN ID SC3-77
- DESIGN POINT 67
- REACH IDENTIFIER R-17A
- PROPERTY BNDRY
- BASIN BOUNDARY



20 BOULDER CRESCENT, SUITE 110
 COLORADO SPRINGS, CO 80903
 PHONE: 719.555.5465

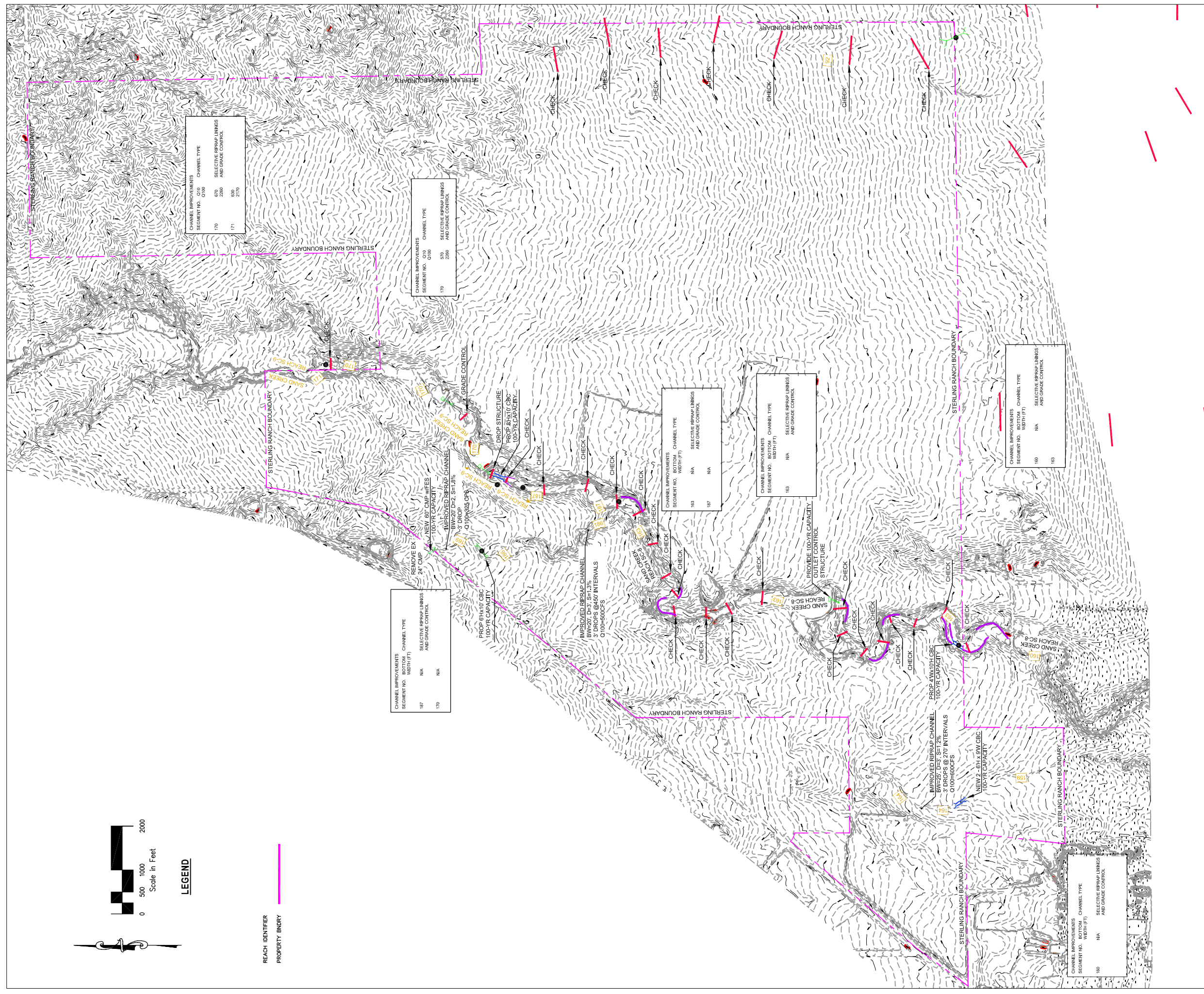


2018 STERLING RANCH MDDP

DBPS MAP OVERLAY

PROJECT NO. 09-002	FILE: \\eng\Exhibits\DPBS Overlay.dwg	DATE: 08-26-2018
DESIGNED BY: DLM	SCALE	
DRAWN BY: DLM	HORIZ: 1"=1000'	
CHECKED BY: VAS	VERT: N/A	

DPBS-2



LEGEND

REACH IDENTIFIER
 PROPERTY BNDRY

CHANNEL IMPROVEMENTS SEGMENT NO.	CHANNEL TYPE
187	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
170	N/A

CHANNEL IMPROVEMENTS SEGMENT NO.	CHANNEL TYPE
170	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
226	N/A
228	N/A
270	N/A

CHANNEL IMPROVEMENTS SEGMENT NO.	CHANNEL TYPE
170	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
226	N/A
228	N/A
270	N/A

CHANNEL IMPROVEMENTS SEGMENT NO.	BOTTOM WIDTH (FT)	CHANNEL TYPE
183	N/A	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
187	N/A	N/A

CHANNEL IMPROVEMENTS SEGMENT NO.	BOTTOM WIDTH (FT)	CHANNEL TYPE
183	N/A	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
188	N/A	N/A

CHANNEL IMPROVEMENTS SEGMENT NO.	BOTTOM WIDTH (FT)	CHANNEL TYPE
186	N/A	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
188	N/A	N/A

CHANNEL IMPROVEMENTS SEGMENT NO.	BOTTOM WIDTH (FT)	CHANNEL TYPE
189	N/A	SELECTIVE RIPRAP LINKINGS AND GRADE CONTROL
190	N/A	N/A

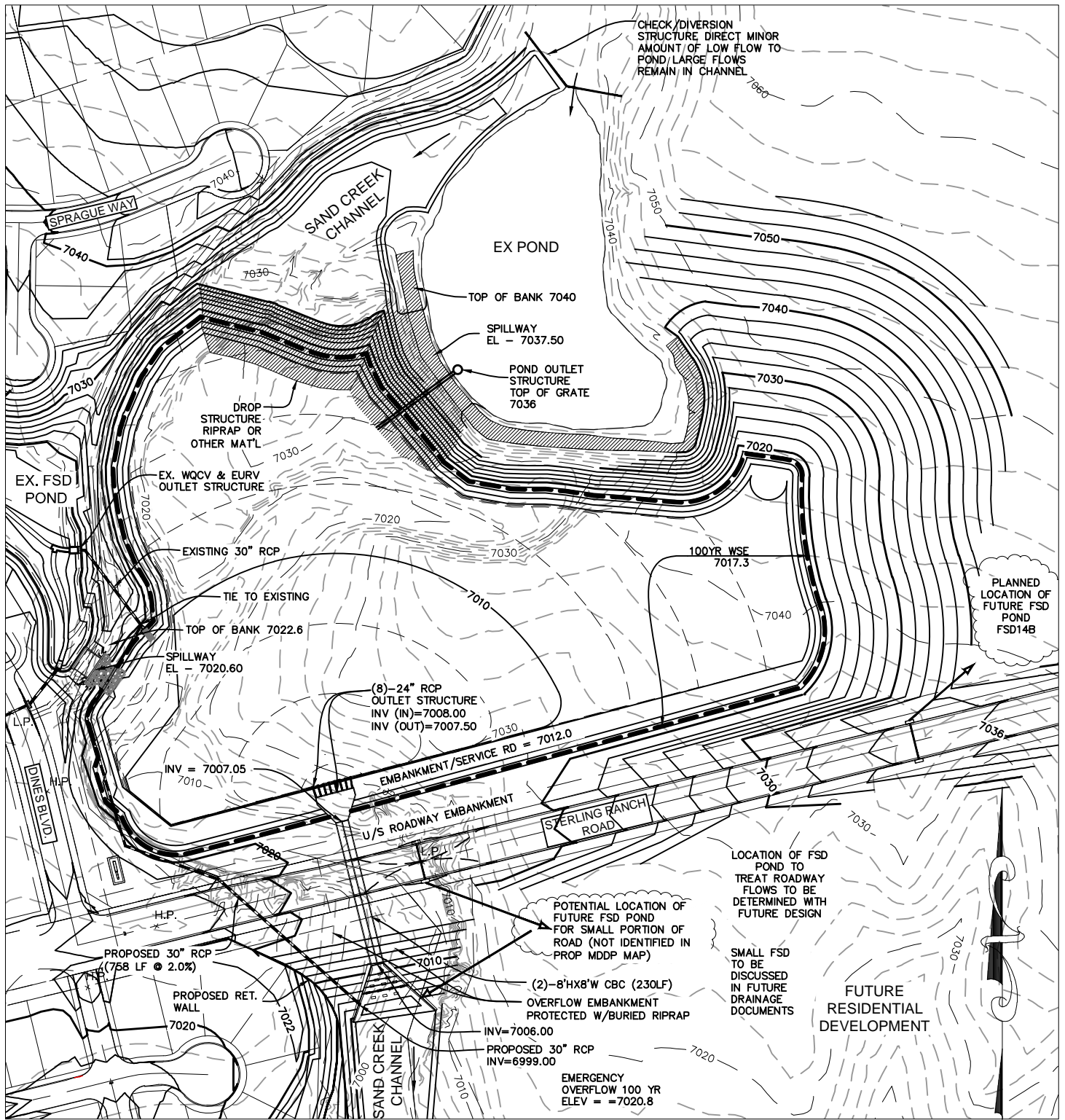
20 BOULDER CRESCENT SUITE 110
 COLORADO SPRINGS, CO 80903
 PHONE: 719.555.5465



**2018 STERLING RANCH MDDP
 DBPS MAP OVERLAY**

PROJECT NO. 09-002	FILE: \\ng\Eng\Exhibits\DPBS_overlay.dwg	DATE: 08-26-2018
DESIGNED BY: DLM	SCALE	
DRAWN BY: VAS	HORIZ: 1"=1000'	
CHECKED BY: VAS	VERT: N/A	

DPBS-3



C:\09002\STERLING RANCH DISTRICT\DWG\EXHIBITS\POND W-3\MDDP_POND_EXHIBITS.DWG

$Q_{100} = 2204.1 \text{ CFS (IN)}$
 $Q_{100} = 1350.6 \text{ CFS (OUT)}$
 $100\text{YR} = 78.2 \text{ AC-FT}$

STERLING RANCH POND PNDW3

SCALE 1"=200'

CONCEPT

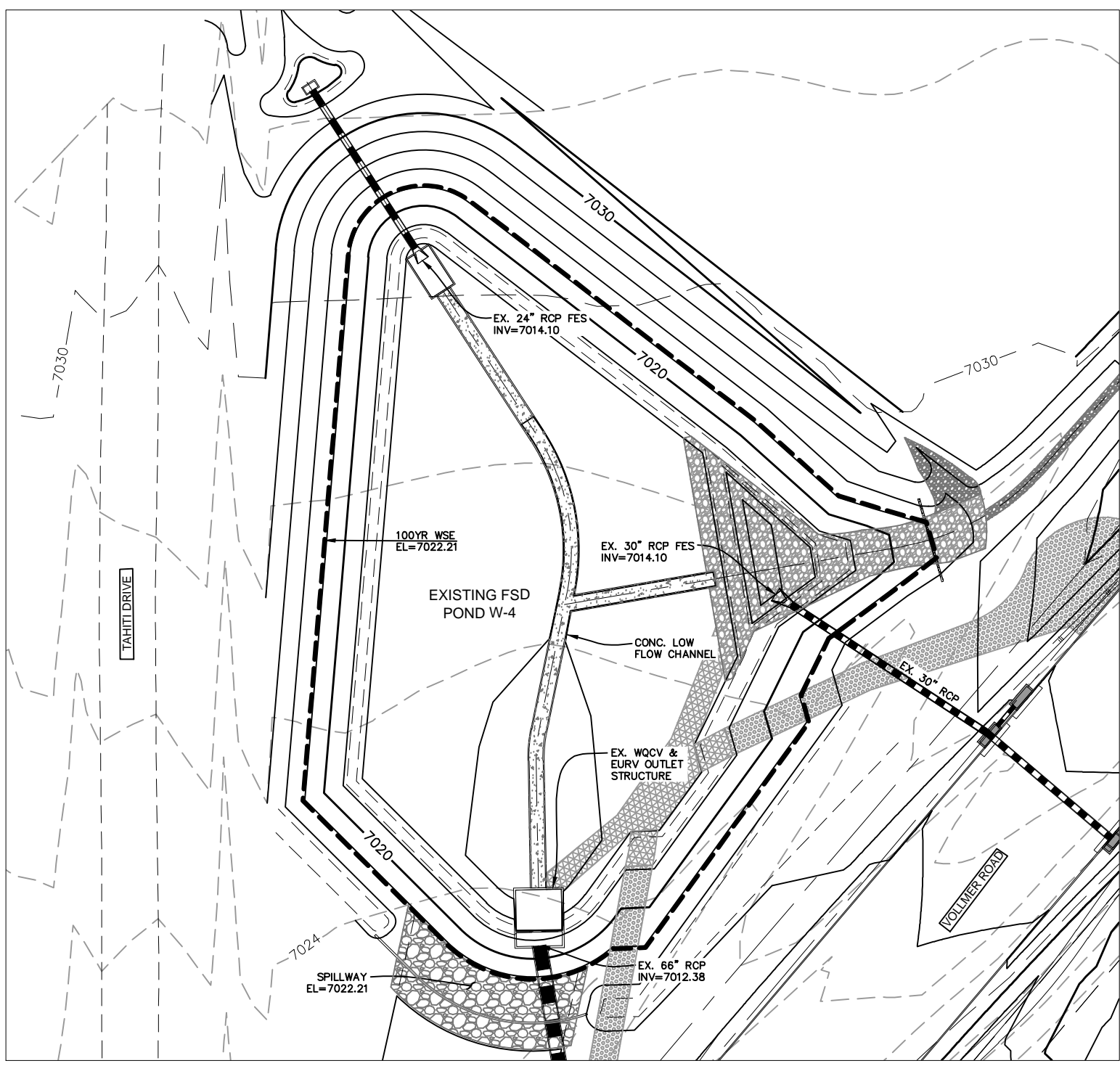
$100\text{YR WSE} = 7017.3$
 $\text{TOP OF EMBANKMENT} = 7019 \text{ US} / 7018.5 \text{ DS}$
 $100 \text{ YR OVERFLOW WSE} = 7021.3 \text{ US} / 7020.8 \text{ DS (2.3*)}$

*BASED UPON REVISED FEMA FLOW RATE TO ~ 2200 CFS



15 NORTH NEVADA AVENUE
COLORADO SPRINGS,
COLORADO 80903

v 719.955.5465
f 719.444.8427



WQCV= 1.75 AC-FT
 100YR= 7.67 AC-FT

100YR WSE= 7022.21



SCALE 1"=60'

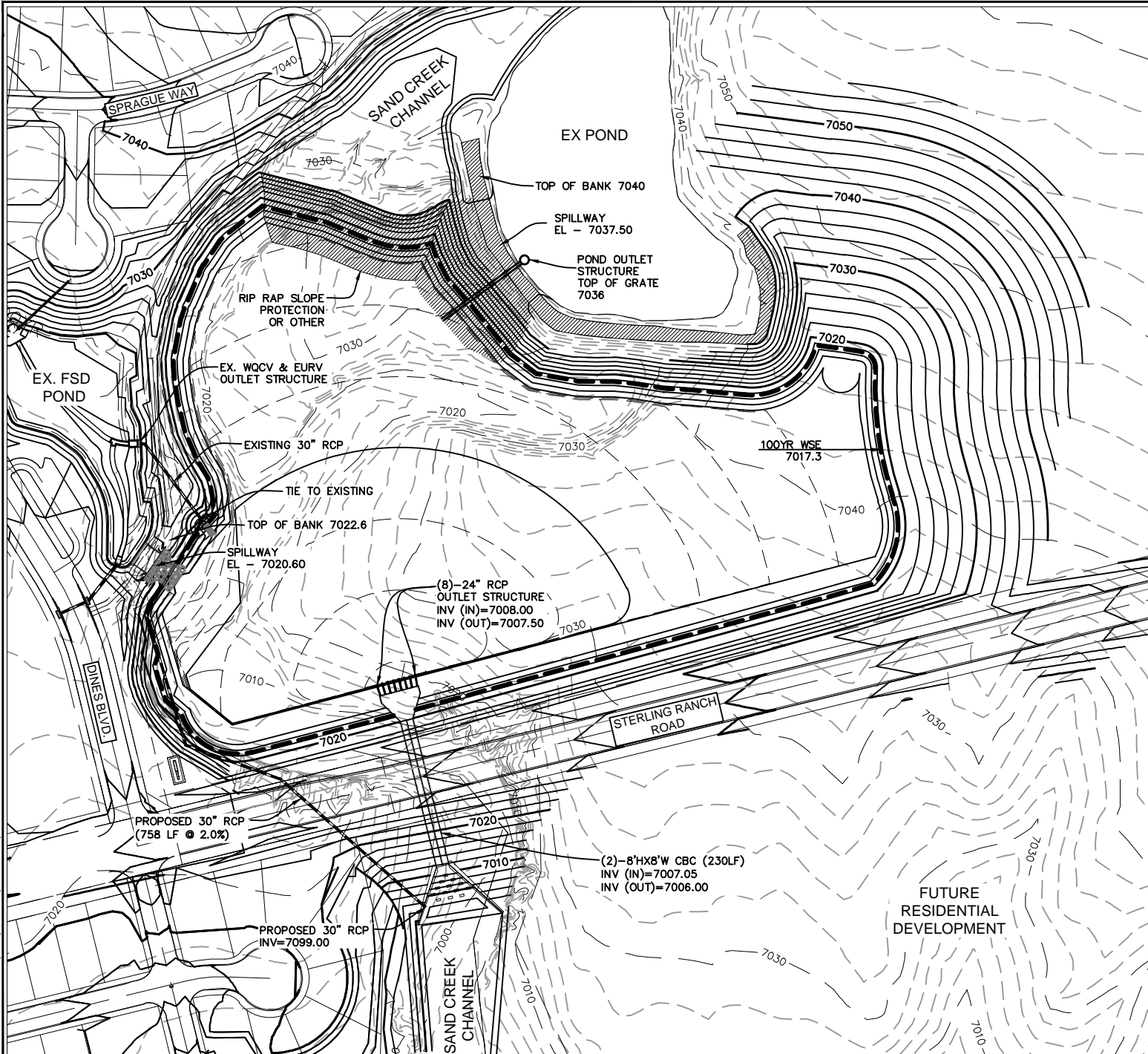
**STERLING
 RANCH
 POND FSD9**



15 NORTH NEVADA AVENUE
 COLORADO SPRINGS,
 COLORADO 80913

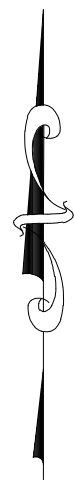
v 719.955.5485
 f 719. 444.8427

C:\09002\STERLING_RANCH_DISTRICT\DWG\EXHIBITS\POND_W-3\WDDP_POND_EXHIBITS.DWG



$Q_{100} = 2204.1 \text{ CFS (IN)}$
 $Q_{100} = 1350.6 \text{ CFS (OUT)}$
 $100\text{YR} = 78.2 \text{ AC-FT}$

100YR WSE = 7017.3



SCALE 1"=200'

STERLING RANCH POND PNDW3



15 NORTH NEVADA AVENUE
 COLORADO SPRINGS,
 COLORADO 80908

v 719.955.5485
 f 719.444.8427

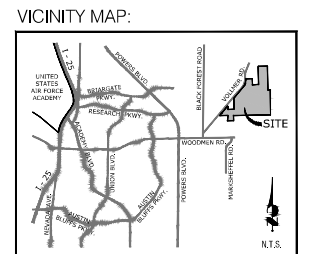
LAND USE LEGEND:

44 AC. RESIDENTIAL: 0.2 DU/AC	9 D.U.
33 AC. RESIDENTIAL: 0.4 DU/AC	13 D.U.
35 AC. RESIDENTIAL: 1 DU/AC	35 D.U.
163 AC. RESIDENTIAL: 2 DU/AC	326 D.U.
551 AC. RESIDENTIAL: 3-5 DU/AC	2,580 D.U.
20 AC. RESIDENTIAL: 5-8 DU/AC	100 D.U.
257 AC. RESIDENTIAL: 5-8 DU/AC ACTIVE ADULT	1,285 D.U.
32 AC. RESIDENTIAL: 8-12 DU/AC	302 D.U.
41 AC. RESIDENTIAL: 12-20 DU/AC	575 D.U.
56 AC. COMMERCIAL	
57 AC. ELEMENTARY / K-8 SCHOOL	
18 AC. NEIGHBORHOOD PARK	
30 AC. COMMUNITY PARK	
57 AC. OPEN SPACE / PARK / GREENWAY	
43 AC. OPEN SPACE / BUFFER	
7 AC. UTILITY PARCEL	

TOTAL: 1,444 AC. TOTAL: 5,225 D.U. Max

SYMBOL LEGEND:

- ROAD
- FULL MOVEMENT ACCESS POINT
- 100-YEAR FLOODPLAIN
- TRAIL
- BUFFER / OS TRAIL CORRIDOR / EASEMENT
- NEIGHBORHOOD PARK
- X,XXX' ACCESS SPACING (FEET)



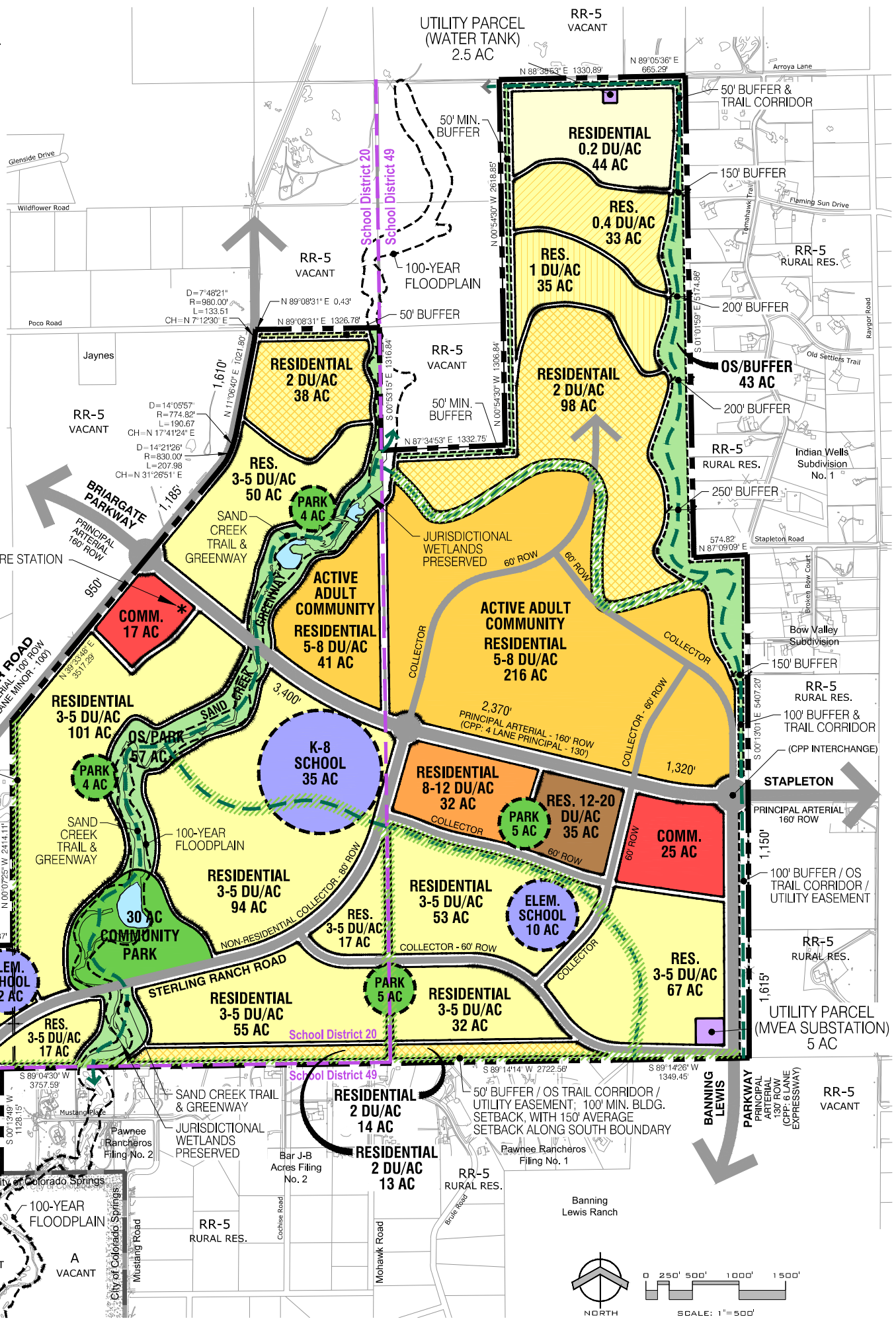
LEGAL DESCRIPTION:

THE WEST HALF OF THE WEST HALF OF THE EAST HALF AND EAST HALF OF THE WEST HALF AND THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 27; THE EAST HALF OF THE SOUTHEAST QUARTER AND THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER LYING SOUTH AND EAST OF THE COUNTY ROAD KNOWN AS VOLLERMER ROAD, OF SECTION 28; THE WEST HALF OF THE EAST HALF AND THE WEST HALF OF SECTION 34; THE EAST HALF AND THE EAST HALF OF THE SOUTHWEST QUARTER AND THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 33, AND ALL THAT PART OF THE NORTHWEST QUARTER OF SECTION 33 LYING SOUTH AND EAST OF THE COUNTY ROAD KNOWN AS VOLLERMER ROAD, EXCEPT THAT PORTION OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 33 LYING SOUTH AND EAST OF SAID COUNTY ROAD AS DEEDED TO COLORADO INTERSTATE GAS COMPANY BY WARRANTY DEED RECORDED IN BOOK 1173 AT PAGE 359; AND THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER AND THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER LYING SOUTHEAST OF THE COUNTY ROAD KNOWN AS VOLLERMER ROAD, OF SECTION 32, EXCEPT THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 32 DEEDED TO J. MARCUS BROWN BY TRUSTEES' DEED RECORDED IN BOOK 3292 AT PAGE 168; ALL IN TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO. ALL THAT PORTION OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 28, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO LYING SOUTH AND EAST OF THE COUNTY ROAD (VOLLERMER ROAD). ALSO: THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 4, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE SIXTH PRINCIPAL MERIDIAN, LYING SOUTHERLY OF AN EXISTING EAST-WEST FENCE AS DESCRIBED IN SPECIAL WARRANTY DEED RECORDED DECEMBER 23, 2004 AT RECEPTION NO. 204209417, COUNTY OF EL PASO, STATE OF COLORADO, ALSO: THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 32, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., LYING SOUTHEASTERLY OF THE PUBLIC ROAD KNOWN AS VOLLERMER ROAD, EL PASO COUNTY, COLORADO, AND CONTAINING 1443.695 ACRES MORE OR LESS.

- NOTES:**
1. MTCP, CCP, & PROPOSED CLASSIFICATION AND ROW DATA IS FOUND ON PAGE 16 OF THE SKETCH PLAN REPORT.
 2. NO SCHOOL SITES ARE SHOWN IN THE ACTIVE ADULT COMMUNITY DUE TO THE NATURE OF THE USE. IF THIS USE CHANGES, OR SCHOOL-AGE CHILDREN OCCUPY THESE UNITS, SCHOOL DEDICATION WILL BE MADE.

OWNER & DEVELOPER INFO:

MORLEY-BENTLEY INVESTMENTS, LLC.
20 BOULDER CRESCENT ST.
COLORADO SPRINGS, CO 80903
TEL: (719) 471-1742



STERLING RANCH

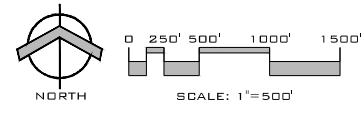
SKETCH PLAN

MORLEY-BENTLEY INVESTMENTS, LLC.

DATE: OCTOBER 29, 2007
PROJECT MGR: J. MAYHARDT / R. ROBERTO
PREPARED BY: J. KUHREIN / N. SWIFT

AMENDMENT

DATE	BY	DESCRIPTION
04-10-2008	JLK	COUNTY COMMENTS
04-30-2008	JLK	COUNTY COMMENTS
05-22-2008	JLK	COUNTY COMMENTS
10-13-2008	JLK	AMENDED SKETCH PLAN PER COUNTY COMMENTS
10-29-2008	JLK	AMENDED SKETCH PLAN PER COUNTY COMMENTS
05-22-2009	JLK	APPROVED SKETCH PLAN PER COUNTY - NOV. 2008
07-12-2010	MS	AMENDMENT



Markup Summary

Steve Kuehster (4)



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Page Label: 1
Author: Steve Kuehster
Date: 4/10/2019 11:53:02 AM
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Cursory comments only provided on this report.



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Page Label: 11
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Date: 4/10/2019 12:23:03 PM
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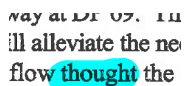
Cursory comment.

Ultimate acceptance of this requires:
The DB/BOCC approves a DBPS amendment to increase the fee significantly to pay for new criteria items (SWQ FSD) that were not considered in the 1996 DBPS cost analysis.
The Channel is completely improved to allow development on both sides. (We have not reviewed the design report)
The Channel will be improved and dedicated to the County including the portions of the channel adjacent to Sterling Ranch not owned by Sterling Ranch.
Consideration of other basin subdividers who also want to have their (SWQ & FSD & Smaller Channels) reimbursed.
Full accounting of the remaining public improvements in the basin.
etc.
etc.



Subject: text box
Page Label: 2
Author: Steve Kuehster
Date: 4/10/2019 9:46:48 AM
Color: ■

The county Engineer/ECM administrator cannot sign off on this. The proposal to have SWQ/Full Spectrum ponds reimbursed & closing a portion of the Sand Creek Basin, etc. require a Drainage Basin Planning Study update and acceptance of such by the Drainage Board and BOCC.



Subject: Highlight
Page Label: 9
Author: Steve Kuehster
Date: 4/9/2019 2:30:55 PM
Color: ■

may alleviate the ne
flow thought the