STERLING RANCH FILING NO.2

COUNTY OF EL PASO, STATE OF COLORADO

STORM SEWER PLANS

APRIL 2021

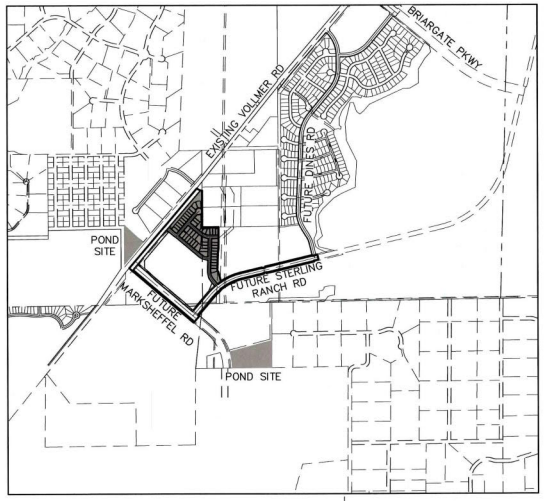
SF-20-015

AGENCIES

OWNER/DEVELOPER:	SR LAND, LLC 20 BOULDER CRESCENT, SUITE 201 COLORADO SPRINGS, CO 80903 JAMES F. MORLEY (719) 471-1742
CIVIL ENGINEER:	JR ENGINEERING, LLC 5475 TECH CENTER DRIVE COLORADO SPRINGS, CO 80919 MIKE BRAMLETT P.E. (303) 267-6240
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 JEFF RICE, P.E. (719) 520-6300
TRAFFIC ENGINEERING:	EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 JENNIFER IRVINE, P.E. (719) 520-6460
WATER RESOURCES:	STERLING RANCH METRO DISTRICT ENGINEERS JDS-HYDRO CONSULTANTS 545 E. PIKES PEAK AVE., SUITE 300 COLORADO SPRINGS, CO 80903 JOHN MCGINN (719) 668-8769
FIRE DISTRICT:	BLACK FOREST FIRE PROTECTION DISTRICT 11445 TEACHOUT ROAD COLORADO SPRINGS, CO 80908 CHIEF BRYAN JACK (719) 495-4300
GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 80947 TIM WENDT (719) 668-3556
ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALCON, CO 80831 (719) 495-2283
COMMUNICATIONS:	QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 922-1987 AT&T (LOCATORS) (719) 635-3674
STORMWATER	STORMWATER ENTERPRISE 30 S. NEVADA AVENUE, SUITE 401 COLORADO SPRINGS, CO 80903
COMMUNICATIONS:	QWEST COMMUNICATIONS (U.N.C.C LOCATORS) (800) 922-1987 AT&T (LOCATORS) (719) 635-3674
STORMWATER:	STORMWATER ENTERPRISE 30 S. NEVADA AVENUE, SUITE 401 COLORADO SPRINGS, CO 80903 (719) 385-5980
TRAFFIC:	TRAFFIC AND TRANSPORTATION ENGINEERING 30 S. NEVADA AVE. COLORADO SPRINGS, CO 80903 (719)-385-5908
GAS:	STEPHEN BACON SR. ROW AGENT II COLORADO INTERSTATE GAS CO. (KINDER MORGAN) 2 N. NEVADA AVE. COLORADO SPRINGS, CO 80903 719-659-5936
GAS:	CRAIG KERSEY REAL ESTATE | MAGELLAN MIDSTREAM PARTNERS, L.P. ONE WILLIAMS CENTER, OTC-8, TULSA, OK 74172 918-574-7986

BENCHMARKS

1. THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "9853", AT THE SOUTHEAST BOUNDARY CORNER OF BARBARICK SUBDIVISION
   NORTHING = 411416.273
   EASTING = 235167.071
   ELEVATION= 7023.42
2. THE TOP OF A RED PLASTIC SURVEYORS CAP, ILLEGIBLE, AT THE NORTHWEST BOUNDARY CORNER OF PAWNEE RANCHEROS SUBDIVISION
   NORTHING = 410095.404
   EASTING = 235052.131
   ELEVATION= 7000.40
3. THE TOP OF A RED PLASTIC SURVEYORS CAP, STAMPED "38141", AT THE SOUTHWEST BOUNDARY CORNER OF BARBARICK SUBDISION
   NORTHING = 411399.962
   EASTING = 233849.817
   ELEVATION= 7030.82



VICINITY MAP
SCALE : 1"=1,000'

SHEET INDEX

CITY OF COLORADO SPRINGS STATEMENT

REVIEWED AND ARE APPROVED FOR STORM DRAIN FACILITIES INSTALLATION CONSTRUCTION.

E.P. 7/15/2021
DATE

THE STORM FACILITIES CROSSING LANDS WITHIN THE CITY OF COLORADO SPRINGS JURISDICTION HAVE BEEN REVIEWED. PLAN REVIEW BY CITY OF COLORADO SPRINGS IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH DESIGN CRITERIA. THE CITY OF COLORADO SPRINGS IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE CITY OF COLORADO SPRINGS, THROUGH THE APPROVAL OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

Janet Morley 4/20/21
JAMES F. MORLEY DATE

SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E. DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

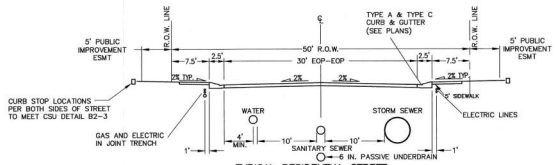
COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

Mike Bramlett MB 32314 4/20/21 04/20/21
MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

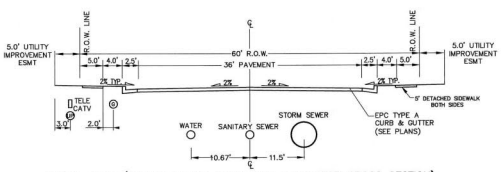
DISTRICT APPROVALS

THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED FOR STORM DRAIN AND ASSOCIATED UTILITY SERVICE CONSTRUCTION.

Janet Morley 4/20/21
FOR AND ON BEHALF OF THE STERLING RANCH METRO DISTRICT DATE



TYPICAL RESIDENTIAL STREET
SCALE: NTS
DESIGN SPEED: 25 MPH POSTED SPEED: 25 MPH



BYNUM DRIVE (TYPICAL URBAN RESIDENTIAL COLLECTOR CROSS SECTION)
SCALE: NTS

811 Know what's below. Call before you dig.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE FOR CONSTRUCTION PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 471-1742

J.R. ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

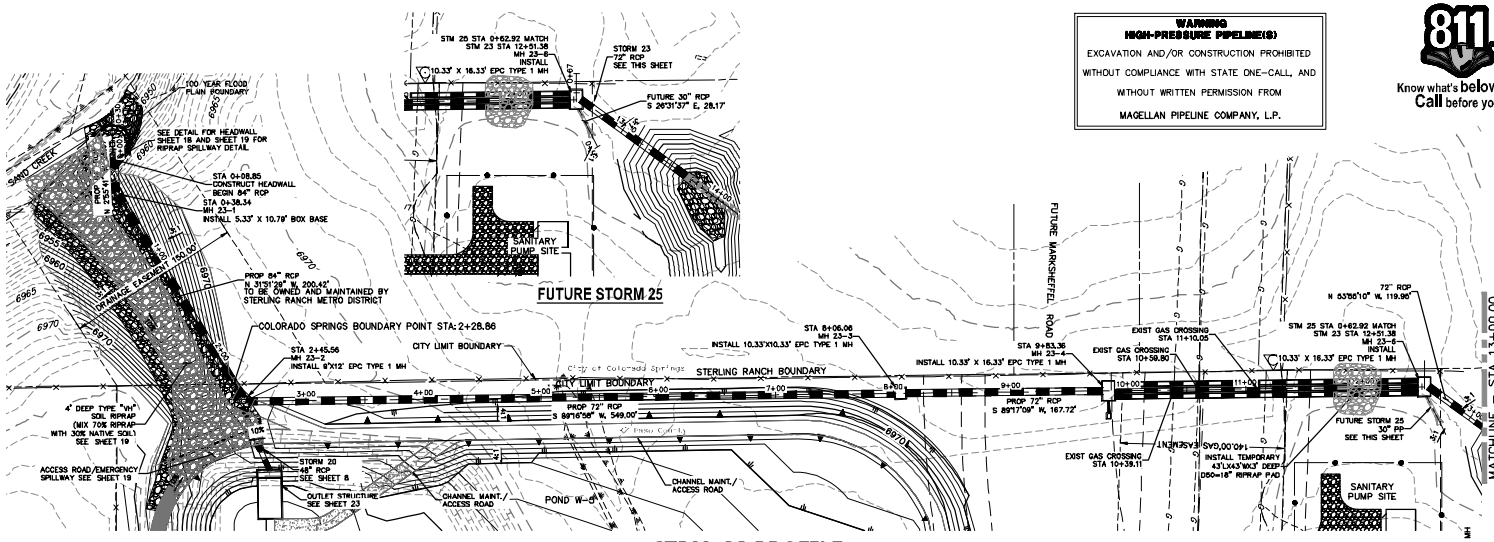
H-SCALE	N/A
V-SCALE	N/A
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	RAB
CHECKED BY	

STERLING RANCH FILING NO.2

COVER SHEET

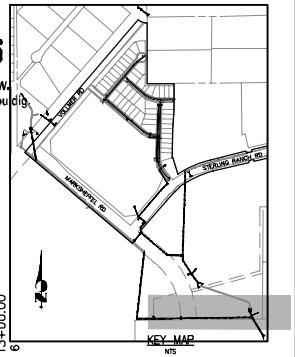
SHEET 1 OF 25

JOB NO. 25188.01



WARNING
HIGH-PRESSURE PIPELINE(S)
EXCAVATION AND/OR CONSTRUCTION PROHIBITED WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND WITHOUT WRITTEN PERMISSION FROM
MAGELLAN PIPELINE COMPANY, L.P.

811 Know what's **below.** **Call** before you dig.

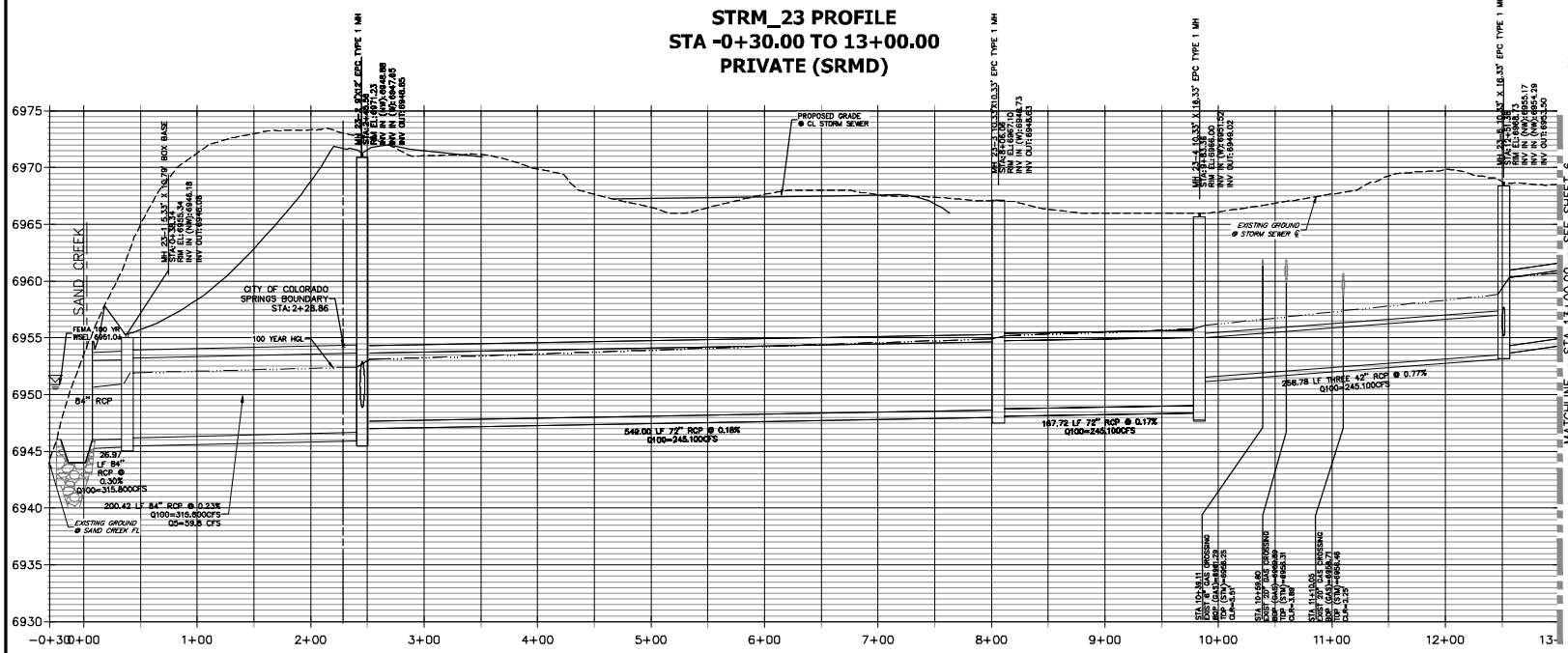


KEY MAP
NTS

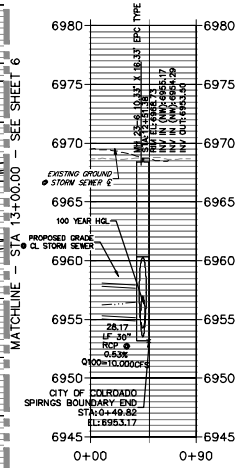
NOTE
WATER TIGHT JOINTS REQUIRED WHERE HGL IS OUTSIDE OF THE PIPE.

50 25 0 50 100
HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

STRM_23 PROFILE
STA -0+30.00 TO 13+00.00
PRIVATE (SRMD)



STRM 25
STA 0+00.00 TO 0+90.00
PRIVATE (SRMD)



ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

Mike Bramlett 8/20/2021
MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE ENGINEERING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES OUTLINED IN THE WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 471-1742

J.R. ENGINEERING
A Westrian Company
Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

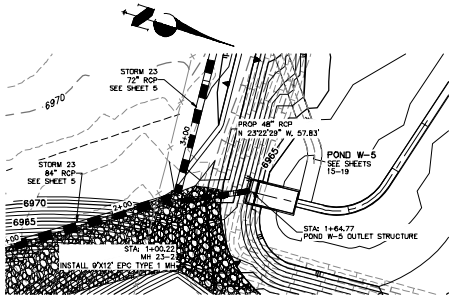
No.	REVISION	BY	DATE

H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	KRW
CHECKED BY	

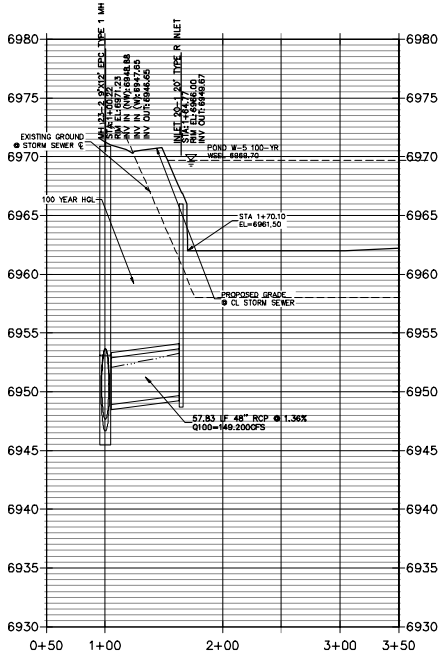
STERLING RANCH FILING NO.2
STORM SEWER PLANS

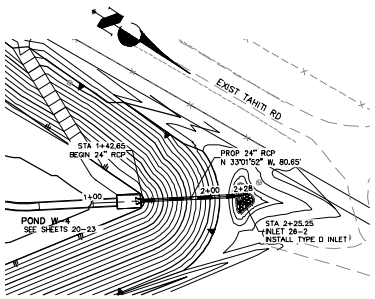
SHEET 5 OF 26
JOB NO. 25188.01

HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

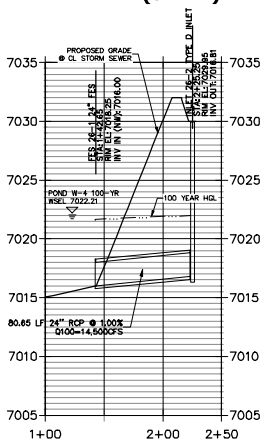


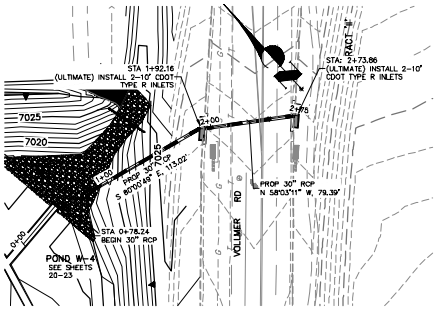
STRM_20 PROFILE
STA 0+50.00 TO 3+50.00
PRIVATE (SRMD)





STRM_26 PROFILE
STA 1+00.00 TO 2+50.00
PRIVATE (SRMD)





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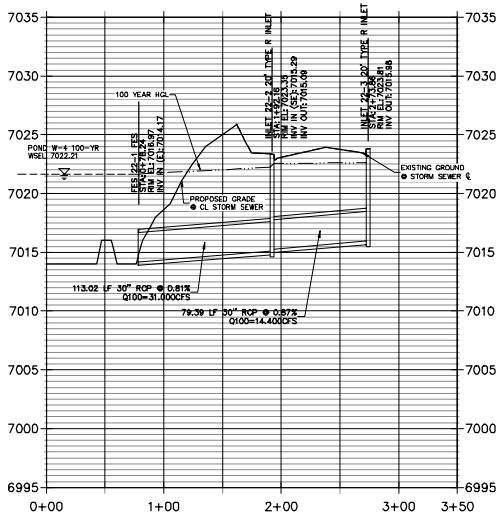
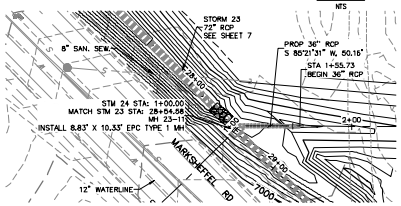
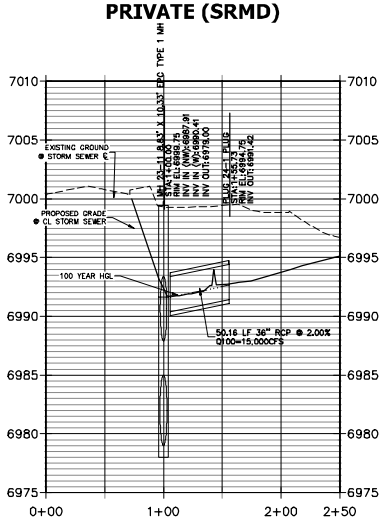
STA 0+00.00 TO 3+50.00
PUBLIC (SRMD)





STRM_24 PROFILE
STA 0+00.00 TO 2+50.00
PRIVATE (SRMD)



NOTE
WATER TIGHT JOINTS REQUIRED WHERE HGL IS OUTSIDE OF THE PIPE.

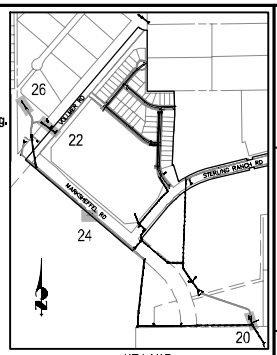
ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

Mike Bramlett
MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32,314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED PROFESSIONAL ENGINEER MIKE A. BRAMLETT 32314

5/20/2021
DATE

Know what's below. Call before you dig.



KEY MAP
NTS

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, THE ENGINEER APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES E. MORLEY
(719) 471-1742

J.R. ENGINEERING
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Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE

No.	REVISION

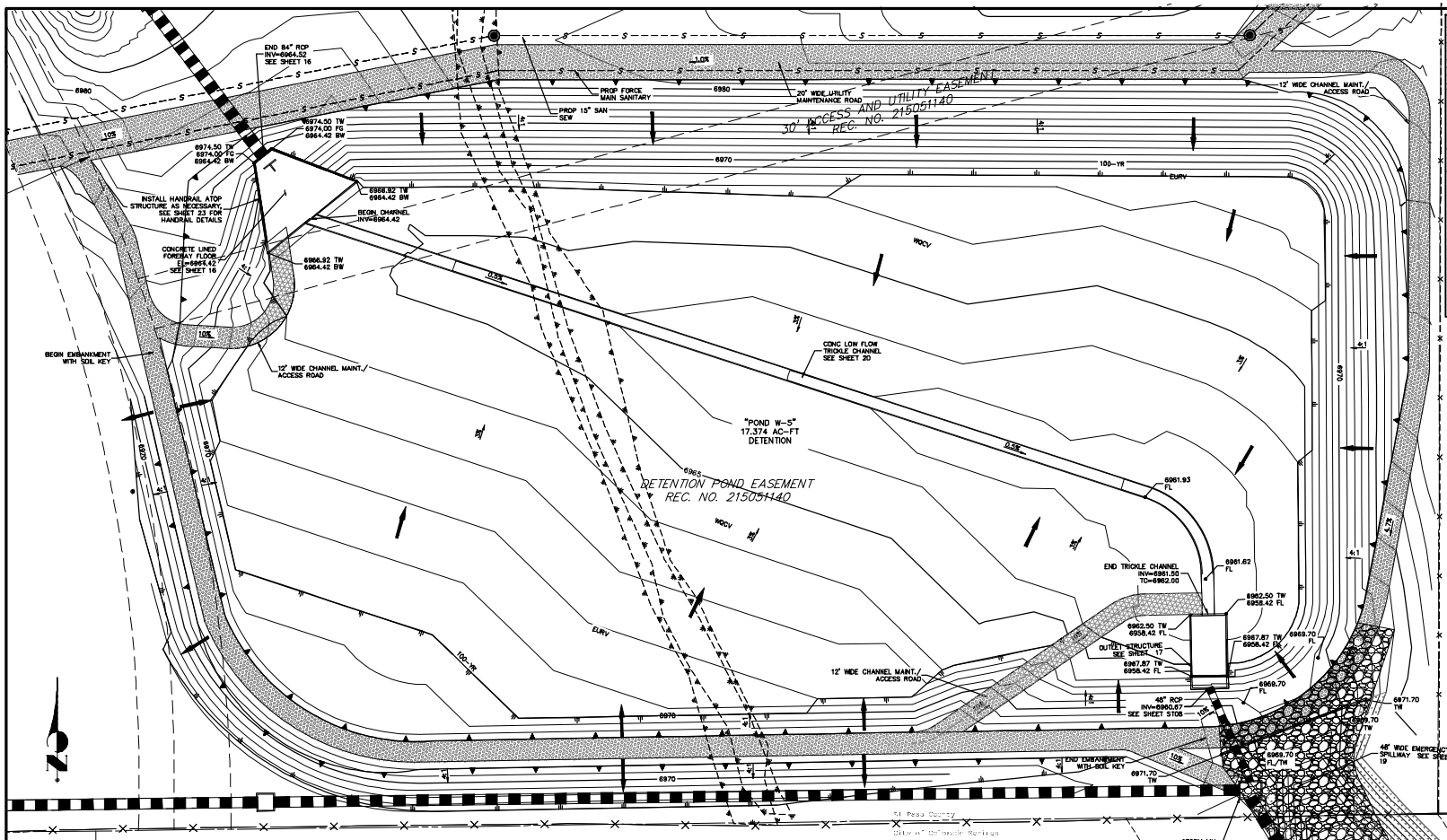
H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	KRW
CHECKED BY	

STERLING RANCH FILING NO.2

STORM SEWER PLANS

SHEET 8 OF 26

JOB NO. 25188.01



LEGEND

EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
	100YR FLOODPLAIN
	PERM. EROSION CONTROL BLANKET SC150
	RIPRAP TYP.
	STABILIZED MAINTENANCE ROAD ABOVE EURV
	STABILIZED MAINT. ROAD BELOW EURV
	RIPRAP LOW FLOW CHANNEL
	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
	PROP STORM SEWER PIPE
	WARNING SIGN

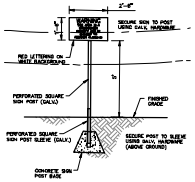
50 25 0 50
ORIGINAL SCALE: 1" = 50'

NOTES:
1. SEE STERLING RANCH-FILING NO. 2 STORM SEWER PLANS BY M&S CIVIL FOR ADDITIONAL CONSTRUCTION DETAILS. FULL SPECTRUM DETENTION POND TO BE MAINTAINED BY STERLING RANCH METRO DISTRICT.

811 Know what's **below.** **Call** before you dig.

POND W-5 FULL SPECTRUM DETENTION BASIN DATA
WQ WATER SURFACE EL = 6965.62
WQ VOLUME=3.29 AC-FT
EURV WATER SURFACE EL = 6968.35
EURV VOLUME=11.71 AC-FT
100-YR WATER SURFACE EL=6969.95
SPILLWAY CREST EL=6970
TOP OF EMBANKMENT EL=6972.00
100-YR VOLUME=18.22 AC-FT
100-YR INFLOW = 427.1 CFS
100-YR RELEASE = 137.1 CFS

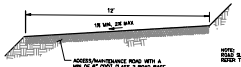
FULL SPECTRUM DETENTION POND W-5
SITE PLAN
SCALE 1"=30'



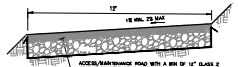
POND WARNING SIGN
NOT TO SCALE

GRADING NOTES:

1. ALL PROPOSED CONTOURS ARE TO FINISHED GRADE.
2. EARTHEN CUT AND FILL SLOPES SHALL BE 3:1 MAXIMUM. SLOPES IN EXCESS OF 4:1 AND AREAS OTHERWISE INDICATED BY WITHIN THESE PLANS. SHALL BE COVERED WITH SOIL RETENTION BLANKET OVER 4" MIN. THICKNESS OF TOPSOIL AND SEEDED.
3. IF THE PROJECT IS CONSTRUCTED DURING THE SUMMER WHEN SEEDING IS NOT ALLOWED, APPLY 1-1/2 TONS OF CERTIFIED WEED FREE MULCH PER ACRE MECHANICALLY CRIMPED INTO THE SOIL IN COMBINATION WITH AN ORGANIC MULCH TACKIFIER.
4. PRIOR TO ANY CONSTRUCTION ACTIVITIES THE PROPOSED SILT FENCE SHOWN ON THE EROSION CONTROL SHEET SHALL BE CONSTRUCTED. THE FENCE SHALL BE REMOVED UPON THE LATER OF STABILIZATION OF THE SITE OR COMPLETION OF CONSTRUCTION.
5. TO REDUCE THE POTENTIAL FOR CLOGGING OF DEBRIS GRATES, NO STRAW MULCH SHALL BE USED WITHIN THE EURV OR WQCV OF A DETENTION BASIN. INSTEAD, EROSION CONTROL BLANKETS SHALL BE INSTALLED FOR A WIDTH OF AT LEAST 6 FEET ON EITHER SIDE OF CONCRETE LOW-FLOW CHANNELS. THE BLANKETS SHALL COMPLY WITH THE MATERIALS AND INSTALLATION REQUIREMENTS FOR EROSION CONTROL BLANKETS (STRAW COCONUT OR 100 PERCENT COCONUT). SITE-SPECIFIC CONDITIONS MAY REQUIRE ADDITIONAL BLANKET OR OTHER EROSION CONTROL MEASURES.



MAINTENANCE & ACCESS ROAD ABOVE EURV TYPICAL SECTION
NOT TO SCALE



MAINTENANCE & ACCESS ROAD BELOW EURV TYPICAL SECTION
NOT TO SCALE

ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

Mike Bramlett 4/20/2021
MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, THE ENGINEER APPROVES THEIR USE ONLY FOR THE PURPOSES OBTAINING SUCH APPROVALS. WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 471-1742

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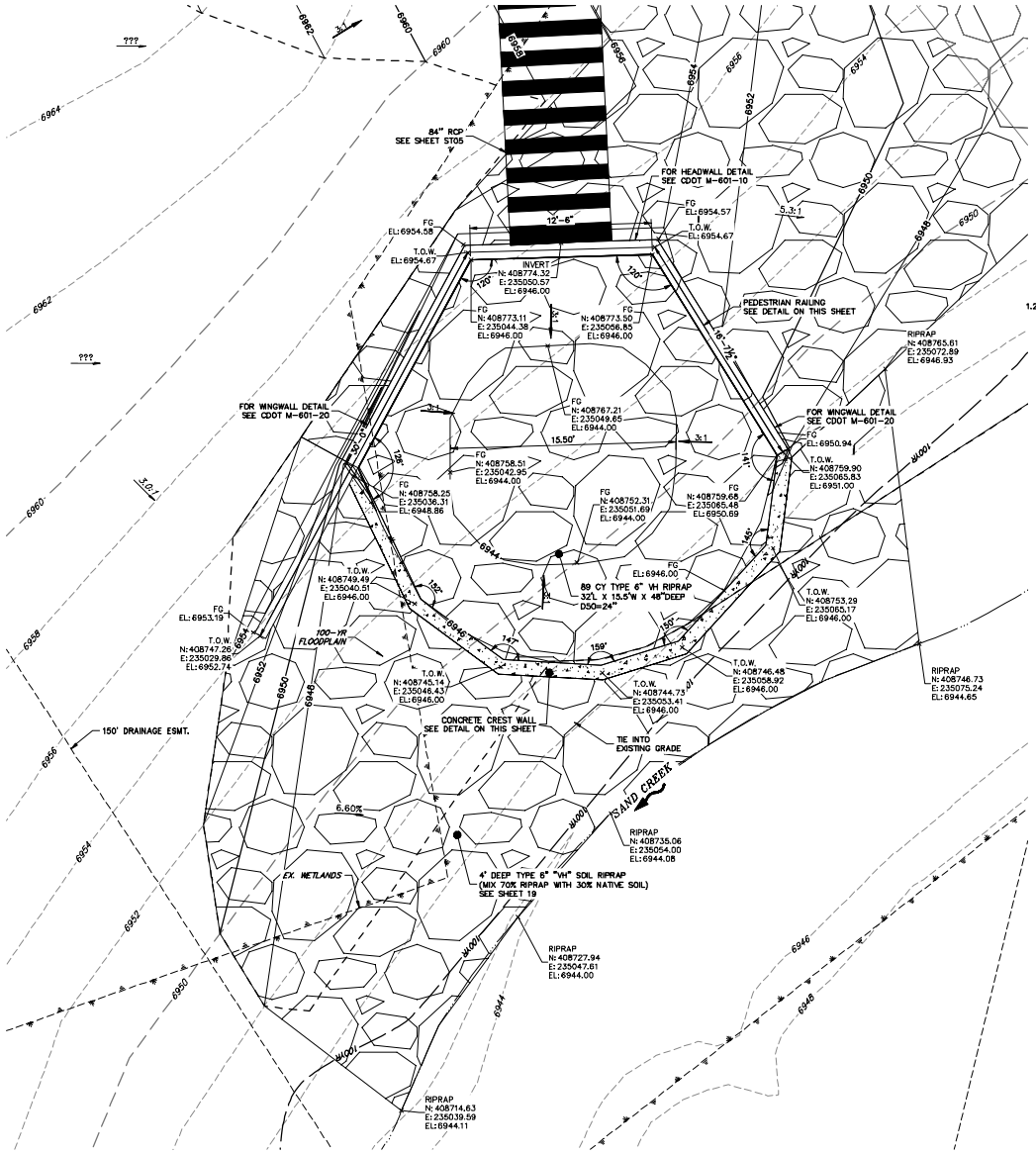
No.	REVISION	BY	DATE

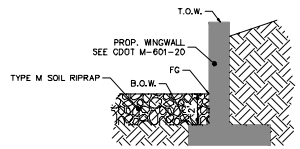
H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	KRW
CHECKED BY	

STERLING RANCH FILING NO.2
POND W5

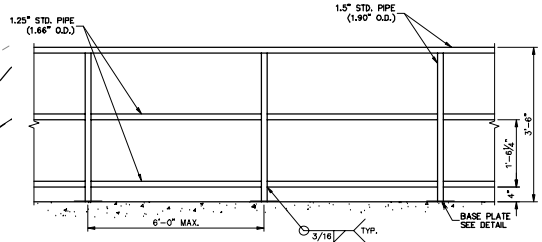
SHEET 15 OF 26
JOB NO. 25188.01



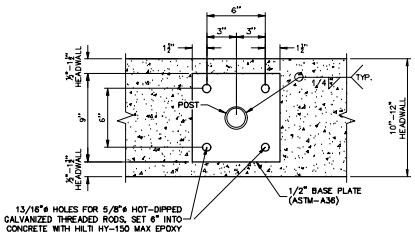
STORM 23 - 84" OUTFALL STILLING BASIN W/ HEADWALL & WINGWALL
SCALE: 1" = 4'



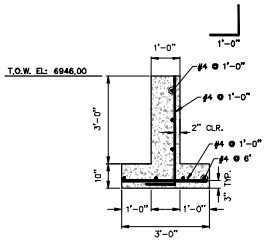
WINGWALL TYPICAL ELEVATION
LOCATION DETAIL
N.T.S.



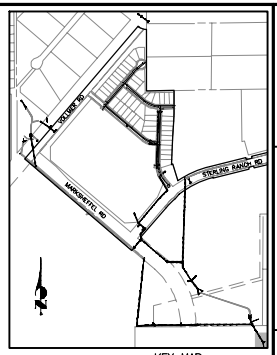
RAILING DETAIL
SCALE: 3/4"=1'-0"
RAILING TO BE HOT-DIPPED GALVANIZED



BASE PLATE DETAIL
SCALE: 2"=1'-0"



CONCRETE CREST WALL
SCALE: 1"=2'



KEY MAP
NTS

4 2 0 4 8
ORIGINAL SCALE: 1" = 4'

Know what's below.
Call before you dig.

ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

Mike Bramlett 5/20/2021
MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED PROFESSIONAL ENGINEER MIKE A. BRAMLETT 32314

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AUTHORITY, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES OBTAINING THE WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT
SUITE 201
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 471-1742

J·R ENGINEERING
A Westrian Company
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Fort Collins 970-491-9888 • www.jrengineering.com

H-SCALE	AS NOTED	No.	REVISION
V-SCALE	N/A		
DATE	04/15/21		
DESIGNED BY	RAB		
DRAWN BY	KRW		
CHECKED BY			

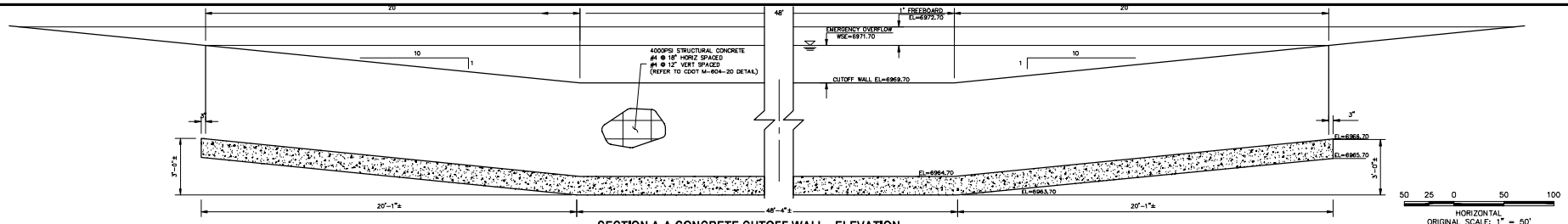
BY	DATE

STERLING RANCH FILING NO.2

POND DETAILS

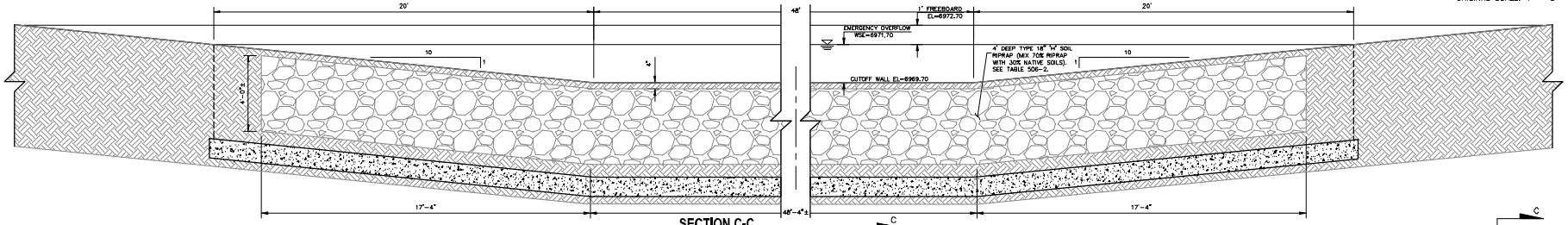
SHEET 18 OF 26

JOB NO. 25188.01



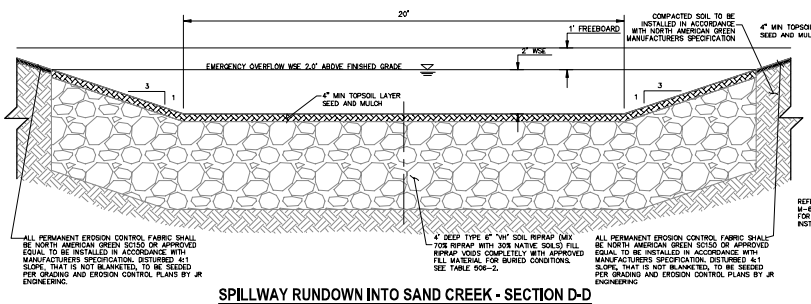
SECTION A-A CONCRETE CUTOFF WALL - ELEVATION

NOT TO SCALE



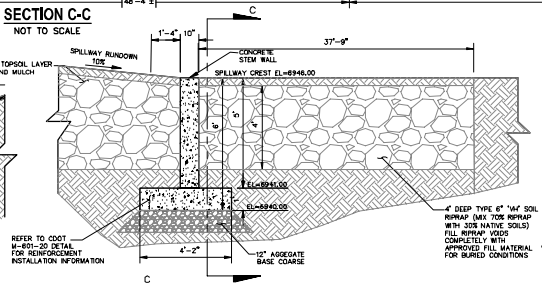
SECTION C-C

NOT TO SCALE



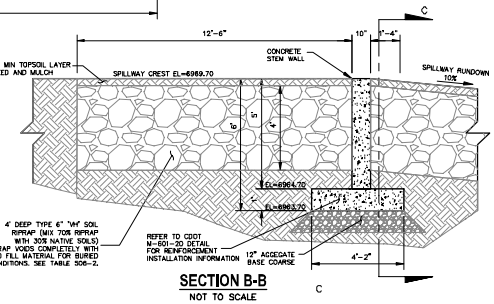
SPILLWAY RUNDOWN INTO SAND CREEK - SECTION D-D

NOT TO SCALE



SECTION E-E

NOT TO SCALE



SECTION B-B

NOT TO SCALE

Table 506-2

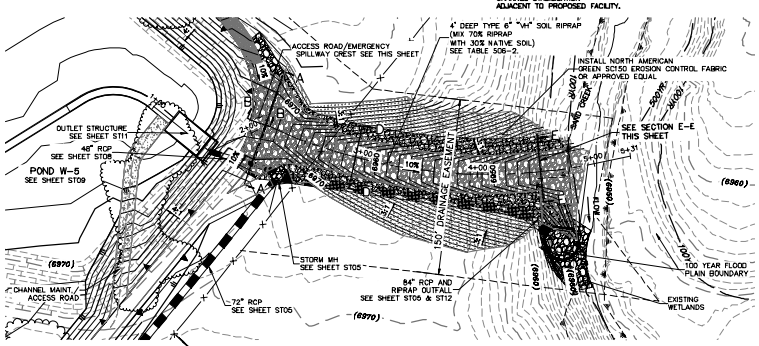
Pay Item	Stone Size d50[1] (Inches)	Percent of Material Smaller Than Typical Stone[2]	Typical Stone Dimensions[3] (Inches)	Typical Stone Weight[4] (Pounds)
Riprap TYPE VL	6	70-100	12	85
		50-70	9	35
		35-50	6	10
		2-10	2	0.4
Riprap TYPE L	9	70-100	15	160
		50-70	12	85
		35-50	9	35
		2-10	3	1.3
Riprap TYPE M	12	70-100	21	440
		50-70	18	275
		35-50	12	85
		2-10	4	3
Riprap TYPE H	18	100	30	1280
		50-70	24	650
		35-50	18	275
		2-10	6	10
Riprap TYPE VH	24	100	42	3500
		50-70	33	1700
		35-50	24	650
		2-10	9	35

[1]d50 = nominal stone size
[2]based on typical rock mass
[3]equivalent spherical diameter
[4]based on a specific gravity = 2.5

Nominal stone size and total thickness of the riprap shall be as shown on the plans.

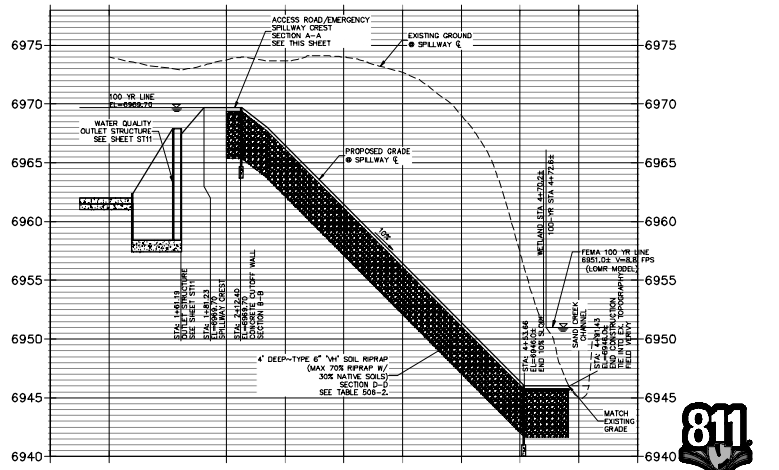
NOTE: CDOT SECTION 506 REQUIREMENTS APPLY

NOTE:
REFER TO STERLING RANCH FILING NO.2 GRADING AND EROSION PLAN FOR POND EMBANKMENT AND CHANNEL STABILIZATION ADJACENT TO PROPOSED FACILITY.



EMERGENCY SPILLWAY AND RUNDOWN ALIGNMENT

50 25 0 50
HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'



EMERGENCY SPILLWAY PROFILE

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JAMES F. MORLEY
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J.R. ENGINEERING
A Westrian Company
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No.	REVISION	BY	DATE

H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	KRW
CHECKED BY	

STERLING RANCH FILING NO.2

POND DETAILS

SHEET 19 OF 26

JOB NO. 25188.01

June 30, 2021

J·R ENGINEERING

Erin Powers
Engineering – Stormwater Division
City of Colorado Springs
30 S. Nevada Street, Suite 401
Colorado Springs, CO 80903

Re: Sterling Ranch Filing No. 2 – 84" Storm Outfall Minimum Pipe Slope Variance Request

Dear Erin:

The purpose of this letter is to request a DCM criteria variance for the proposed minimum pipe slope design basis for Sterling Ranch Filing No. 2, an El Paso County subdivision that outfalls across City of Colorado Springs property (proposed Aspen Meadows Subdivision Filing No. 1). The variance being requested is to allow the 84" RCP outfall to have a slope of 0.23 percent instead of the criteria minimum of 0.3 percent. The variance requested is highlighted on the plans in Exhibit B.

The overall development of Sterling Ranch Filing #2 is comprised of 49 single family lots. The site is 49.54 acres and will be platted in one filing in El Paso County.

The project is being developed by SR Land, LLC, 20 Boulder Crescent, Suite 200, Colorado Springs, Colorado 80903. Please refer to Appendix A for a vicinity map.

To assist in the review of the variance request presented, the following exhibits have been included;

Exhibit A – Vicinity Map
Exhibit B – Storm Sewer Plan and Profile
Exhibit C - Storm Sewer HGL - 5 year storm and 100 year velocity calculation

JR requests the following variance in accordance with City of Colorado Springs' Drainage Criteria Manual (DCM), Volume 1, Chapter 1, Section 10.

84" Storm Sewer Design Basis

Request
Applicant proposes to utilize a slope of 0.23% in a 200 foot segment of 84" RCP pipe that crosses into the City of Colorado Springs prior to its discharge to Sand Creek.

Design Standards

Per City of Colorado Springs Drainage Criteria Manual Vol. 1, Chapter 9, Section 7.1 Allowable velocity and slope, the minimum allowable longitudinal slope shall be 0.30 percent for pipes 36" and greater.

Specific Locations

The variance request is specific to the proposed 84" RCP pipe segment that crosses property within the City of Colorado Springs as it enters Sand Creek as shown on the plan and profile sheet in Exhibit B.

Justification

Applicant believes the variance is justified for the following reasons;

- Per the Hydraulic Grade Line Analysis, the minor storm minimum velocity in this segment is 5.79 feet per second which is above the accepted self-cleaning velocity of 3 feet per second. See Exhibit C
- The slope is controlled by an upstream petroleum pipeline constraint operated by Kinder Morgan.

Granting of this variance will not cause any increase in peak flows in Fountain Creek. Granting of this variance will not cause any decrease in water quality in Fountain Creek. As a result of the information presented, and on behalf of the property owner, we are requesting the above variance be positively considered for these for this specific location.

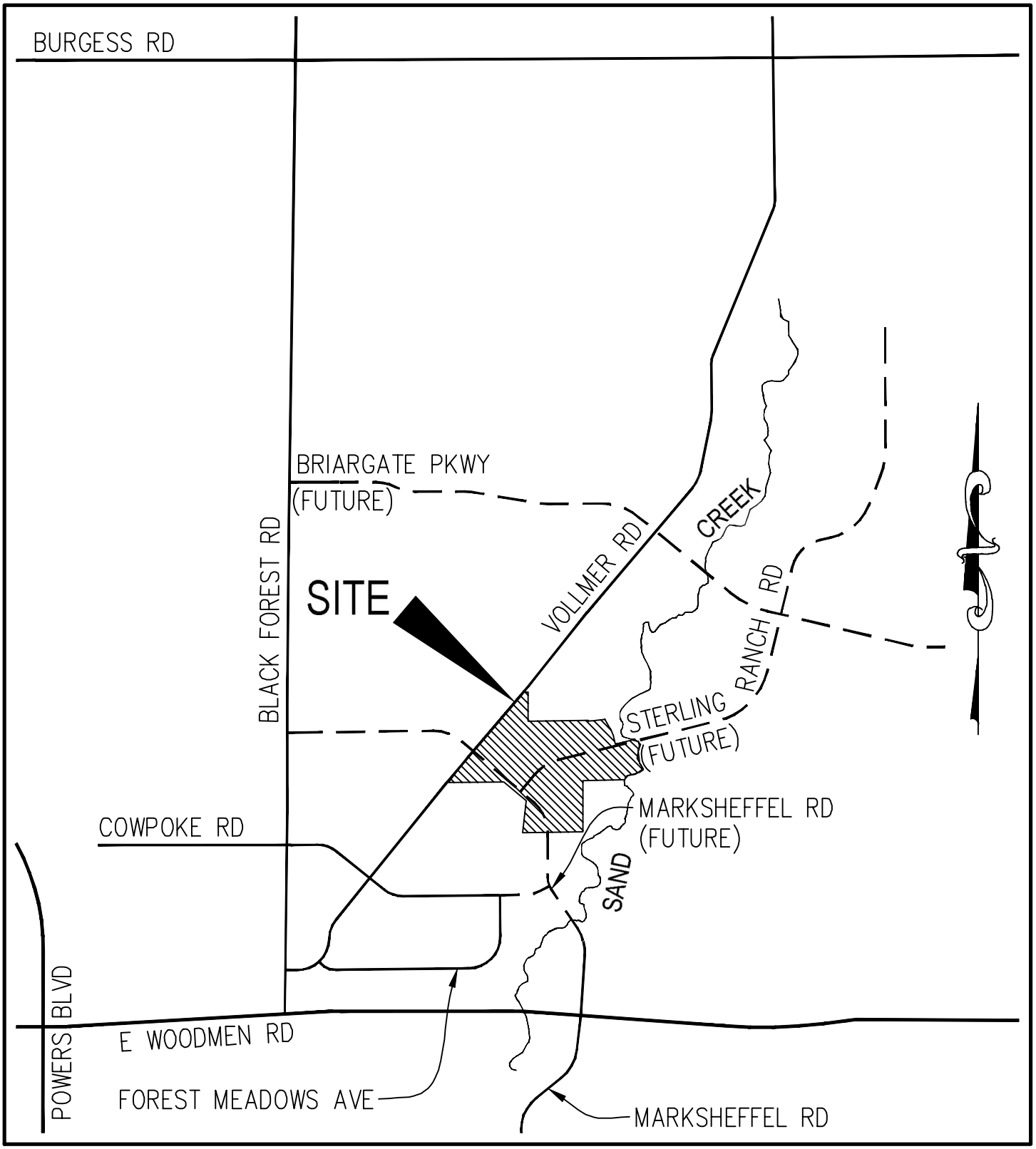
Sincerely,

COLORADO LICENSED
MIKE BRAMLETT
32314
5/26/21
PROFESSIONAL ENGINEER

JR Engineering, LLC
Mike Bramlett, PE

Attachments: Exhibits A, B, C

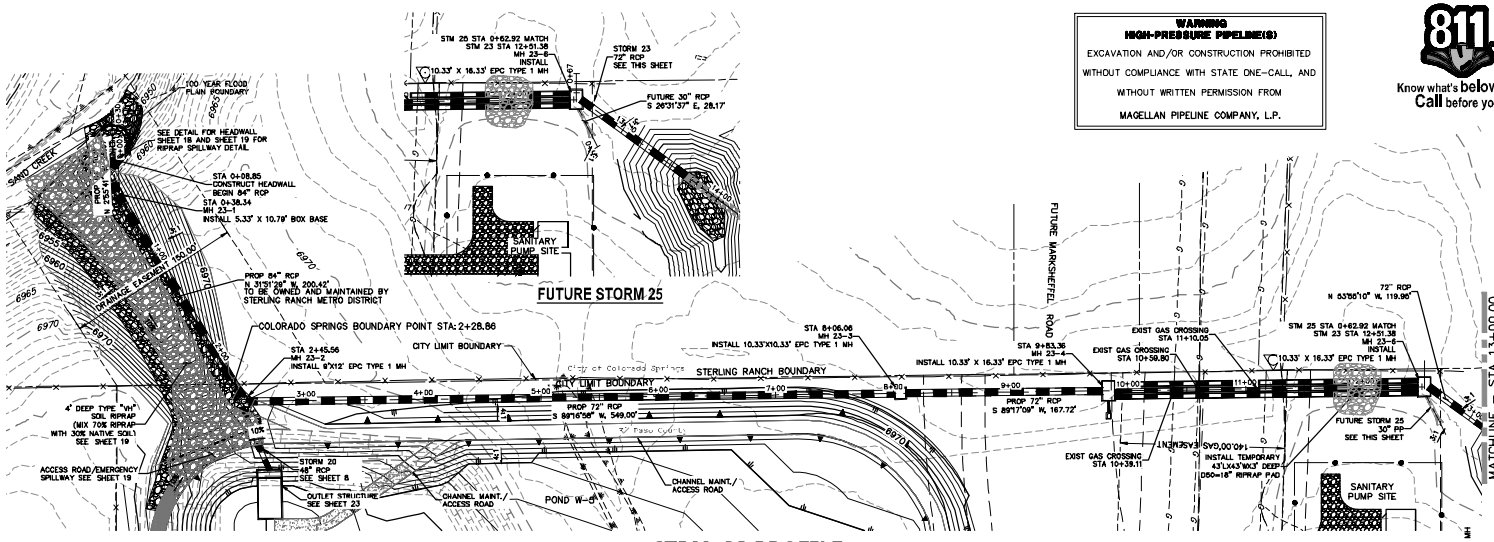
Exhibit A
Vicinity Map



VICINITY MAP

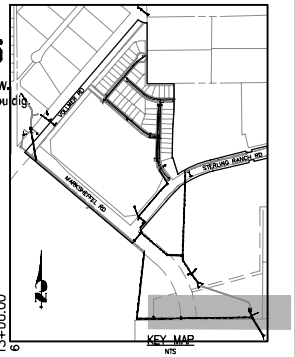
N.T.S.

Exhibit B
Storm Sewer Plan and Profile



WARNING
HIGH-PRESSURE PIPELINE(S)
EXCAVATION AND/OR CONSTRUCTION PROHIBITED WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND WITHOUT WRITTEN PERMISSION FROM
MAGELLAN PIPELINE COMPANY, L.P.

811 Know what's **below.** **Call** before you dig.

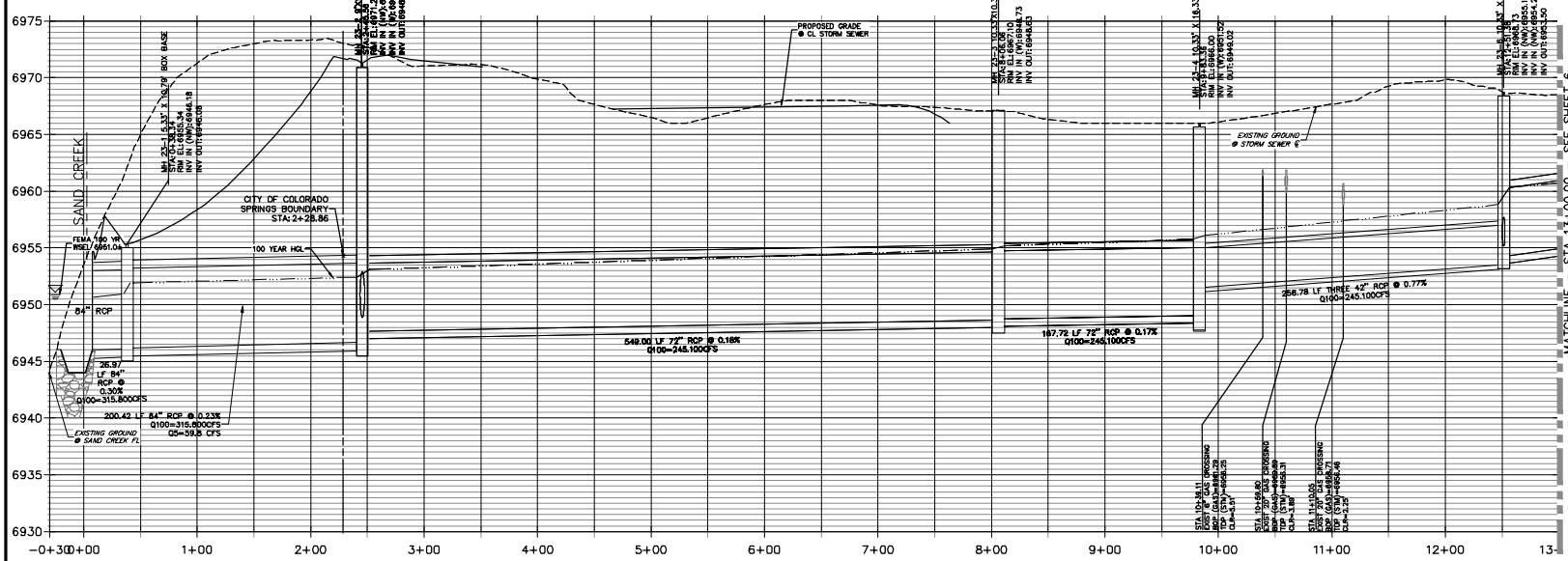


KEY MAP
NTS

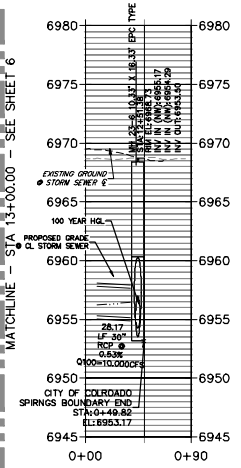
NOTE
WATER TIGHT JOINTS REQUIRED WHERE HGL IS OUTSIDE OF THE PIPE.

50 25 0 50 100
HORIZONTAL
ORIGINAL SCALE: 1" = 50'
VERTICAL
ORIGINAL SCALE: 1" = 5'

STRM_23 PROFILE
STA -0+30.00 TO 13+00.00
PRIVATE (SRMD)



STRM 25
STA 0+00.00 TO 0+90.00
PRIVATE (SRMD)



ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

Mike Bramlett 3/20/2021
MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

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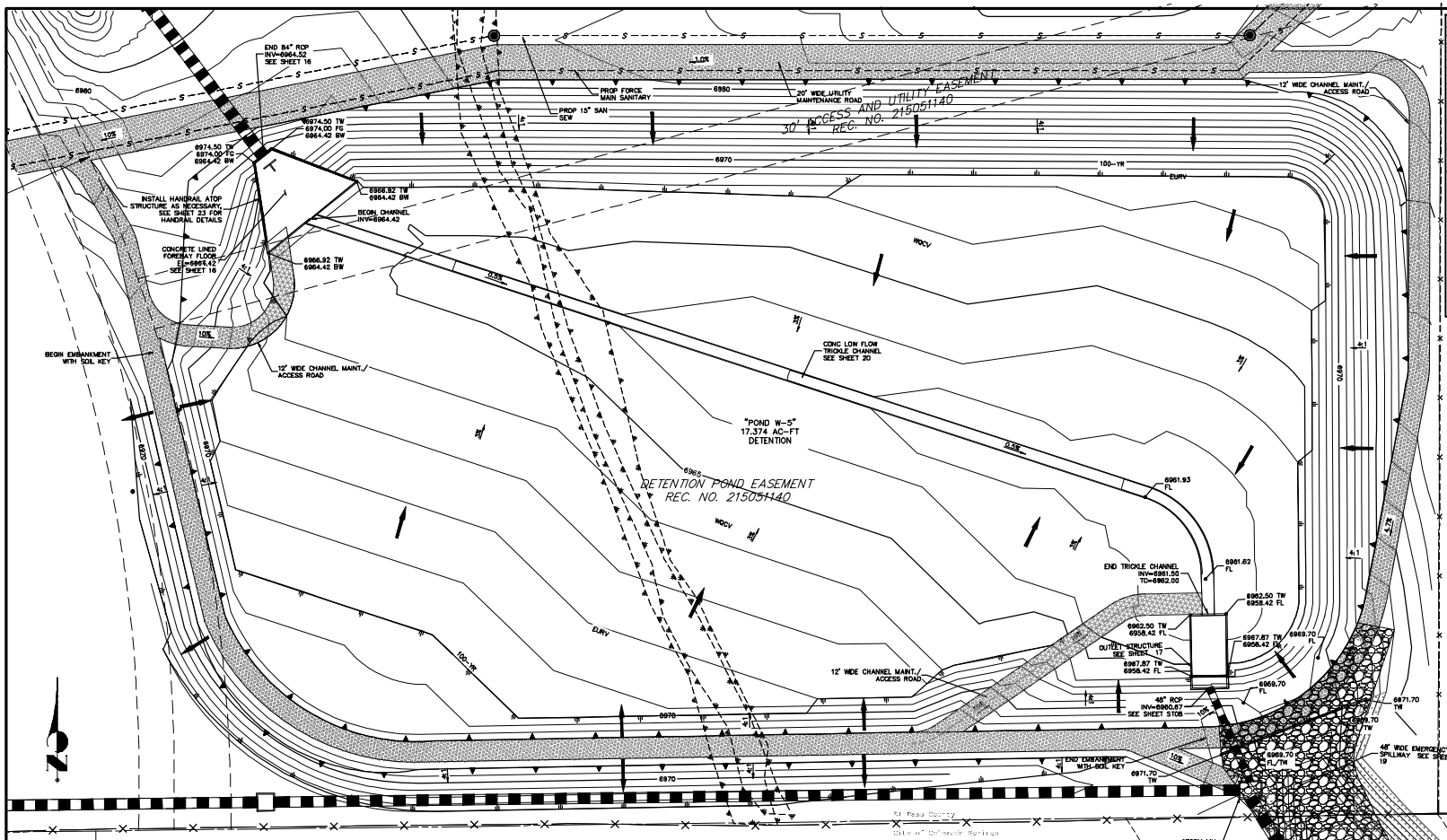
No.	REVISION	BY	DATE

H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	KRW
CHECKED BY	

STERLING RANCH FILING NO.2
STORM SEWER PLANS

SHEET 5 OF 26
JOB NO. 25188.01



LEGEND

EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
	100YR FLOODPLAIN
	PERM. EROSION CONTROL BLANKET SC150
	RIPRAP TYP.
	STABILIZED MAINTENANCE ROAD ABOVE EURV
	STABILIZED MAINT. ROAD BELOW EURV
	RIPRAP LOW FLOW CHANNEL
	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
	PROP STORM SEWER PIPE
	WARNING SIGN

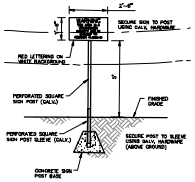
50 25 0 50
ORIGINAL SCALE: 1" = 50'

NOTES:
1. SEE STERLING RANCH-FILING NO. 2 STORM SEWER PLANS BY M&S CIVIL FOR ADDITIONAL CONSTRUCTION DETAILS. FULL SPECTRUM DETENTION POND TO BE MAINTAINED BY STERLING RANCH METRO DISTRICT.

811 Know what's **below.** **Call** before you dig.

POND W-5 FULL SPECTRUM DETENTION BASIN DATA
WQ WATER SURFACE EL = 6965.62
WQ VOLUME=3.29 AC-FT
EURV WATER SURFACE EL = 6968.35
EURV VOLUME=11.71 AC-FT
100-YR WATER SURFACE EL=6969.95
SPILLWAY CREST EL=6970
TOP OF EMBANKMENT EL=6972.00
100-YR VOLUME=18.22 AC-FT
100-YR INFLOW = 427.1 CFS
100-YR RELEASE = 137.1 CFS

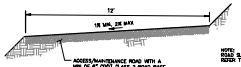
FULL SPECTRUM DETENTION POND W-5
SITE PLAN
SCALE 1"=30'



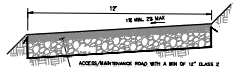
POND WARNING SIGN
NOT TO SCALE

GRADING NOTES:

1. ALL PROPOSED CONTOURS ARE TO FINISHED GRADE.
2. EARTHEN CUT AND FILL SLOPES SHALL BE 3:1 MAXIMUM. SLOPES IN EXCESS OF 4:1 AND AREAS OTHERWISE INDICATED BY WITHIN THESE PLANS. SHALL BE COVERED WITH SOIL RETENTION BLANKET OVER 4" MIN. THICKNESS OF TOPSOIL AND SEEDED.
3. IF THE PROJECT IS CONSTRUCTED DURING THE SUMMER WHEN SEEDING IS NOT ALLOWED, APPLY 1-1/2 TONS OF CERTIFIED WEED FREE MULCH PER ACRE MECHANICALLY CRIMPED INTO THE SOIL IN COMBINATION WITH AN ORGANIC MULCH TACKIFIER.
4. PRIOR TO ANY CONSTRUCTION ACTIVITIES THE PROPOSED SILT FENCE SHOWN ON THE EROSION CONTROL SHEET SHALL BE CONSTRUCTED. THE FENCE SHALL BE REMOVED UPON THE LATER OF STABILIZATION OF THE SITE OR COMPLETION OF CONSTRUCTION.
5. TO REDUCE THE POTENTIAL FOR CLOGGING OF DEBRIS GRATES, NO STRAW MULCH SHALL BE USED WITHIN THE EURV OR WQCV OF A DETENTION BASIN. INSTEAD, EROSION CONTROL BLANKETS SHALL BE INSTALLED FOR A WIDTH OF AT LEAST 6 FEET ON EITHER SIDE OF CONCRETE LOW-FLOW CHANNELS. THE BLANKETS SHALL COMPLY WITH THE MATERIALS AND INSTALLATION REQUIREMENTS FOR EROSION CONTROL BLANKETS (STRAW COCONUT OR 100 PERCENT COCONUT). SITE-SPECIFIC CONDITIONS MAY REQUIRE ADDITIONAL BLANKET OR OTHER EROSION CONTROL MEASURES.



MAINTENANCE & ACCESS ROAD ABOVE EURV TYPICAL SECTION
NOT TO SCALE



MAINTENANCE & ACCESS ROAD BELOW EURV TYPICAL SECTION
NOT TO SCALE

ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

Mike Bramlett 4/20/2021
MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
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No.	REVISION	BY	DATE

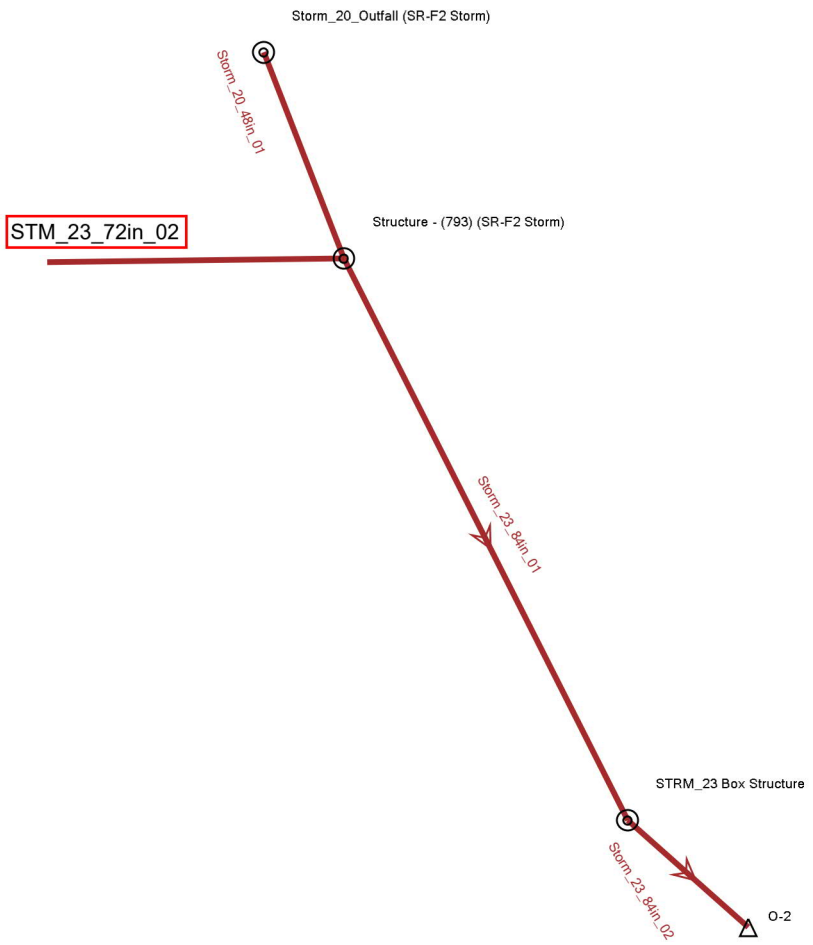
H-SCALE	1"=50'
V-SCALE	1"=5'
DATE	04/15/21
DESIGNED BY	RAB
DRAWN BY	KRW
CHECKED BY	

STERLING RANCH FILING NO.2
POND W5

SHEET 15 OF 26
JOB NO. 25188.01

Exhibit C
Storm Sewer HGL - 5 year storm and 100 year velocity calculation

Sterling Ranch 5yr



Scenario: 5-YEAR
Current Time Step: 0.000 h
FlexTable: Conduit Table

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_28 30in_01	18.40	30.0	35.4	-0.004	0.013	5.71	25.78	7,044.15	7,043.91
Storm_26 24in_01	2.10	24.0	80.7	-0.010	0.013	4.51	22.68	7,017.31	7,016.41
Storm_22_30in_02	8.30	30.0	68.8	-0.010	0.013	6.55	41.06	7,016.95	7,016.72
Storm_22_30in_01	16.00	30.0	100.7	-0.009	0.013	7.60	39.35	7,016.45	7,015.28
Storm_19_Lat 3_18in_02	1.90	18.0	29.3	-0.020	0.013	5.79	14.90	7,016.36	7,016.40
Storm_19_Lat 3_18in_01	4.20	18.0	6.0	-0.020	0.013	7.22	14.84	7,016.37	7,016.40
Storm_19_18in_06	6.00	18.0	339.5	-0.040	0.013	10.23	20.95	7,016.00	7,002.92
Storm_23 66in_12	41.10	66.0	409.4	-0.014	0.013	10.80	397.26	7,002.24	6,995.96
Storm_17_48in_06	56.90	48.0	22.6	-0.020	0.013	13.82	202.28	7,000.88	7,000.89
Storm_17_36in_07	17.60	36.0	9.8	-0.020	0.013	10.21	94.31	7,001.15	7,001.34
Storm_19_Lat 2_18in_01	12.60	18.0	76.7	-0.049	0.013	13.39	23.16	7,006.61	7,002.92
Storm_19_24in_05	17.60	24.0	177.0	-0.030	0.013	12.14	39.18	7,002.55	6,996.67
Storm_23 66in_11	41.10	66.0	333.0	-0.014	0.013	10.80	397.25	6,994.31	6,989.10
Storm_17_48in_05	56.90	48.0	292.3	-0.020	0.013	13.87	203.11	7,000.43	6,994.62
Storm_17_48in_04	56.90	48.0	82.9	-0.016	0.013	12.80	181.90	6,994.39	6,993.29
Storm_24_36in_01	2.00	36.0	50.2	-0.020	0.013	5.39	94.58	6,991.86	6,990.71
Storm_23 72in_10	43.30	72.0	295.1	-0.004	0.013	7.25	283.22	6,980.74	6,979.48
Storm_19_Lat 1_ 18in_01	5.00	18.0	36.4	-0.030	0.013	8.78	18.18	6,993.84	6,993.02
Storm_19_24in_04	0.50	24.0	144.7	-0.030	0.013	4.31	39.18	6,995.97	6,993.02
Storm_19_30in_03	25.90	30.0	165.0	-0.024	0.013	12.37	64.17	6,992.63	6,988.66
Storm_17_48in_03	56.90	48.0	150.3	-0.016	0.013	12.82	182.25	6,993.06	6,990.87
Storm_17_48in_02	56.90	48.0	102.0	-0.016	0.013	12.70	179.90	6,990.64	6,989.23
Storm_17_48in_01	63.70	48.0	23.0	-0.005	0.013	8.38	99.25	6,988.98	6,988.80
Storm_17_Lat_1_24in_01	9.60	24.0	8.8	-0.006	0.013	5.58	17.03	6,989.73	6,989.65
Storm_17_Lat_1_24in_02	4.30	24.0	53.4	-0.007	0.013	4.76	18.29	6,989.80	6,989.84
Storm_14_48in_06	38.10	48.0	59.3	-0.017	0.013	11.72	187.87	6,989.32	6,987.79
Storm_14_66in_05	96.60	66.0	354.4	-0.014	0.013	13.79	397.24	6,984.12	6,978.30
Storm_19_36in_02	25.90	36.0	144.5	-0.006	0.013	7.26	51.15	6,987.99	6,987.48
Storm_14_36in_07	15.70	36.0	76.3	-0.020	0.013	9.89	94.31	6,991.27	6,989.33
Storm_23 72in_09	43.30	72.0	402.6	-0.014	0.013	10.85	500.84	6,979.32	6,973.14
Storm_21_48in_01	55.10	48.0	57.3	-0.030	0.013	15.91	248.76	6,984.23	6,981.75
Storm_16_48in_05	55.10	48.0	26.8	-0.020	0.013	13.74	203.11	6,981.54	6,981.49
Storm_21_42in_03	27.50	42.0	101.2	-0.005	0.013	6.92	71.15	6,985.78	6,985.83
Storm_19_36in_01	25.90	36.0	302.2	-0.006	0.013	7.25	51.04	6,987.14	6,985.83
Storm_21_48in_02	52.50	48.0	25.8	-0.030	0.013	15.69	248.66	6,984.95	6,984.69
Storm_21_Lat_1_18in_01	3.00	18.0	19.4	-0.005	0.013	3.87	7.16	6,985.26	6,985.15
Storm_16_Lat_1_18in_01	2.10	18.0	13.2	-0.020	0.013	5.99	15.01	6,982.08	6,981.67
Storm_16_48in_02	68.80	48.0	348.6	-0.024	0.013	15.49	220.31	6,979.03	6,972.39
Storm_16_48in_03	56.40	48.0	50.4	-0.020	0.013	13.85	203.42	6,980.18	6,979.56
Storm_18_18in_02	8.70	18.0	94.4	-0.048	0.013	12.12	23.01	6,985.92	6,980.89
Storm_14_66in_04	96.60	66.0	512.4	-0.012	0.013	13.02	366.67	6,976.96	6,972.10
Storm_23 72in_08	43.30	72.0	602.8	-0.013	0.013	10.64	487.25	6,970.97	6,962.46
Storm_16_42in_01	68.80	42.0	158.3	-0.002	0.013	3.58	90.47	6,972.29	6,972.10
Storm_16_48in_04	56.40	48.0	42.5	-0.020	0.013	13.83	203.12	6,981.03	6,980.64
Storm_14_72in_03	162.00	72.0	74.5	-0.005	0.013	10.99	306.40	6,971.03	6,971.00
Storm_14_72in_02	162.00	72.0	127.9	-0.005	0.013	10.80	299.58	6,970.64	6,970.48
Storm_15_18in_02-W	4.30	18.0	25.5	-0.049	0.013	10.08	23.36	6,973.60	6,972.01
Storm_14_84in_01	189.80	84.0	107.3	-0.005	0.013	11.25	453.09	6,970.13	6,969.23
Storm_20_48in_01	0.00	48.0	57.9	-0.014	0.013	0.00	167.77	6,949.67	6,948.88
Storm_23_72in_02	45.20	72.0	549.0	-0.002	0.013	5.28	178.92	6,950.69	6,949.43
Storm_23 72in_05	43.30	72.0	120.0	-0.015	0.013	11.13	518.77	6,957.83	6,955.50
Storm_25 30in_01	1.40	30.0	23.6	0.105	0.013	8.85	133.22	6,955.55	6,954.30
Storm_23_72in_03	45.20	72.0	167.7	-0.002	0.013	5.22	176.09	6,951.09	6,950.79
Storm_15_42in_01-E	38.80	42.0	-	-0.009	0.013	9.46	96.21	6,971.71	6,970.85
Storm_18_18in_01	17.30	18.0	-	-0.021	0.013	9.79	15.27	6,980.02	6,979.69
Storm_17Lat2_36in_01	16.00	36.0	-	-0.041	0.013	12.82	134.76	7,005.28	7,001.34
Storm_19_Lat 2_18in_02	9.50	18.0	-	-0.014	0.013	7.71	12.35	7,007.49	7,007.05
CO-6	23.20	48.0	9.5	-0.021	0.013	10.94	208.41	6,989.62	6,989.67
Storm_28 30in_01	8.40	30.0	-	-0.007	0.013	5.77	34.28	7,044.20	7,044.15
Storm_23 66in_13	41.10	66.0	261.0	-0.005	0.013	7.48	237.00	7,010.83	7,009.34
Storm_23 66in_14	37.80	66.0	43.2	-0.005	0.013	7.37	240.17	7,011.01	7,010.99
Storm 23 three 42in_ 04	45.20	42.0	258.8	-0.005	0.013	6.02	221.20	6,954.19	6,952.69
Storm_23 72in_06	43.30	72.0	93.0	-0.015	0.013	11.11	517.87	6,959.22	6,958.15
Storm_23_84in_02	46.50	84.0	27.0	-0.003	0.013	6.29	347.91	6,947.81	6,947.73
Storm_23_84in_01	46.50	84.0	200.4	-0.002	0.013	5.79	309.34	6,948.48	6,948.12
STRM_ 29_01	3.30	18.0	56.8	-0.026	0.013	7.47	17.07	7,015.19	7,013.45
STRM_ 29_02	1.60	18.0	79.6	-0.012	0.013	4.56	11.42	7,016.66	7,015.62

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Scenario: 100-YEAR
Current Time Step: 0.000 h
FlexTable: Conduit Table

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_28 30in_01	26.10	30.0	35.4	-0.004	0.013	5.99	25.78	7,044.53	7,044.20
Storm_26 24in_01	14.50	24.0	80.7	-0.010	0.013	4.62	22.68	7,022.00	7,021.67
Storm_22_30in_02	14.40	30.0	68.8	-0.010	0.013	2.93	41.06	7,022.64	7,022.56
Storm_22_30in_01	31.00	30.0	100.7	-0.009	0.013	6.32	39.35	7,022.25	7,021.67
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_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_19_18in_06	10.30	18.0	339.5	-0.040	0.013	11.81	20.95	7,016.29	7,003.66
Storm_23 66in_12	278.90	66.0	409.4	-0.014	0.013	18.10	397.26	7,005.13	6,998.22
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_17_36in_07	48.90	36.0	9.8	-0.020	0.013	6.92	94.31	7,003.97	7,003.91
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_19_24in_05	30.00	24.0	177.0	-0.030	0.013	13.74	39.18	7,002.90	6,997.04
Storm_23 66in_11	278.90	66.0	333.0	-0.014	0.013	18.10	397.25	6,997.20	6,991.39
Storm_17_48in_05	138.70	48.0	292.3	-0.020	0.013	17.39	203.11	7,001.66	6,996.17
Storm_17_48in_04	138.70	48.0	82.9	-0.016	0.013	15.94	181.90	6,995.62	6,994.84
Storm_24_36in_01	15.00	36.0	50.2	-0.020	0.013	9.78	94.58	6,992.65	6,991.27
Storm_23 72in_10	242.40	72.0	295.1	-0.004	0.013	11.26	283.22	6,983.27	6,982.34
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_19_24in_04	30.00	24.0	144.7	-0.030	0.013	13.74	39.18	6,997.59	6,994.14
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_17_48in_03	138.70	48.0	150.3	-0.016	0.013	15.96	182.25	6,994.29	6,992.42
Storm_17_48in_02	138.70	48.0	102.0	-0.016	0.013	15.79	179.90	6,991.87	6,991.11
Storm_17_48in_01	151.90	48.0	23.0	-0.005	0.013	12.09	99.25	6,990.54	6,990.07
Storm_17_Lat_1_24in_01	17.20	24.0	8.8	-0.006	0.013	5.47	17.03	6,991.16	6,991.11
Storm_17_Lat_1_24in_02	7.00	24.0	53.4	-0.007	0.013	2.23	18.29	6,991.33	6,991.27
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_14_66in_05	250.70	66.0	354.4	-0.014	0.013	17.68	397.24	6,985.83	6,982.04
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_14_36in_07	34.60	36.0	76.3	-0.020	0.013	12.31	94.31	6,991.91	6,991.40
Storm_23 72in_09	242.40	72.0	402.6	-0.014	0.013	17.57	500.84	6,981.85	6,974.94
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_21_42in_03	60.60	42.0	101.2	-0.005	0.013	6.30	71.15	6,988.41	6,988.04
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_21_48in_02	105.90	48.0	25.8	-0.030	0.013	8.43	248.66	6,986.94	6,986.80
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_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
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_16_48in_03	107.70	48.0	50.4	-0.020	0.013	8.57	203.42	6,983.38	6,983.10
Storm_18_18in_02	12.80	18.0	94.4	-0.048	0.013	7.24	23.01	6,986.73	6,985.32
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 72in_08	242.40	72.0	602.8	-0.013	0.013	17.21	487.25	6,973.50	6,964.24
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_16_48in_04	107.70	48.0	42.5	-0.020	0.013	8.57	203.12	6,984.19	6,983.95
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_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_14_84in_01	424.40	84.0	107.3	-0.005	0.013	11.03	453.09	6,974.79	6,974.32
Storm_20_48in_01	149.20	48.0	57.9	-0.014	0.013	11.87	167.77	6,953.77	6,953.14
Storm_23_72in_02	245.10	72.0	549.0	-0.002	0.013	8.67	178.92	6,954.95	6,953.14
Storm_23 72in_05	242.40	72.0	120.0	-0.015	0.013	18.04	518.77	6,960.35	6,957.50
Storm_25 30in_01	10.00	30.0	23.6	0.105	0.013	2.04	133.22	6,958.10	6,958.09
Storm_23_72in_03	245.10	72.0	167.7	-0.002	0.013	8.67	176.09	6,955.81	6,955.25
Storm_15_42in_01-E	85.40	42.0	-	-0.009	0.013	8.88	96.21	6,975.69	6,975.27
Storm_18_18in_01	25.30	18.0	-	-0.021	0.013	14.32	15.27	6,983.73	6,983.10
Storm_17Lat2_36in_01	37.90	36.0	-	-0.041	0.013	16.37	134.76	7,006.00	7,003.91
Storm_19_Lat 2_18in_02	14.70	18.0	-	-0.014	0.013	8.32	12.35	7,008.46	7,007.71
CO-6	74.50	48.0	9.5	-0.021	0.013	15.20	208.41	6,991.39	6,991.40
Storm_28 30in_01	12.20	30.0	-	-0.007	0.013	6.39	34.28	7,044.41	7,044.53
Storm_23 66in_13	278.90	66.0	261.0	-0.005	0.013	11.74	237.00	7,014.50	7,012.42
Storm_23 66in_14	270.70	66.0	43.2	-0.005	0.013	11.39	240.17	7,015.32	7,015.04
Storm 23 three 42in_ 04	245.10	42.0	258.8	-0.005	0.013	8.49	221.20	6,957.81	6,956.10
Storm_23 72in_06	242.40	72.0	93.0	-0.015	0.013	18.01	517.87	6,961.75	6,961.34
Storm_23_84in_02	315.80	84.0	27.0	-0.003	0.013	10.24	347.91	6,951.12	6,951.00
Storm_23_84in_01	315.80	84.0	200.4	-0.002	0.013	9.15	309.34	6,952.48	6,952.00
STRM_ 29_01	8.20	18.0	56.8	-0.026	0.013	9.57	17.07	7,015.61	7,015.04
STRM_ 29_02	3.00	18.0	79.6	-0.012	0.013	5.50	11.42	7,016.84	7,015.76

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