January 23, 2020

J·R ENGINEERING

Colorado Division of Water Resources
310 E. Abriendo Ave., Suite B
Pueblo, CO 81004

RE: Non-Jurisdictional Water Impoundment Structure Notice – Saddlehorn Filing 1
El Paso County

JR Engineering is performing civil engineering services for the proposed Saddlehorn single-family home development southeast of the intersection of Judge Orr Rd. and Curtis Road in El Paso County. The development is comprised of 2.5 acre lots, public roadways and open space tracts.

As part of the first subdivision filing in this development, three (3) full spectrum detention ponds are proposed. These ponds are identified as Pond G, Pond H and Pond I. The ponds will have embankments on the downhill side but, in my opinion, the ponds are non-jurisdictional and provide no public exposure in the event of embankment failure as they are adjacent to natural drainageway. Groundwater is not anticipated to be encountered based on the depth of excavation and soils report completed by Entech Engineering. In the event groundwater is encountered, your office will be notified.

I have attached the NOI and a grading plan for each of the ponds. I have also attached an overall vicinity map to help define the location of the proposed ponds.

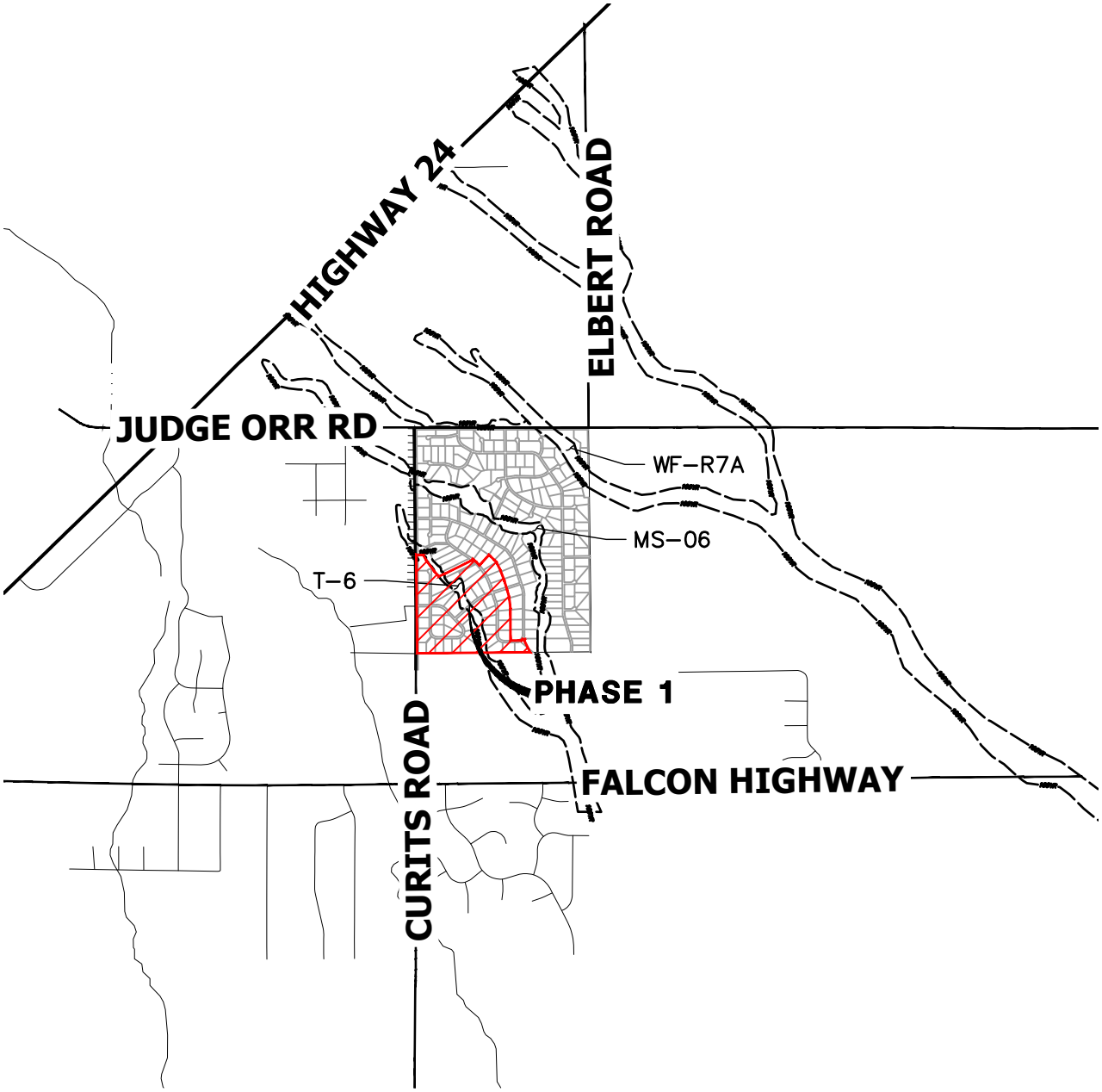
If additional information or clarification is needed to support this submittal, please feel free to contact me.

Respectfully submitted,

JR ENGINEERING, LLC

Mike Bramlett

Mike Bramlett, PE
Client Manager
Ph: (303) 267-6240
Cell: (719) 659-7679
Email: mbramlett@jrengineering.com



5000 2500 0 5000 10000

ORIGINAL SCALE: 1" = 5000'

VICINITY MAP
SADDLEHORN RANCH FILING 1
25142.02
11/19/19
SHEET 1 OF 1

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

COLORADO
Division of Water Resources
Department of Natural Resources
www.water.state.co.us P 303.866.3581

NON-JURISDICTIONAL WATER IMPOUNDMENT STRUCTURE[1]

This notice is required per Section 37-87-125, C.R.S. (1998) and
must be submitted to the Division Engineer's Office a minimum of 45 days prior to construction.

OWNER INFORMATION

Name: ROI PROPERTY GROUP, LLC Telephone/E-Mail: (719) 593-2593 / BRADY@WHITMIRECAPITALADVISORS.COM

Address: 2495 RIGDON STREET NAPA CA 94558
Street / P.O. Box/ Rural Route City State Zip Code

Responsible Person: BRADY WILLIAMS Telephone/E-Mail: (360) 989-5395 / BRADY@WHITMIRECAPITALADVISORS.COM

Address: 2495 RIGDON STREET NAPA CA 94558
Street / P.O. Box/ Rural Route City State Zip Code

Contractor: TO BE DETERMINED. Telephone/E-Mail: (TO BE DETERMINED.

STRUCTURE INFORMATION

Name of Dam: SADDLEHORN RANCH FILING 1 - POND G Water Division: 2 Water District: 10

Location: *(Provide Section, Township, Range, **and** GPS Point taken at crest of dam above streamline/outlet)*

- Section: 10, Township: 13S, Range: 64W, 6th P.M.
- Northing 14139831.75 meters, Easting 1769802.65 meters (*Datum should be UTM, NAD 83)*

Dam Dimensions:

- Vertical Height[2]: 5.4 ft., Length: 850 ft., Crest Width: 10 ft., Slopes: U/S: 3 (H:1V), D/S 4 (H:1V)

Reservoir:

- Surface Area[1]: 0.68 acres, Capacity[1]: 1.244 acre-feet, Drainage Area*: 33.57 acres
  (If drainage area is unknown leave blank and a spillway size will be assigned):

Emergency Spillway: *(See Table 1, Spillway Sizing Guidelines)*

- Bottom Width: 20 ft., Side Slopes: 4 H:1V, Freeboard[3]: 1.82' ft

Outlet Conduit Type: RCP, Size: 18" inches, Location: INTO NATURAL CHANNEL

Stream Name or Water Source[4]: HAEGLER RANCH TRIB. 6 Proposed Water Use: WATER QUALITY & DETENTION

Water Court Case ***or*** WDID : _____
(Water District Identification Number)

Signature of Owner Date

Office Use Only

DIVISION ENGINEER'S REQUIREMENTS: _____

Dam I.D._____ Signature of Division Engineer Date

[1] A "Non-Jurisdictional Structure" is a dam creating a reservoir with a capacity of 100 acre-feet or less *and* a surface area of 20 acres or less *and* a vertical height (footnote 2) of 10 feet or less. Non-jurisdictional size dams are regulated and subject to the authority of the State Engineer consistent with sections 37-87-102 and 37-87-105 C.R.S.

[2] "Vertical Height" is measured from the elevation of the lowest point of the natural surface of the ground or the invert of the outlet conduit (whichever is lower) where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam.

[3] "Freeboard" is the vertical distance from the bottom of spillway to the crest of the dam. Minimum Freeboard is 3 feet.

[4] If construction in reservoir intercepts groundwater, a well permit is required. (Well permit applications can be found at www.water.state.co.us)

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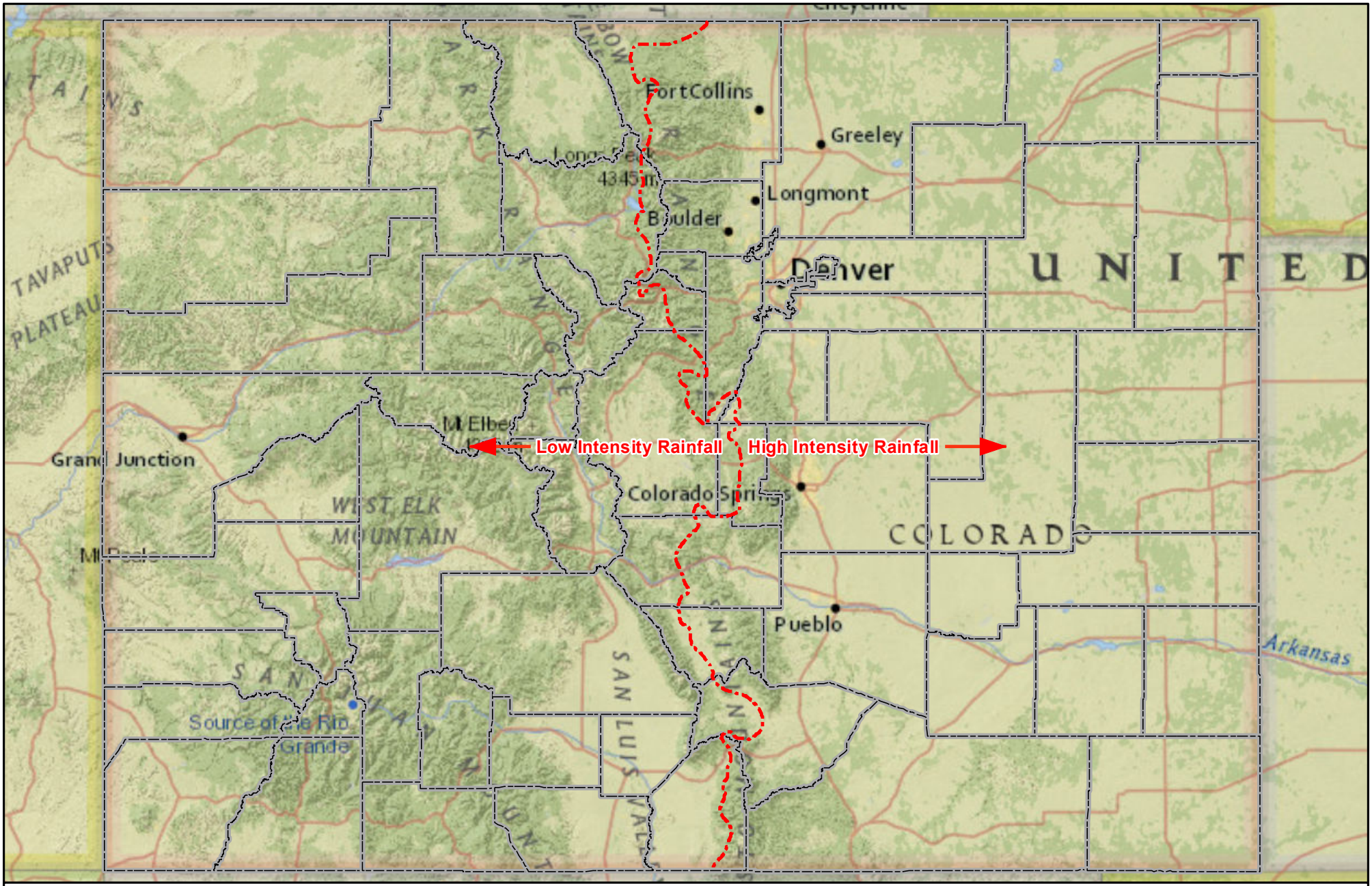
Table 1 DAM SAFETY BRANCH Spillway Sizing Guidelines for Non-Jurisdictional Dams

Drainage Area (Acres)	Minimum Recommended Bottom Width[1] (Feet) Low Intensity Rainfall Zone	Minimum Recommended Bottom Width[1] (Feet) High Intensity Rainfall Zone
175	8	8
225	8	10
275	8	12
325	8	15
375	10	17
425	11	19
475	12	21
525	13	24
575	15	26
625	16	28
675	17	30
725	19	33
775	20	35
825	21	37
875	22	39
925	24	42
975	25	44
1025	26	46
1075	28	48
1125	29	51
1175	30	53
1225	31	55
1275	33	57
1325	34	59
1375	35	62
1425	37	64
1475	38	66

[1]Minimum recommended bottom width for drainage areas less than 175 acres is 8 feet

Spillway Section



COLORADO
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Department of Natural Resources

Rainfall Intensity Zones for Non-Jurisdictional Dam Spillway Sizing

COLORADO
Division of Water Resources
Department of Natural Resources

DAM SAFETY BRANCH Specifications for Construction of Non-Jurisdictional Dams

- Site Selection:
  - Foundation soils should be firm to provide adequate support for the embankment and should have low permeability to allow for water retention. Site selection should consider potential downstream property damage in the event of a dam failure. Construction of dams in boggy areas, areas with non-uniform fractured rock, or sands/gravels is not recommended and an engineer should be hired to evaluate the site conditions. Any part of the reservoir basin excavated below grade cannot expose groundwater.

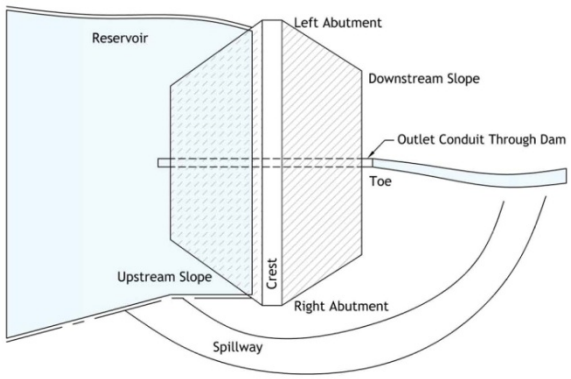
- Embankment Design:
  - Backfill material to be used for construction of the cutoff trench and embankment should be a suitable clay material and contain no material larger than 6 inches in diameter.
  - The upstream slope should be constructed with a slope no steeper than 3:1, and the downstream slope should be no steeper than 2:1 (see cross section below). The dam crest should have a minimum width of 10 feet and the surface should be graded with positive drainage toward the reservoir basin.
  - It is recommended that rock rip rap or other suitable material be placed on the upstream slope of the embankment to protect it from wave action. A suitable gravel or geosynthetic material should be placed under the rip rap to prevent fine material from washing out from behind the larger rock.
  - The embankment should be fenced to restrict livestock from accessing the dam since they damage the protective vegetation and increase erosion.

- Embankment Construction
  - The topsoil and all organic material should be removed from the foundation of the proposed dam site. Organic soil should only be reused for placement on the completed embankment to promote the re-growth of vegetation.
  - A cutoff trench should be excavated under the full length of the centerline of the dam with sloping sides (1:1 min.), a minimum bottom width of 3 feet and a depth of 3 feet.
  - The foundation of the dam should be scarified/ripped to a depth of 6-inches to provide proper contact between the native foundation and embankment. This surface should then be moisture treated before placement of fill.
  - Fill material should be placed in layers not exceeding 12 inches in thickness prior to compaction. Suitable backfill material should have enough clay and moisture content to roll a small ball by hand. If this cannot be done, the soil is likely too dry or does not have adequate clay content.
  - Each lift should be thoroughly compacted using a sheeps foot compactor. Care should be taken not to allow the top layers of the soil to dry out between placement of lifts.
  - Fill should be placed in uniform lifts that cover the entire embankment length and width.

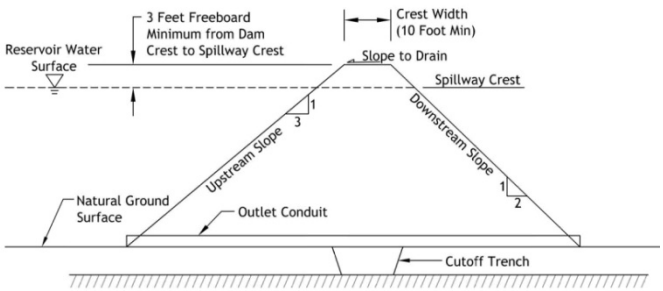
- Outlet
  - Unless a waiver is granted in writing by the Division Engineer, all non-jurisdictional dams require an outlet conduit positioned at the natural low point of the reservoir basin. A minimum diameter of 12 inches is recommended and should be controlled at the upstream end by a valve and trash rack.

- Emergency Spillway
  - The spillway should have sufficient width to provide capacity to route the runoff from the drainage basin above the dam during rainfall/runoff events.
  - The emergency spillway should be located on natural ground far enough away to prevent erosion of the dam embankment. A spillway over the dam embankment is not acceptable.
  - A minimum of 3 feet of freeboard is required from the bottom of the emergency spillway to the top of the dam.
  - To determine the minimum spillway width, see the attached table for your area and drainage basin size.

- Example Plan View and Cross Section

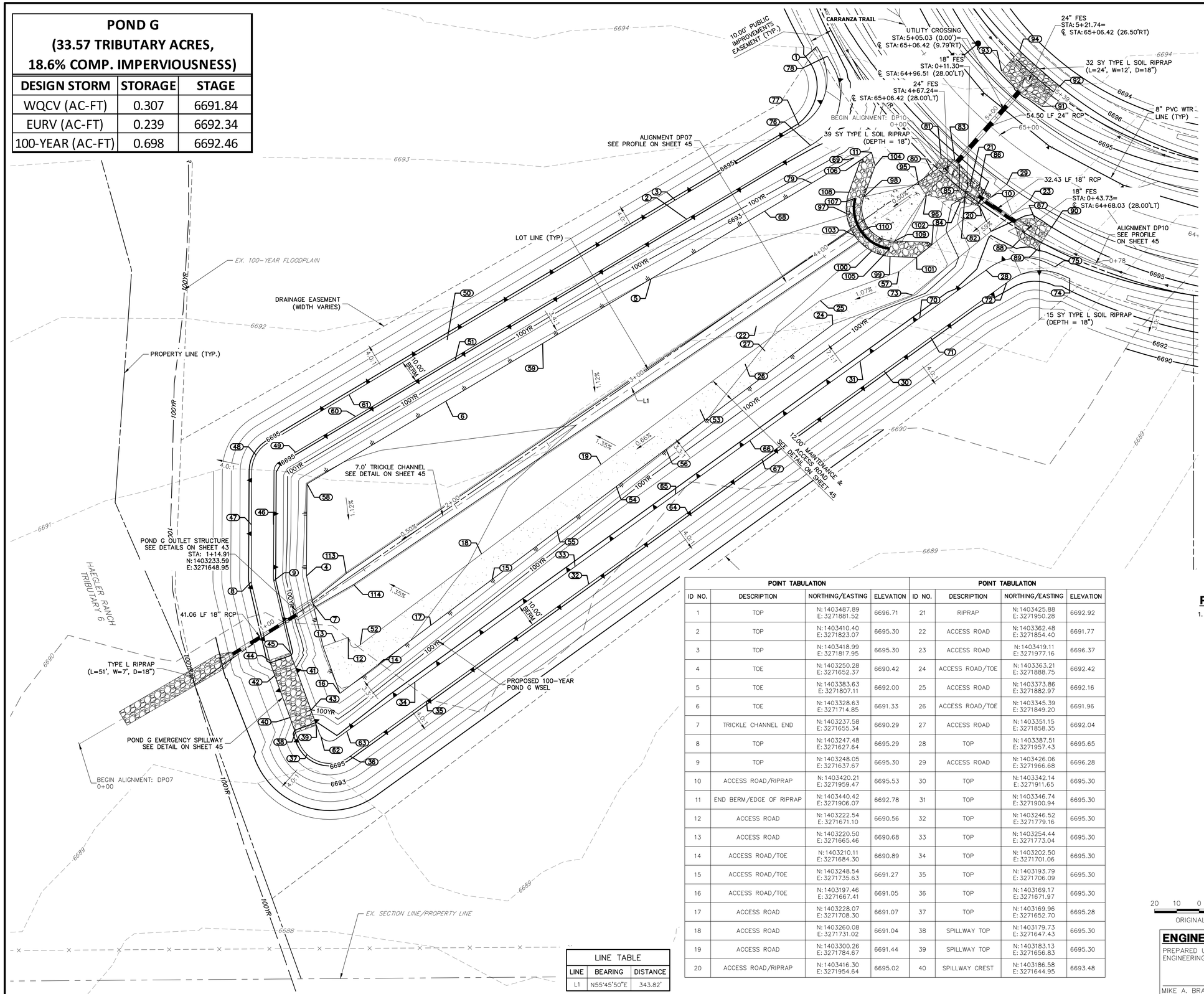


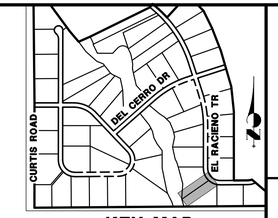
Plan View



Cross Section Through Dam at Outlet

POND G (33.57 TRIBUTARY ACRES, 18.6% COMP. IMPERVIOUSNESS)		
DESIGN STORM	STORAGE	STAGE
WQCV (AC-FT)	0.307	6691.84
EURV (AC-FT)	0.239	6692.34
100-YEAR (AC-FT)	0.698	6692.46





KEY MAP
N.T.S.

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
41	SPILLWAY CREST	N: 1403208.78 E: 3271647.56	6693.48
42	SPILLWAY CREST	N: 1403205.38 E: 3271638.15	6693.48
43	SPILLWAY CREST	N: 1403189.97 E: 3271654.36	6693.48
44	SPILLWAY TOP	N: 1403212.27 E: 3271635.78	6695.30
45	SPILLWAY TOP	N: 1403215.69 E: 3271645.25	6695.30
46	TOP	N: 1403273.20 E: 3271637.67	6695.30
47	TOP	N: 1403273.25 E: 3271627.67	6695.30
48	TOP	N: 1403304.56 E: 3271629.75	6695.29
49	TOP	N: 1403305.74 E: 3271647.52	6695.30
50	TOP	N: 1403356.17 E: 3271715.49	6695.30
51	TOP	N: 1403346.79 E: 3271718.97	6694.90
52	ACCESS ROAD	N: 1403219.25 E: 3271676.50	6690.64
53	ACCESS ROAD/TOE	N: 1403325.01 E: 3271828.95	6691.88
54	ACCESS ROAD/TOE	N: 1403290.34 E: 3271791.45	6691.69
55	ACCESS ROAD/TOE	N: 1403270.39 E: 3271764.80	6691.49
56	ACCESS ROAD/TOE	N: 1403307.02 E: 3271813.72	6691.86
57	ACCESS ROAD	N: 1403386.91 E: 3271918.42	6692.57
58	TOE	N: 1403291.51 E: 3271652.58	6690.88
59	TOE	N: 1403354.61 E: 3271758.43	6691.65
60	TOP	N: 1403321.80 E: 3271674.45	6695.30

POINT TABULATION				POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION	ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
1	TOP	N: 1403487.89 E: 3271881.52	6696.71	21	RIPRAP	N: 1403425.88 E: 3271950.28	6692.92
2	TOP	N: 1403410.40 E: 3271823.07	6695.30	22	ACCESS ROAD	N: 1403362.48 E: 3271854.40	6691.77
3	TOP	N: 1403418.99 E: 3271817.95	6695.30	23	ACCESS ROAD	N: 1403419.11 E: 3271977.16	6696.37
4	TOE	N: 1403250.28 E: 3271652.37	6690.42	24	ACCESS ROAD/TOE	N: 1403363.21 E: 3271888.75	6692.42
5	TOE	N: 1403383.63 E: 3271807.11	6692.00	25	ACCESS ROAD	N: 1403373.86 E: 3271882.97	6692.16
6	TOE	N: 1403328.63 E: 3271714.85	6691.33	26	ACCESS ROAD/TOE	N: 1403345.39 E: 3271849.20	6691.96
7	TRICKLE CHANNEL END	N: 1403237.58 E: 3271655.34	6690.29	27	ACCESS ROAD	N: 1403351.15 E: 3271858.35	6692.04
8	TOP	N: 1403247.48 E: 3271627.64	6695.29	28	TOP	N: 1403387.51 E: 3271957.43	6695.65
9	TOP	N: 1403248.05 E: 3271637.67	6695.30	29	ACCESS ROAD	N: 1403426.06 E: 3271966.68	6696.28
10	ACCESS ROAD/RIPRAP	N: 1403420.21 E: 3271959.47	6695.53	30	TOP	N: 1403342.14 E: 3271911.65	6695.30
11	END BERM/EDGE OF RIPRAP	N: 1403440.42 E: 3271906.07	6692.78	31	TOP	N: 1403346.74 E: 3271900.94	6695.30
12	ACCESS ROAD	N: 1403222.54 E: 3271671.10	6690.56	32	TOP	N: 1403246.52 E: 3271779.16	6695.30
13	ACCESS ROAD	N: 1403220.50 E: 3271665.46	6690.68	33	TOP	N: 1403254.44 E: 3271773.04	6695.30
14	ACCESS ROAD/TOE	N: 1403210.11 E: 3271684.30	6690.89	34	TOP	N: 1403202.50 E: 3271701.06	6695.30
15	ACCESS ROAD/TOE	N: 1403248.54 E: 3271735.63	6691.27	35	TOP	N: 1403193.79 E: 3271706.09	6695.30
16	ACCESS ROAD/TOE	N: 1403197.46 E: 3271667.41	6691.05	36	TOP	N: 1403169.17 E: 3271671.97	6695.30
17	ACCESS ROAD	N: 1403228.07 E: 3271708.30	6691.07	37	TOP	N: 1403169.96 E: 3271652.70	6695.28
18	ACCESS ROAD	N: 1403260.08 E: 3271731.02	6691.04	38	SPILLWAY TOP	N: 1403179.73 E: 3271647.43	6695.30
19	ACCESS ROAD	N: 1403300.26 E: 3271784.67	6691.44	39	SPILLWAY TOP	N: 1403183.13 E: 3271656.83	6695.30
20	ACCESS ROAD/RIPRAP	N: 1403416.30 E: 3271954.64	6695.02	40	SPILLWAY CREST	N: 1403186.58 E: 3271644.95	6693.48

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N55°45'50"E	343.82'

POND GRADING NOTES

1. POND GRADING POINT TABLES ARE CONTINUED ON NEXT SHEET.

20 10 0 20 40
ORIGINAL SCALE: 1" = 20'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

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

PREPARED FOR
ROI PROPERTY GROUP, LLC
2495 RIGDON STREET
NAPA, CALIFORNIA
(707) 365-6891
BRADY WILLIAMS

J·R ENGINEERING
A Westrian Company
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No.	REVISION	BY	DATE

H-SCALE	1"=20'
V-SCALE	N/A
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND G GRADING PLAN

SHEET 44 OF 50

JOB NO. 2514202

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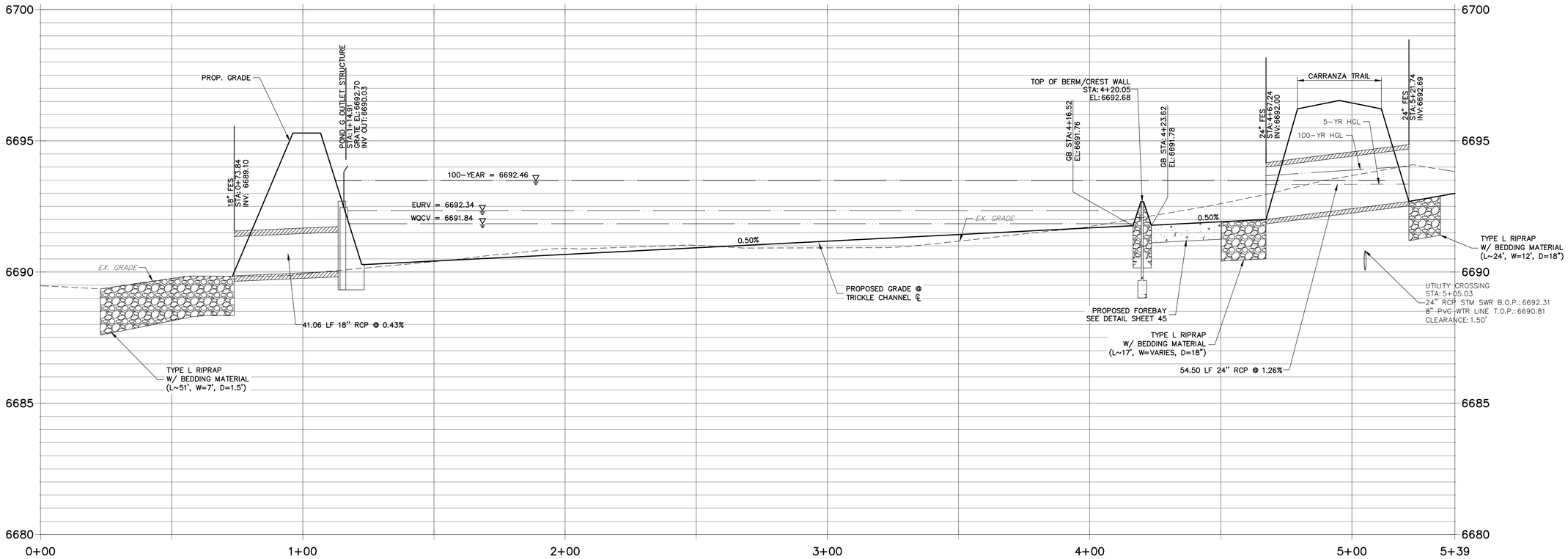

DP10 PROFILE
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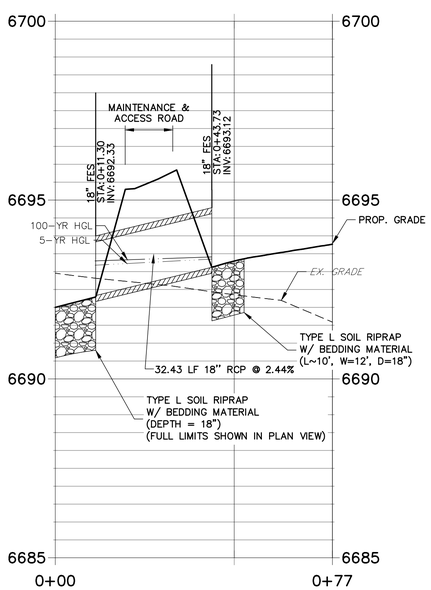

POINT TABULATION

ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
61	TOP	N: 1403331.44 E: 3271671.47	6695.30
62	TOP	N: 1403178.14 E: 3271658.78	6695.30
63	TOP	N: 1403180.35 E: 3271670.37	6695.30
64	TOP	N: 1403278.65 E: 3271823.68	6695.30
65	TOP	N: 1403287.03 E: 3271818.19	6695.30
66	TOP	N: 1403310.93 E: 3271851.32	6695.30
67	TOP	N: 1403302.53 E: 3271856.76	6695.30
68	TOE	N: 1403413.98 E: 3271858.01	6692.37
69	TOE	N: 1403437.93 E: 3271898.19	6692.66
70	TOP	N: 1403365.93 E: 3271927.62	6695.30
71	TOP	N: 1403357.27 E: 3271932.62	6695.29
72	TOP	N: 1403381.93 E: 3271966.79	6695.79
73	ACCESS ROAD	N: 1403376.33 E: 3271924.43	6692.82
74	TOP	N: 1403383.72 E: 3271995.12	6696.62
75	TOP	N: 1403389.02 E: 3271988.41	6696.49
76	TOP	N: 1403443.55 E: 3271878.68	6695.30
77	TOP	N: 1403452.22 E: 3271873.69	6695.30
78	TOP	N: 1403483.60 E: 3271886.24	6696.60
79	TOE	N: 1403426.62 E: 3271879.22	6692.52
80	RIPRAP	N: 1403432.75 E: 3271932.89	6692.10

POINT TABULATION

ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
81	RIPRAP	N: 1403437.90 E: 3271937.35	6693.04
82	RIPRAP	N: 1403423.04 E: 3271948.16	6692.51
83	RIPRAP	N: 1403437.07 E: 3271943.37	6694.17
84	RIPRAP	N: 1403418.07 E: 3271945.97	6693.44
85	RIPRAP	N: 1403435.16 E: 3271945.54	6694.14
86	RIPRAP	N: 1403425.57 E: 3271954.47	6693.89
87	RIPRAP	N: 1403410.86 E: 3271979.20	6694.77
88	RIPRAP	N: 1403400.95 E: 3271972.43	6694.25
89	RIPRAP	N: 1403396.80 E: 3271980.37	6694.95
90	RIPRAP	N: 1403407.05 E: 3271987.09	6695.07
91	RIPRAP	N: 1403461.08 E: 3271982.48	6694.69
92	RIPRAP	N: 1403470.08 E: 3271990.41	6694.95
93	RIPRAP	N: 1403476.96 E: 3271964.48	6694.70
94	RIPRAP	N: 1403485.96 E: 3271972.41	6694.95
95	BEGIN CONCRETE FOREBAY/ END RIPRAP	N: 1403426.18 E: 3271927.22	6692.01
96	BEGIN CONCRETE FOREBAY/ END RIPRAP	N: 1403421.22 E: 3271930.59	6692.01
97	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403412.98 E: 3271894.80	6692.02
98	EDGE OF CONCRETE/BOTTOM OF BERM	N: 1403420.45 E: 3271902.60	6691.80
99	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403393.63 E: 3271914.41	6692.32
100	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403396.13 E: 3271906.13	6692.07

POINT TABULATION

ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
101	EDGE OF BERM/MAINTENANCE ROAD	N: 1403393.23 E: 3271926.21	6692.68
102	EDGE OF BERM/MAINTENANCE ROAD	N: 1403398.87 E: 3271933.16	6692.78
103	BOTTOM OF BERM/BEGIN TRICKLE CHANNEL	N: 1403403.00 E: 3271898.49	6691.76
104	EDGE OF BERM/TOE OF SLOPE	N: 1403434.53 E: 3271907.67	6692.50
105	END/CREST OF WEIR WALL	N: 1403397.17 E: 3271914.25	6692.68
106	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403436.90 E: 3271901.08	6692.63
107	END/CREST OF WEIR WALL	N: 1403419.78 E: 3271898.73	6692.68
108	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403422.52 E: 3271895.98	6692.27
109	EDGE OF CONCRETE/BOTTOM OF BERM	N: 1403400.54 E: 3271916.31	6691.80
110	CREST OF WEIR WALL	N: 1403404.97 E: 3271901.38	6692.68
113	BEGIN TRICKLE CHANNEL TAPER TO 4.0' TRICKLE CHANNEL	N: 1403251.32 E: 3271670.27	6690.41
114	BEGIN TRICKLE CHANNEL TAPER TO 4.0' TRICKLE CHANNEL	N: 1403246.27 E: 3271673.52	6690.44

20 10 0 20 40
HORIZONTAL
ORIGINAL SCALE: 1" = 20'
VERTICAL
ORIGINAL SCALE: 1" = 2'

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

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED PROFESSIONAL ENGINEER MIKE A. BRAMLETT 32314

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

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

PREPARED FOR
ROI PROPERTY GROUP, LLC
2495 RIGDON STREET
NAPA, CALIFORNIA
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BRADY WILLIAMS

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Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1"=20'
V-SCALE	1" = 20'
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND G GRADING PLAN

SHEET 45 OF 50

JOB NO. 2514202

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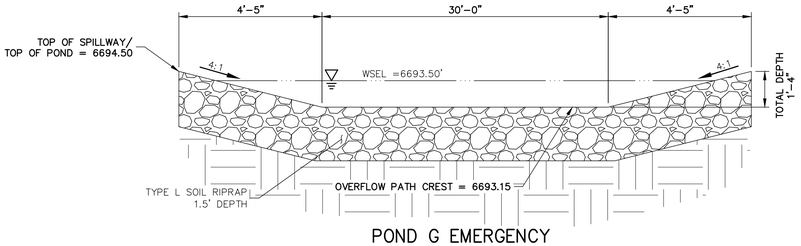
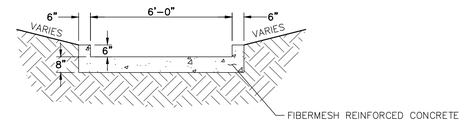


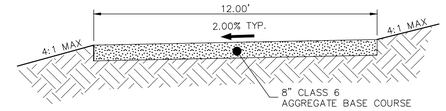
POND G EMERGENCY SPILLWAY

SCALE: N.T.S.



POND TRICKLE CHANNEL (ALL PONDS)

N.T.S.



GRAVEL MAINTENANCE ACCESS ROAD TYPICAL SECTION

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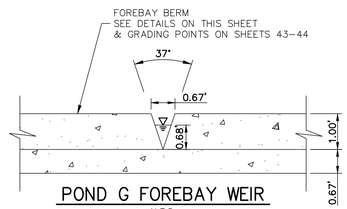
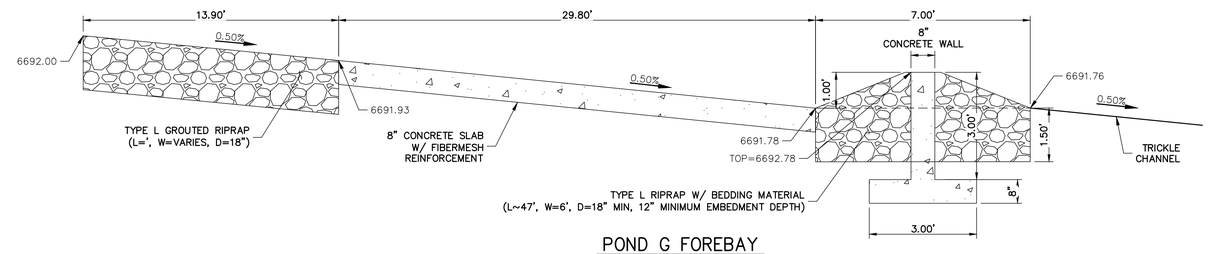


POND G FOREBAY WEIR

N.T.S.



POND G FOREBAY

N.T.S.

20 10 0 20 40

HORIZONTAL
ORIGINAL SCALE: 1" = 20'
VERTICAL
ORIGINAL SCALE: 1" = 2'

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

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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

PREPARED FOR
ROI PROPERTY GROUP, LLC
2495 RIGDON STREET
NAPA, CALIFORNIA
(707) 365-6891
BRADY WILLIAMS

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	VARIES
V-SCALE	VARIES
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

GR03

SHEET 46 OF 50

JOB NO. 2514202

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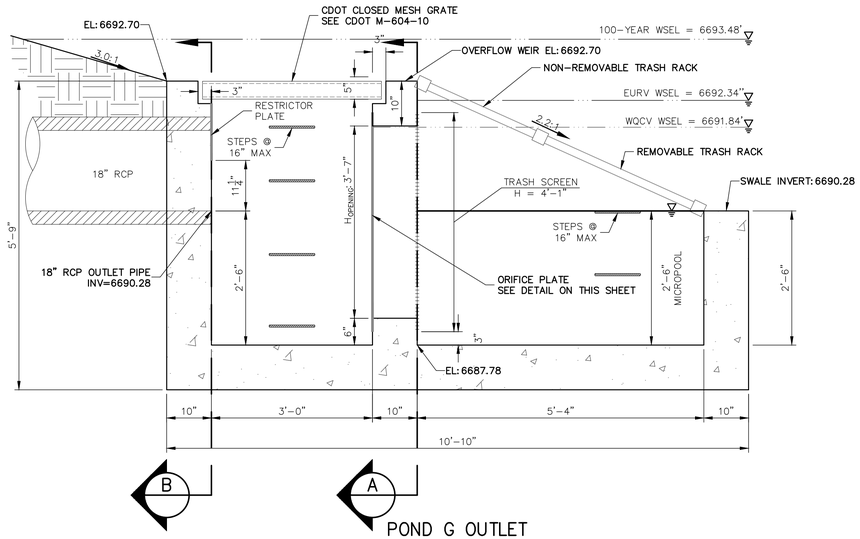
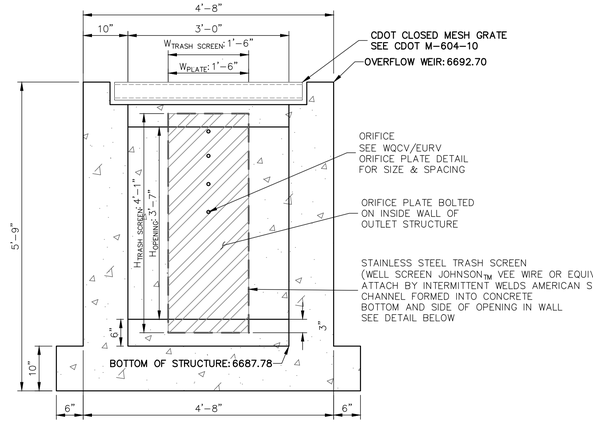


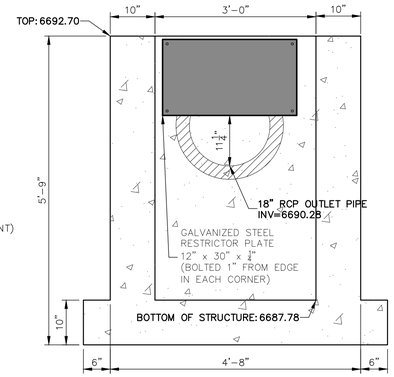
POND G OUTLET STRUCTURE – PROFILE

SCALE: 3/4"=1'



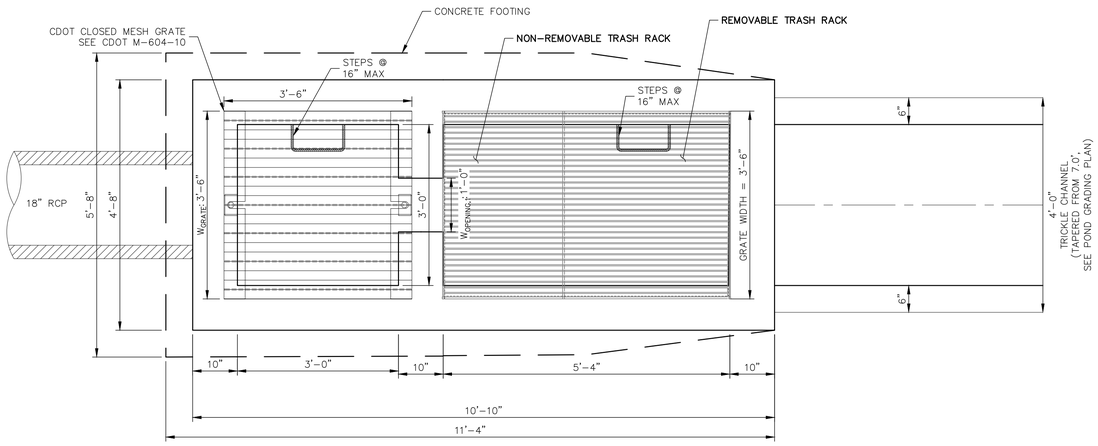
A 40 SECTION A AT ORIFICE (FRONT) WALL

SCALE: 3/4"=1'



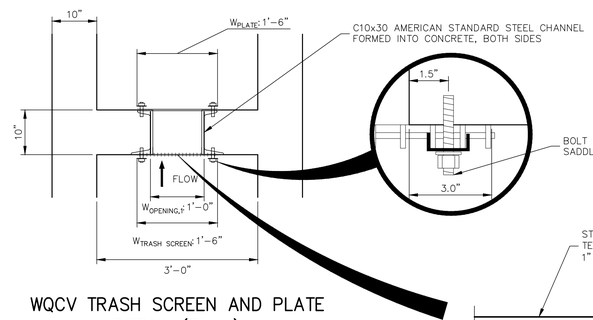
B 40 SECTION B AT OUTLET (REAR) WALL

SCALE: 3/4"=1'



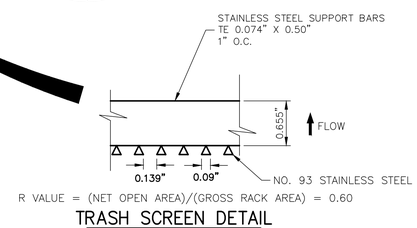
POND G OUTLET STRUCTURE – PLAN

SCALE: 3/4"=1'



WQCV TRASH SCREEN AND PLATE DETAIL (PLAN)

SCALE: 3/4"=1'

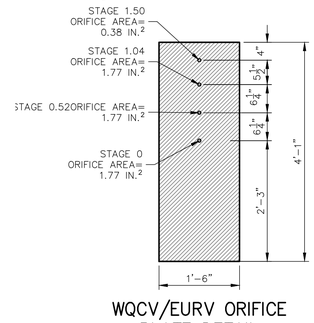


R VALUE = (NET OPEN AREA)/(GROSS RACK AREA) = 0.60

TRASH SCREEN DETAIL

N.T.S.

EURV/WQCV ORIFICE PLATE:
4'-1" x 1'-6" x ½" THICK FLOW GALVANIZED STEEL FLOW CONTROL PLATE. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE. BOLT PLATE TO CONCRETE @ 12" MAX O.C., 1½" FROM PLATE EDGE.



WQCV/EURV ORIFICE PLATE DETAIL

SCALE: 3/4"=1'

3/4" 3/8" 0 3/4"

HORIZONTAL
ORIGINAL SCALE: 1" = 3/4"'

VERTICAL
ORIGINAL SCALE: 1" = 3/4"'

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

COLORADO LICENSED PROFESSIONAL ENGINEER MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

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No.	REVISION	BY	DATE

H-SCALE	3/4" = 1'
V-SCALE	3/4" = 1'
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND G OUTLET STRUCTURE DETAILS

SHEET 47 OF 50

JOB NO. 2514202

X:\2510000.all\2514202\Drawings\Sheet Dwgs\Civil\2514202CS01_POND G.dwg, DT01, 12/31/2019 8:49:29 AM, CS

COLORADO
Division of Water Resources
Department of Natural Resources
www.water.state.co.us P 303.866.3581

NON-JURISDICTIONAL WATER IMPOUNDMENT STRUCTURE[1]

This notice is required per Section 37-87-125, C.R.S. (1998) and
must be submitted to the Division Engineer's Office a minimum of 45 days prior to construction.

OWNER INFORMATION

Name: ROI PROPERTY GROUP, LLC Telephone/E-Mail: (719) 593-2593 / BRADY@WHITMIRECAPITALADVISORS.COM

Address: 2495 RIGDON STREET NAPA CA 94558
Street / P.O. Box/ Rural Route City State Zip Code

Responsible Person: BRADY WILLIAMS Telephone/E-Mail: (360) 989-5395 / BRADY@WHITMIRECAPITALADVISORS.COM

Address: 2495 RIGDON STREET NAPA CA 94558
Street / P.O. Box/ Rural Route City State Zip Code

Contractor: TO BE DETERMINED. Telephone/E-Mail: (TO BE DETERMINED.

STRUCTURE INFORMATION

Name of Dam: SADDLEHORN RANCH FILING 1 - POND H Water Division: 2 Water District: 10

Location: *(Provide Section, Township, Range, **and** GPS Point taken at crest of dam above streamline/outlet)*

- Section: 3, Township: 13S, Range: 64W, 6th P.M.
- Northing 14141826.72 meters, Easting 1768385.27 meters (*Datum should be UTM, NAD 83)*

Dam Dimensions:

- Vertical Height[2]: 7.2 ft., Length: 375 ft., Crest Width: 10 ft., Slopes: U/S: 3 (H:1V), D/S 3 (H:1V)

Reservoir:

- Surface Area[1]: 0.44 acres, Capacity[1]: 0.73 acre-feet, Drainage Area*: 21.16 acres
  **(If drainage area is unknown leave blank and a spillway size will be assigned):*

Emergency Spillway: *(See Table 1, Spillway Sizing Guidelines)*

- Bottom Width: 6 ft., Side Slopes: 4 H:1V, Freeboard[3]: 2.0 ft

Outlet Conduit Type: RCP, Size: 18" inches, Location: INTO NATURAL CHANNEL

Stream Name or Water Source[4]: HAEGLER RANCH TRIB. 6 Proposed Water Use: WATER QUALITY & DETENTION

Water Court Case ***or*** WDID : _____
(Water District Identification Number)

Signature of Owner Date

Office Use Only

DIVISION ENGINEER'S REQUIREMENTS: _____

Dam I.D._____ Signature of Division Engineer Date

[1] A "Non-Jurisdictional Structure" is a dam creating a reservoir with a capacity of 100 acre-feet or less *and* a surface area of 20 acres or less *and* a vertical height (footnote 2) of 10 feet or less. Non-jurisdictional size dams are regulated and subject to the authority of the State Engineer consistent with sections 37-87-102 and 37-87-105 C.R.S.

[2] "Vertical Height" is measured from the elevation of the lowest point of the natural surface of the ground or the invert of the outlet conduit (whichever is lower) where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam.

[3] "Freeboard" is the vertical distance from the bottom of spillway to the crest of the dam. Minimum Freeboard is 3 feet.

[4] If construction in reservoir intercepts groundwater, a well permit is required. (Well permit applications can be found at www.water.state.co.us)

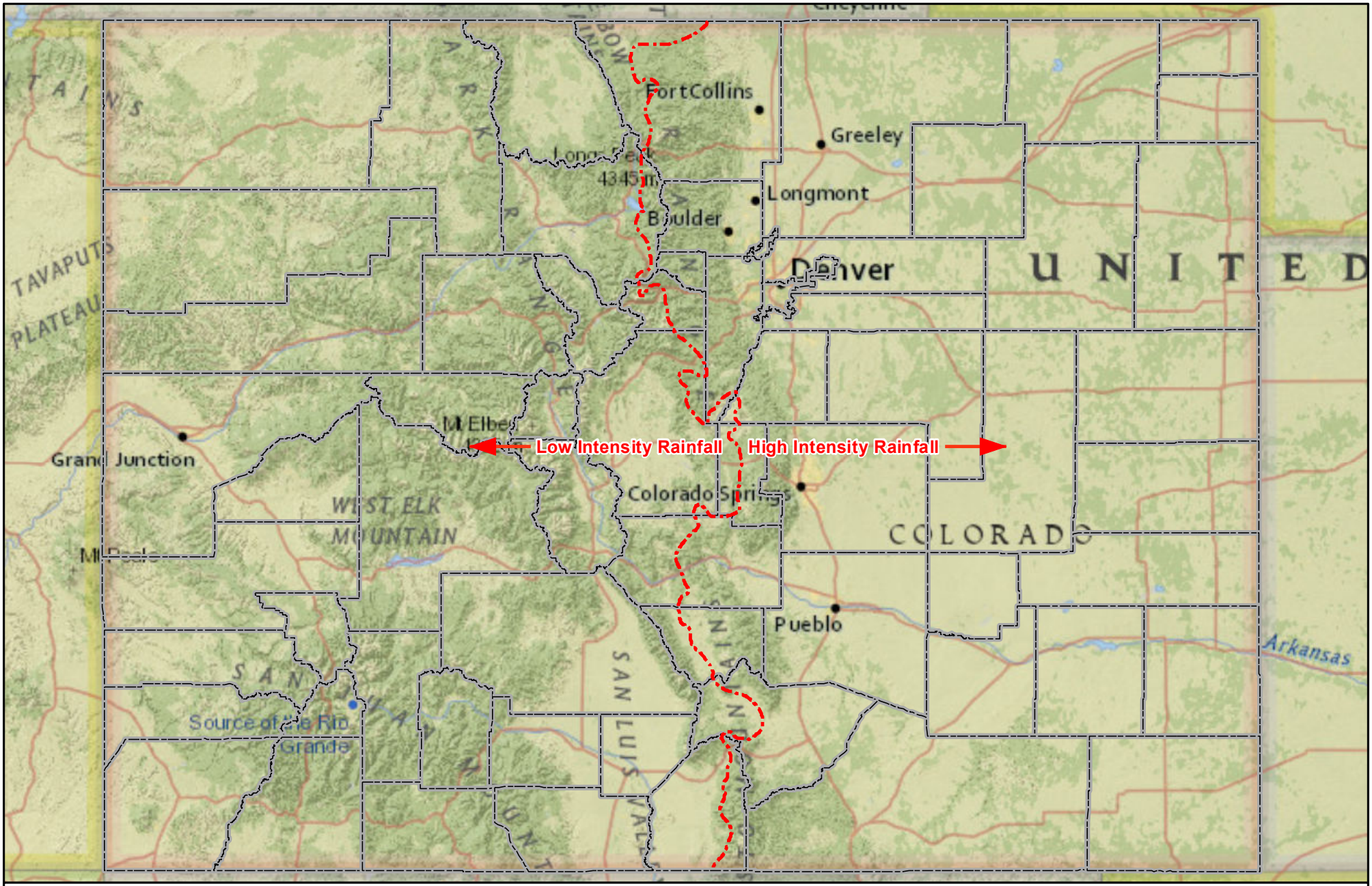
COLORADO
Division of Water Resources
Department of Natural Resources

Table 1 DAM SAFETY BRANCH Spillway Sizing Guidelines for Non-Jurisdictional Dams

Drainage Area (Acres)	Minimum Recommended Bottom Width[1] (Feet) Low Intensity Rainfall Zone	Minimum Recommended Bottom Width[1] (Feet) High Intensity Rainfall Zone
175	8	8
225	8	10
275	8	12
325	8	15
375	10	17
425	11	19
475	12	21
525	13	24
575	15	26
625	16	28
675	17	30
725	19	33
775	20	35
825	21	37
875	22	39
925	24	42
975	25	44
1025	26	46
1075	28	48
1125	29	51
1175	30	53
1225	31	55
1275	33	57
1325	34	59
1375	35	62
1425	37	64
1475	38	66

[1]Minimum recommended bottom width for drainage areas less than 175 acres is 8 feet

Spillway Section



COLORADO
Division of Water Resources
Department of Natural Resources

Rainfall Intensity Zones for Non-Jurisdictional Dam Spillway Sizing

COLORADO
Division of Water Resources
Department of Natural Resources

DAM SAFETY BRANCH Specifications for Construction of Non-Jurisdictional Dams

- Site Selection:
  - Foundation soils should be firm to provide adequate support for the embankment and should have low permeability to allow for water retention. Site selection should consider potential downstream property damage in the event of a dam failure. Construction of dams in boggy areas, areas with non-uniform fractured rock, or sands/gravels is not recommended and an engineer should be hired to evaluate the site conditions. Any part of the reservoir basin excavated below grade cannot expose groundwater.

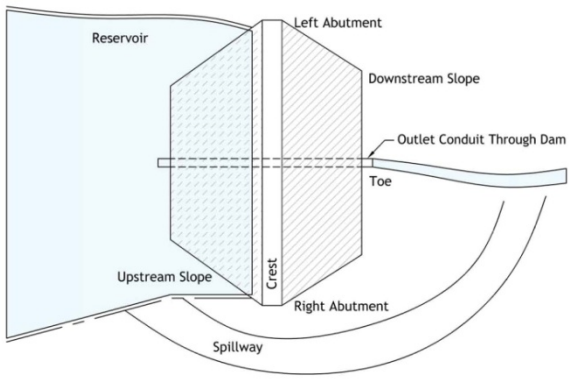
- Embankment Design:
  - Backfill material to be used for construction of the cutoff trench and embankment should be a suitable clay material and contain no material larger than 6 inches in diameter.
  - The upstream slope should be constructed with a slope no steeper than 3:1, and the downstream slope should be no steeper than 2:1 (see cross section below). The dam crest should have a minimum width of 10 feet and the surface should be graded with positive drainage toward the reservoir basin.
  - It is recommended that rock rip rap or other suitable material be placed on the upstream slope of the embankment to protect it from wave action. A suitable gravel or geosynthetic material should be placed under the rip rap to prevent fine material from washing out from behind the larger rock.
  - The embankment should be fenced to restrict livestock from accessing the dam since they damage the protective vegetation and increase erosion.

- Embankment Construction
  - The topsoil and all organic material should be removed from the foundation of the proposed dam site. Organic soil should only be reused for placement on the completed embankment to promote the re-growth of vegetation.
  - A cutoff trench should be excavated under the full length of the centerline of the dam with sloping sides (1:1 min.), a minimum bottom width of 3 feet and a depth of 3 feet.
  - The foundation of the dam should be scarified/ripped to a depth of 6-inches to provide proper contact between the native foundation and embankment. This surface should then be moisture treated before placement of fill.
  - Fill material should be placed in layers not exceeding 12 inches in thickness prior to compaction. Suitable backfill material should have enough clay and moisture content to roll a small ball by hand. If this cannot be done, the soil is likely too dry or does not have adequate clay content.
  - Each lift should be thoroughly compacted using a sheeps foot compactor. Care should be taken not to allow the top layers of the soil to dry out between placement of lifts.
  - Fill should be placed in uniform lifts that cover the entire embankment length and width.

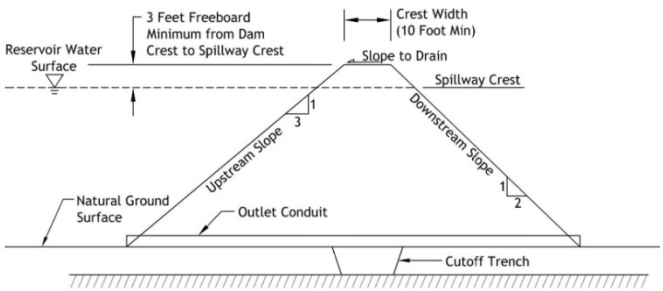
- Outlet
  - Unless a waiver is granted in writing by the Division Engineer, all non-jurisdictional dams require an outlet conduit positioned at the natural low point of the reservoir basin. A minimum diameter of 12 inches is recommended and should be controlled at the upstream end by a valve and trash rack.

- Emergency Spillway
  - The spillway should have sufficient width to provide capacity to route the runoff from the drainage basin above the dam during rainfall/runoff events.
  - The emergency spillway should be located on natural ground far enough away to prevent erosion of the dam embankment. A spillway over the dam embankment is not acceptable.
  - A minimum of 3 feet of freeboard is required from the bottom of the emergency spillway to the top of the dam.
  - To determine the minimum spillway width, see the attached table for your area and drainage basin size.

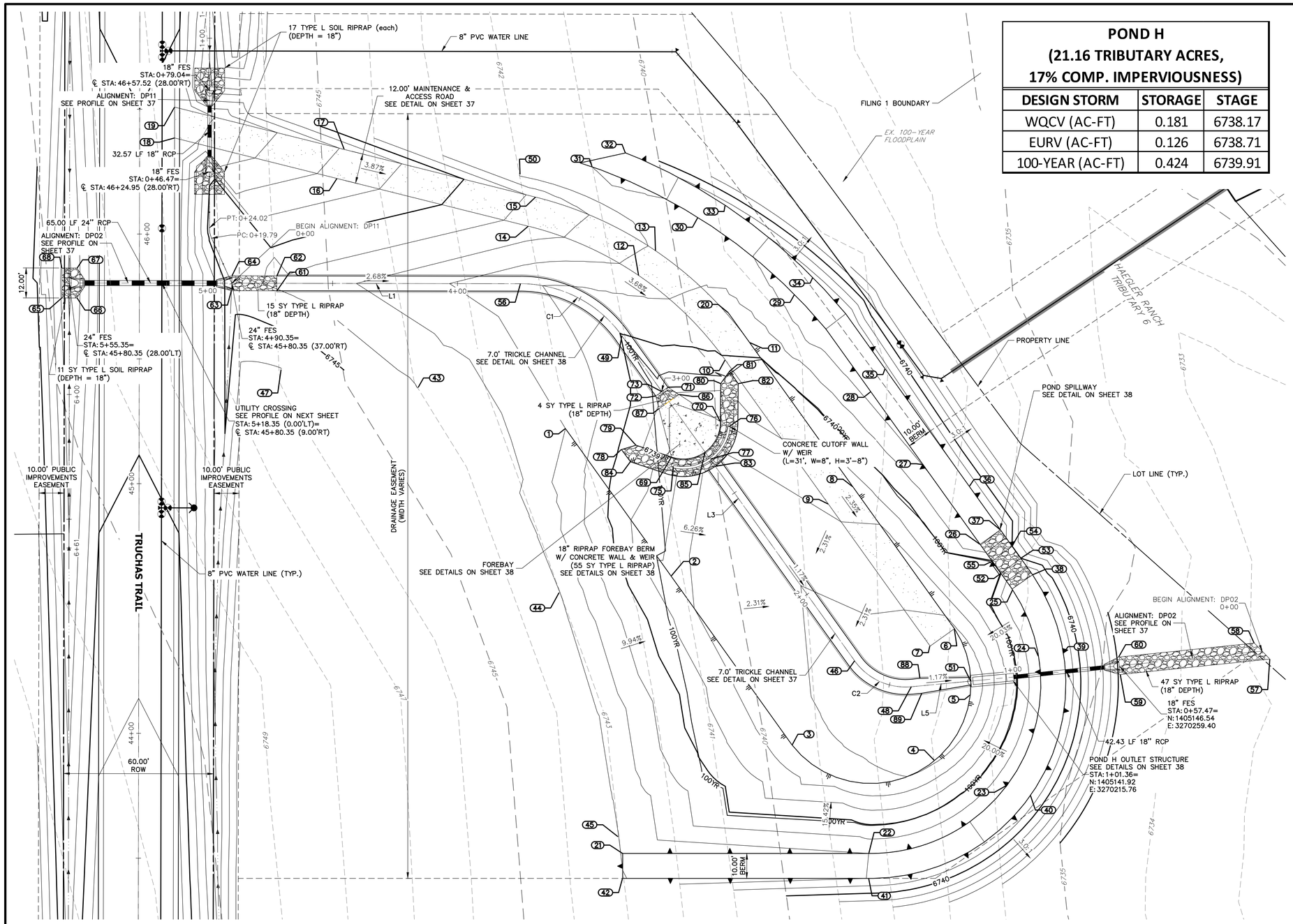
- Example Plan View and Cross Section



Plan View

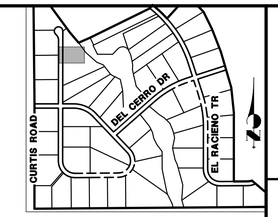


Cross Section Through Dam at Outlet



POND H
(21.16 TRIBUTARY ACRES, 17% COMP. IMPERVIOUSNESS)

DESIGN STORM	STORAGE	STAGE
WQCV (AC-FT)	0.181	6738.17
EURV (AC-FT)	0.126	6738.71
100-YEAR (AC-FT)	0.424	6739.91



KEY MAP
N.T.S.

LINE TABLE			CURVE TABLE			
LINE	BEARING	DISTANCE	CURVE	DELTA	RADIUS	LENGTH
L1	S89°54'25"E	115.62'	C1	54°19'02"	50.00'	47.40'
L3	S35°35'22"E	160.10'	C2	59°49'39"	25.00'	26.10'
L5	N84°34'58"E	23.93'				

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
49	GB/LOW FLOW CHANNEL	N: 1405278.70 E: 3270060.30	6739.96
50	TIE INTO EX±	N: 1405343.08 E: 3270019.31	6742.00
51	OUTLET STRUCTURE	N: 1405140.42 E: 3270199.95	6736.00
52	SPILLWAY CREST	N: 1405183.55 E: 3270212.02	6740.00
53	SPILLWAY CREST	N: 1405189.66 E: 3270219.95	6740.00
54	SPILLWAY CREST	N: 1405194.54 E: 3270216.45	6740.00
55	SPILLWAY CREST	N: 1405188.43 E: 3270208.53	6740.00
56	LOW FLOW CHANNEL	N: 1405299.60 E: 3270019.73	6741.24
57	RIPRAP	N: 1405149.25 E: 3270319.69	6732.81
58	RIPRAP	N: 1405155.64 E: 3270313.46	6732.94
59	RIPRAP	N: 1405143.06 E: 3270259.76	6734.75
60	RIPRAP	N: 1405150.03 E: 3270259.05	6734.81
61	RIPRAP	N: 1405296.76 E: 3269922.11	6744.05
62	RIPRAP	N: 1405302.76 E: 3269922.12	6743.87
63	RIPRAP	N: 1405296.82 E: 3269903.99	6744.37
64	RIPRAP	N: 1405302.79 E: 3269904.12	6744.35
65	RIPRAP	N: 1405293.90 E: 3269836.10	6746.88
66	RIPRAP	N: 1405293.89 E: 3269842.10	6746.67
67	RIPRAP	N: 1405305.89 E: 3269842.12	6746.67
68	RIPRAP	N: 1405305.90 E: 3269836.12	6746.87

GRADING POINT NOTES

1. GRADING POINTS CONTINUED ON NEXT PAGE.

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
1	TOE	N: 1405241.57 E: 3270037.69	6742.00
2	TOE	N: 1405182.52 E: 3270079.95	6738.19
3	TOE	N: 1405114.87 E: 3270128.36	6737.33
4	TOE	N: 1405108.65 E: 3270185.42	6736.83
5	TOE	N: 1405134.86 E: 3270199.75	6736.09
6	ACCESS ROAD	N: 1405161.43 E: 3270193.42	6736.86
7	ACCESS ROAD	N: 1405154.44 E: 3270183.66	6736.62
8	ACCESS ROAD	N: 1405218.33 E: 3270152.70	6738.45

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
9	ACCESS ROAD	N: 1405211.35 E: 3270142.94	6738.21
10	ACCESS ROAD	N: 1405269.05 E: 3270101.64	6739.94
11	ACCESS ROAD	N: 1405276.03 E: 3270111.40	6740.18
12	ACCESS ROAD	N: 1405302.86 E: 3270067.02	6741.63
13	ACCESS ROAD	N: 1405312.78 E: 3270073.76	6741.86
14	ACCESS ROAD	N: 1405322.63 E: 3270022.84	6743.61
15	ACCESS ROAD	N: 1405334.27 E: 3270025.75	6743.85
16	ACCESS ROAD	N: 1405341.75 E: 3269946.24	6746.68

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
17	ACCESS ROAD	N: 1405353.39 E: 3269949.15	6746.92
18	ACCESS ROAD/EOA	N: 1405357.98 E: 3269881.21	6749.60
19	ACCESS ROAD/EOA	N: 1405370.35 E: 3269881.23	6749.73
20	TOE	N: 1405288.13 E: 3270102.75	6740.57
21	TOP	N: 1405071.40 E: 3270060.60	6742.96
22	TOP	N: 1405071.40 E: 3270159.06	6742.00
23	TOP	N: 1405098.72 E: 3270214.48	6742.00
24	TOP	N: 1405150.41 E: 3270227.06	6742.00

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
25	SPILLWAY TOP	N: 1405176.94 E: 3270216.73	6742.00
26	SPILLWAY TOP	N: 1405195.23 E: 3270203.67	6742.00
27	TOP	N: 1405227.15 E: 3270180.82	6742.04
28	TOP	N: 1405256.32 E: 3270159.94	6742.38
29	TOP	N: 1405295.16 E: 3270129.39	6742.53
30	TOP	N: 1405326.05 E: 3270090.72	6741.35
31	TOP/TIE INTO EX±	N: 1405346.43 E: 3270048.45	6741.00
32	TOP/TIE INTO EX±	N: 1405351.99 E: 3270061.76	6740.47

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
33	TOP	N: 1405330.97 E: 3270101.71	6741.49
34	TOP	N: 1405301.96 E: 3270136.73	6742.55
35	TOP	N: 1405265.45 E: 3270165.71	6742.42
36	TOP	N: 1405218.49 E: 3270199.31	6742.00
37	SPILLWAY TOP	N: 1405201.05 E: 3270211.80	6742.00
38	SPILLWAY TOP	N: 1405183.04 E: 3270224.69	6742.00
39	TOP	N: 1405151.78 E: 3270236.93	6742.00
40	TOP	N: 1405094.64 E: 3270223.76	6742.00

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
41	TOP	N: 1405159.00 E: 3270159.00	6741.99
42	TOP	N: 1405061.40 E: 3270060.60	6743.02
43	TIE INTO EX±	N: 1405257.86 E: 3269978.40	6744.00
44	TIE INTO EX±	N: 1405176.08 E: 3270035.41	6743.00
45	TIE INTO EX±	N: 1405077.93 E: 3270059.05	6743.00
46	LOW FLOW CHANNEL	N: 1405148.51 E: 3270153.48	6736.57
47	TIE INTO EX±	N: 1405265.51 E: 3269924.00	6746.00
48	LOW FLOW CHANNEL	N: 1405138.17 E: 3270176.17	6736.26

20 10 0 20 40
ORIGINAL SCALE: 1" = 20'

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FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED PROFESSIONAL ENGINEER
MIKE A. BRAMLETT
32314

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

PREPARED FOR
ROI PROPERTY GROUP, LLC
2495 RIGDON STREET
NAPA, CALIFORNIA
(707) 365-6891
BRADY WILLIAMS

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"=20'
V-SCALE	N/A
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND H GRADING PLAN

SHEET 36 OF 50

JOB NO. 2514202

X:\2514000 all\2514202\Drawings\Sheet Dwgs\Civil\2514202GR01_POND H.dwg, GR01, 12/31/2018 8:53:20 AM, CS

DP02 PROFILE
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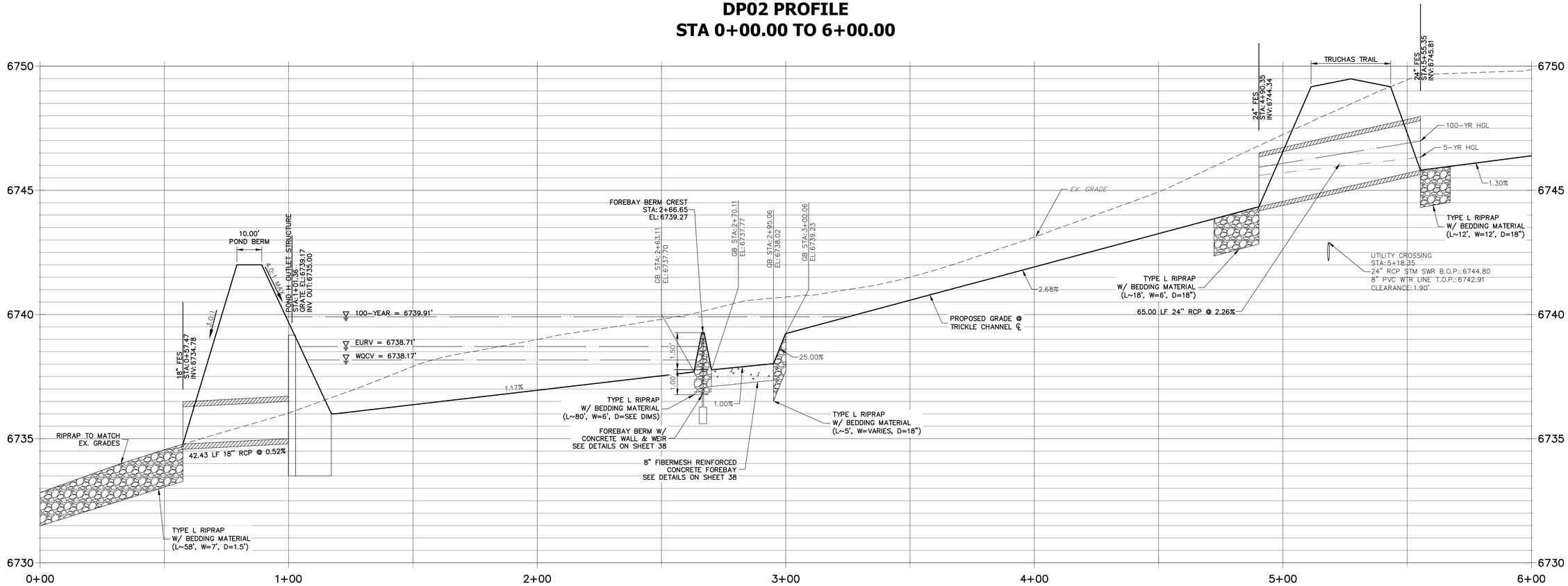

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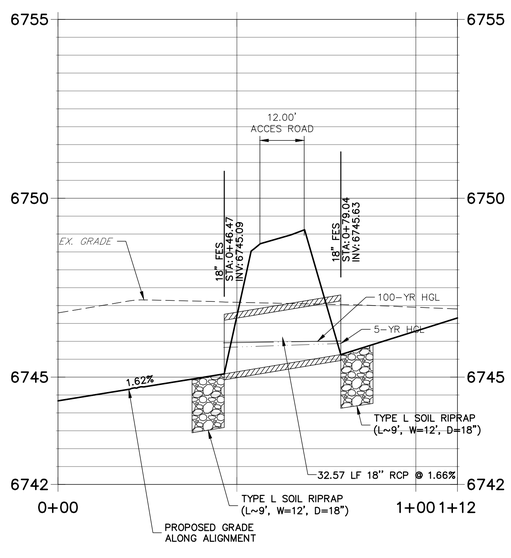

POINT TABULATION

ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
69	EDGE OF CONRETE	N:1405230.18 E:3270080.14	6737.86
70	EDGE OF CONRETE	N:1405244.35 E:3270099.72	6737.85
71	EDGE OF RIPRAP	N:1405258.14 E:3270078.71	6739.22
72	EDGE OF RIPRAP	N:1405254.65 E:3270073.83	6739.22
73	TRICKLE CHANNEL INV.	N:1405256.40 E:3270076.27	6739.22
75	END CONCRETE WALL/TOP OF BERM	N:1405226.33 E:3270080.89	6739.27
76	END CONCRETE WALL/TOP OF BERM	N:1405242.39 E:3270103.13	6739.27
77	TOP OF BERM	N:1405229.33 E:3270095.64	6739.27
78	TOE OF BERM	N:1405233.17 E:3270060.09	6739.89
79	TOE OF BERM	N:1405234.91 E:3270065.94	6739.29
80	TOE OF BERM	N:1405259.63 E:3270099.84	6739.26
81	TOE OF BERM	N:1405264.60 E:3270103.38	6739.74
82	TOE OF BERM	N:1405259.57 E:3270106.84	6739.31
83	TRICKLE CHANNEL INV	N:1405226.48 E:3270097.68	6737.70
84	TOE OF BERM	N:1405228.27 E:3270063.73	6739.35
85	TOE OF BERM	N:1405232.17 E:3270093.61	6737.77
86	RIPRAP/CONCRETE	N:1405255.24 E:3270083.13	6738.93
87	RIPRAP/CONCRETE	N:1405249.52 E:3270075.15	6738.93
88	BEGIN TRICKLE CHANNEL TAPER TO 4.0' TRICKLE CHANNEL	N:1405141.57 E:3270179.66	6736.31
89	BEGIN TRICKLE CHANNEL TAPER TO 4.0' TRICKLE CHANNEL	N:1405135.55 E:3270180.37	6736.28

20 10 0 20 40

HORIZONTAL
ORIGINAL SCALE: 1" = 20'
VERTICAL
ORIGINAL SCALE: 1" = 2'

Know what's below. Call before you dig.

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

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

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BRADY WILLIAMS

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No.	REVISION	BY	DATE

H-SCALE	1"=20'
V-SCALE	1"=2'
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

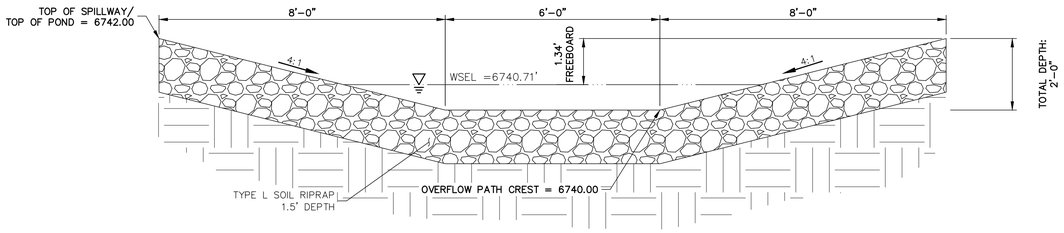
SADDLEHORN RANCH – FILING 1

POND H GRADING PLAN

SHEET 37 OF 50

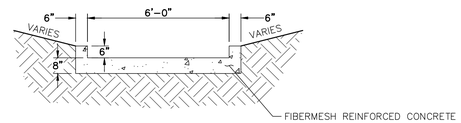
JOB NO. 2514202

X:\2510000 jr\2514202\Drawings\Sheet Dwgs\CD\2514202DP01_POND H.dwg, GR02, 12/31/2019 8:53:26 AM, CS



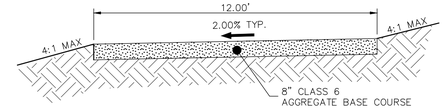
POND H EMERGENCY SPILLWAY

SCALE: N.T.S.



POND TRICKLE CHANNEL (ALL PONDS)

N.T.S.



GRAVEL MAINTENANCE ACCESS ROAD TYPICAL SECTION

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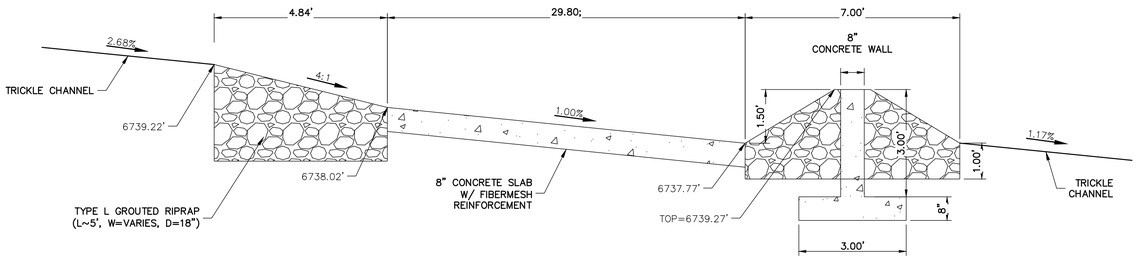
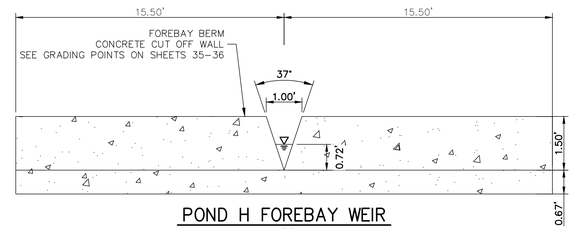


POND H FOREBAY

N.T.S.



POND H FOREBAY WEIR

N.T.S.

20 10 0 20 40

HORIZONTAL
ORIGINAL SCALE: 1" = 20'
VERTICAL
ORIGINAL SCALE: 1" = 2'

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

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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No.	REVISION	BY	DATE

H-SCALE	VARIES
V-SCALE	VARIES
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

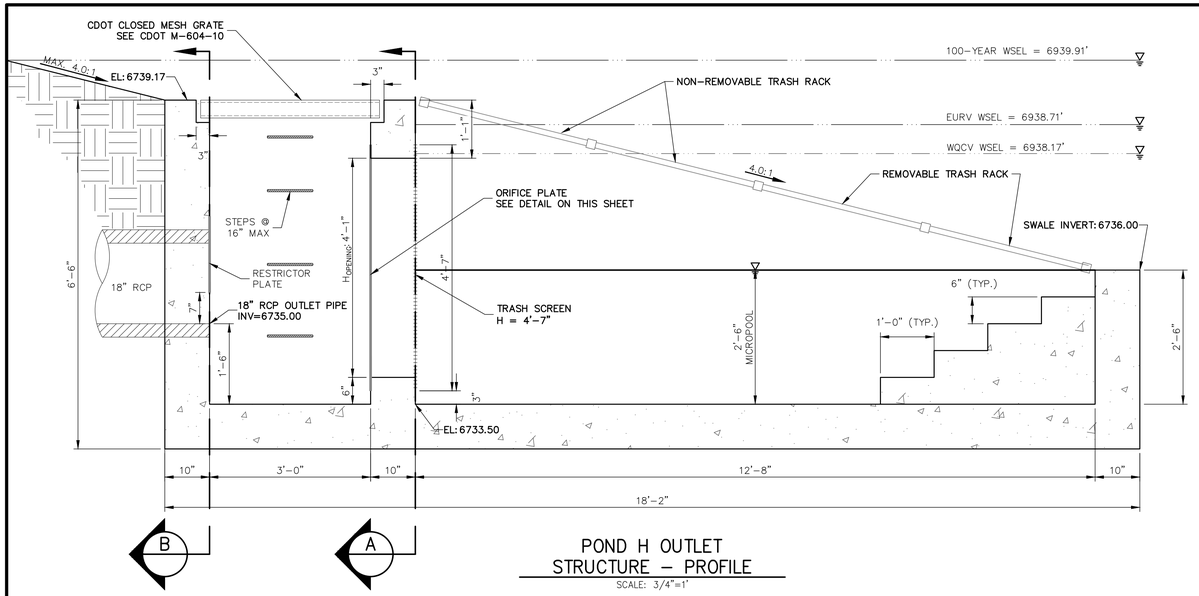
SADDLEHORN RANCH – FILING 1

POND H DETAILS

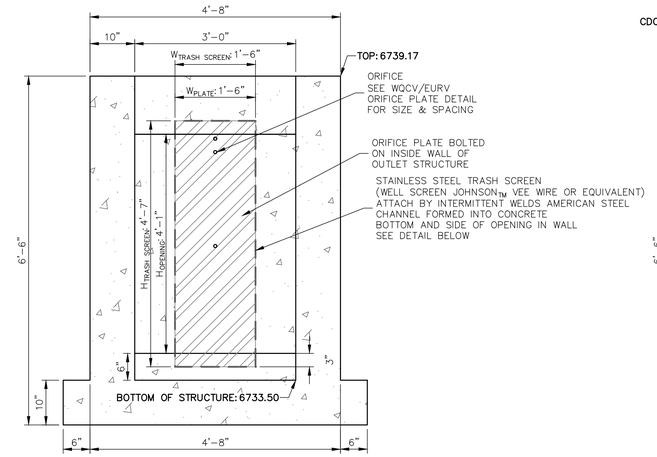
SHEET 38 OF 50

JOB NO. 2514202

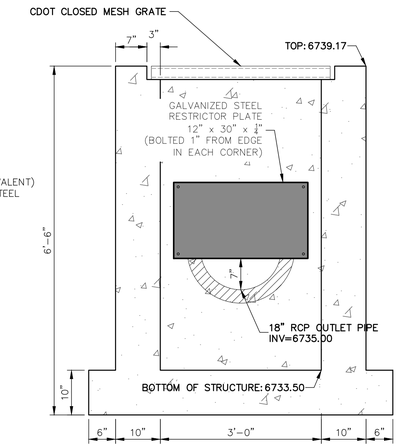
X:\2510000.all\2514202\Drawings\Sheet Dwgs\CD\s2514202GR01_POND H.dwg, GR03, 12/31/2019 8:53:29 AM, CS



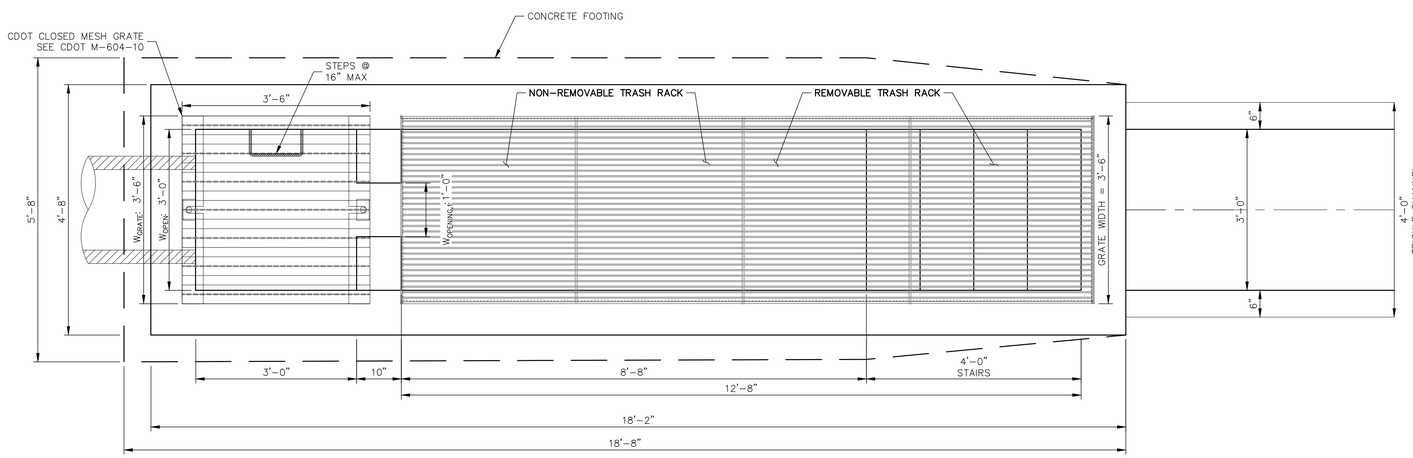
POND H OUTLET
STRUCTURE – PROFILE
SCALE: 3/4"=1'



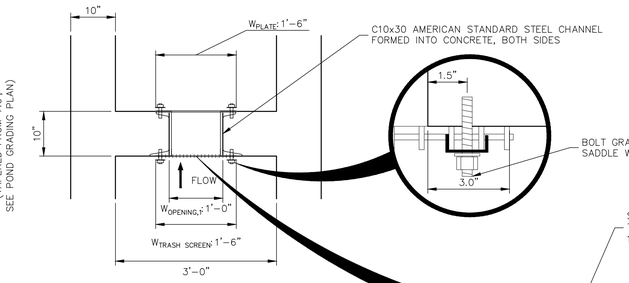
A SECTION A AT ORIFICE (FRONT) WALL
SCALE: 3/4"=1'



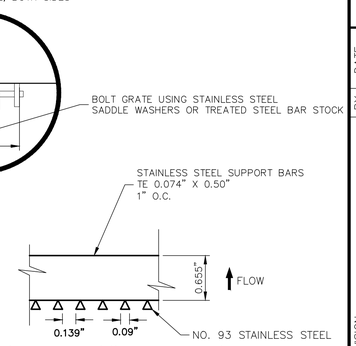
B SECTION B AT OUTLET (REAR) WALL
SCALE: 3/4"=1'



POND H OUTLET
STRUCTURE – PLAN
SCALE: 3/4"=1'



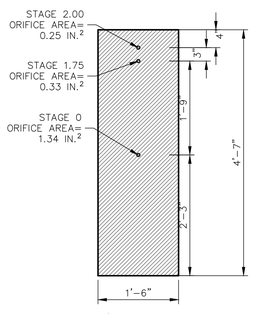
WQCV TRASH SCREEN AND PLATE
DETAIL (PLAN)
SCALE: 3/4"=1'



R VALUE = (NET OPEN AREA)/(GROSS RACK AREA) = 0.60

TRASH SCREEN DETAIL
N.T.S.

EURV/WQCV ORIFICE PLATE:
4'-7" x 1'-6" x ½" THICK FLOW GALVANIZED STEEL FLOW CONTROL PLATE. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE. BOLT PLATE TO CONCRETE @ 12" MAX O.C., 1½" FROM PLATE EDGE.



WQCV/EURV ORIFICE
PLATE DETAIL
SCALE: 3/4"=1'

3/4" 3/8" 0 3/4"
HORIZONTAL
ORIGINAL SCALE: 1" = 3/4"'
VERTICAL
ORIGINAL SCALE: 1" = 3/4"'

ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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H-SCALE	3/4" = 1'
V-SCALE	3/4" = 1'
DATE	01/03/19
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DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND H OUTLET STRUCTURE DETAILS

SHEET 39 OF 50

JOB NO. 2514202

X:\2510000 all\2514202\Drawings\Sheet Dwgs\CDs\2514202DS01_POND H.dwg, DT01, 12/31/2018 8:53:32 AM, CS

COLORADO
Division of Water Resources
Department of Natural Resources
www.water.state.co.us P 303.866.3581

NON-JURISDICTIONAL WATER IMPOUNDMENT STRUCTURE[1]

This notice is required per Section 37-87-125, C.R.S. (1998) and
must be submitted to the Division Engineer's Office a minimum of 45 days prior to construction.

OWNER INFORMATION

Name: ROI PROPERTY GROUP, LLC Telephone/E-Mail: (719) 593-2593 / BRADY@WHITMIRECAPITALADVISORS.COM

Address: 2495 RIGDON STREET NAPA CA 94558
Street / P.O. Box/ Rural Route City State Zip Code

Responsible Person: BRADY WILLIAMS Telephone/E-Mail: (360) 989-5395 / BRADY@WHITMIRECAPITALADVISORS.COM

Address: 2495 RIGDON STREET NAPA CA 94558
Street / P.O. Box/ Rural Route City State Zip Code

Contractor: TO BE DETERMINED. Telephone/E-Mail: (TO BE DETERMINED.

STRUCTURE INFORMATION

Name of Dam: SADDLEHORN RANCH FILING 1 - POND I Water Division: 2 Water District: 10

Location: *(Provide Section, Township, Range, **and** GPS Point taken at crest of dam above streamline/outlet)*

- Section: 10, Township: 13S, Range: 64W, 6th P.M.
- Northing 14139990.94 meters, Easting 1769427.22 meters (*Datum should be UTM, NAD 83)*

Dam Dimensions:

- Vertical Height[2]: 5.4 ft., Length: 850 ft., Crest Width: 30 ft., Slopes: U/S: 3 (H:1V), D/S 4 (H:1V)

Reservoir:

- Surface Area[1]: 0.59 acres, Capacity[1]: 1.356 acre-feet, Drainage Area*: 38.04 acres
(If drainage area is unknown leave blank and a spillway size will be assigned):

Emergency Spillway: *(See Table 1, Spillway Sizing Guidelines)*

- Bottom Width: 20 ft., Side Slopes: 4 H:1V, Freeboard[3]: 1.82' ft

Outlet Conduit Type: RCP, Size: 18" inches, Location: INTO NATURAL CHANNEL

Stream Name or Water Source[4]: HAEGLER RANCH TRIB. 6 Proposed Water Use: WATER QUALITY & DETENTION

Water Court Case ***or*** WDID : _____
(Water District Identification Number)

Signature of Owner Date

Office Use Only

DIVISION ENGINEER'S REQUIREMENTS: _____

Dam I.D._____ Signature of Division Engineer Date

[1] A "Non-Jurisdictional Structure" is a dam creating a reservoir with a capacity of 100 acre-feet or less *and* a surface area of 20 acres or less *and* a vertical height (footnote 2) of 10 feet or less. Non-jurisdictional size dams are regulated and subject to the authority of the State Engineer consistent with sections 37-87-102 and 37-87-105 C.R.S.

[2] "Vertical Height" is measured from the elevation of the lowest point of the natural surface of the ground or the invert of the outlet conduit (whichever is lower) where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam.

[3] "Freeboard" is the vertical distance from the bottom of spillway to the crest of the dam. Minimum Freeboard is 3 feet.

[4] If construction in reservoir intercepts groundwater, a well permit is required. (Well permit applications can be found at www.water.state.co.us)

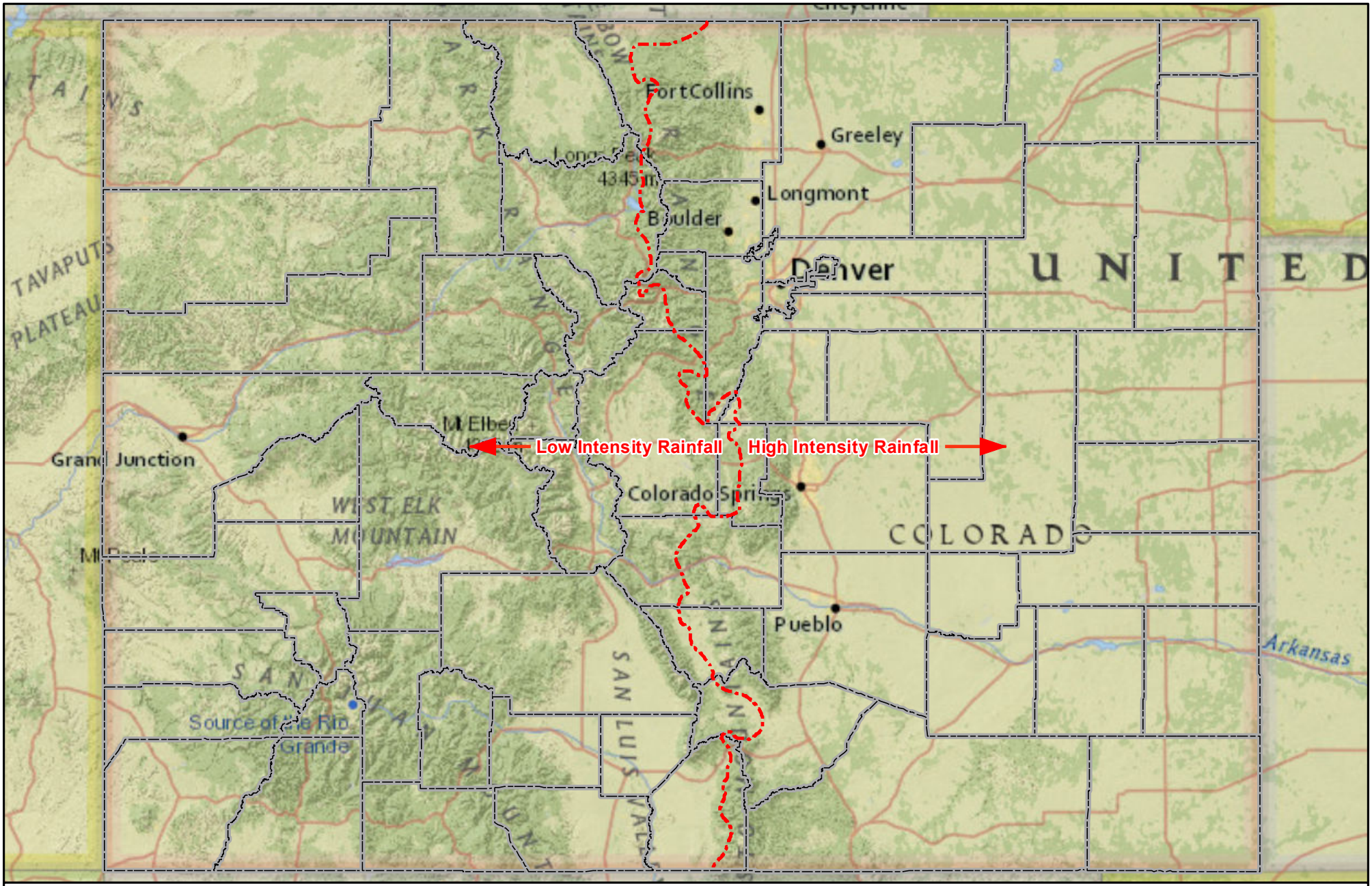
COLORADO
Division of Water Resources
Department of Natural Resources

Table 1 DAM SAFETY BRANCH Spillway Sizing Guidelines for Non-Jurisdictional Dams

Drainage Area (Acres)	Minimum Recommended Bottom Width[1] (Feet) Low Intensity Rainfall Zone	Minimum Recommended Bottom Width[1] (Feet) High Intensity Rainfall Zone
175	8	8
225	8	10
275	8	12
325	8	15
375	10	17
425	11	19
475	12	21
525	13	24
575	15	26
625	16	28
675	17	30
725	19	33
775	20	35
825	21	37
875	22	39
925	24	42
975	25	44
1025	26	46
1075	28	48
1125	29	51
1175	30	53
1225	31	55
1275	33	57
1325	34	59
1375	35	62
1425	37	64
1475	38	66

[1]Minimum recommended bottom width for drainage areas less than 175 acres is 8 feet

Spillway Section



COLORADO
Division of Water Resources
Department of Natural Resources

Rainfall Intensity Zones for Non-Jurisdictional Dam Spillway Sizing

COLORADO
Division of Water Resources
Department of Natural Resources

DAM SAFETY BRANCH Specifications for Construction of Non-Jurisdictional Dams

- Site Selection:
  - Foundation soils should be firm to provide adequate support for the embankment and should have low permeability to allow for water retention. Site selection should consider potential downstream property damage in the event of a dam failure. Construction of dams in boggy areas, areas with non-uniform fractured rock, or sands/gravels is not recommended and an engineer should be hired to evaluate the site conditions. Any part of the reservoir basin excavated below grade cannot expose groundwater.

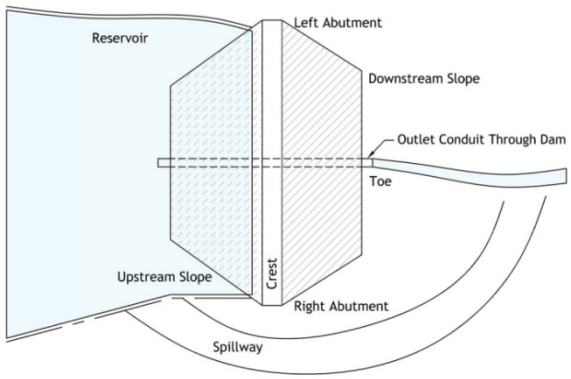
- Embankment Design:
  - Backfill material to be used for construction of the cutoff trench and embankment should be a suitable clay material and contain no material larger than 6 inches in diameter.
  - The upstream slope should be constructed with a slope no steeper than 3:1, and the downstream slope should be no steeper than 2:1 (see cross section below). The dam crest should have a minimum width of 10 feet and the surface should be graded with positive drainage toward the reservoir basin.
  - It is recommended that rock rip rap or other suitable material be placed on the upstream slope of the embankment to protect it from wave action. A suitable gravel or geosynthetic material should be placed under the rip rap to prevent fine material from washing out from behind the larger rock.
  - The embankment should be fenced to restrict livestock from accessing the dam since they damage the protective vegetation and increase erosion.

- Embankment Construction
  - The topsoil and all organic material should be removed from the foundation of the proposed dam site. Organic soil should only be reused for placement on the completed embankment to promote the re-growth of vegetation.
  - A cutoff trench should be excavated under the full length of the centerline of the dam with sloping sides (1:1 min.), a minimum bottom width of 3 feet and a depth of 3 feet.
  - The foundation of the dam should be scarified/ripped to a depth of 6-inches to provide proper contact between the native foundation and embankment. This surface should then be moisture treated before placement of fill.
  - Fill material should be placed in layers not exceeding 12 inches in thickness prior to compaction. Suitable backfill material should have enough clay and moisture content to roll a small ball by hand. If this cannot be done, the soil is likely too dry or does not have adequate clay content.
  - Each lift should be thoroughly compacted using a sheeps foot compactor. Care should be taken not to allow the top layers of the soil to dry out between placement of lifts.
  - Fill should be placed in uniform lifts that cover the entire embankment length and width.

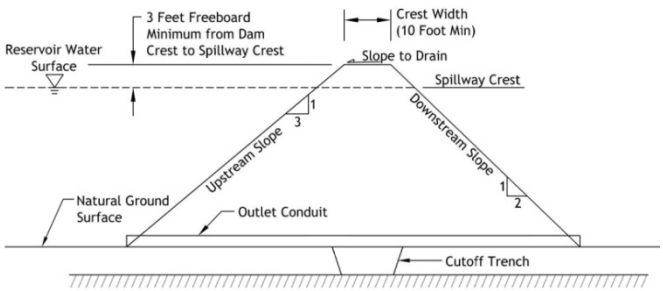
- Outlet
  - Unless a waiver is granted in writing by the Division Engineer, all non-jurisdictional dams require an outlet conduit positioned at the natural low point of the reservoir basin. A minimum diameter of 12 inches is recommended and should be controlled at the upstream end by a valve and trash rack.

- Emergency Spillway
  - The spillway should have sufficient width to provide capacity to route the runoff from the drainage basin above the dam during rainfall/runoff events.
  - The emergency spillway should be located on natural ground far enough away to prevent erosion of the dam embankment. A spillway over the dam embankment is not acceptable.
  - A minimum of 3 feet of freeboard is required from the bottom of the emergency spillway to the top of the dam.
  - To determine the minimum spillway width, see the attached table for your area and drainage basin size.

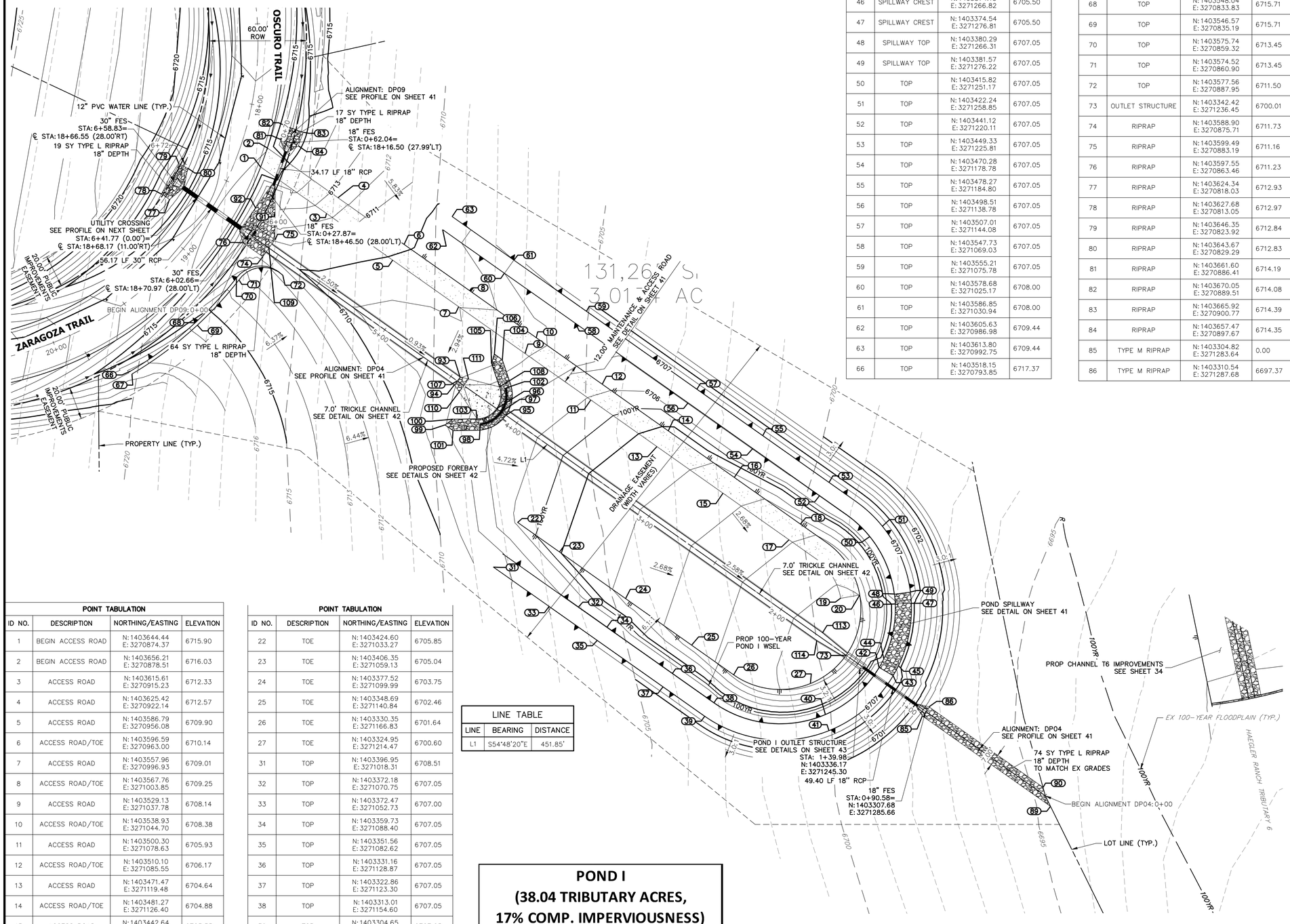
- Example Plan View and Cross Section



Plan View



Cross Section Through Dam at Outlet



POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
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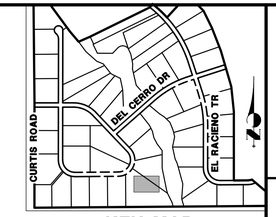
46	SPILLWAY CREST	N: 1403374.15 E: 3271266.82	6705.50
47	SPILLWAY CREST	N: 1403374.54 E: 3271276.81	6705.50
48	SPILLWAY TOP	N: 1403380.29 E: 3271266.31	6707.05
49	SPILLWAY TOP	N: 1403381.57 E: 3271276.22	6707.05
50	TOP	N: 1403415.82 E: 3271251.17	6707.05
51	TOP	N: 1403422.24 E: 3271258.85	6707.05
52	TOP	N: 1403441.12 E: 3271220.11	6707.05
53	TOP	N: 1403449.33 E: 3271225.81	6707.05
54	TOP	N: 1403470.28 E: 3271178.78	6707.05
55	TOP	N: 1403478.27 E: 3271184.80	6707.05
56	TOP	N: 1403498.51 E: 3271138.78	6707.05
57	TOP	N: 1403507.01 E: 3271144.08	6707.05
58	TOP	N: 1403547.73 E: 3271069.03	6707.05
59	TOP	N: 1403555.21 E: 3271075.78	6707.05
60	TOP	N: 1403578.68 E: 3271025.17	6708.00
61	TOP	N: 1403586.85 E: 3271030.94	6708.00
62	TOP	N: 1403605.63 E: 3270986.98	6709.44
63	TOP	N: 1403613.80 E: 3270992.75	6709.44
66	TOP	N: 1403518.15 E: 3270793.85	6717.37

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
67	TOP	N: 1403516.44 E: 3270794.89	6717.37
68	TOP	N: 1403548.04 E: 3270833.83	6715.71
69	TOP	N: 1403546.57 E: 3270835.19	6715.71
70	TOP	N: 1403575.74 E: 3270859.32	6713.45
71	TOP	N: 1403574.52 E: 3270860.90	6713.45
72	TOP	N: 1403577.56 E: 3270887.95	6711.50
73	OUTLET STRUCTURE	N: 1403342.42 E: 3271236.45	6700.01
74	RIPRAP	N: 1403588.90 E: 3270875.71	6711.73
75	RIPRAP	N: 1403599.49 E: 3270883.19	6711.16
76	RIPRAP	N: 1403597.55 E: 3270863.46	6711.23
77	RIPRAP	N: 1403624.34 E: 3270818.03	6712.93
78	RIPRAP	N: 1403627.68 E: 3270813.05	6712.97
79	RIPRAP	N: 1403646.35 E: 3270823.92	6712.84
80	RIPRAP	N: 1403643.67 E: 3270829.29	6712.83
81	RIPRAP	N: 1403661.60 E: 3270886.41	6714.19
82	RIPRAP	N: 1403670.05 E: 3270889.51	6714.08
83	RIPRAP	N: 1403665.92 E: 3270900.77	6714.39
84	RIPRAP	N: 1403657.47 E: 3270897.67	6714.35
85	TYPE M RIPRAP	N: 1403304.82 E: 3271283.64	0.00
86	TYPE M RIPRAP	N: 1403310.54 E: 3271287.68	6697.37



KEY MAP
N.T.S.

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
1	BEGIN ACCESS ROAD	N: 1403644.44 E: 3270874.37	6715.90
2	BEGIN ACCESS ROAD	N: 1403656.21 E: 3270878.51	6716.03
3	ACCESS ROAD	N: 1403615.61 E: 3270915.23	6712.33
4	ACCESS ROAD	N: 1403625.42 E: 3270922.14	6712.57
5	ACCESS ROAD	N: 1403586.79 E: 3270956.08	6709.90
6	ACCESS ROAD/TOE	N: 1403596.59 E: 3270963.00	6710.14
7	ACCESS ROAD	N: 1403557.96 E: 3270996.93	6709.01
8	ACCESS ROAD/TOE	N: 1403567.76 E: 3271003.85	6709.25
9	ACCESS ROAD	N: 1403529.13 E: 3271037.78	6708.14
10	ACCESS ROAD/TOE	N: 1403538.93 E: 3271044.70	6708.38
11	ACCESS ROAD	N: 1403500.30 E: 3271078.63	6705.93
12	ACCESS ROAD/TOE	N: 1403510.10 E: 3271085.55	6706.17
13	ACCESS ROAD	N: 1403471.47 E: 3271119.48	6704.64
14	ACCESS ROAD/TOE	N: 1403481.27 E: 3271126.40	6704.88
15	ACCESS ROAD	N: 1403442.64 E: 3271160.34	6703.35
16	ACCESS ROAD/TOE	N: 1403452.44 E: 3271167.26	6703.59
17	ACCESS ROAD	N: 1403413.81 E: 3271201.19	6702.07
18	ACCESS ROAD/TOE	N: 1403423.61 E: 3271208.11	6702.31
19	ACCESS ROAD	N: 1403377.66 E: 3271233.11	6700.77
20	ACCESS ROAD/TOE	N: 1403379.70 E: 3271244.93	6701.01

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
22	TOE	N: 1403424.60 E: 3271033.27	6705.85
23	TOE	N: 1403406.35 E: 3271059.13	6705.04
24	TOE	N: 1403377.52 E: 3271099.99	6703.75
25	TOE	N: 1403348.69 E: 3271140.84	6702.46
26	TOE	N: 1403330.35 E: 3271166.83	6701.64
27	TOE	N: 1403324.95 E: 3271214.47	6700.60
31	TOP	N: 1403396.95 E: 3271018.31	6708.51
32	TOP	N: 1403372.18 E: 3271070.75	6707.05
33	TOP	N: 1403372.47 E: 3271052.73	6707.00
34	TOP	N: 1403359.73 E: 3271088.40	6707.05
35	TOP	N: 1403351.56 E: 3271082.62	6707.05
36	TOP	N: 1403331.16 E: 3271128.87	6707.05
37	TOP	N: 1403322.86 E: 3271123.30	6707.05
38	TOP	N: 1403313.01 E: 3271154.60	6707.05
39	TOP	N: 1403304.65 E: 3271149.09	6707.05
40	TOP	N: 1403305.72 E: 3271223.71	6707.05
41	TOP	N: 1403295.83 E: 3271225.95	6707.04
42	SPILLWAY TOP	N: 1403334.79 E: 3271256.88	6707.05
43	SPILLWAY TOP	N: 1403329.68 E: 3271265.48	6707.05
44	SPILLWAY CREST	N: 1403340.22 E: 3271259.80	6705.50

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S54°48'20"E	451.85'

POND I (38.04 TRIBUTARY ACRES, 17% COMP. IMPERVIOUSNESS)		
DESIGN STORM	STORAGE	STAGE
WQCV (AC-FT)	0.325	6702.97
EURV (AC-FT)	0.233	6703.76
100-YEAR (AC-FT)	0.797	6705.5

POND I GRADING NOTES

1. ALL RIPRAP IS TYPE L (18" DEPTH) UNLESS OTHERWISE NOTED.

30 15 0 30
ORIGINAL SCALE: 1" = 30'

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

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

DATE

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

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

PREPARED FOR
ROI PROPERTY GROUP, LLC
2495 RIGDON STREET
NAPA, CALIFORNIA
(707) 365-6891
BRADY WILLIAMS

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" = 30'
V-SCALE	NA
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	RPD
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND I GRADING PLAN

SHEET 40 OF 50

JOB NO. 2514202

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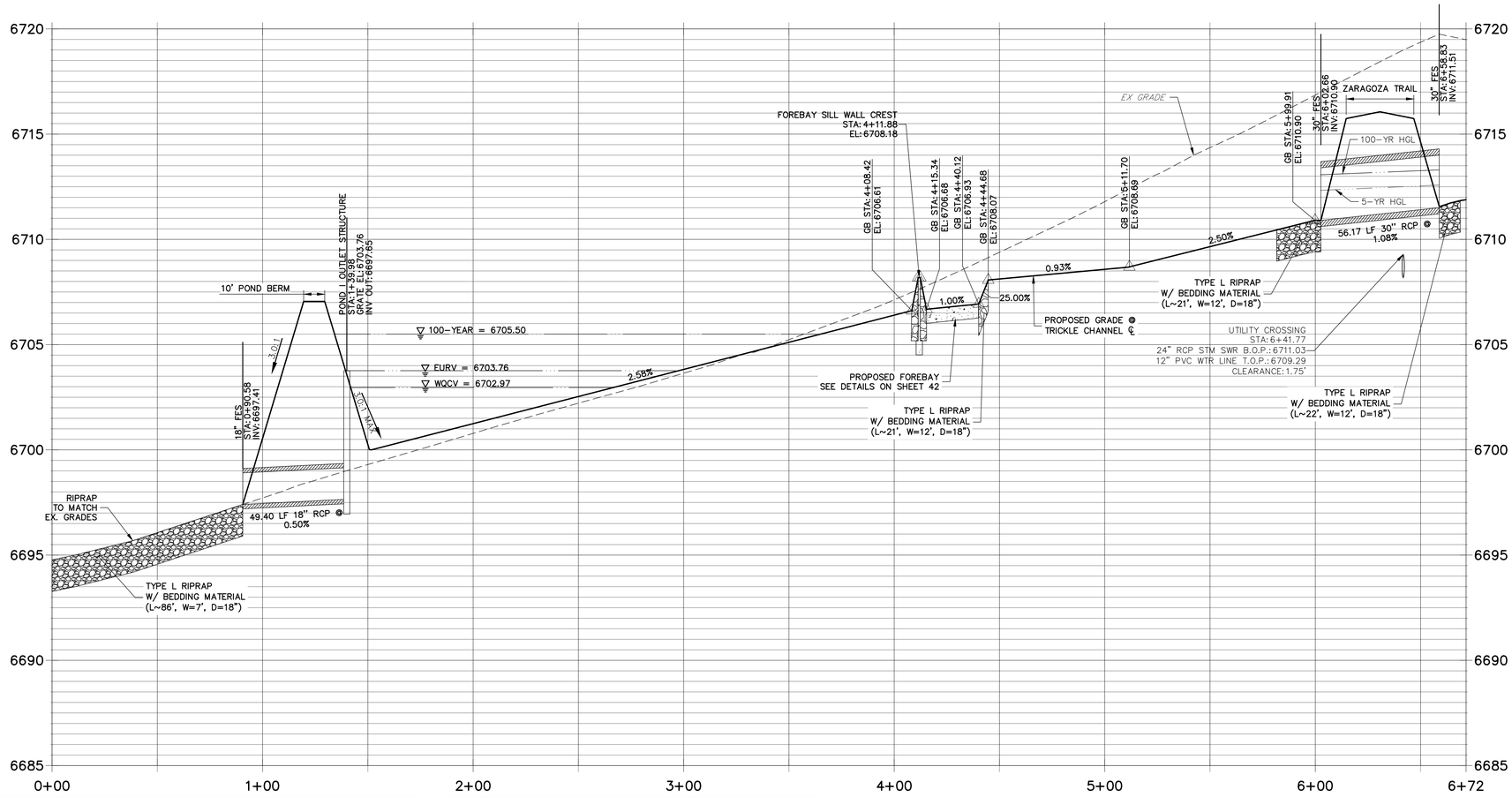
DP04 PROFILE
STA 0+00.00 TO 6+71.61



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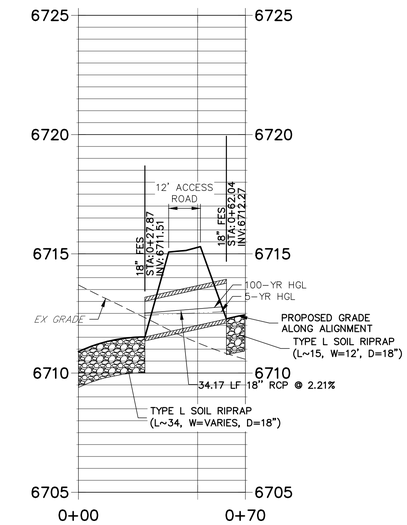

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
89	RIPRAP/MATCH EX	N: 1403248.89 E: 3271362.90	6694.68
90	RIPRAP/MATCH EX	N: 1403260.78 E: 3271358.20	6694.77
91	RIPRAP	N: 1403616.14 E: 3270883.30	6712.42
92	RIPRAP	N: 1403619.25 E: 3270871.27	6712.95
93	END TRICKLE CHANNEL/BEGIN FOREBAY CONCRETE	N: 1403514.56 E: 3270997.71	6708.07
94	END TRICKLE CHANNEL/BEGIN FOREBAY CONCRETE	N: 1403509.66 E: 3270994.25	6708.07
95	BEGIN TRICKLE CHANNEL/INV.	N: 1403490.90 E: 3271026.05	6706.61
96	EDGE OF CONCRETE/BOTTOM OF BERM	N: 1403494.90 E: 3271020.30	6706.68
97	CREST OF WEIR WALL	N: 1403492.88 E: 3271023.16	6708.18
98	CREST/END OF WEIR WALL	N: 1403485.23 E: 3271010.24	6708.18
99	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403484.86 E: 3270988.35	6708.06
100	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403488.43 E: 3270993.30	6707.66
101	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403481.43 E: 3270993.39	6707.85
102	CREST/END OF WEIR WALL	N: 1403507.70 E: 3271025.97	6708.18
103	EDGE OF CONCRETE/BOTTOM OF BERM	N: 1403488.62 E: 3271008.26	6706.68
104	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403525.16 E: 3271023.81	6708.40
105	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403522.92 E: 3271017.18	6708.12
106	BOTTOM OF BERM/EDGE OF RIPRAP	N: 1403528.78 E: 3271018.89	6708.71
107	TRICKLE CHANNEL INV.	N: 1403512.11 E: 3270995.98	6708.07
108	EDGE OF CONCRETE/BOTTOM OF BERM	N: 1403508.45 E: 3271022.09	6706.68

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
109	BEGIN TRICKLE CHANNEL	N: 1403594.20 E: 3270879.45	6710.60
110	BEGIN FOREBAY CONCRETE/END RIPRAP	N: 1403505.25 E: 3270997.19	6707.78
111	BEGIN FOREBAY CONCRETE/END RIPRAP	N: 1403513.28 E: 3271002.85	6707.78

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

ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING

COLORADO REGISTERED MIKE A. BRAMLETT 32314 PROFESSIONAL ENGINEER

MIKE A. BRAMLETT, P.E. DATE
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC

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Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE	1" = 30'
V-SCALE	1" = 3'
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	RPD
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND 1 GRADING PLAN

SHEET 41 OF 50

JOB NO. 2514202

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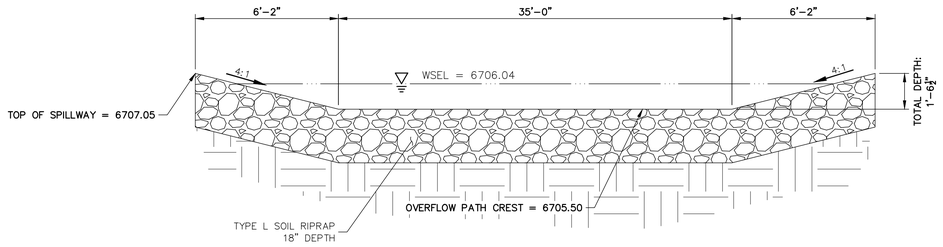

POND I EMERGENCY SPILLWAY

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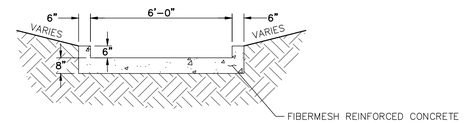

POND TRICKLE CHANNEL (ALL PONDS)

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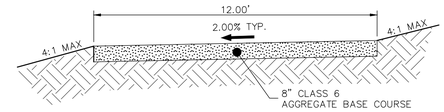

GRAVEL MAINTENANCE ACCESS ROAD TYPICAL SECTION

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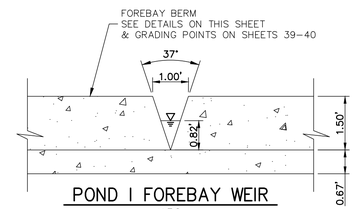

POND I FOREBAY WEIR

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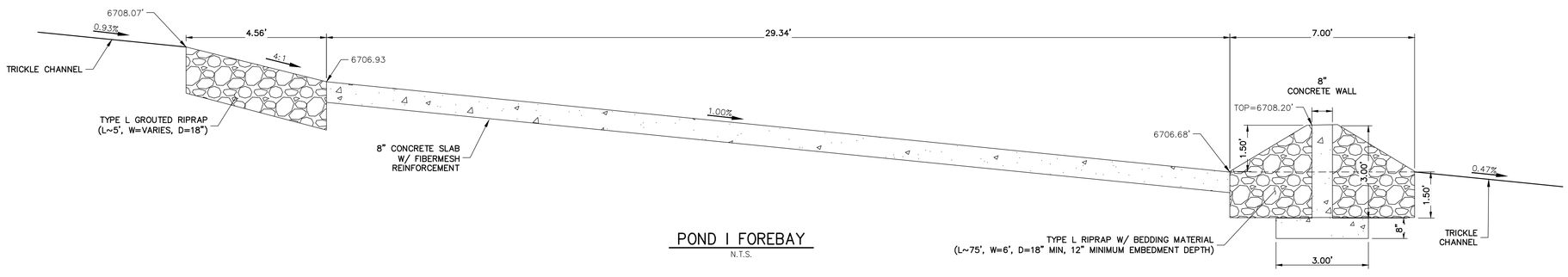

POND I FOREBAY

N.T.S.

20 10 0 20 40

HORIZONTAL
ORIGINAL SCALE: 1" = 20'
VERTICAL
ORIGINAL SCALE: 1" = 2'

Know what's **below.**
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COLORADO REGISTERED PROFESSIONAL ENGINEER MIKE A. BRAMLETT 32314

MIKE A. BRAMLETT, P.E.
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No.	REVISION	BY	DATE

H-SCALE	VARIES
V-SCALE	VARIES
DATE	01/03/19
DESIGNED BY	NQJ
DRAWN BY	NQJ
CHECKED BY	

SADDLEHORN RANCH – FILING 1

POND I DETAILS

SHEET 42 OF 50

JOB NO. 2514202

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