CORE
ENGINEERING GROUP

April 27, 2023

El Paso County Planning and Community Development
2880 International Circle, Suite 110
Colorado Springs, CO 80910

RE: Lorson Ranch East Filing No. 1 (SF 18-008)
Certification Letter

Dear El Paso County PCD,

Based upon information gathered from as-built surveys and periodic visits to the project, Core Engineering Group is of the opinion that the subdivision improvements have been constructed in general conformance with the approved design plans as filed with El Paso County.

The site and adjacent properties (as affected by work performed under the County permit) appear to be stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover, and the improvements (public improvements, common development improvements, site grading and paving) visually appear to meet or exceed the minimum design requirements.

The sanitary and watermain located in the public ROW has also been completed in accordance with Widefield Water and Sanitation Districts criteria.

In addition, Core Engineering Group has verified that the Extended Detention Basin/WQ Pond C5and D2 meet the volume and elevation requirements and are constructed in general compliance with the approved construction plans. The pond "as-built" documents are attached to this letter. The tributary area draining to Pond D2 has changed and the updated spreadsheet with the corresponding spreadsheet printouts is attached.

Based on information gathered during construction and post-construction, Core Engineering Group is of the opinion that the public streets, storm sewer, and Detention Pond C5 and D2 have been constructed in general accordance with the approved construction documents.

Sincerely,
Core Engineering Group, LLC

COLORADO REGISTERED 33997 PROFESSIONAL ENGINEER
4-27-2023

Richard L. Schindler, P.E. 33997

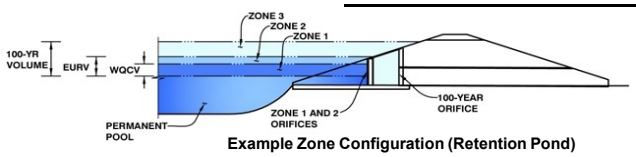
Attachments: Pond As-built elevations

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Lorson Ranch East MDDP

Basin ID: Pond D2 - As-built



Example Zone Configuration (Retention Pond)

	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.08	1.552	Orifice Plate
Zone 2 (EURV)	4.77	2.878	Rectangular Orifice
Zone 3 (100-year)	6.75	3.737	Weir&Pipe (Restrict)
		8.168	Total

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

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

Calculated Parameters for Underdrain

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

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	2.778E-02	ft^2
Depth at top of Zone using Orifice Plate =	3.08	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	9.00	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	4.00	sq. inches (use rectangular openings)	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

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

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	0.60	1.20					
Orifice Area (sq. inches)	4.00	4.00	4.00					

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

User Input: Vertical Orifice (Circular or Rectangular)

	Zone 2 Rectangular	Not Selected	
Invert of Vertical Orifice =	2.80	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	4.77	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Height =	10.00	N/A	inches
Vertical Orifice Width =	2.00		inches

Calculated Parameters for Vertical Orifice

	Zone 2 Rectangular	Not Selected
Vertical Orifice Area =	0.14	N/A
Vertical Orifice Centroid =	0.42	N/A

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	4.52	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	4.00	N/A	feet
Overflow Weir Slope =	13.50	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	20.00	N/A	feet
Overflow Grate Open Area % =	70%	N/A	%, grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected
Height of Grate Upper Edge, H_t =	6.00	N/A
Over Flow Weir Slope Length =	20.05	N/A
Grate Open Area / 100-yr Orifice Area =	5.15	N/A
Overflow Grate Open Area w/o Debris =	56.15	N/A
Overflow Grate Open Area w/ Debris =	28.08	N/A

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

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.00	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	54.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	35.00		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plat

	Zone 3 Restrictor	Not Selected
Outlet Orifice Area =	10.91	N/A
Outlet Orifice Centroid =	1.64	N/A
Half-Central Angle of Restrictor Plate on Pipe =	1.87	N/A

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	7.00	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	1.64	feet
Spillway Crest Length =	30.00	feet	Stage at Top of Freeboard =	11.64	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	2.43	acres
Freeboard above Max Water Surface =	3.00	feet	bottom orifice-95.00		

Calculated Parameters for Spillway

Routed Hydrograph Results

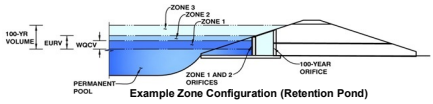
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
One-Hour Rainfall Depth (in) =	0.53	1.07	1.19	1.50	1.75	2.00	2.25	2.52
Calculated Runoff Volume (acre-ft) =	1.552	4.430	4.191	6.097	7.712	10.275	12.244	14.693
OPTIONAL Override Runoff Volume (acre-ft) =								
Inflow Hydrograph Volume (acre-ft) =	1.551	4.428	4.189	6.089	7.707	10.263	12.238	14.680
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.02	0.15	0.42	0.95	1.26	1.63
Predevelopment Peak Q (cfs) =	0.0	0.0	1.5	13.0	35.3	80.5	106.2	137.4
Peak Inflow Q (cfs) =	30.0	84.3	79.8	115.1	144.8	191.1	226.6	269.8
Peak Outflow Q (cfs) =	0.7	2.1	1.6	14.8	36.6	76.7	108.8	119.1
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.1	1.0	1.0	1.0	0.9
Structure Controlling Flow =	Vertical Orifice 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Overflow Grate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	0.01	0.00	0.2	0.6	1.3	1.9	2.1
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	35	62	60	62	61	59	58	56
Time to Drain 99% of Inflow Volume (hours) =	37	65	63	66	66	65	65	64
Maximum Ponding Depth (ft) =	3.02	4.64	4.52	5.22	5.61	6.05	6.31	6.78
Area at Maximum Ponding Depth (acres) =	1.59	1.78	1.77	1.84	1.88	1.92	1.95	2.00
Maximum Volume Stored (acre-ft) =	1.461	4.200	3.988	5.230	5.973	6.809	7.312	8.239

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)

Project: LRE Filing No. 1

Basin ID: Pond D2 - As-built



Example Zone Configuration (Retention Pond)

Required Volume Calculation

Selected BMP Type =	EDB	
Watershed Area =	84.50	acres
Watershed Length =	2,200	ft
Watershed Slope =	0.025	ft/ft
Watershed Imperviousness =	55.00%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	percent
Desired WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	
Water Quality Capture Volume (WQCV) =	1.552	acre-feet
Excess Urban Runoff Volume (EURV) =	4.430	acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	4.191	acre-feet
5-yr Runoff Volume (P1 = 1.5 in.) =	6.097	acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =	7.712	acre-feet
25-yr Runoff Volume (P1 = 2 in.) =	10.275	acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =	12.244	acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =	14.693	acre-feet
500-yr Runoff Volume (P1 = 0 in.) =	0.000	acre-feet
Approximate 2-yr Detention Volume =	3.931	acre-feet
Approximate 5-yr Detention Volume =	5.745	acre-feet
Approximate 10-yr Detention Volume =	6.551	acre-feet
Approximate 25-yr Detention Volume =	7.048	acre-feet
Approximate 50-yr Detention Volume =	7.284	acre-feet
Approximate 100-yr Detention Volume =	8.168	acre-feet

Optional User Override 1-hr Precipitation	
1.19	inches
1.50	inches
1.75	inches
2.00	inches
2.25	inches
2.52	inches
	inches

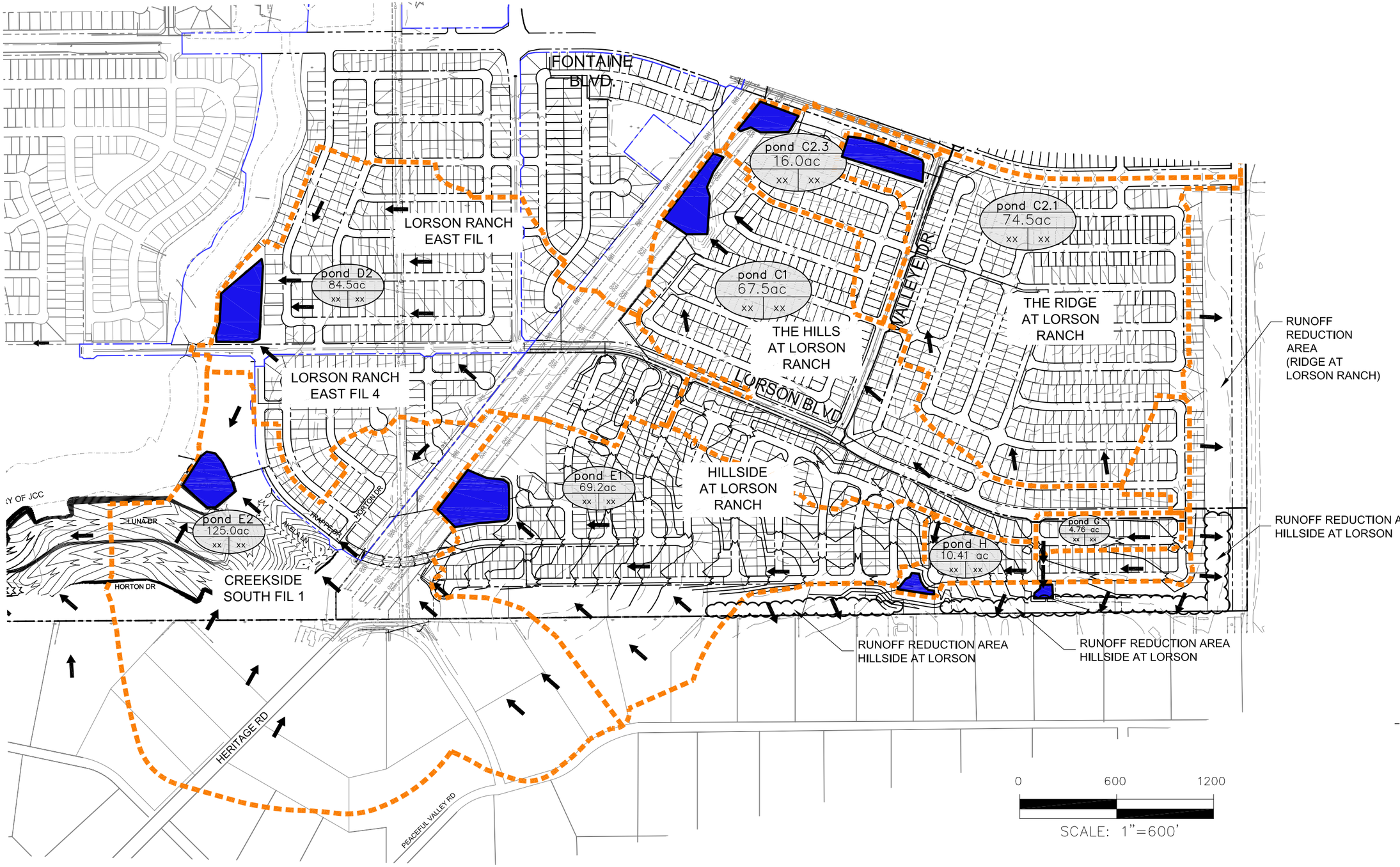
Stage-Storage Calculation

Zone 1 Volume (WQCV) =	1.552	acre-feet
Zone 2 Volume (EURV - Zone 1) =	2.878	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	3.737	acre-feet
Total Detention Basin Volume =	8.168	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	user	acre-feet

bottom orifice - 95.00

Depth Increment = 0.2 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	56	0.001		
5695.33	--	0.33	--	--	--	56	0.001	18	0.000
5696	--	1.00	--	--	--	1,701	0.039	590	0.014
5697	--	2.00	--	--	--	26,100	0.599	14,247	0.327
5698	--	3.00	--	--	--	69,360	1.592	62,237	1.429
5699	--	4.00	--	--	--	74,702	1.715	134,268	3.082
5700	--	5.00	--	--	--	79,028	1.814	211,133	4.847
5701	--	6.00	--	--	--	83,502	1.917	292,398	6.713
5702	--	7.00	--	--	--	88,029	2.021	378,164	8.681
5703	--	8.00	--	--	--	92,327	2.120	468,342	10.752
5704	--	9.00	--	--	--	96,850	2.223	562,930	12.923
5705	--	10.00	--	--	--	100,980	2.318	661,845	15.194
5706	--	11.00	--	--	--	105,820	2.429	765,245	17.568

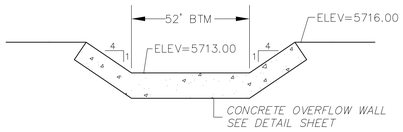


CORE ENGINEERING GROUP

15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

HILLSIDE AT LORSON RANCH
WATER QUALITY & POND TRIBUTARY AREAS

SCALE:	DATE:	FIGURE NO.
NTS	APRIL, 2022	1



POND C5 EMERGENCY OVERFLOW PROFILE

SCALE: NTS

AS-BUILT

DATE: 07/19/2022

ACCESS ROAD TO CREEK

LIMITS OF AEC PREMIER COCONUT FIBRENET OR EQUAL

ACCESS ROAD SEE DETAIL SHEET

FUTURE 66" STORM SEWER

FILING NO. 1 SEDIMENTATION FOREBAY

3:1 SLOPE

12"D50 GROUTED RIP RAP, 24" THICK ON MIRAFI 140N FABRIC

SDS BLOW-OFF N1-8

EXTEND GROUT TO EX. SDS HEADWALL

WACISSA DRIVE

AMERICAN EXCELSIOR "RECYLCEX" TRM FILL CELLS WITH TOPSOIL. SEE DETAIL SHEET

SEDIMENTATION BASIN C5 PER DETAIL SB-1
TRIB. AREA=44ac
VOLUME PROVIDED=94,000 CF AT ELEVATION 5709
VOLUME REQ=79,200 CF
8 ROWS, 2 COLUMNS
1-7/8" HOLES
8" RISER PIPE

POND C5 EMERGENCY OVERFLOW
BTM=5713.00, TOP=5716.00
WIDTH=52', 4:1 SIDE SLOPES
FLOW DEPTH=2.00', Q100=5100CFS

POND C5 EMERGENCY OVERFLOW SEE PROFILE ABOVE

LIMITS OF GROUTED RIP RAP

12" D50 RIP RAP, 24" THICK ON MIRAFI 140N FABRIC

82 LF 48" RCP AT 0.5%
INCLUDING END SECTION
INV=5704.62, 5704.55
N 23776.31
E 25876.50

RIP RAP BERM AND RIP RAP SEDIMENT BASIN
TOP=5709, BTM=5706
12"D50 RIP RAP ON MIRAFI 140N FABRIC W/ 8" RISER PIPE FOR SEDIMENT BASIN

5706.07
N 23779.67
E 25981.91

48" RCP
INV 5705.00
N23772.41, E25958.58

C/L INTERIM LOW FLOW CHANNEL (SEE DETAIL SHEET)

FILING NO. 1 SEDIMENTATION FOREBAY

EXISTING FEMA FLOODPLAIN TO BE MODIFIED

60' SDS ESMT

66' SDS WATERMAIN

SDS FIBER OPTIC

FUTURE 66" STORM SEWER

FUTURE SAN SEWER

FUTURE 36" STORM SEWER

EAST TRIBUTARY

FONTAINE BOULEVARD

NOTE:
1. POND SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
2. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES UNLESS NOTED OTHERWISE

COLORADO REGISTERED 33997 12-18-2017 PROFESSIONAL ENGINEER

30 20 10 0 30 60

SCALE: 1"=30'

CORE ENGINEERING GROUP
15004 1ST AVE. S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: rlcs@ceg1.com

NO. | DESCRIPTION | DATE

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE., SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

PROJECT:
LORSON RANCH EAST
FONTAINE BLVD. & EAST TRIBUTARY
EL PASO COUNTY, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

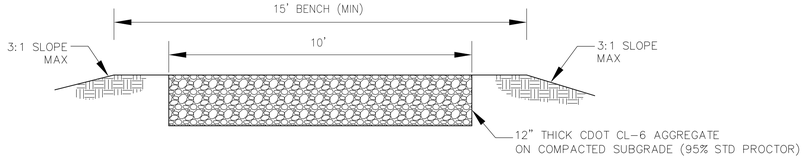
FULL SPECTRUM DETENTION POND C5
PHASE 1 LORSON RANCH EAST

DATE
DECEMBER 18, 2017

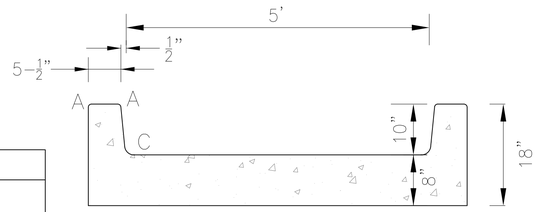
PROJECT NO.
100.040

SHEET NUMBER
C4.9

TOTAL SHEETS: 28

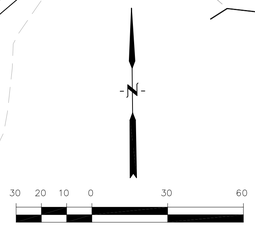


MAINTENANCE ACCESS ROAD
NO SCALE



LENGTH FOR RADII
A = 1/2"
C = 1-1/2"

TRICKLE CHANNEL DETAIL
NO SCALE



POND C5
SEE LORSON RANCH EAST
EARLY GRADING PLANS FOR
ELEVATIONS AND LAYOUT

66" RCP
SEE FONTAINE BLVD CONSTRUCTION PLANS
REF: CDR183

SEE LORSON RANCH EAST
EARLY GRADING PLANS
FOR ACCESS ROAD

FOREBAY 'A'
SEE SHEET C9.2

TRICKLE
N24129.25
E26398.06
INV=5709.00
09.08

C/L 5' WIDE
TRICKLE
CHANNEL

0.45%
5709.50

0.45%

TRICKLE
N23962.61
E26318.50
INV=5708.13
08.14

TRICKLE
N24005.86
E26399.48
INV=5708.54
08.54

5708.67

0.45%
5707.63

TRICKLE
N23855.15
E26119.22
INV=5707.10
07.19

C/L 5' WIDE
TRICKLE
CHANNEL

EXISTING SDS
EASEMENT

OUTLET PIPE AND OVERFLOW
SEE LORSON RANCH EAST
EARLY GRADING PLANS

0.45%
5706.93

0.54%
5707.55

C/L 5' WIDE
TRICKLE
CHANNEL

TRICKLE
N23773.14
E26264.89
INV=5708

C/L 5' WIDE
TRICKLE
CHANNEL

TRICKLE
N23771.58
E25967.19
INV=5706.33
06.29

TRACT G

FOREBAY 'B'
SEE SHEET C9.2

66" RCP
SEE FONTAINE BLVD
CONSTRUCTION PLANS
REF: CDR183

POND C5 OUTLET STRUCTURE
SEE SHEET C9.3

ETRIB OF JCC
SEE KIOWA PLANS (CDR-17007)

5719
5715
5710
5709
5710
5709
5715
5720
5710
5715
5717

FONTAINE BLVD. (CDR 183)

36" RCP
SEE FONTAINE BLVD
CONSTRUCTION PLANS
REF: CDR183

AS-BUILT
DATE: 07/19/2022

EX-W

CORE
ENGINEERING GROUP
15004 1ST AVENUE S.
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EMAIL: Rich@ceg1.com

NO.	DESCRIPTION	DATE

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE. SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

PROJECT:
LORSON RANCH EAST
FILING NO. 1
FONTAINE BLVD.-OLD GLORY DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

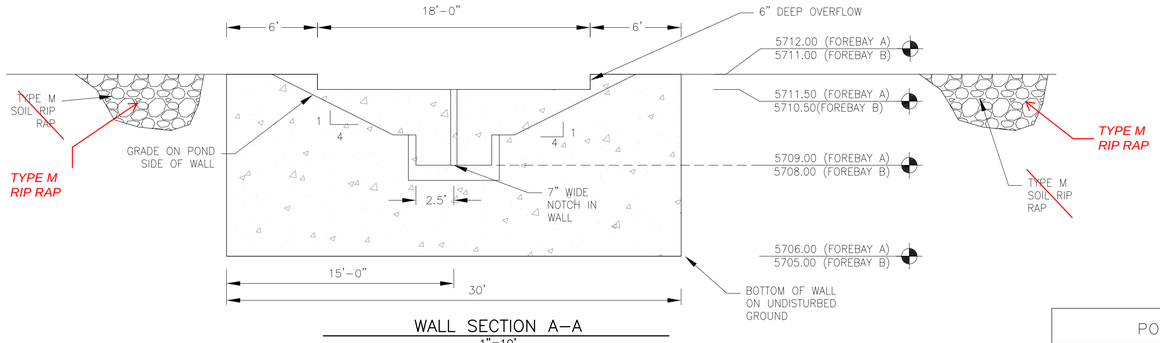
POND C5
TRICKLE CHANNEL
LAYOUT AND DETAILS

COLORADO REGISTERED
RICHARD L. SCHINDLER
33997
6-12-2018
PROFESSIONAL ENGINEER

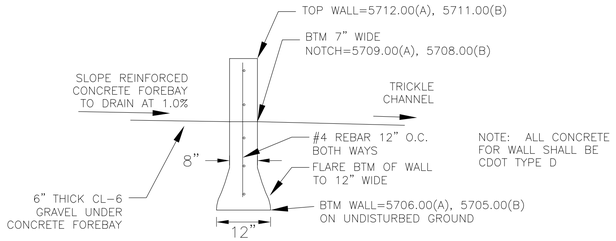
DATE:
JUNE 12, 2018

PROJECT NO.
100.042

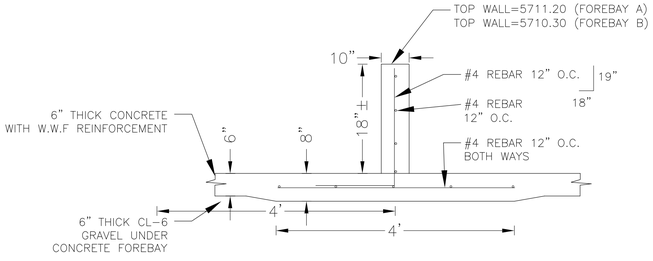
SHEET NUMBER
C9.1
TOTAL SHEETS: 45



WALL SECTION A–A
1"=10'



WALL SECTION B–B
NO SCALE



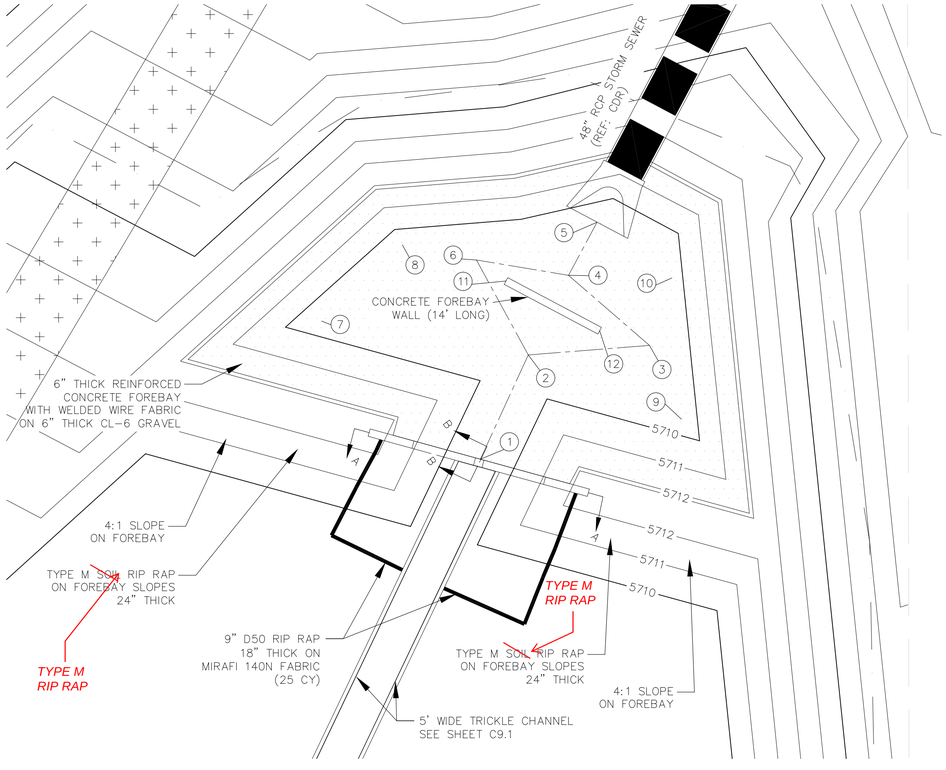
ENERGY DISSIPATER WALL
NO SCALE

POINT TABLE (FOREBAY A)

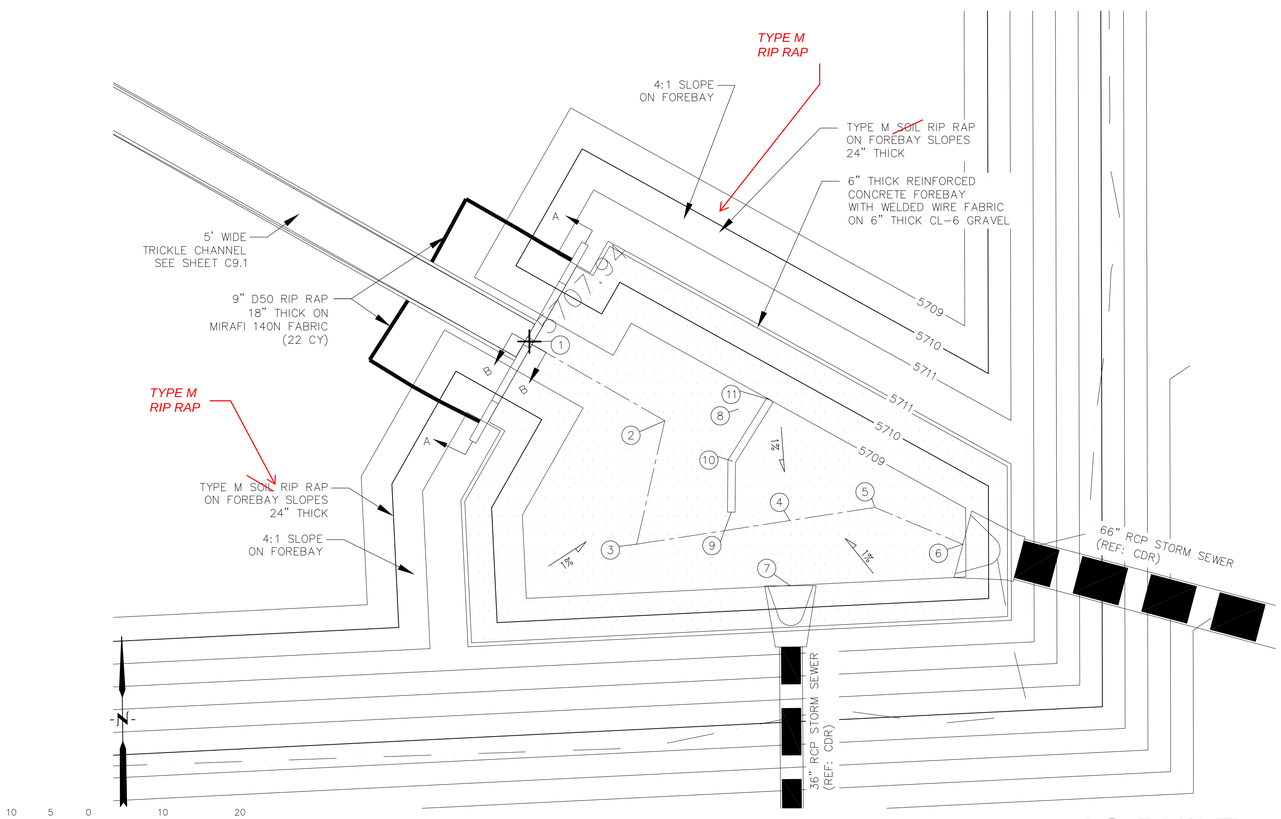
NUMBER	NORTHING	EASTING	ELEVATION	NOTES
1	24130.17	26398.49	5709.10	FOREBAY BOTTOM
2	24143.93	26404.81	5709.25	FOREBAY BOTTOM
3	24145.19	26420.81	5709.41	FOREBAY BOTTOM
4	24154.44	26410.13	5709.55	FOREBAY BOTTOM
5	24161.46	26413.90	5709.70	FOREBAY BOTTOM
6	24156.46	26397.97	5709.41	FOREBAY BOTTOM
7	24148.40	26377.53	5709.60	FOREBAY BOTTOM
8	24158.47	26388.19	5709.55	FOREBAY BOTTOM
9	24135.44	26425.04	5709.60	FOREBAY BOTTOM
10	24154.10	26423.78	5709.70	FOREBAY BOTTOM
11	24153.68	26401.87	5709.70	ENERGY DISSIPATER WALL
12	24147.13	26414.24	5709.70	ENERGY DISSIPATER WALL

POINT TABLE (FOREBAY B)

NUMBER	NORTHING	EASTING	ELEVATION	NOTES
1	23772.63	26265.75	5708.10	FOREBAY BOTTOM
2	23762.58	26283.27	5708.30	FOREBAY BOTTOM
3	23746.29	26279.56	5708.50	FOREBAY BOTTOM
4	23749.41	26299.77	5708.70	FOREBAY BOTTOM
5	23751.14	26310.99	5708.70	FOREBAY BOTTOM
6	23746.27	26322.62	5708.95	FOREBAY BOTTOM
7	23740.80	26299.85	5708.80	FOREBAY BOTTOM
8	23765.15	26295.04	5708.40	FOREBAY BOTTOM
9	23750.52	26292.05	5708.80	ENERGY DISSIPATER WALL
10	23757.25	26292.22		ENERGY DISSIPATER WALL
11	23765.34	26297.18		ENERGY DISSIPATER WALL



POND C5 – FOREBAY 'A' LAYOUT
SCALE 1"=10'



10 5 0 10 20
SCALE: 1"=10'

POND C5 – FOREBAY 'B' LAYOUT
SCALE: 1"=10'

AS-BUILT
DATE: 07/19/2022

CORE ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE., SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

PROJECT:
LORSON RANCH EAST
FILING NO. 1
FONTAINE BLVD.–OLD GLORY DR
COLORADO SPRINGS, COLORADO

NO.	DESCRIPTION	DATE

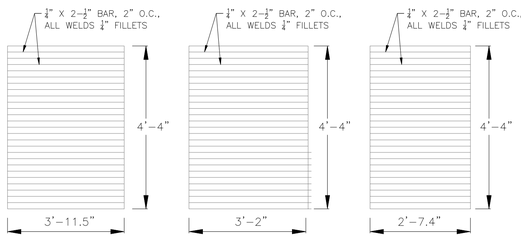
DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

POND C5
FOREBAY 'A' AND 'B'
LAYOUT AND DETAILS

COLORADO REGISTERED PROFESSIONAL ENGINEER
RICHARD L. SCHINDLER
33997
6-12-2018

DATE: JUNE 12, 2018
PROJECT NO. 100.042
SHEET NUMBER C9.2
TOTAL SHEETS: 45

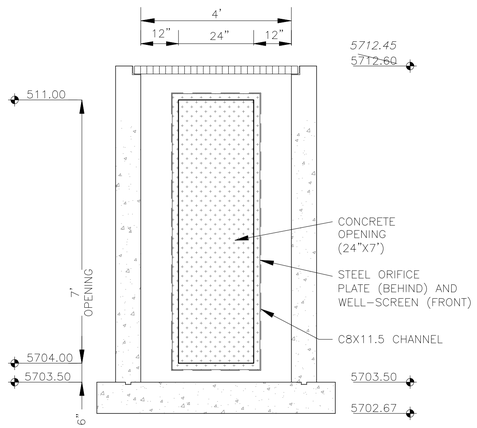
NOTE:
AFTER CONCRETE STRUCTURE HAS BEEN POURED
ALL GRATE DIMENSIONS SHALL BE FIELD VERIFIED
PRIOR TO GRATE CONSTRUCTION



GRATE 1
NO SCALE

GRATES 2,3,4,5,6
NO SCALE

GRATE 7
NO SCALE

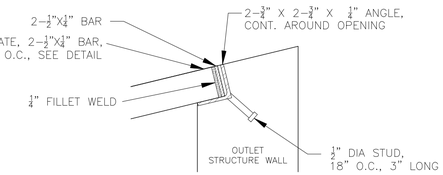


OUTLET STRUCTURE DETAIL – SECTION B–B
NO SCALE

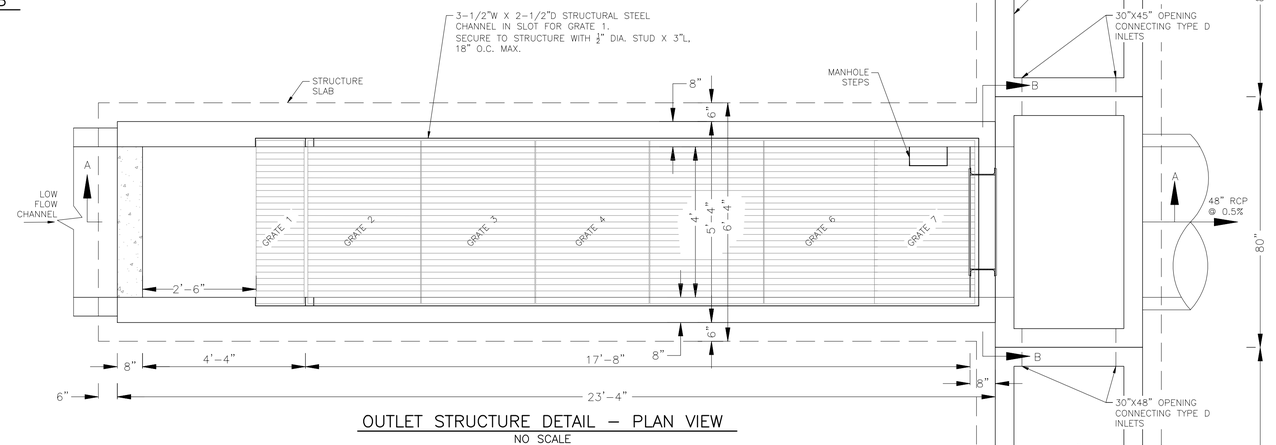
WQCV WELL–SCREEN NOTES:

1. Well–Screen shall be stainless steel and attached by stainless steel bolts along edge of the mounting frame.

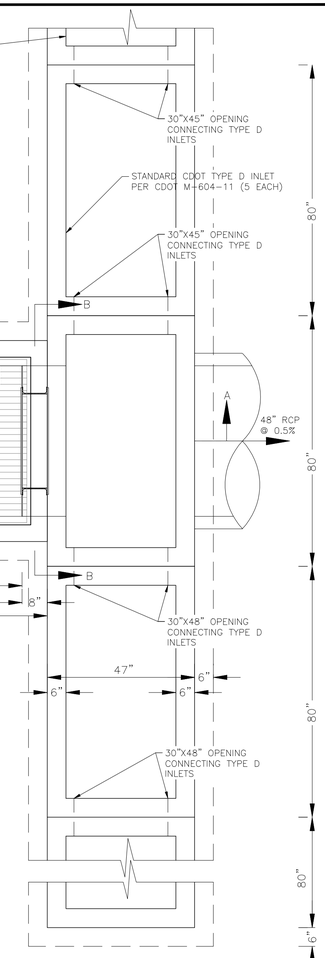
2. WQCV Well Screen
- Type of Screen: Stainless steel #93 Vee Wire (Johnson Vee Wire (tm) Stainless Steel Screen or equivalent with 60% open area)
- Screen slot opening dimension: 0.139" (Screen #93 Vee Wire Slot Opening)
- Type and Size of Support Rod: TE 0.074"X0.50"
- Spacing of Support Rod (O.C.): 1.0 Inch
- Total Screen Thickness: 0.655"
- Carbon Steel Holding Frame Type: 3/4" x 1.0" angle



DETAIL B
NO SCALE



OUTLET STRUCTURE DETAIL – PLAN VIEW
NO SCALE

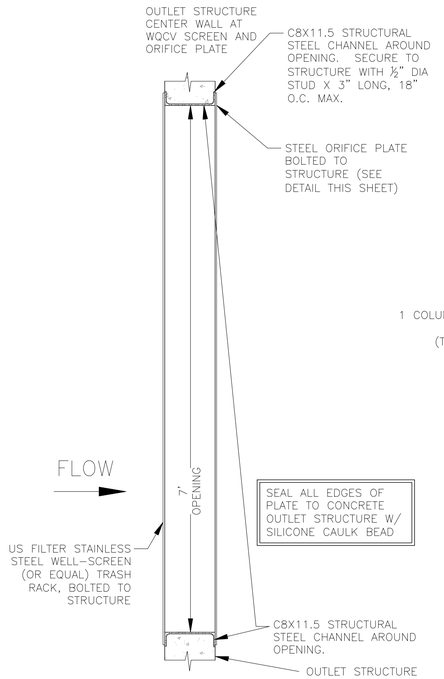


OUTLET STRUCTURE, FOREBAY, AND DRAIN CHANNEL NOTES:

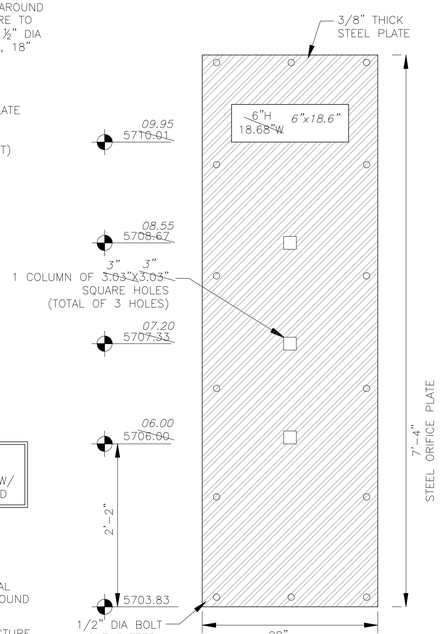
1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL COMPONENTS OF THE OUTLET STRUCTURE.
2. GRADE 60 REINFORCING STEEL REQUIRED. SEE TABLE FOR THE MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS. ALL REINFORCING STEEL SHALL HAVE A TWO–INCH MINIMUM CLEARANCE FROM EDGE OF CONCRETE, UNLESS OTHERWISE NOTED.

BAR SIZE	#4	#5	#6
MIN. SPLICE LENGTH	1'–3"	1'–7"	2'–0"

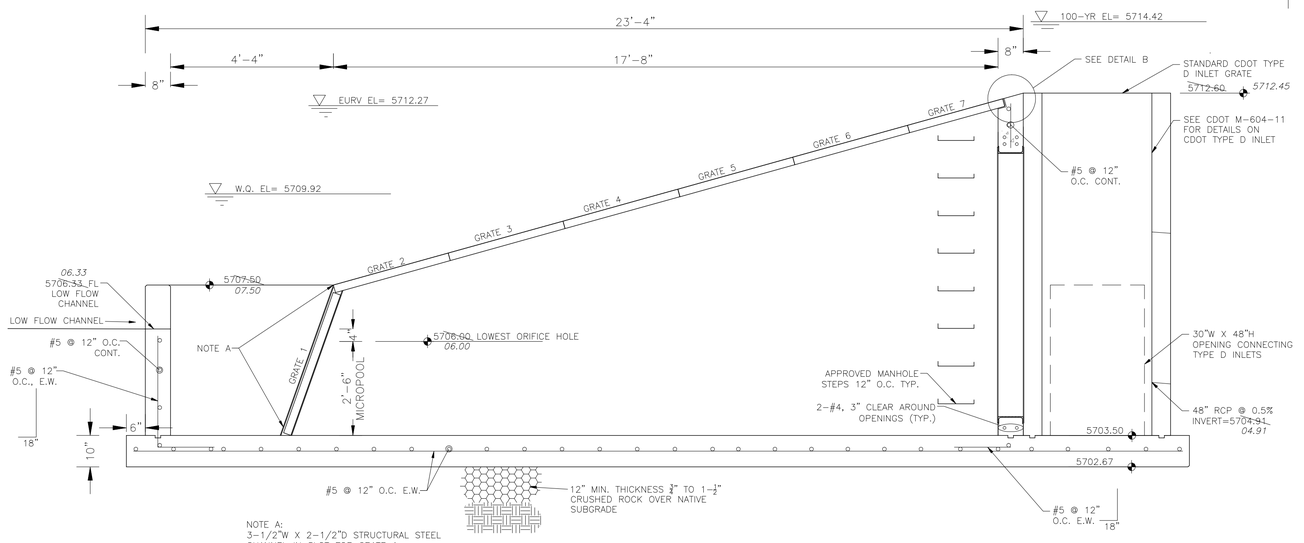
3. CONCRETE FOR THE OUTLET STRUCTURE AND FOREBAY SHALL BE CDOT CLASS D CONCRETE.
4. CONCRETE FOR DRAIN CHANNELS SHALL BE CDOT CLASS B CONCRETE
5. EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M–213. EXPANSION JOINT MATERIAL SHALL BE ½" THICK, SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE AND THE JOINT SHALL BE SEALED, REFER TO DETAILS.
6. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A ¾" CHAMFER UNLESS OTHERWISE NOTED.
7. SUBGRADE TO BE 12" THICK CLEAN FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY PER ASTM M698 UNDER STRUCTURE.
8. REFER TO SHEET C9.2 FOR PRESEDIMENTATION/FOREBAY DESIGN.
9. ENGINEER SHALL BE NOTIFIED PRIOR TO BEGINNING CONSTRUCITON OF OUTLET STRUCTURE TO SCHEDULE OBSERVATION VISITS FOR STRUCTURES.



TRASH RACK DETAIL
NO SCALE



ORIFICE PLATE DETAIL
NO SCALE



NOTE A:
3–1/2"W X 2–1/2"D STRUCTURAL STEEL CHANNEL IN SLOT FOR GRATE 1. SECURE TO STRUCTURE WITH ½" DIA. STUD X 3"L, 18" O.C. MAX.

OUTLET STRUCTURE DETAIL – SECTION A–A
NO SCALE

AS-BUILT
DATE: 07/19/2022

CORE ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

NO.	DESCRIPTION	DATE

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635–3200
CONTACT: JEFF MARK

PROJECT:
LORSON RANCH EAST FILING NO. 1
FONTAINE BLVD–OLD GLORY DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

LORSON RANCH EAST FILING NO. 1
FULL SPECTRUM POND C5
OUTLET STRUCTURE

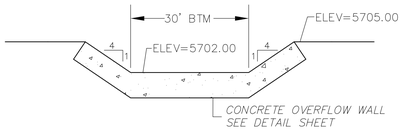
DATE:
JUNE 12, 2018

PROJECT NO.
100.042

SHEET NUMBER
C9.3
TOTAL SHEETS: 45

AS-BUILT

DATE: 07/19/2022



POND D2 EMERGENCY OVERFLOW PROFILE

SCALE: NTS

NOTE:
1. POND SLOPES SHALL BE 3:1 UNLESS OTHERWISE NOTED
2. STRAW ECB SHALL BE PLACED ON ALL POND SIDE SLOPES UNLESS NOTED OTHERWISE

SCALE: 1"=30'

CORE ENGINEERING GROUP
15004 1ST AVE. S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: rlschindler@ceg1.com

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE., SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

NO.	DESCRIPTION	DATE

PROJECT: LORSON RANCH EAST
FONTAINE BLVD. & EAST TRIBUTARY
EL PASO COUNTY, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

FULL SPECTRUM DETENTION POND D2
LORSON RANCH EAST

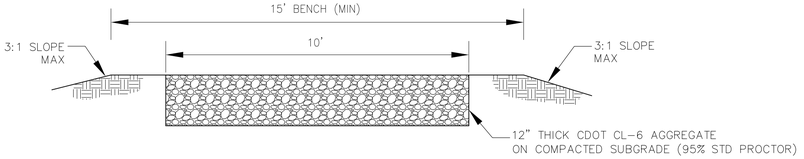
DATE
DECEMBER 18, 2017

PROJECT NO.
100.040

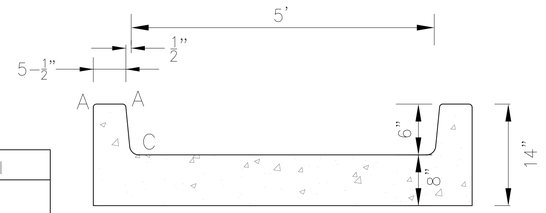
SHEET NUMBER
C4.10

TOTAL SHEETS: 28

COLORADO REGISTERED
RICHARD L. SCHINDLER
33997
12-18-2017
PROFESSIONAL ENGINEER

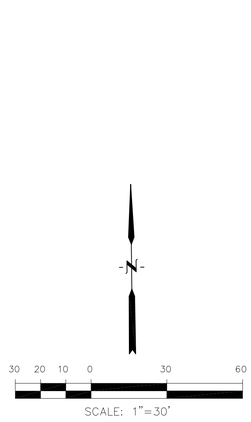


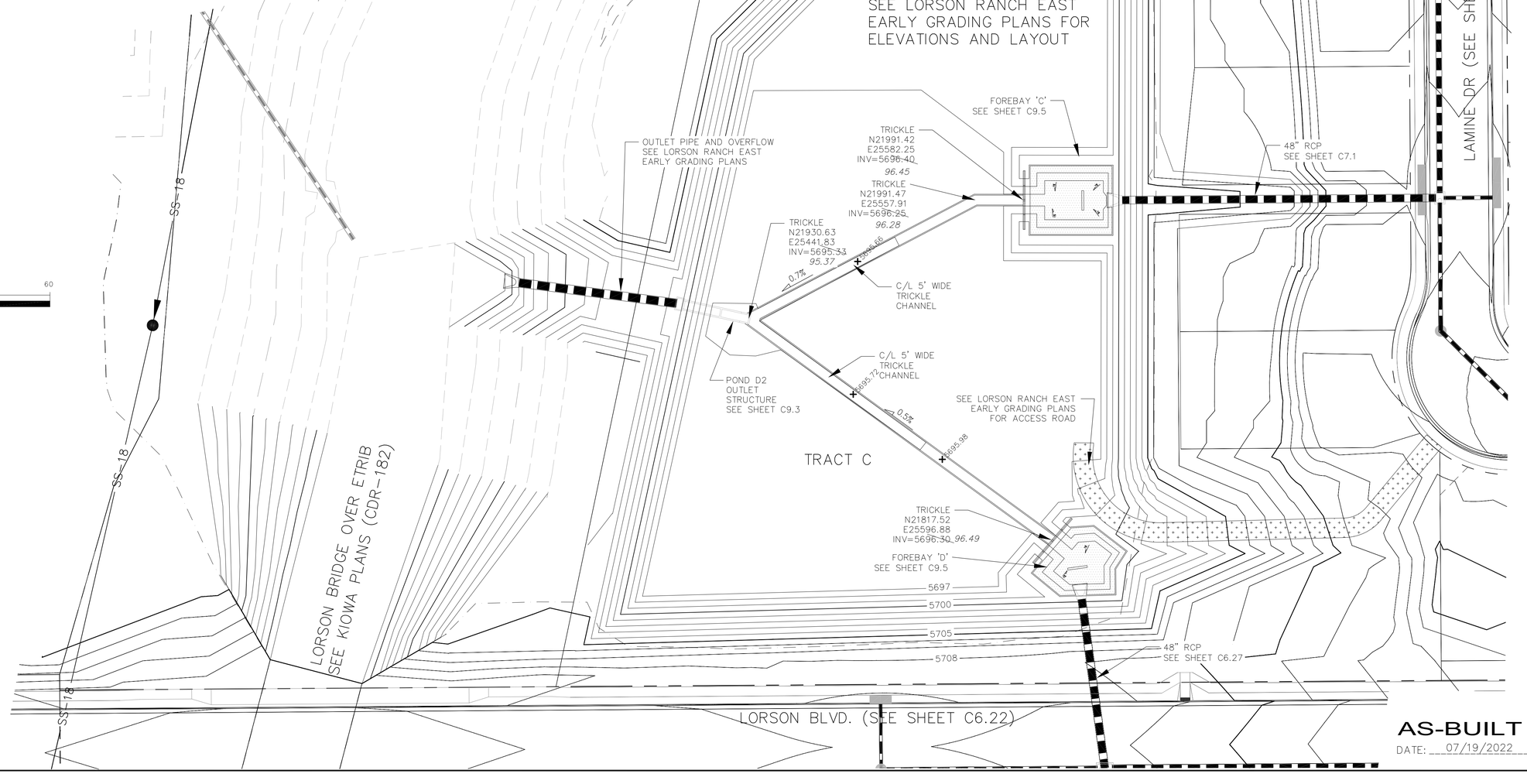
MAINTENANCE ACCESS ROAD
NO SCALE



LENGTH FOR RADII
A = 1/2"
C = 1-1/2"

TRICKLE CHANNEL DETAIL
NO SCALE





AS-BUILT
DATE: 07/19/2022

CORE
ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

NO. | DESCRIPTION | DATE

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE. SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

PROJECT:
LORSON RANCH EAST
FILING NO. 1
FONTAINE BLVD.-OLD GLORY DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

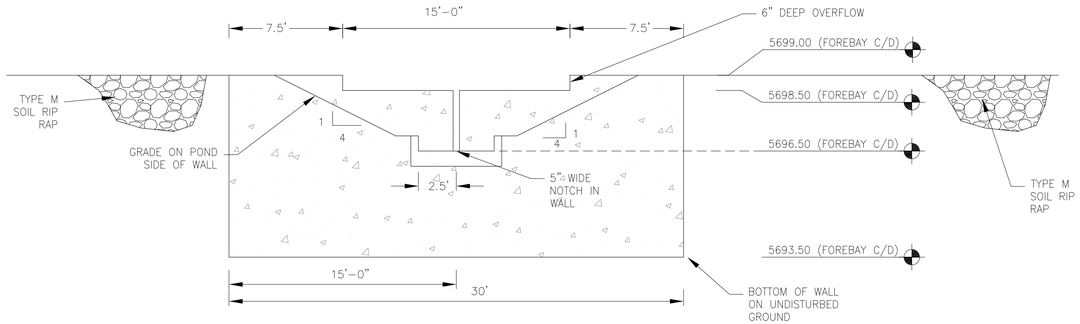
POND D2
TRICKLE CHANNEL
LAYOUT AND DETAILS

COLORADO REGISTERED
RICHARD L. SCHINDLER
33997
6-12-2018
PROFESSIONAL ENGINEER

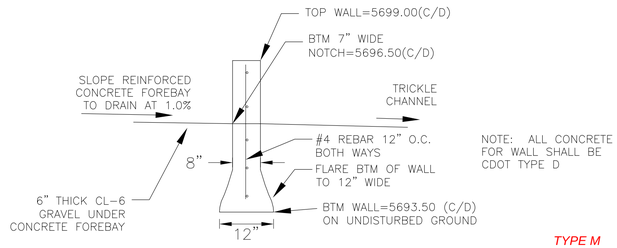
DATE:
JUNE 12, 2018

PROJECT NO.
100.042

SHEET NUMBER
C9.4
TOTAL SHEETS: 45

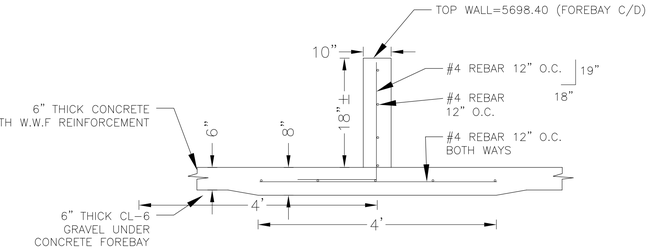


WALL SECTION A–A
1"=10'



NOTE: ALL CONCRETE FOR WALL SHALL BE CDOT TYPE D

WALL SECTION B–B
NO SCALE



NOTE: ALL CONCRETE FOR WALL SHALL BE CDOT TYPE D

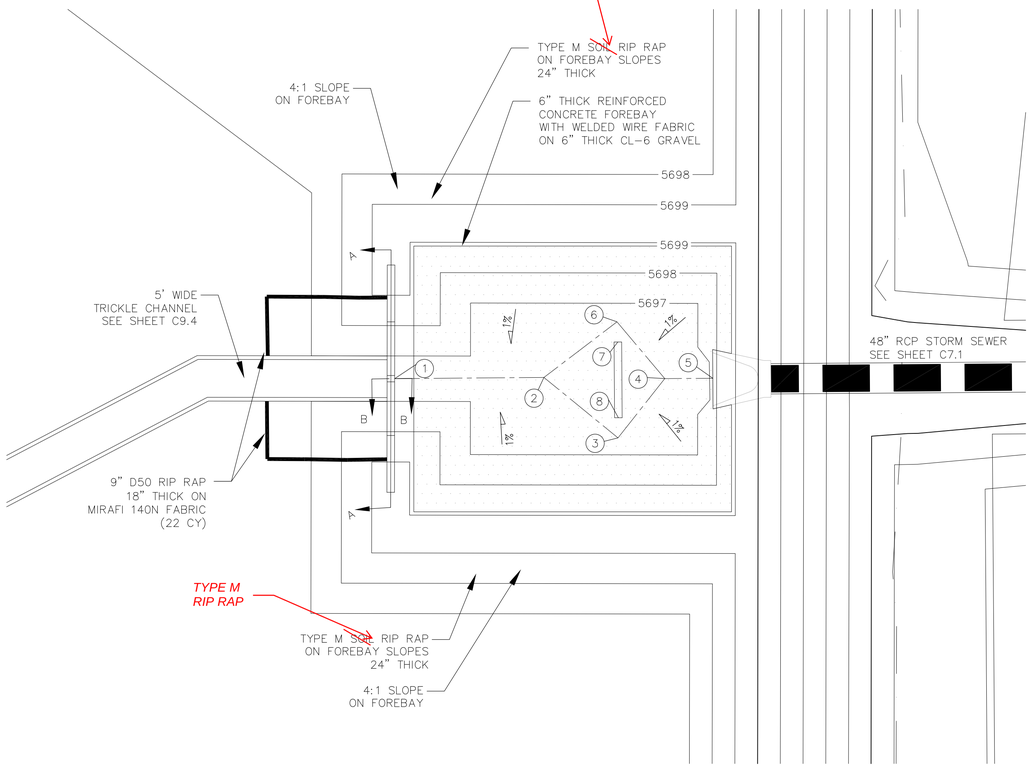
ENERGY DISSIPATER WALL
NO SCALE

POINT TABLE (FOREBAY C)

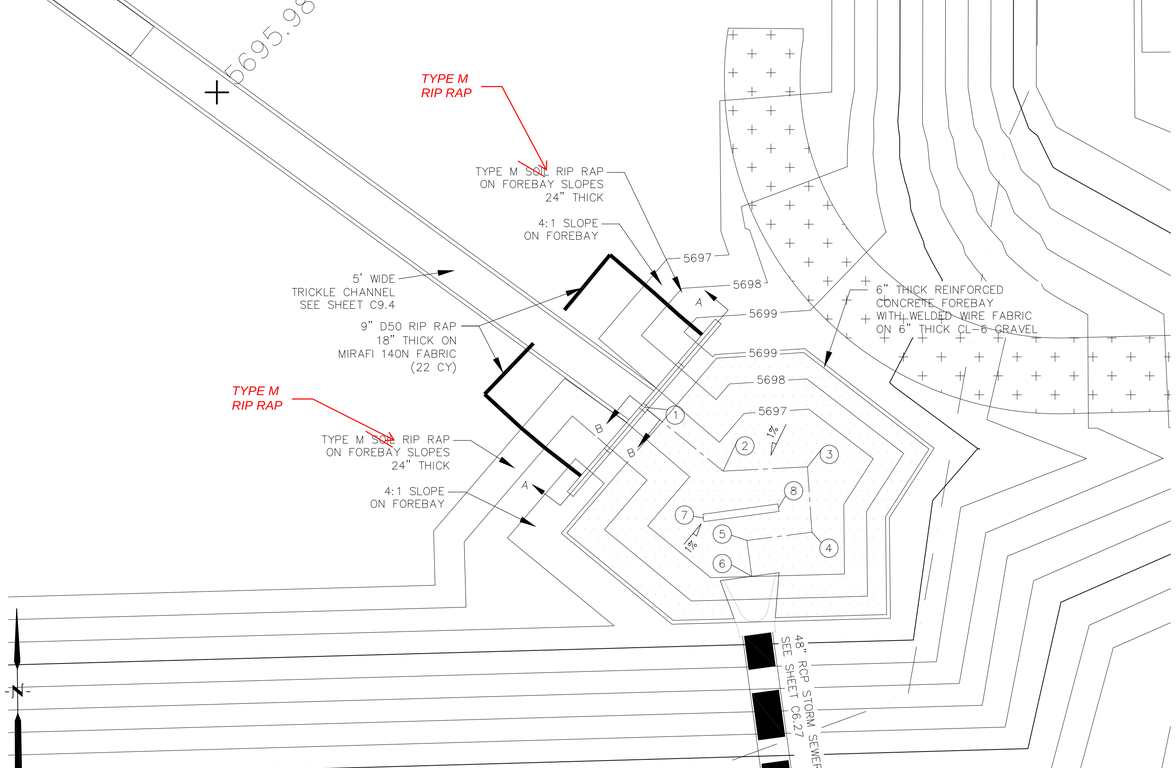
NUMBER	NORTHING	EASTING	ELEVATION	NOTES
1	21991.42	25583.25	5696.50	FOREBAY BOTTOM
2	21991.58	25602.95	5696.70	FOREBAY BOTTOM
3	21983.61	25612.73	5696.80	FOREBAY BOTTOM
4	21991.43	25618.89	5696.90	FOREBAY BOTTOM
5	21991.47	25625.24	5696.99	FOREBAY BOTTOM
6	21998.92	25612.59	5696.80	FOREBAY BOTTOM
7	21996.26	25612.70	5696.90	ENERGY DISSIPATER WALL
8	21986.26	25612.77	5696.90	ENERGY DISSIPATER WALL

POINT TABLE (FOREBAY D)

NUMBER	NORTHING	EASTING	ELEVATION	NOTES
1	21816.93	25597.69	5696.50	FOREBAY BOTTOM
2	21808.83	25607.67	5696.60	FOREBAY BOTTOM
3	21809.40	25618.82	5696.70	FOREBAY BOTTOM
4	21800.77	25619.40	5696.80	FOREBAY BOTTOM
5	21799.69	25610.82	5696.90	FOREBAY BOTTOM
6	21794.95	25611.47	5697.00	FOREBAY BOTTOM
7	21802.65	25605.08	5708.80	ENERGY DISSIPATER WALL
8	21804.01	25614.99	5708.40	ENERGY DISSIPATER WALL



POND D2 – FOREBAY 'C' LAYOUT
SCALE 1"=10'



10 5 0 10 20
SCALE: 1"=10'

POND D2 – FOREBAY 'D' LAYOUT
SCALE: 1"=10'

AS-BUILT
DATE: 07/19/2022

CORE ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: rlschindler@ecgi.com

NO. | DESCRIPTION | DATE

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE. SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

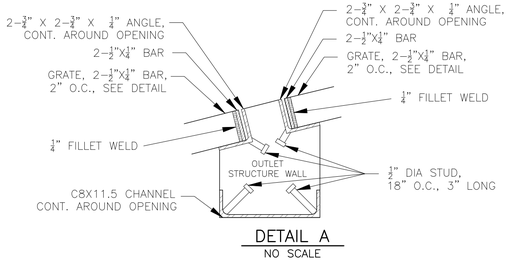
PROJECT:
LORSON RANCH EAST
FILING NO. 1
FONTAINE BLVD.-OLD GLORY DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

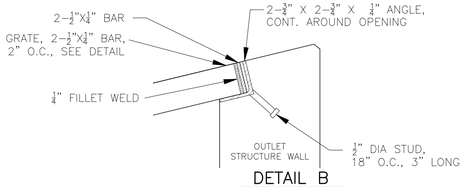
POND D2
FOREBAY 'C' AND 'D'
LAYOUT AND DETAILS

COLORADO REGISTERED PROFESSIONAL ENGINEER
33997
6-12-2018

DATE: JUNE 12, 2018
PROJECT NO. 100.042
SHEET NUMBER C9.5
TOTAL SHEETS: 45

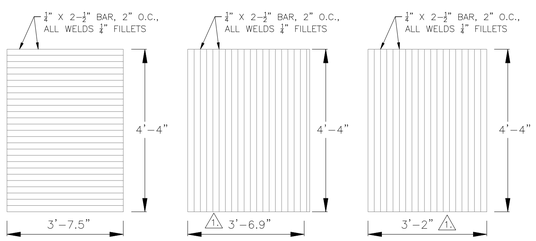


DETAIL A
NO SCALE



DETAIL B
NO SCALE

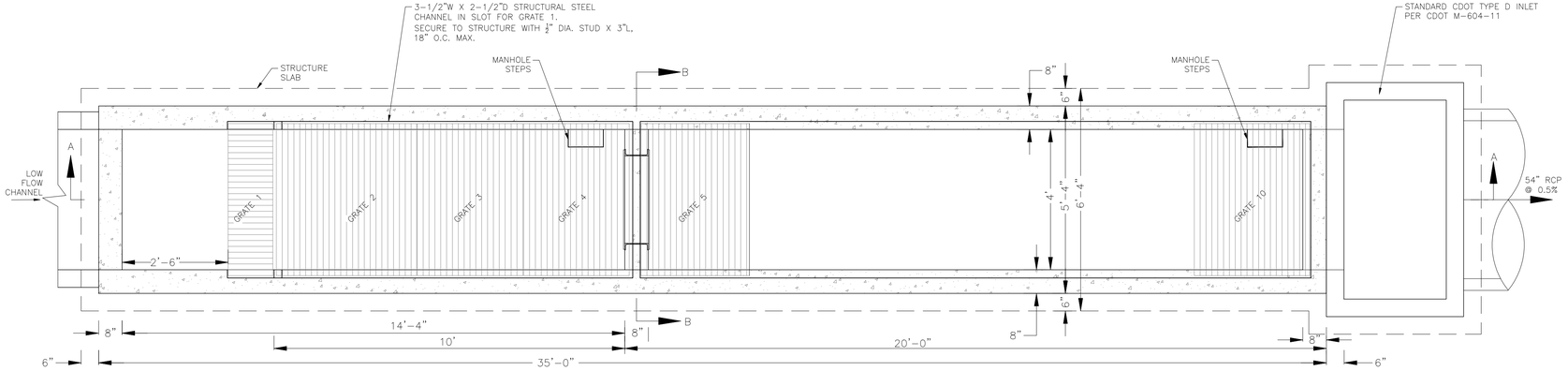
NOTE:
AFTER CONCRETE STRUCTURE HAS BEEN POURED ALL GRATE DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO GRATE CONSTRUCTION



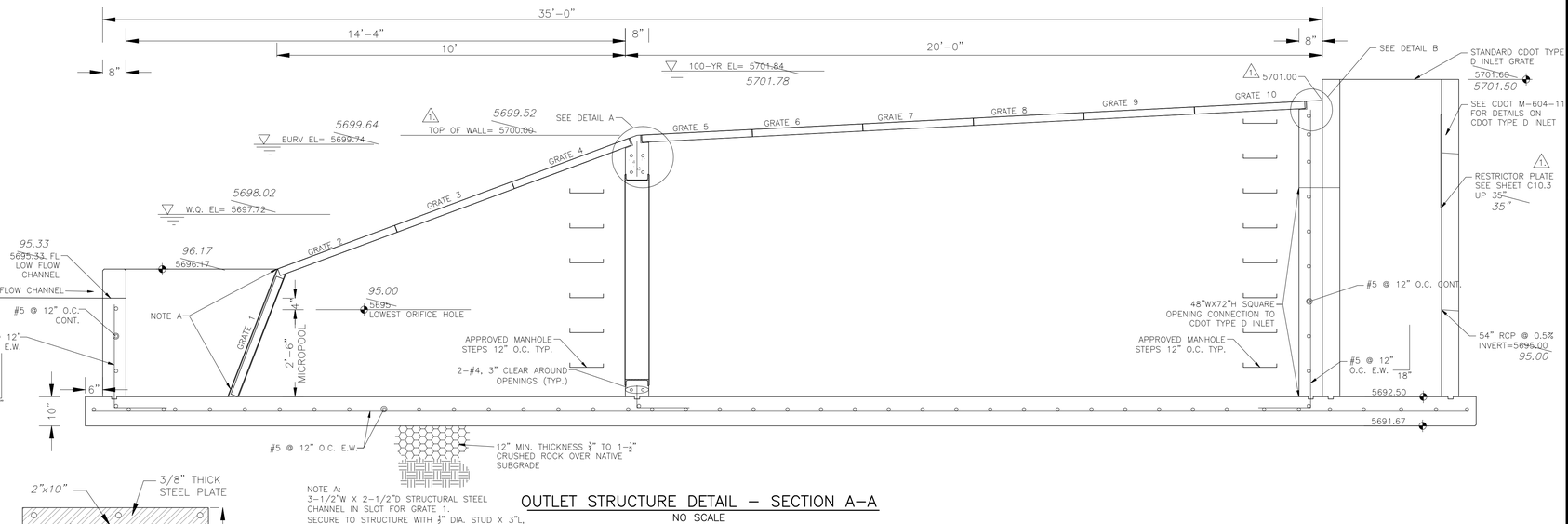
GRATE 1
NO SCALE

GRATES 2–4
NO SCALE

GRATES 5–10
NO SCALE

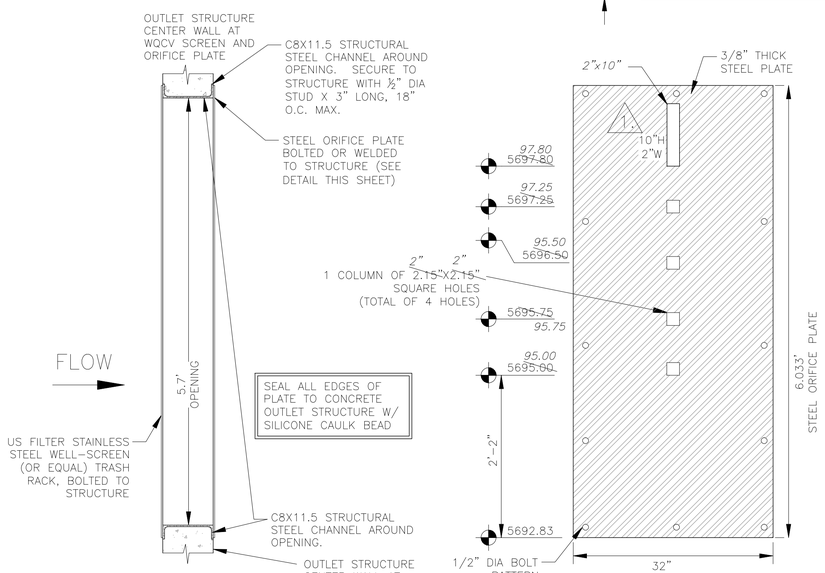


OUTLET STRUCTURE DETAIL – PLAN VIEW
NO SCALE



NOTE A:
3–1/2"W X 2–1/2"D STRUCTURAL STEEL CHANNEL IN SLOT FOR GRATE 1. SECURE TO STRUCTURE WITH ½" DIA. STUD X 3"L, 18" O.C. MAX.

OUTLET STRUCTURE DETAIL – SECTION A–A
NO SCALE



TRASH RACK DETAIL
NO SCALE

ORIFICE PLATE DETAIL
NO SCALE

OUTLET STRUCTURE, FOREBAY, AND DRAIN CHANNEL NOTES:

1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL COMPONENTS OF THE OUTLET STRUCTURE.

2. GRADE 60 REINFORCING STEEL REQUIRED. SEE TABLE FOR THE MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS. ALL REINFORCING STEEL SHALL HAVE A TWO–INCH MINIMUM CLEARANCE FROM EDGE OF CONCRETE, UNLESS OTHERWISE NOTED.

BAR SIZE	#4	#5	#6
MIN. SPLICE LENGTH	1'–3"	1'–7"	2'–0"

3. CONCRETE FOR THE OUTLET STRUCTURE AND FOREBAY SHALL BE CDOT CLASS D CONCRETE.

4. CONCRETE FOR DRAIN CHANNELS SHALL BE CDOT CLASS B CONCRETE

5. EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M–213. EXPANSION JOINT MATERIAL SHALL BE ½" THICK, SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE AND THE JOINT SHALL BE SEALED, REFER TO DETAILS.

6. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A ⅜" CHAMFER UNLESS OTHERWISE NOTED.

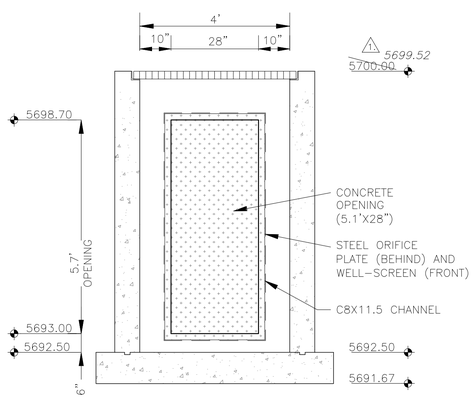
7. SUBGRADE TO BE 12" THICK CLEAN FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY PER ASTM M698 UNDER STRUCTURE.

8. REFER TO SHEET C9.5 FOR PRESEDIMENTATION/FOREBAY DESIGN.

9. ENGINEER SHALL BE NOTIFIED PRIOR TO BEGINNING CONSTRUCITON OF OUTLET STRUCTURE TO SCHEDULE OBSERVATION VISITS FOR STRUCTURES.

10. SEE SHEET C9.3 FOR WELL–SCREEN DESIGN NOTES

AS-BUILT
DATE: 07/19/2022



OUTLET STRUCTURE DETAIL – SECTION B–B
NO SCALE

CORE ENGINEERING GROUP
15004 1ST AVENUE S.
BURNSVILLE, MN 55306
PH: 719.570.1100
CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@cegi.com

NO.	DESCRIPTION	DATE
1.	MODIFY OUTLET, CHANGE GRATE SIZES	7-2-2018

PREPARED FOR:
LORSON, LLC
212 N. WAHSATCH AVE, SUITE 301
COLORADO SPRINGS, COLORADO 80903
(719) 635-3200
CONTACT: JEFF MARK

PROJECT:
LORSON RANCH EAST FILING NO. 1
FONTAINE BLVD.–OLD GLORY DR
COLORADO SPRINGS, COLORADO

DRAWN: RLS
DESIGNED: RLS
CHECKED: RLS

LORSON RANCH EAST FILING NO. 1
FULL SPECTRUM POND D2
OUTLET STRUCTURE

COLORADO REGISTERED RICHARD LEE SCHINDLER 33997 7-22-18 PROFESSIONAL ENGINEER

DATE:
JUNE 12, 2018

PROJECT NO.
100.042

SHEET NUMBER
C9.6
TOTAL SHEETS: 45